

Albrecht Dürer, Institutiones geometricae, 1532

D 1

Daboll, Nathan (1750–1818)

Daboll's schoolmaster's assistant: improved and enlarged, being a plain practical system of arithmetic: adapted to the United States

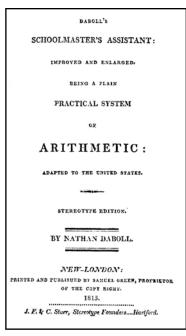
Year: 1815 Place: New London Publisher: Samuel Green Edition: 11th

Language: English

Binding: contemporary leather

Pagination: pp. 240 Collation: 1–20⁶ Size: 161x99 mm

First published in 1800, this school arithmetic textbook remained in print until at least 1841. It begins with simple operations illustrated with *Federal Money* examples (10 mills = 1 cent, 10 cents = 1 dime, ... 10 dollars = 1 Eagle). Mixed radix arithmetic is illustrated with sterling, apothecaries' weights, cloth measure, wine measure,



time, etc. Daboll includes formulae for converting money from several U.S. states, Canada, Nova Scotia, and England. The majority of the work consists of examples of the rule of three, interest, extraction of roots and similar exercises. An appendix gives tables for the weights of various gold coins, values of annuities, etc.

Illustrations available:
Title page
Currency conversion formulae

Daggett, N. L. and E. S. Rich

See **Institute of Radio Engineers**; Diagnostic programs and marginal checking the Whirlwind I computer. In Convention Record of the I. R. E. Part 7 - Electronic computers. March 23–26, 1953.

D 2 **Danfrie, Philippe** (c.1532 – c.1606)

Declaration de l'usage du graphomètre par la pratique duq[ue] l'on peut mesurer toutes distances des choses de remarque qui se pourront voir & discerner du lieu ou il sera posé: et por arpenter terres, bois, prez, & faire plans de villes et fortresses, cartes geographique, & generalment toutes mesures visibles: & ce sans reigle d'arithmetique. Inventé nouvellement, et mis en lumiere par Philippe Danfrie ... A la fin de ceste declaration est adiousté par ledict Danfrie un traicté de l'usage du trigometre qui est un autre instrument ayant presque pareil usage, aussi sans reigle d'arithmetique.

Year: 1597
Place: Paris
Publisher: Danfrie
Edition: 1st
Language: French
Figures: 2 single-page illustrations of instruments
Binding: contemporary vellum

Pagination: pp. 92, 34, [2] Collation: A–M⁴0–R⁴ Size: 188x128 mm Reference: Mort *HFB*, p. 163

Philippe Danfrie was a printer and engraver for the French mint. He has been credited with the copper engravings in this work and also for his use of the unusual Granjon Civilité type. This volume is noteworthy not only because of its fine printing, but also because it marks a significant shift in the usage of surveying instruments. Previously, surveyors had relied on sightings involving right-angle triangles. The instruments, such as the Graphometre, described in the first portion of this volume, are essentially modifications of the astrolabe. In this instance, Danfrie eliminated the lower half of the astrolabe and installed a fixed alidade in addition to the movable one.

The second instrument described in this work, the Trigometre, was a derivative of the Trigonus, whose origins go back to antiquity. Ptolemy used the instrument, and **Oronce Finé** illustrates it in his *Quadratura circuli, tandem inventa & clarissimè demonstrata ...*, Paris, 1544. The instrument was composed of three rules, two of which are attached to the ends of the third. The shift to instruments relying on similar triangles (or at least the creation of a similar triangle on the plane table) had started about fifty years before this volume was published, but Danfrie's Trigometre instrument marked the real turning point in its adoption. This instrument was easy to use and required less mathematical knowledge than quadrant-like devices. They were rapidly adopted

and many, mostly trivial, modifications were made to the basic design by other authors. Danfrie's instrument is also notable in that the tripod had a form of universal joint that allowed the device to be set in any plane.

Some book dealers have noted two issues for this work, both in 1597.

Illustrations available:

Title page

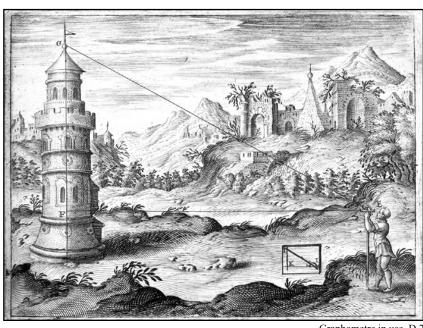
Graphometre

Graphometre in use

Trigometre, parts of

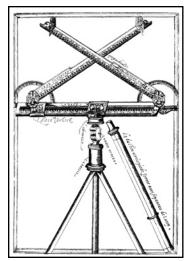
Trigometre on its tripod

Trigometre in use



Graphometre in use, D 2





Trigometre, D 2

D 3 **Danti, Egnatio** (1536–1586)

Primo volume dell'uso et fabbrica dell'astrolabio, et del planisferio... Nuovamente ristampato & accresciuto in molti luoghi, con l'aggiunta dell'uso & fabbrica di nove altri istromenti astronomici, come nella faccia seguente si contiene

Year: 1578 Place: Florence Publisher: I. Giunti Edition: 2nd Language: Italian

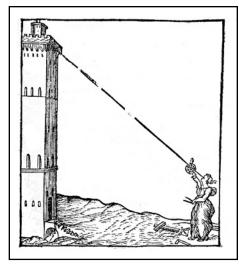
Binding: contemporary gilt-stamped leather

Pagination: pp. [16], 325, [3] Collation: a-b⁴A-2S⁴ Size: 210x142 mm

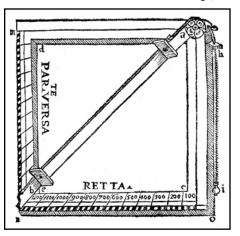
Reference: Rcdi *BMI*, Vol. I, p. 389; Win *ESTC*, p. 210; Adm *BPM*, 124; H&L, #3288

Egnatio Danti was a prominent Florentine mathematician, map and instrument maker. While in the service of Cosimo de Medici, he spent twelve years executing maps of the world on the walls of the Palazzo Vecchio in Florence. He also designed the mural quadrant for the façade of the church of Santa Maria Novella. Later he carried out a similar map-making project for the Vatican. In appreciation, Cosimo appointed Danti to the position of professor of mathematics at Pisa. In the 1570s, Danti was also known as an authority on reform of the calendar, having observed, in 1574, that the equinox actually occurred eleven days earlier than called for. After Cosimo died (1574), Danti, who did not get on well with his successor, moved to Bologna, where, in 1577, he became professor of mathematics.





Astrolabe usage, D 3



Geometric square, D 3

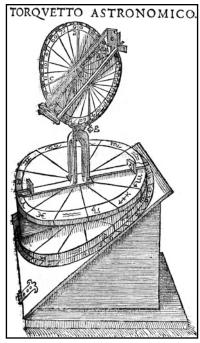
This second edition of Danti's work on the astrolabe contains considerable material not found in the first edition of 1569 (it is enlarged by about one hundred pages) dealing mainly with descriptions of a number of smaller instruments. The main text concerns the astrolabe and its use in both astronomical and terrestrial calculations. Starting from an armillary sphere, Danti explains how the individual circles can be mapped into a plane and thus the rete and plates created. After dealing with the standard astrolabe, he describes the **Rojas** form of the universal astrolabe. At least one authority states that Danti was inspired to become an instrument maker after reading the works of **Juan de Rojas Sarmiento**.

Later sections of the work describe related instruments such as a Torquetum (a surveying and astronomical instrument similar to, and a precursor of, the theodolite), a geometric square for surveying, and a large quadrant that Danti had created as part of the church of Santa Maria Novella in Florence. Danti had used this quadrant in his

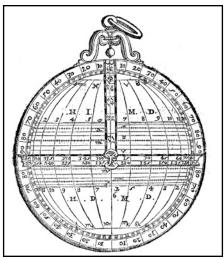
studies of the movement of the sun and established the error of the Julian calendar as being eleven days. Danti made at least two instruments as part of this church, and they became quite famous, being mentioned by other writers (see entry for **Gallucci, Giovanni Paolo**; *Della fabrica*, 1598).

Illustrations available:

Title page
Finding heights of towers using the astrolabe
Rojas astrolabe
Torquetum
Geometric square
Santa Maria quadrant
Colophon and register



Torquetum, D3



Rojas astrolabe, D 3

D 4

Danti, Egnatio (1536–1586) [**Latino Orsini** (1537–1586)]

Trattato del radio Latino istrumento giustissimo & facile piu d'ogn'altro per prendere qual si voglia misura, & positione di luogo' tanto in cielo, come in terra. Il quale oltre alle operatione proprie sue fa anco tutte quelle della gran regola di C. Tolomeo, & dell' antico radio astronomica. Inventato d'all'ill.mo et eccell.mo Signor Latino Orsini

Year: 1583 Place: Rome

Publisher: Vincentio Accolti

Edition: 1st Language: Italian

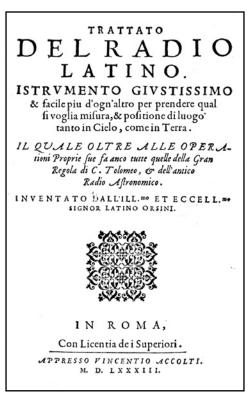
Figures: 14 engraved plates

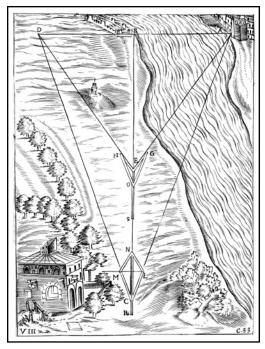
Binding: limp vellum; end papers renewed

Pagination: pp. [viii], 72 Collation: ¥⁴A–I⁴ Size: 226x153 mm

Reference: Rcdi BMI, Vol. I, p. 393; Ben GW, p. 66

This is a revised version of Latino Orsini's *Trattato del radion latino*. Unfortunately, the collection does not include a copy of the first edition, so it has not been possible to compare them to determine Danti's additions. The engravings illustrating the instrument in use are very clear. The device is a compact version of the usual geometric square. The radio latino was a sighting instrument composed of five hinged pieces with sights



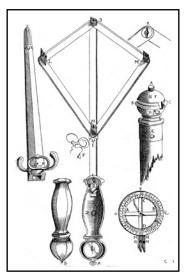


Survey application, D 4

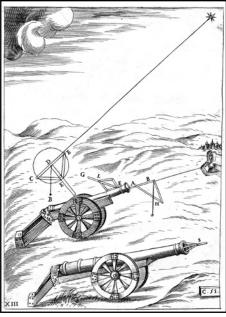
on each of the hinges. The central support was engraved with scales, similar to those on a Jacob's staff, which would permit sighting of angles between objects. The radio latino had the advantage over other geometric squares in that it was a compact design that could be easily folded and inserted into a sword-like scabbard.

Illustrations available:

Title page Radio latino instrument 1 Radio latino instrument 2 Survey application Ballistics application Registration



Radio latino, D 4



Ballistics application, D 4

D 5

Danti, Egnatio (1536–1586)

Trattato dell'uso et della fabbrica dell'astrolabio ... con l'aggiunta del planisfero del Rojas

Year: 1569 Place: Florence Publisher: I. Giunti Edition: 1st Language: Italian

Figures: 23 engraved illustrations Binding: modern vellum over boards

Pagination: pp. [8], 136, 139–194 (misnumbered pp. 3–8 as 2–4, 44 as 48, 50 as 42, 51 as 43, 54 as 46, 55 as 47, 70 as 64, 71 as 69, pp. 137/38 omitted), 38, [10]

Collation: $A-Z^4\&^4Q^42A-2F^4$

Size: 220x150 mm

Reference: Ada *CBCE*, 123; Bru *MLAL II*, 519; Gra *TLR II*, 335; Gamba, 440; Parenti, p. 188; Rcdi *BMI* Vol. I, p. 389; Cro *CL*, #67, p. 78

This is Egnatio Danti's first published work. See the entry for Danti, *Primo volume*, 1578, that describes the second edition of this work. This first edition includes the discussion of the Rojas astrolabe but does not include the material on the minor instruments or the translations of other works.

This work contains Danti's very accurate calculation of the obliquity of the ecliptic—that is, the inclination of the plane of the ecliptic to the plane of the equator. Danti arrived at a value of 23 degrees, 28 minutes, compared to modern calculations of 23 degrees, 32 minutes.



Danti, Egnatio, translator

See Larisseo, Eliodoro; La prospettiva di Euclide, nella quale si tratta di quelle sose, che per raggi diritti si veggono: & di quelle, che con ragi restessi nelli specchi appariscono.

D 6

Dantzig, Tobias (1884–1956) - [**Georges Cros**, translator]

Le nombre. Langage de la science

Year: 1931 Place: Paris Publisher: Payot Edition: 1st (French) Language: French Binding: original paper wrappers Pagination: pp. 248, [4] Collation: 1–158167(-168) Size: 228x142 mm

This is the French translation of the first edition of Dantzig's *Number, the language of science*. This first edition was also translated into German and Russian, but these are not in the collection.

Illustrations available: Title page D 7

Dantzig, Tobias (1884–1956)

Number, the language of science

Year: 1930 Place: London

Publisher: George Allen & Unwin

Edition: 1st Language: English

Figures: 11 photographic plates Binding: original cloth boards; gilt spine

Pagination: pp. xii, 260 Size: 216x136 mm

Dantzig was a professor of mathematics at the University of Maryland.

He clearly states in the preface that he regards this book not as a mathematical work but as a cultural work dealing with numbers. He investigates numbers, number systems and mathematical ideas about numbers, primarily from a historical point of view. While starting with the origin of numbers and the symbols, he quickly moves to ideas such as infinite, transcendental numbers and ends with a philosophical chapter on how the number concept relates to our senses. The work is well regarded and remains in print over seventy years after its first publication.

Illustrations available: Title page



BY
TOBIAS DANTZIG, Ph. D.
Professor of Mathematics, University of Maryland

LONDON
GEORGE ALLEN & UNWIN LTD
MUSEUM STREET

Dantzig, Tobias (1884–1956)

Number, the language of science. A critical survey written for the cultured non-mathematician

Year: 1949 Place: New York Publisher: Macmillan Edition: 3rd Language: English

Binding: original cloth boards Pagination: pp. xiv, 320 Size: 210x133 mm

A second (1932) edition of this work was updated to correct only minor errors and omissions. This third edition was augmented by twenty-six short articles in an appendix. These cover additional material suggested by readers, usually explaining minor points that Dantzig did not choose to introduce into the main text.

Illustrations available: Title page

D 9

Darling, John (17th century)

The carpenters rule made easie: or, the art of measuring supeficies and solids: Also a second way being the ground-work for measuring timber, stone, board, glass, &c. With a table of account, much enlarged, performing multiplication and division, in arithmetick and geometry, by inspection into the golden rule, and rule reverse. It being of excellent use for carpenters, joyners, masons, glasiers, painters, sawyers, or any that shall have occasion to buy or sell, performed by tables for that purpose ... And the addition of a short treatice of practical guaging, improv'd, shewing a compendious and easie way to attain that useful art. by Heber Lands

b/w: **Lands, Heber**; A short treatise of practical gauging, shewing a plain and easie method to attain that useful art.

Year: 1709 Place: London

Publisher: J. How for G. Sawbridge

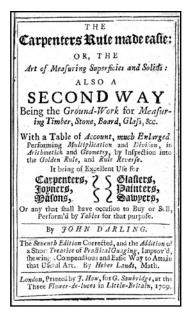
Edition: 7th
Language: English
Binding: half bound leather

Pagination: pp. [10], 240, 217–242, [2], 102, [2]

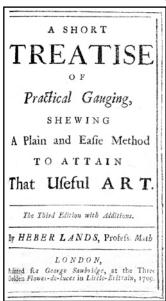
Collation: $A^5B-L^{12}M^{13}N^{11}O-Q^{12}R^6$ (M6 mislabelled as M5)

Size: 150x81 mm

This work begins with a description of the two-foot carpenter's ruler. Darling notes: ... I will not therefore trouble you, nor the Book, with any Figure for the same,



D 9



D 9

being so well known unto all. The entire work consists of a description of how to find board-measure and volume of timber. It also contains a large table of the products of integers from 1 to 10,000 times integers from 1 to 100 (multiplicands over 100 are only noted every 10, those over 200 only for each 100, and those over 1,000 only for each 1,000).

There were multiple editions to at least 1711. Apparently the third and subsequent editions contained an appendix on gauging. In this edition, Heber Lands (an otherwise unknown individual, although there is an advertisement at the end indicating that he taught mathematical subjects

in Salisbury-Court in Fleet-street) replaced this with his own work on gauging. This includes two tables of circle area in beer gallons and a table for the finding the perpfery of an ellipsis.

Illustrations available:
Darling title page
Lands title page
Sample page from multiplication table

D 10

Dary, Michael (1613-1679)

Dary's miscellanies: being for the most part, a brief collection of mathematical theorems, from divers authors upon these subjects following.

Year: 1669 Place: London

Publisher: W[illiam] G[odbid] for Moses Pitt et al.

Edition: 1st Language: English

Binding: contemporary leather; heavily repaired and rebacked

Pagination: pp. [xvi], 43, 42-46

Collation: A–D⁸ Size: 145x90 mm

Dary was a tobacco-cutter who had taught himself mathematics. He worked for the government tax office in both Bristol and Newcastle before moving to London. In London he worked with the mathematician **John Collins** and corresponded with Newton (1673) about algebra. He is known to have published several small

DART's MISCELLANIES:

Being, for the most part,

A Brief COLLECTION of

MATHEMATICAL THEOREMS,
From divers Authors upon these
Subjects following.

Of the Inscription and Circumscription of a Circle.
 H. Of plain Triangles.

III. Of Spherical Triangles.

IV. Of the projection of the Sphere in plano.

V. Of Planometry and the Centre of Gravity.

VI. Of Solid Geometry. And (therein) Gauging.
VII. Of the Scale of Ponderofity, alias, the Stilliard.

VII. Of the Scale of Ponderofity, alias, the Stilliard.
VIII. Of the four Compendiums for quadratique

IX. Of Recreative Problems.

By Michael Dary.

London, Printed by W. G. and fold by Mofes Pits at the White-Hart in Little-Britain, Tho. Rookes at the Lamb and Inh-bottle in Grefhamcolledge, and Wil. Birch at the Bible in New-Cheapfide in Moor-fields. 1669. works on mathematical topics. His work also appears in other places; **Taylor** (*Practitioners*) indicates that small parts of **Leybourn**, *Pleasure with profit*, 1694, were written by Dary. He was never a success and relied on patronage all his life.

This work begins with a preface that complains about other authors of gauging books. Most of Dary's concerns are trivial, such as when he indicates about one author:

The word *Frustum Pyramide* I cannot understand, but if he had said Frustum of a Pyramide, he would have been understood by every judicious man.

The main work is made up of a discussion of plane and solid geometry with applications to gauging. Curiously, the last two pages contain five problems for recreation. A folding table gives wine gauging formulae.

Illustrations available: Title page Folding table

D 11

Dasypodius, Konrad [or Konrad Rachfuss] (ca.1530–1600)

AEZIKON [lexikon] seu dictionarium mathematicum, in quo definitiones, & divisiones continentur scientiarum mathematicarum. Arithmeticae, geometrie, astronomiae, logisticae, geodesiae, harmonicae.

Year: 1573 Place: Strasbourg Publisher: Nikolaus Wyriot

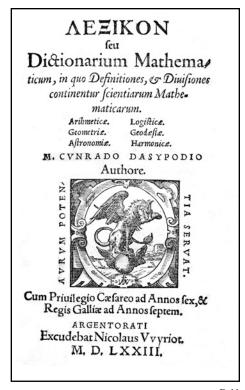
Edition: 1st

Language: Latin and Greek Binding: contemporary vellum Pagination: ff. [8], 47, [1], 44 Collation: **A–F*A–E*F⁴ Size: 148x95 mm

Reference: Zin GBAL, #3649

Dasypodius, a professor of mathematics in Strasburg, is best remembered for the famous astronomical clock he erected in the cathedral. He was under the impression that the study of mathematics was hindered by a lack of good, philologically correct editions of the ancient texts. He produced editions of Euclid and Hero and wrote books on applied mathematics.

This is the first Latin-Greek mathematical dictionary. It precedes the more famous work of **Vitali** (1688) by over a century. The first half of the book is in Latin, and second half is in Greek, each explaining mathematical terms.



ARGENTORATĪ. Excudebat Nicolaus Vviriot, Antono. M. D. LXXIII.

Colophon, D 11

D 12

David, William King

David's rapid computing system, with key and explanations for home study.

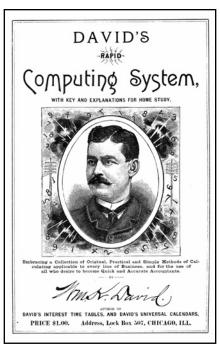
Year: 1883 Place: Chicago Publisher: Author Edition: 1st Language: English

Binding: original printed paper wrappers

Pagination: pp. [32] Size: 228x155 mm

This work teaches basic mental arithmetic. It also includes a section on standard rules for various trades and an interest table.

Illustrations available: Front cover



D 12

D 13 **Davies, Charles** (1798–1876)

Arithmetic, designed for academies and schools, (with answers)

Year: 1846 Place: New York Publisher: A. S. Barnes & Co. Edition: 5th Language: English

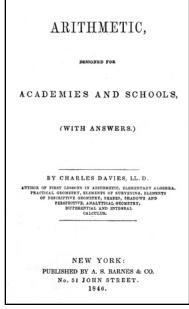
Binding: original leather spine and printed stiff paper boards Pagination: pp. x, 21–30, 2, 31–37, 2, 38–44, 2, 45–55, 2, 56–128, 4,129–188, 2,189–245, 2, 246–248, 2, 249–340

Collation: 1–14¹²15⁶ Size: 170x105 mm

Reference: Karp MWPA, p. 424

Davies wrote a large number of books designed to be used by students—from beginners in arithmetic to those taking college-level courses in algebra, geometry, surveying and calculus.

This is a typical school arithmetic treatment of commercial subjects, although it does consider mensuration, gauging and square roots. **Karpinski** (*Bibliography*) indicates that Davies had written a number of similar works that were replaced by this book. Although copyrighted in 1838 and advertised as early as 1839, the first edition did not appear until 1841, after which it was reissued regularly for many years.



D 14

Davies, Charles (1798–1876)

First lessons in arithmetic, combining the oral method with the method of teaching the combinations of figures by sight. In two parts.

Year: 1853 Place: New York Publisher: A. S. Barnes Edition: 1st Language: English

Binding: original heavy paper boards

Pagination: pp. 198 Collation: 1–16⁶17³(-174) Size: 149x93 mm

Reference: Otnes JOS, v. 7, #2, Fall 1998, pp. 31–33

This volume is a more elementary arithmetic than Davies' 1846 publication.

Illustrations available: Title page

D 15

Davies, Charles (1798–1876)

First lessons in geometry: with practical applications in mensuration, and artificers' work and mechanics.

Year: 1839 Place: Hartford

Publisher: A. S. Barnes, et al.

Edition: 1st Language: English

Binding: contemporary leather; red leather label

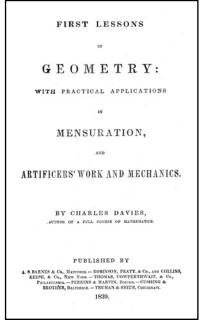
Pagination: pp. 252

Collation: $\pi^2 1 - 7^6 8^{*4} 9 - 21^6$ Size: 189x112 mm

This is a practical book dealing with geometry. Most of the problems are taken from situations that would be encountered by trades people. A one-page explanation is given for multiplication using the "A" and "B" scales and the slide on the underside of the carpenter's rule. Although not illustrated, these are obviously logarithmic scales.

Illustrations available:

Title page



D 15

D 16

Davies, Charles (1798–1876)

The logic and utility of mathematics, with the best methods of instruction explained and illustrated.

Year: 1860 Place: New York Publisher: Barnes and Burr Edition: 1st

Language: English

Binding: original cloth boards; covers embossed

Pagination: pp. 376, [8] Collation: 1–24⁸ Size: 196x119 mm

This is not a work on elementary mathematics but one designed to show how the subject should be taught. It would have been suitable for a teachers' training college text.

Davies, Charles (1798–1876)

The university arithmetic, embracing the science of numbers, and their numerous applications.

Year: 1847 Place: New York Publisher: A. S. Barnes Edition: 2nd Language: English

Binding: contemporary leather; with black leather label

Pagination: pp. xii, 13-399, [1]

Collation: 1–16¹²17⁸ Size: 185x118 mm

This work takes the content of Davies' elementary arithmetic books and illustrates how the subject should be taught. It was designed for use in teachers' training colleges.

Illustrations available:

Title page

UNIVERSITY ARITHMETIC,

EMBRACING THE

SCIENCE OF NUMBERS,

AND THEIR NUMEROUS APPLICATIONS.

BY

CHARLES DAVIES, LL. D.,

AUTHOR OF FIRST LESSON'S IN ARITHMETIC; ARITHMETIC; ELEMENTARY ALGEBRA; ELEMENTARY ORDERTY; ELEMENTS OF DRAWING AND MENSURATION;
ELEMENTS OF SURVEYING; ELEMENTS OF ANALYTICAL GROMERTY; EMBORITY ELEMENTS; SHADOWS,
AND PRESPRICTIVE; AND DIFFERENTIAL AND
INTEGRAL CALCULUS.

NEW YORK:

PUBLISHED BY A. S. BARNES & CO.,
No. 51 JOHN STREET.

D 17

D 18

Davy, John (1790-1868)

A letter from John Davy, M.D., F.R.S., addressed to the editors of the Philosophical Magazine, in continuation of a former one, and accompanied by documentary evidence contributed by Sir James South, F.R.S. and Benjamin Gompertz, Esq., F.R.S., in reply to a certain charge made by Charles Babbage, Esq., F.R.S., against

1847.

the late Sir Humphrey Davy when President of the Royal Society.

Year: 1865 Place: London

Publisher: Philosophical Magazine

Edition: reprint Language: English Binding: disbound Pagination: pp. 4 Size: 210x132 mm

John Davy, the brother of Sir Humphry Davy, studied medicine in Edinburgh and wrote numerous papers on chemical, geological, and meteorological subjects.

The events being discussed in this series of letters had actually occurred nearly forty years earlier. This defense of John Davy's late brother was written in response to an episode recounted in **Charles Babbage**'s recently published autobiography, *Passages from the life of a philosopher*, 1864. It concerns a misunderstanding, in 1826, between Humphry Davy, then president of the Royal Society, and **Babbage** with regard to the position of secretary of the Society. **Babbage** was under the impression that Davy had promised the position to him and had so stated in his memoirs. While the merits of this matter are inconsequential, it serves as an excellent example of the sort of minor dispute in which **Babbage** seemed to find himself regularly embroiled.

Illustrations available: First page

DAY'S AMERICAN READY RECKONER: CONTAINING TABLES FOR RAPID CALCULATIONS AGGREGATE VALUES, WAGES, SALARIES, BOARD, INTEREST MONEY. TIMBER, PLANK, BOARD, WOOD, AND LAND MEASUREMENTS, WITH EXPLANATIONS OF THE PROPER METHODS RECKONING THEM. SIMPLE RULES FOR MEASURING LAND. By B. H. DAY, Esq. THESE TABLES ARE WHOLLY OBIGINAL, AND HAVE BEEN CAREFULLY BEVISED BY AN EXPERT MATHEMATICIAN. NEW YORK:

DICK & FITZGERALD, PUBLISHERS.

Day, Benjamin Henry (1810–1889)

Day's American ready reckoner: containing tables for rapid calculations of aggregate values, wages, salaries, board, interest money, timber, plank, board, wood, and land measurements, with explanations of the proper methods of reckoning them, and simple rules for measuring land.

Year: 1866 Place: New York

Publisher: Dick & Fitzgerald

Edition: unknown Language: English

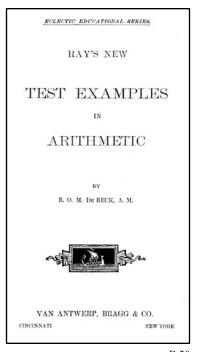
Binding: original printed paper boards Pagination: pp. [4 adverts], 192, [18 adverts]

Collation: $\pi^2 1 - 12^8 \chi^9$ Size: 162x104 mm

Little is known about the author.

This is a ready reckoner for interest, wages, timber calculations and land areas.

Illustrations available: Title page



D 20

D 20

De Beck, B. O. M.

Ray's new test examples in arithmetic

Year: 1883 Place: Cincinnati

Publisher: Van Antwerp, Bragg & Co.

Edition: unknown

Language: English

Binding: original paper boards Pagination: pp. 219, [1], [4]

Collation: 1–14⁸ Size: 170x116 mm

This book is a series of problems in elementary arithmetic. It was designed for use by teachers setting drill and test questions. It was part of the Eclectic Press series of textbooks (fourteen as of this date) on mathematical subjects from elementary arithmetic to geometry, astronomy and calculus.

Illustrations available: Title page

D 21

Debéron, Marcel

Théorie et mode d'emploi des planimètres et intégrateurs mécaniques

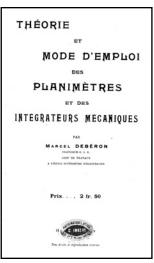
Year: ca. 1920 Place: Paris Publisher: H. Morin Edition: 1st Language: French

Binding: paper wrappers, badly damaged

Pagination: pp. 48 Size: 240x156 mm

As indicated by the title, this manual describes the theory and use of planimeters and other integrating machines. The machines described were manufactured by the firm of H. Morin in Paris, and it is not surprising to learn the work was edited by H. Morin and has a preface by him. The same manual is to be found bound with **Coradi, G.**; *Les planimètres*, 1904.

Illustrations available: Title page



Debéron, Marcel

Théorie et mode d'emploi des planimètres et intégrateurs mécaniques

b/w: Coradi, G.; Les planimètres, 1904

Year: ca.1920 Place: Paris Publisher: H. Morin Edition: 1st Language: French

Binding: modern half morocco leather

Pagination: pp. 48 Size: 220x135 mm

See the earlier entry for **Debéron**, **Marcel**. This is another copy.

Illustrations available: Title page

D 23

DeChales, Claude François Milliet (1621–1678)

L'art de naviger demontré par principes & confirmé par plusiers observations tirées de l'experience.

Year: 1677 Place: Paris

Publisher: Estienne Michallet

Edition: 1st Language: French Figures: 1 folding plates Binding: contemporary vellum

Pagination: pp. [20], 274 (mis# 273 as 263, 274 as 264), 54

Collation: $a^4 \dot{e}^4 i^2 A - 2L^4 2M^1 \chi^{27}$ Size: 245x188 mm

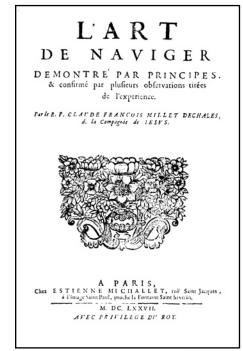
DeChales was educated by (and spent his life in) the Jesuit order. He was sent as a Jesuit missionary to Turkey and, when he returned to France, taught mathematics in several places, including Paris and Lyon. He became a professor in Marseilles and there taught navigation, military engineering, etc. He later became a professor of mathematics in Turin. He is not known for the originality of his work but rather for his ability to teach and write clear explanations of technical topics.

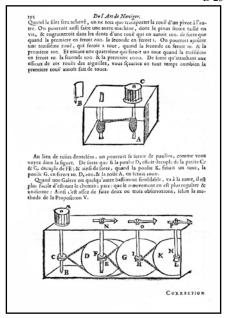
This work describes navigational methods and instruments. It includes the usual elementary devices of the time and many of their variants. For example, in sighting equipment DeChales considers quadrants, mariner's astrolabes, the backstaff, the bow and their various Dutch and English versions. His diagrams are sparse, but he also includes small detailed sketches where he thinks readers might not be familiar with the concept. The work includes a number of tables useful in navigation, and a large folding plate gives the distances

covered by a degree for longitudes from the equator to 70 degrees north.

In a section in which he describes the calculation of distances, he shows a small counting device with a digital ratchet as input and analog display indicators (much like on a modern gas meter).

Illustrations available: Title page Counting device





Counting device, D 23

de Decker, Ezechiël (1603/4–1646/7)

Tweede deel van de nievwe tel-konst ofte wonderliicke konstighe tafel, inhoudende de logarithmi, voor de getallen van 1 af tot 100000 toe. Eerst ghevonden van Iohanne Nepero, heer van Marchistoun, Shotsman. Ware door de mutiplicatie ghedaen wort door additie: de divisie door substractie: de reghel van drien door additie ende substractie, soo wel in ghebroken, als heele ghetallen. Mitsgaders alle sware arithmetische questien, als, rekeninghen van silver en gout, van rabbatteren, van simpele ende gecomposeerde interesten: d'extractien; van radix quadraet, van radix cubicq &c. met sonderlinghe lichticheyt tot verwonderingh ghesolveert worden, diergelijcke voor desen noyt gehoort ofte ghesien.

b/w: **Intorcetta, Porspero**; *La science des Chinois. Traduite mot pour mot de la langue Chinoise par R. pere Intorcetta Iesuite*

b/w: **Briggs, Henry**; Logarithmicall arithmeticke. Or tables of logarithmes for absolute numbers from an unite to 100000, as also for sines, tangentes and secantes for every minute of a quadrant, with a plaine description of their use in arithmetike, geometrie, geographie, astronomie, navigation, etc

b/w: **Grüneberg, Christian**; Sphinx arithmetica, sesquicentum esphigmenon ĖΣΦΙΓΜΕΝΩΝ, vulgarem, logisticam decimalem, logisticam sexagenariam, logarithmicam Nepperianam algebraicam numerosam arithmeticam complexorum.

Year: 1627 Place: Gouda

Publisher: Pieter Rammaseyn

Edition: 1st Language: Dutch

Binding: 18th-century half bound leather over marbled boards; red leather label; red edges

Pagination: pp. [4], 36, Collation: π^2 a– d^4 e² Size: 300x1852 mm

Reference: Not in B de H BNHS

Ezechiël de Decker was originally from Leyden but moved to Gouda, where he taught school until about 1624 or 1625 and then took up the trade of surveyor. He later moved to Rotterdam and, after ten years there as a surveyor, moved his business to The Hague.

Adriaan Vlacq was born in Gouda sometime about 1600. He received a classical education and thus was able to translate the Latin works of **John Napier** and **Henry Briggs** into Dutch. From about 1631, **Vlacq** lived



D 24

in London, where he was a bookseller for ten years, after which he moved his business to Paris and, in 1648, returned to the Netherlands.

De Decker was a very early adopter and publicist of logarithms. Being unable to read Latin, he asked **Vlacq** to translate **Napier**'s *Mirifici logarithmorum canonis descriptio*. In 1626, de Decker published *Het eerste deel van de nieuwe telkonst (The first part of the new arithmetic)*, which included **Vlacq**'s translation of **Napier**'s *Rabdologiae*, a section on business arithmetic by de Decker and **Simon Stevin**'s interest table, *De thiende*. In the preface, de Decker acknowledges **Vlacq**'s contribution and assistance.

Later that same year, de Decker published *Nieuwe telkonst*, a limited table of decimal logarithms clearly derived from **Briggs'** *Arithmetica logarithmica* of 1624, again mentioning the assistance of **Vlacq**. This small table covered only the first chiliad, (i.e., the logarithms from 1 to 10,000) and, in contrast with **Briggs'** original computation to 14 places, was limited to a more practical 10 decimal places.

The next year, in 1627, the appearance of *Tweede deel van de nieuwe tel-konst* (*The second part of the new arithmetic*) filled the lacunae. De Decker explains in the foreword that other professional commitments did not permit him to undertake the considerable effort involved in completing **Briggs'** table and that the industrious and diligent **Adriaan Vlacq** is to be credited for having

seems to have fulfilled **Briggs**' ambition of computing a complete logarithm table but without his explicit consent. The privileges for these books were applied for and received by **Vlacq**, who had them printed in Gouda by Peter Rammasein. While the exact financial arrangements between de Decker, **Vlacq** and Rammasein are unclear, it does appear that **Vlacq** was the principal patron and that he may have had a financial interest in the printing firm.

This Tweede deel is essentially de Decker's introduction to go with the tables of logarithms that he and Vlacq had been working on for several years. It appears to have been published separately from their table of logarithms, although the one other copy known to exist (which makes this a great bibliographic rarity) is bound with their tables. The introduction is self-contained, giving independent lists of tables, where appropriate, to illustrate de Decker's examples. De Decker was familiar with **Simon Stevin**'s *De thiende*, and he uses one of the notations (an awkward one) from there to indicate the number of decimal digits in a value by including that number in a circle after the logarithm (see illustrations, where there is at least one error in showing a circled 8 when it should have been a 4). There are also occasions when he uses both a decimal point (represented by a comma) and the circled digit—a redundancy that should have been obvious.

9	4500(1)	0,34678,74862
9;	4625(8)	0,33488,82629
9:		0,32330,63904
9=	4875(4)	0,31202,53800

Decimal point error, table 1, D 24

	C
oncé	Deelen.
1 :	01564
1 2	03134
7	0469(4)
	06254
	1250(4)
3	18754
4	2500(4)
5	31254
6	3750(4)
7	43754
	5000(4)
	5625(4)
	6250(4)
	68754
	7500(4)
	8125(4)
14	87504
15	9375(4)

i .	1 4	252
Vierendeels.	He sit sin non dia	5°(2) 75(2)
	5 2	21
Vijfdedeels.	3	4(1) 6(1)
	1 4	8(1)
	i i	125(3)
Achtedeels.	3	375③
Acmedicas	8 -	625(3)
		875(3)
	16	06254
	16	18754
	16	3125(4)
Sefthiende- deels.	7 76	4375(4)
	16	56254
	16	6875(4)
	13	81254
	15	93754

Weight tables, D 24

Fraction tables, D 24

1 F 1	1 G 1	1 H .	
One Doden.	Fen. , Dreien	Cara Dedet	
7 8750(A)	11 916667(6)	23 9583336	
6 7500(4)	10 833333(6)	22 016667(6)	
5 6250(A)	9 750000(6)	21 875000(5)	
4 5000(4)	8 666667(6)	20 8333336	
3 3750(4)	7 583 333 6	19 7916676	
2 2500(4)	6 500000(6)	18 750000(6)	
I 1250(4)	5 416667(6)	17 708333(6)	
Reg. Deelen	4 333333(6)	16 6666676	
19 1188(4)	3 250006(6)	15 625000	
18 1125(4)	2 1666676	14 5833336	
17 1063(4)	1 1833336	13 5416676	
16 1000(A)	grey. Deelen	12 500000	
15 0038(A)	23 079861(6)	II 4583336	
14 0875(4)	22 076389(6)	10 416667(6)	
13 0813(4)	21 072917(6)	9 375000(6)	
12 0750(A)	20 069444(6)	8 3333336	
11 0688(A)	19 065972(0)	6 250000	
10 0625(4)	18 06250c(4)	5 208333(6)	
9 0563(4)	17 0590280	4 166667(6)	
8 0500(4)	16 0555566	3 125000(6)	
7 04384	15 052083(6)	2 083333(6)	
6 0375(4)	14 048611	1 041667(6)	
5 0313(1)	13 045139	grey- Deelen	
4 0250(4)	12 041667		
3 01884	11 0381946	11 0381946	
1 0063(4)	9 031250(6)	9 0312506	
-	8 027778(6)	8 027778	
0008(4)	2 024306	7 024306(6)	
0016(4)	6 020833(6)	6 020833(6)	
2 0024(4)	5 917361(6)	1 c 017361 60	
10031(4)	4 0138896	4 0138896	
0039(4)	3 010417(6)	3 0104176	
0047(4)	2 006944(5)	2,006944.6	
1 10033(4)	I 0034726	1 003472(6)	
	000868(6)	000868(6)	
	001730(6)	001736(6)	
	2 002504(6)	002504(6)	
830 W.5Q.L	The second secon	The state of the s	
	le Exempel wort dan aldus		
	gar. van 108,9594 (1) is		
deLo	gar, van gorgoo is	5,95516,272	

Gold and silver tables, D 24

The introduction consists of a number of chapters, each of which deals with a simple topic with several examples. The first few chapters are basically how to use a table of logarithms and the simple operations needed to calculate a logarithm if it does not happen to be in the table, e.g., $\log (a/b) = (\log a - \log b)$. Chapter 5 ends this tutorial with examples of how the n-th root of x can be found from (log x)/n. The real heart of the introduction is contained in the last several pages, where de Decker explains how to use logarithms to solve applications of the rule of three (one of the best-known methods of the day). This is illustrated with twenty different examples, most of which deal with money. The Dutch monetary system, of the time was similar to the British sterling system in which one pound (pond) equaled 20 shillings (schellingen) and each shilling equaled 12 pence (grootgens). De Decker gives supplementary tables of the logarithms of all the fractions one would encounter when doing arithmetic in such a system. Similarly, there are tables for the logarithms needed when dealing with problems stated in ounces and pounds (16 oz. = 1 pound); tables of decimal equivalents of fractions having denominators of 4, 5, 8 and 16; logarithms useful for converting French currency into Dutch; and dealing with gold and silver (including special tables for use when the gold is not pure). The final section deals with interest problems and contains thirty-five examples (and the special logarithm tables to be used) for both simple and compound interest.

As a final note, de Decker points out that logarithms can be used for many other things, but it is interesting that he does not give examples from surveying—which was his trade. The solution of more complex surveying problems would have required trigonometric tables, but elementary examples of right-angle surveying, the most common type of the day, would have been appropriate.

Illustrations available:

Title page

Five examples of special logarithms

D 25

Dedekind, (Julius Wilhelm) Richard (1831–1916) – **Wooster Woodruff Beman** (1850–1922), translator

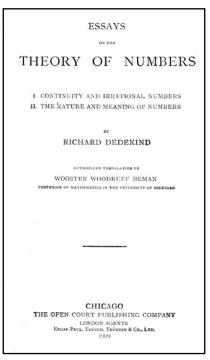
Essays on the theory of numbers

Year: 1909 Place: Chicago Publisher: Open Court Edition: 1st (English) Language: English

Binding: original cloth boards Pagination: pp. [6], 115, [5]

Size: 196x132 mm

Dedekind was a professor in Göttingen and Zurich and then spent the rest of his career at the University of Braunschweig. He obtained his Ph.D. in mathematics at Göttingen under the tutelage of Gauss. He is famous in number theory as the person who developed the first precise definitions of the real number system. He also established a number of concepts of great importance in modern algebra.



This is a highly technical book in which he explains the ideas in his theory of numbers. It is a translation of two of Dedekind's works: the first on *continuity and irrational numbers* and the second on *the nature and meaning of numbers*.

The translator was a professor of mathematics at the University of Michigan.

Illustrations available:

Title page

D 26

Dedekind, (Julius Wilhelm) Richard (1831–1916)

Was sind und was sollen die zahlen

Year: 1893

Place: Braunschweig Publisher: Vieweg Edition: 2nd Language: German

Binding: contemporary heavy paper boards

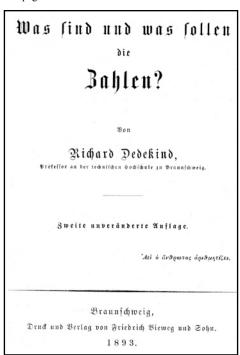
Pagination: pp. [xx], 58, [2] Collation: $\pi^{10}1-3^84^6$ Size: 210x132 mm

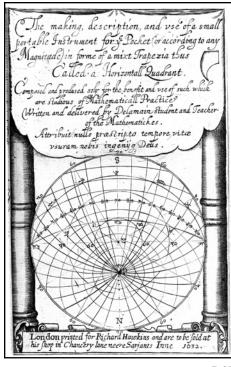
Reference: Pogg Vol. I, p. 534

See entry for **Dedekind**, *Essays on the theory of numbers*, 1909. This is the German original of the second part of that work.

Illustrations available:

Title page





D 27 **Delamain, Richard** (1600–1644)

The making, description, and use of a small portable instrument for ye pocket (or according to any magnitude) in forme of a mixt trapezia thus called a horizontall quadrant. Composed and prodused soly for the benefit and use of such which are studious of mathematicall practice.

Year: 1632 Place: London

Publisher: Richard Hawkins

Edition: 1st Language: English

Figures: engraved frontispiece; 1 large folding table; 1 engraved plate at end; pasted down plate (p. 103)

Binding: mottled calf Pagination: pp. [16],104 Collation: A⁴a–O⁴ Size: 170x105 mm Reference: Win *ESTC*, 6544

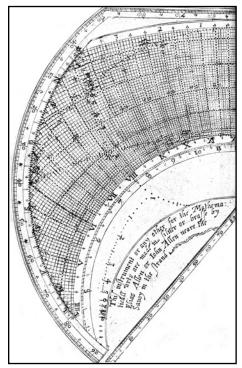
Richard Delamain is best known for his claim to be the inventor of the slide rule (an idea he obtained from William Oughtred). Delamain was a joiner who ran a writing school. He attended lectures at Gresham College and from men like Edmund Gunter and William Oughtred obtained enough information to become a teacher of practical mathematics. At one time he was mathematics tutor to Charles I. In this volume, published in the same year as Samuel Foster's description of Delamain's of Oughtred's ideas, Delamain describes

Oughtred as *my Reverend good friend*. He also, while giving credit to people like **Gunter** for the original idea, indicates that his design for the instrument is very much better. In fact, his instrument is substantially the same design engraved onto a different-shaped plate. Delamain had a son (one of his ten children) who was also given the name *Richard*. This son, who is sometimes confused with the father, also published a work containing tables of the value of land in Ireland.

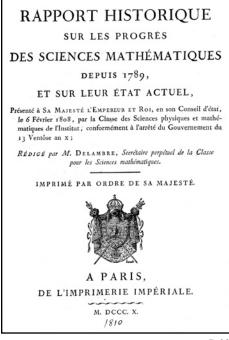
Gunter's quadrant was essentially a circular astrolabe folded into 4, and Delamain's plate, described as *mixt trapezia*, was really the same device folded only in half and flattened on one edge to more easily fit into a pocket. The work had been begun earlier, because at the end Delamain notes: *From my house in Chancery Land, January, Anno.1631*, a statement that has led some to date the book a year earlier than given on the title page.

Some authorities consider Delamain to be an inventive individual who, working with Elias Allen (the same instrument maker as **Oughtred**), had the misfortune of having his work confused. Others, such as **E. G. R. Taylor** in her work *Mathematical Practitioners*, regard him as a charlatan whose knowledge was based on rote learning.

Illustrations available: Title page Instrument



Delamain quadrant, D 27



D 28

Delambre, Jean Baptiste Joseph (1749–1822)

Rapport historique sur les progrès des sciences mathématiques depuis 1789, et sur leur état actuel.

Year: 1810 Place: Paris

Publisher: Imprimerie Impériale

Edition: 1st Language: French

Binding: modern marbled boards; three-quarter leather; uncut

Pagination: pp. [8], 272 Collation: π^4A-2L^4 Size: 272x211 mm

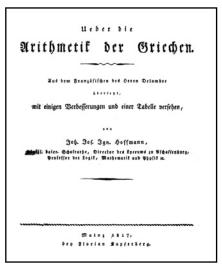
Jean Baptiste Joseph Delambre was a prominent French mathematician and astronomer. He built his reputation primarily through two activities: the careful correction and improvement of astronomical tables and his exemplary performance when he carried out the difficult task of measuring distances between points on the earth so as to provide the fundamental data for establishment of the metric system.

This report was requested by Napoleon of each of the four sections of the Institut National. With characteristic conscientiousness, Delambre, as secretary of the mathematics section of the Institut, produced this history of mathematics, which has been called a *major historical work* (*DSB*). It surveys the history of algebra, geometry, calculus, astronomy, geography, mechanics, magnetism, hydraulics and a number of other topics. Delambre evidently found the writing of history to his taste because

he spent a significant portion of the remainder of his life expanding the astronomy section into a multi-volume work that is said to remain unequaled.

Illustrations available:

Title page



D 29

D 29

Delambre, Jean-Baptiste Joseph (1749–1822) [**Johann Josef Ignaz Hoffman**, translator]

Ueber die Arithmetick der Griechen. Mit einigen Verbesserungen und einer Tabelle versehen.

Year: 1817 Place: Mainz

Publisher: Florian Kupferberg

Edition: 1st (German) Language: German

Figures: 1 printed folding table

Binding: original blue stiff paper wrappers; rebacked

Pagination: pp. xviii, 40 Collation: 1–7⁴ 8¹ Size: 207x162 mm

Reference: Pogg Vol. I, p. 539

This edition, printed on light blue paper, is the first in German of Delambre's *Sur l'arithmétique des Grecs*. This is the first separate edition, having only been previously available as part of *Oeuvre d'Archimède* by Peyrard (1807). Delambre, who spent his final years researching the history of science and publishing an important history of astronomy, had produced this short description to help follow the calculations of the Greek astronomers. It begins with a short history of arithmetic in general and then covers Greek notation and arithmetic systems.

Illustrations available:

Title page

Chart of Greek numbers

			T	a b	e zur	1	l e					
	Ken	ntniss der	griechische	n Bu	chstab	en u	nd ih	rer 2	Zahler	ı - We	rthe.	
griech	Kenntnis:				gr	-		d e	Wer Buc			
Gestalt,	Namen.	Werth.	α 1	β	γ 3	ð 4	ε 5	5 6	ζ	я	9	Einer.
Αα Βββ ΓγΓ	alpha beta gamma	bh g	10	и 20	λ 30	μ 40	ν 5ο	ξ 6ο	70	π 8ο	4 90	Zehner.
ΔJ E ŧ	delta epsilon	dh ĕ	ρ 100	σ 200	7 300	υ 400	φ 500	کہ 600	↓ 700	ω 800	3 900	Hunderter.
Z ζ Н и Θ 1 Э	zeta ēta theta	ë oder aë	α 1000	2000	γ 3000	4000	5000	ج 6000	ζ 7000	и 8000	9000	Tausender.
I i K k	iota kappa	i ck	α M	bedeut	et eine	Myria	de,	oder	10000			-
Λ λ M μ	lambda my	l m	β M γ		et zwe				20000			Zehntausender
N v Z E O o	xi omikron	n x	М д М		et drey tet vier			oder oder	40000	ù. s. W	r.	1
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X χ Ψ ↓ Ω √ω	chi psi oměga	ch ps ō			4) Als Str	Zahlzei ich; z.	chen bel B. 6 9;	kommen	die bir	er , Zel 78. Man	mer und H	inderter oben einen s, wenn die Zahlen-

Greek number system, D 29

D 30 **Delmedigo, Joseph Salomon** (1591–1655)

Sefer ma'ian ganim ... Sefer ma'ian hathoum ... Sefer elim

Year: 1629 Place: Amsterdam

Publisher: Manassé ben Israël

Edition: 1st Language: Hebrew Binding: modern vellum Pagination: ff. 182

Collation: $\pi^1 1$ –48 $^2 1$ –19 $^2 20^5 (-206)1$ –21 2

Size: 175x136 mm

A biography of the author can evidently be found in Graetz, *History of Jews*, 1882, Vol. V, pp. 180–182, but we have not been able to consult it. He was a student of **Galileo**, from whom he learned about the new Copernican system. Perhaps because of his religion, he was unable to settle in one place and became a traveling doctor and mathematician. He is known to have worked in Cairo, Poland, Germany and the Netherlands.

This work is divided into three: the first two deal with arithmetic, algebra, astronomy and measures while the third consists of seventy problems and their solutions. The text is illustrated with occasional woodcuts of geometric diagrams and instruments. The work evidently had a portrait of the author and a leaflet, in Latin, at the

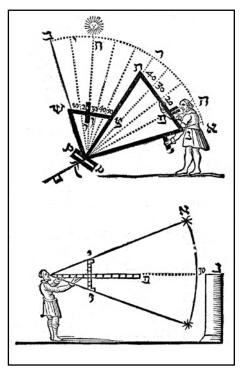
beginning of the third section, but these are lacking in this copy.

Illustrations available:

Title page

Use of sighting instruments





Back staff and Jacob's staff, D 30

D 31 **DeMorgan, Augustus** (1806–1871)

Arithmetical books from the invention of printing to the present time being brief notices of a large number of works drawn up from actual inspection.

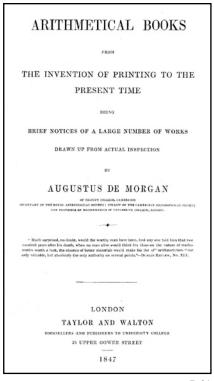
Year: 1847 Place: London

Publisher: Taylor and Walton

Edition: 1st
Language: English
Binding: later cloth boards
Pagination: pp. [4], xxviii,124
Collation: [a]⁴b–c⁶B–L⁶M²
Size: 207x117 mm
Reference: Glais *RCMT*, p. 7

DeMorgan's father served in India as a colonel in the British Army. Augustus was born in India, but he returned to England with his family when he was only seven months old. He entered Cambridge at the age of sixteen and was ranked fourth on graduation. The University College in London had just been founded when, in 1828, he was elected as its first professor of mathematics on the strength of testimonials from **George Peacock** and George Airy, the Astronomer Royal.

DeMorgan had a strong sense of honor and resigned from the professorship over a point of principle in 1828. He regained the chair in 1836 when his successor was killed



D 31

in an accident. He resigned once again over another point of principle in 1866.

DeMorgan had a distaste for honors and refused an LL.D. from Edinburgh University, and although an active member of the Astronomical Society, he never applied for membership in the Royal Society because he thought it was too much governed by social influences. He was a respected logician and wrote textbooks on several different areas of mathematics as well as on the history of the subject. He was also an advocate of decimal coinage and is mentioned (with a portrait that is available in the illustrations) in **Bowring**'s *The decimal system*, 1854.

DeMorgan had a library of over 3,000 books, and this work describes those that were mainly devoted to arithmetic. It also mentions over 1,500 authors of such works. It is still a useful reference and has been used in checking many of the entries in this catalog. Like some of his other works, this one contains digressions into other subjects (use of the decimal point, length of the foot, use of the words *addition*, *subtraction*, *multiplication*, and *division* by various authors, etc.), but they are all of interest. This is a very early bibliography of science books and may well be the first of any significance.

The work is dedicated to **George Peacock**, then Dean of Ely Cathedral but also one of DeMorgan's teachers

THE BOOK OF ALMANACS,

WITH AN INDEX OF REFERENCE.

BY WHICH THE ALMANAC MAY BE FOUND FOR EVERY YEAR, WHETHER IN OLD STYLE OR NEW, FROM ANY EPOCH,
ANCIENT OR MODERN, UP TO A.D. 2000.

WITH MEANS OF FINDING THE DAY OF ANY NEW OR FULL MOON FROM B.C. 2000 TO A.D. 2000.

COMPILED BY

AUGUSTUS DE MORGAN, SEC. R.A.S., F.C.P.S.,

OF TRINITY COLLEGE, CAMBRIDGE; PROFESSOR OF MATHEMATICS IN UNIVERSITY COLLEGE, LONDON.

"Les trente-cinq calendriers qui suivent sont seuls possibles d'après les principes admis pour la formation; il ne s'agit, pour avoir celui d'une année quelconque, que de chercher dans la table ci-après, quel est le numéro qui convient à cette année."—Franceure.

"And thus, by a very short and easy method, the time of any new or full moon, within the limits of 6000 years either before or after the Christian sera, may be found, sufficiently near the truth for any common purpose."—Franceure.

LONDON:

TAYLOR, WALTON, AND MABERLY, UPPER GOWER STREET, AND IVY LANE, PATERNOSTER ROW.

D 32

at Cambridge. DeMorgan broke with his record of not providing a dedication in his other publications because **Peacock** had written *Arithmetic* (not in this collection), which contained a history of arithmetic and number systems. DeMorgan's book was reprinted in 1967 (by Hugh Elliott of London) with a delightful introduction and biography of DeMorgan written by Rupert Hall, the professor of the history of science at Imperial College.

Illustrations available: Title page

D 32

DeMorgan, Augustus (1806–1871)

The book of almanacs, with an index of reference, by which the almanac may be found for every day of the year, whether in the old style or new, from any epoch, ancient or modern, up to A. D. 2000. With means of finding the day of any new or full moon from B. C. 2000 to A. D. 2000.

Year: 1851 Place: London

Publisher: Taylor, Walton and Maberly

Edition: 1st Language: English

Figures: title in red and black

Binding: original gold embossed cloth boards

Pagination: pp. xix, [i], 89, [3] Collation: $\pi^2 b^8 B - F^8 G^6$ Size: 138x220 mm

DeMorgan has combined the individual yearly almanacs into one system spanning 4,000 years in which, by means

of an index, the user can refer to an individual table for the required year. It is arranged so that it is usable for both the old Julian and the newer Gregorian calendars. He not only provides information on day of the week but also lists the Saints' days and information (such as epact) that would permit the calculation of the date of Easter.

Illustrations available: Title page Sample table page

D 33

DeMorgan, Augustus (1806–1871)

A budget of paradoxes

Year: 1872 Place: London

Publisher: Longmans, Green & Co

Edition: 1st Language: English

Binding: original cloth boards; spine dusty; last half uncut

Pagination: pp. vii, [1], 512, 24 Collation: A⁴B–2K⁸A–C⁴ Size: 221x139 mm

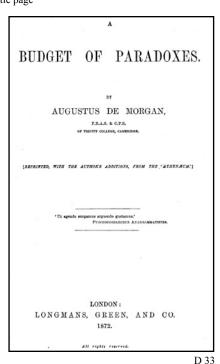
DeMorgan was a prolific writer and contributed regularly to several different publications. He also wrote 850 articles for the *Penny Cyclopaedia*. One of his regular contributions was on the theme of paradoxes (very broadly interpreted), which he wrote for the *Athenaeum*. Before his death, he had collected these writings together with the intention of producing a book, but it was never finished. His widow Sophie acted as editor. This volume consists of the majority of his columns, with exceptions

		THE BOOK (OF ALMANACS.		17
	Old	Style (15) D 1. ALMA	NAC 1. New Style (23)	D 1.	
JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.
13k 20mo Margaret	n we we si we si oth Transfiguration 7i 7fr Name of Jesus 6i 8i 8i si 9j Trinity 12 4i 10 mo Laurence 3i 11 lu 2i 12 we 1 13 th 15k 15 si 15k 1	k I tu Giles 4m 2 we 3m 3th 2m 4fr n 5s 8i 6 Trinity 16 7i 7 mo Enurchus 6i 8 tu Nat. of Mary 5i 9 we 4i 10 th 3i 11 fr 2i 12 8s 11 2s 11	i 15th 17k 16fr 16k 17 sa Etheldred 15k 18 \$\sigma Trinity 22\$. Luke 15k 18 \$\sigma Trinity 22\$. Luke 13k 20 tu 13k 21 we 11sk 22 th 10k 23 ifr 0k 24 sa	18k 14 sa 17k 15	4m 2 we 3m 3th 2n 4fr n 1, 4fr n 5 5a 2 Advent. Nic. 7i 7 mo 6i 8 tu Concep. of V. M. 5i 9 we 4i 10 th 3i 11 fr 2i 12 sa 1i 13 3a 3 Advent. Lucy 10k 14mo 18k 15 tu 17k 16 we Camb. t. c. O.S. 16k 17 th Oxf. t. c. 15k 18 fr 14k 19 sa 13k 20 3a 4 Advent 11k 22 imo Thomas 11k 22 th 10k 23 we 0k 24 th

Sample almanac page, D 32

such as the one he wrote on the dispute between South and Troughton concerning the mounting of a telescope—a dispute that involved many of the British scientists of the day and caused much in the way of recrimination among them. While there is some information on logical paradoxes, the majority of the work has the character of a random collection of thoughts from one of the best scientific minds of the day.

Illustrations available: Title page



n .

DeMorgan, Augustus (1806–1871)

An essay on probabilities and on their application to life contingencies and insurance offices. In The Cabinet Cyclopædia conducted by the Rev. Dionysius Lardner

Year: 1838 Place: London

Publisher: Longman, Orme, Brown, Green, & Longmans and John Taylor

Edition: 1st Language: English

Figures: additional engraved title page

Binding: contemporary three-quarter red leather over marbled

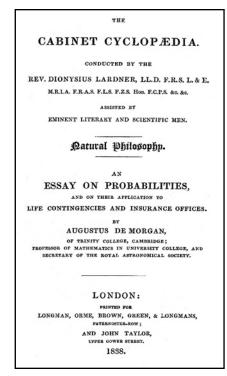
boards; gilt spine Pagination: pp. [ii], xviii, 306, xl

Collation: A⁸a²B–Y⁸Z⁵ Size: 169x106 mm

DeMorgan was not only a professor of mathematics but also a consultant to the life insurance industry—a source of income he often required due to his propensity to resign "on principle" from the University from time to time. This work is a collection of his ideas on everything to do with life insurance. He writes on subjects from the mathematics of probability to the management of a business office. Although he indicates that he

... endeavoured, as much as possible, to free the chapters...from mathematical details, and to make them accessible to all educated persons.

In this aim he was certainly not successful, and the book would have appealed only to someone already well versed in the subject. It was certainly, in this regard, inferior to **Babbage**'s well-known *A comparative view*



Title page 1, D 34

of the various institutions for the assurances of lives, which had been published a dozen years earlier.

This work, which is part of a series, has three title pages.

Illustrations available:

Title page 1

Title page 2

Title page 3

D 35

DeMorgan, Augustus (1806–1871)

Formal logic: or, the calculus of inference, necessary and probable.

Year: 1847

Place: London

Publisher: Taylor and Walton

Edition: 1st Language: English

Binding: original cloth boards; sides and spine blind blocked;

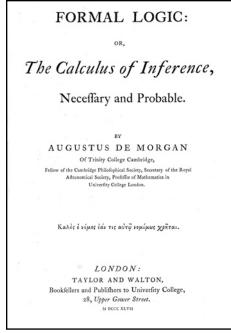
gilt spine

Pagination: pp. xvi, 336

Collation: A–Y⁸ Size: 222x140 mm

See also the entry for **George Boole**, *An investigation of the laws of thought*, 1854.

DeMorgan was well known at the time for his work in logic. This is the work in which DeMorgan took the first



D 35

steps to codify logic into an algebraic system. He was not entirely successful, and it was **George Boole** who devised the first really workable system a few years later. In his research, DeMorgan had consulted the Scottish philosopher Sir William Hamilton on the history of logic, and Hamilton later accused him of plagiarizing his idea of a qualified predicate. His reply to this charge was printed in one of his regular *Athenaeum* magazine columns and in his book *A budget of paradoxes*. An account of this public dispute is given in the appendix to this work. It was this controversy that brought **George Boole** into the field and eventually resulted in the creation of Boolean algebra.

As with any work of mathematics, particularly when the field is under rapid development and the best modes of explanation not yet devised, this is not an easy book to read. It is made even more difficult for the modern reader because the printer has used the by then out of date long s, which much more closely resembles an f (see necessary on the illustration of the title page).

Illustrations available: Title page

D 36

DeMorgan, Augustus (1806–1871)

Formal logic: Or, the calculus of inference, necessary and probable.

Year: 1926 Place: London



Augustus DeMorgan, D 36

Publisher: Open Court Edition: reprint Language: English

Figures: portrait frontispiece Binding: original cloth boards Pagination: pp. xxii, 392 Collation: a⁷b⁴B–2B⁸2C⁴ Size: 210x135 mm

This is a reprint of the first edition with corrections from DeMorgan himself and others (always noted) that were done by the editor of this edition. The frontispiece is a portrait of DeMorgan done in pastel by his wife Sophie. The printer, unlike the one of the original first edition, has used the modern form of "s."

Illustrations available: Title page Portrait

D 37

DeMorgan, Augustus (1806–1871)

On the symbols of logic, the theory of the syllogism, and in particular of the copula, and the application of the theory of probabilities to some questions of evidence.

Year: 1850 Place: Cambridge

Publisher: Pitt Press by John W. Parker

Edition: 1st Language: English

Binding: modern marbled boards; gilt label on upper board;

uncut

FORMAL LOGIC

AUGUSTUS DE MORGAN

A. E. TAYLOR, F.B.A.

PROFESSOR OF MORAL PHILOSOPHY AT THE UNIVERSITY OF EDINBURGH

THE OPEN COURT COMPANY

D 36

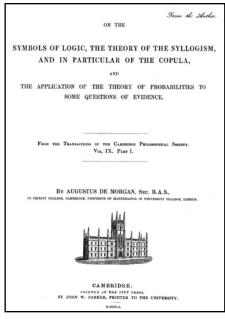
Pagination: pp. 52 Collation: A¹B–G⁴H¹ Size: 287x223 mm

This is an extract from *Transactions of the Cambridge Philosophical Society*, Vol. IX, Part I.; Imprinted *From the Author*.

In this paper DeMorgan expands on the use of symbols in logic and now uses the term "algebra of the laws of thought" (italics are DeMorgan's). He also indicates that **George Boole** was now working on the same subject by saying:

And I may further state, that the methods of this paper have nothing in common with that of Professor Boole, whose mode of treating the forms of logic is most worthy the attention of all who can study that science mathematically, and is sure to occupy a prominent place in its ultimate system.

DeMorgan also mentions the public dispute between himself and Sir William Hamilton.



D 38

DeMorgan, Augustus (1806–1871)

On the use of small tables of logarithms in commercial applications and on the practicability of a decimal coinage

Year: 1840 Place: London Publisher: unknown Edition: 1st Language: English Binding: paper wrappers Pagination: pp. 5–21 Size: 181x105 mm

In this extract from *Companion to the Almanac* for 1841, DeMorgan expounds on the usefulness of logarithms when dealing with sterling currency and also makes a plea for a conversion to decimal currency. His plea was answered, but only 125 years later.

Illustrations available: Title page

D 39

DeNorry, Milles (fl.1583–1588)

L'usage et practique du compas a huict poinctes, sur les 48. problemes des six premiers livres d'Euclide, avec plusieurs autres ingenieux & speculatifs problemes sur le suject de chacun livre, tant en lignes comme en nombres

b/w: **DeNorry, Milles;** *L'usage du compas optique,* 1588

Year: 1588 Place: Paris

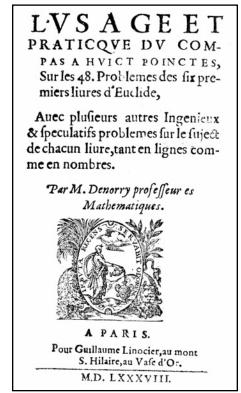
Publisher: Guillaume Linocier

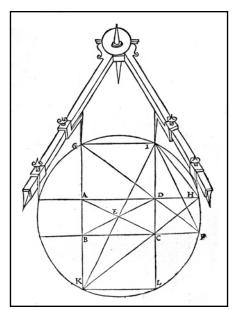
Edition: 1st Language: French

Figures: 2 full-page engraved drawings in text Binding: contemporary vellum lacking ties

Pagination: f. [4], 19, [1] Collation: a⁴a-b⁸c⁴ Size: 163x102 mm

Very little is known about Milles DeNorry (sometimes Miles and De Norry) other than the notation on the title page that he was a professor of mathematics. However, the book is noteworthy because it describes an instrument, a precursor of the sector known as a reduction compass. The reduction compass appears to have been invented sometime before 1570 as a precise drafting instrument. It soon became used for finding proportions between figures. The device is said to have fascinated Giordano Bruno because it was more accurate that other devices available at the time (see Drake, Stillman; Operations of the geometric and military compass, 1978, Washington, DC). It consists of two hinged arms with compass points at the center of the hinge and at the end of each arm. The arms also carry movable points that may be set to provide proportional spacing; the ratios of the distance between pairs of points, one on each arm, remain the same as the arms are opened or closed.





Reduction compass, D 39

The similarities with the construction of the sector are obvious. It was usual to mark scales on the arms in order to divide straight lines and circles into identical parts, much like the scales on a proportional compass (which was a slightly later development). The scales are not identical to those on a proportional compass because of the different configurations of the devices. There are no scales illustrated in this work.

DeNorry used his *eight point compass* to illustrate the solution to forty-eight problems that appear in the first six books of Euclid.

The extra period in the title (... sur les 48. problemes ...) has been ignored in some library catalogs, but it is really there.

Illustrations available:

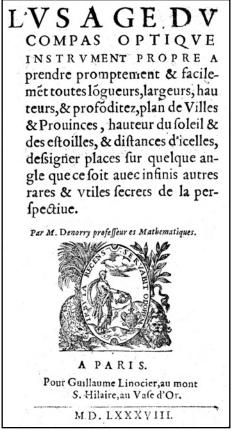
Title page Reduction compass with circle Reduction compass with triangle

D 40

DeNorry, Milles (fl.1583–1588)

L'usage du compas optique instrument propre a prendre promptement & facileme[n]t toutes lo[n]gueurs, largeurs, hauteurs, & profo[n]ditez, plan de villes & provinces, hauteur du soleil & des estoilles, & distances d'icelles, dessigner places sur quelque angle que ce soit avec infinis autres rares & utiles secrets de la perspective

b/w: **DeNorry, Milles**; L'usage et practique du compas a huict poinctes ... ,1588



D 40

Year: 1588 Place: Paris

Publisher: Guillaume Linocier

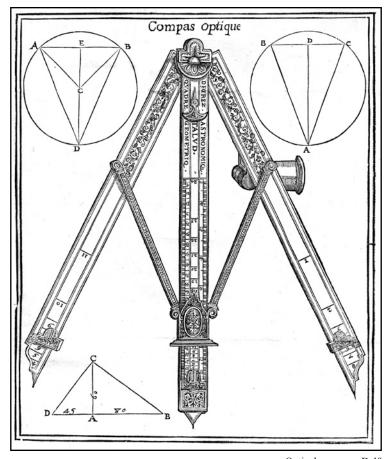
Edition: 1st Language: French

Figures: large folding plate of instrument at end Binding: contemporary vellum lacking ties

Pagination: ff. 9, [1] (mis# 9 as 5)

Collation: e⁸i² Size: 163x102 mm

DeNorry illustrates his *optical compass*, which was a sector-like instrument used for taking terrestrial and astronomical observations. It had no sector scales, the similarity being limited to the overall form. Each of the two legs of the instrument had a sight (seen in DeNorry's illustration near the ends opposite the hinge) that could be used to determine angles between two objects. The central leg contained scales that would, for example, show the number of degrees the instrument was open (see scale marked *degrez astronomiq*). The main use was in assisting with surveying/mapping problems. DeNorry indicates that a similar instrument (called a *graphometer*) had been invented by his friend **Philippe Danfrie** but while the two devices were certainly suited to the same tasks, **Danfrie**'s was larger and more robust.



Optical compass, D 40

Danfrie published a description of his graphometer in 1597 (see **Danfrie**, **Philippe**; *Declaration de l'usage du graphomètre* ..., 1597).

Illustrations available: Title page Optical compass

D 41

Deparcieux, Antoine (1703–1768)

Essai sur les probabilités de la durée de la vie humaine; d'ou l'on déduit la maniere de déterminer les rentes viageres tant simples qu'en tontines: Précédé d'une courte explication sur les rentes à terme, ou annuités, et accompagné d'un grand nombre de tables.

Year: 1746 Place: Paris

Publisher: Chez les Frères Guerin

Edition: 1st Language: French

Binding: contemporary mottled leather; spine gilt

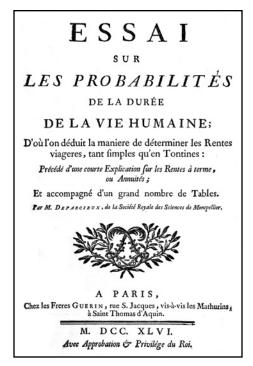
Pagination: pp. vi, [2], 132, xxii, [26]

Collation: a⁴A–Q⁴R²a–m² Size: 258x199 mm Antoine Deparcieux was the son of a poor farm worker who died when Antoine was only twelve years old. He was taken care of by an elder brother, Pierre, until at the age of fifteen he was sent to a Jesuit college. In 1730, he moved to Paris and became a manufacturer of sundials. In 1741, he published a set of well-received trigonometric and logarithmic tables.

Deparcieux devoted considerable time and thought to a statistical study of families, communities and tontines (a pact in which the last surviving member receives something of value, usually money). This research led him to an investigation of the average life span of these various groups.

This essay is important in the history of statistics and the history of the life insurance industry. Deparcieux's work was ground breaking; for example, he was the first to compile separate tables for men and women. Despite their inaccuracy, they were for many years the only ones available in France.

Illustrations available: Title page Sample life table



D 42 **Deparcieux, Antoine** (1703–68)

Nouveau traités de trigonometrie rectiligne et spherique. Démontrés par une méthode nouvelle & plus facile que celle que l'on a employé jusqu'à présent. Accompagnés de tables des sinus, tangentes & secantes en parties réelles; des logarithmes des nombres naturels depuis l'unité jusqu'à vingt mille; & des logarithmes des sinus & des tangentes, mises dans l'ordre le plus naturel & le plus commode. Ouvrage utile à ceux qui veulent étudier l'astronomie, la géographie, la navigation, & les autres parties des mathématiques qui dépendent de la géométrie des solides. Avec une traité de gnomonique, dans lequel on applique le calcul des deux trigonométries, à la construction des cadrans solaires; suivi d'une table des angles horaires pour le cadrans horizontaux & verticaux, & de plusiers autres tables utiles dans la gnomonique.

Year: 1741 Place: Paris

Publisher: Hippolyte-Louis & Jacques Guerin

Edition: 1st Language: French

Figures: 17 folding engraved plates

Binding: contemporary mottled leather; spine gilt Pagination: pp. [2], xii, [6], 118, [206], 170

Collation: $a-b^4c^2A-O^4P^3A-3A^4$

Size: 246x190 mm

Reference: Pogg Vol. I, p. 551

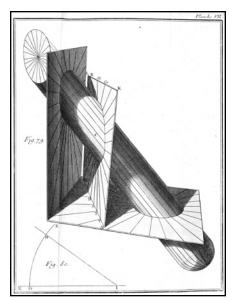


D 42

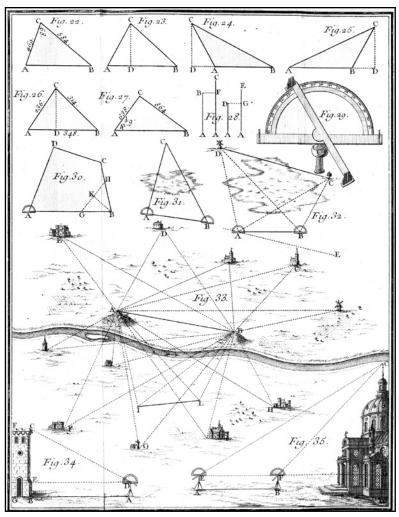
These are the tables that established Deparcieux as a personage in the French scientific community. The work begins with a description of plane and spherical geometry, follows with the tables, and has the last half on surveying and dialing. This last section has its own sets of tables and many well-executed engravings of the instruments, problems and theory being discussed.

Illustrations available:

Title page Survey application Beam compass Cylindrical sections for dials



Cylindrical sections, D 42



Survey application, D 42

Department of the Navy, Bureau of Aeronautics - [United States]

See Aller, J. C.; Project Typhoon. Symposium III on simulation and computing techniques.

D 43

De Poix, Jean

La vraye et nouvelle arithmetique aux iettons, appellé le grand iect. Divisez en trois livres.

Year: 1638 Place: Paris

Publisher: Chez l'autheur

Edition: 1st Language: French

Binding: contemporary vellum Pagination: pp. [16], 288, [3]

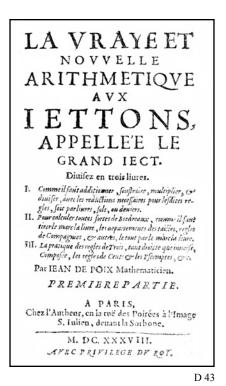
Collation: ã⁸A–S⁸χ¹

Size: 160x116 mm Reference: H&J, II, p. 154 De Poix is listed in the Privilege du Roy as a professor of mathematical sciences. Little else is known about him.

This is a quite curious book on arithmetic. It begins, as the title would imply, with instruction on the use of jettons and the table abacus, but it finishes with an example avec la plume of obtaining a square root (in attempting to determine how to form up a battalion of soldiers in a square). In between, De Poix covers a large number of mercantile problems by using the rule of three, etc. One very strange problem involves large numbers, in Roman numerals, in which he uses the notation v.M.iii.C.iiii. XX.xvi for 5396, iii.M.iiii.C for 3400, M.vi.C for 1600, viii.C.iiiii.XX for 880, ij.M.ix.C for 2900 and iiij.M.ii. C for 4200. This is not only a modification of Roman notation but also illustrates the French fondness for 20s in their numbers' names (iiiiXX = quatre-vingts = 80). In an earlier example (see illustration of the table abacus)

he has a very early use of superscript notation where he notes 4726 as iv. "vii. "xxvi."

Illustrations available:
Title page
Illustration of table abacus
Roman numeral problem



D 44

Derham, William (1657–1735)

The artificial clock-maker. A treatise of watch & clock-work, wherein the art of calculating numbers for most sorts of movements is explained, to the capacity of the unlearned. Also the history of watch and clock-work, both antient and modern. With other useful matters never before publish'd. The second edition enlarged. To which is added a supplement ...

Year: 1700 Place: London

Publisher: Printed for James Knapton

Edition: 2nd Language: English

Figures: 3 engraved folding plates; 2 engraved folding tables

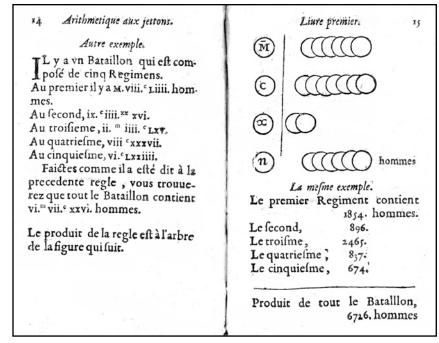
Binding: contemporary leather; rebacked; label

Pagination: pp. [16], 119, [3], 28, [2] Collation: A⁸B–F¹²A¹²a*⁴

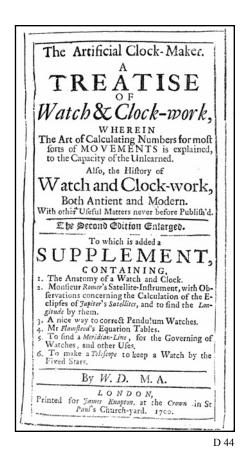
Size: 159x91 mm

Reference: Win ESTC, D 1100; DSB, IV, p. 40

Derham, a clergyman in Upminister near London, was an amateur scientist who in 1702 was made a member of the Royal Society. He evidently acted as both clergyman and physician in Upminister. Later he became chaplain to the Prince of Wales, later George II. He published several works on theology in which he combined topics from natural history and astronomy to argue for the existence of God. Through his connections with the Royal Society, he published editions of the works of Robert Hooke and others.



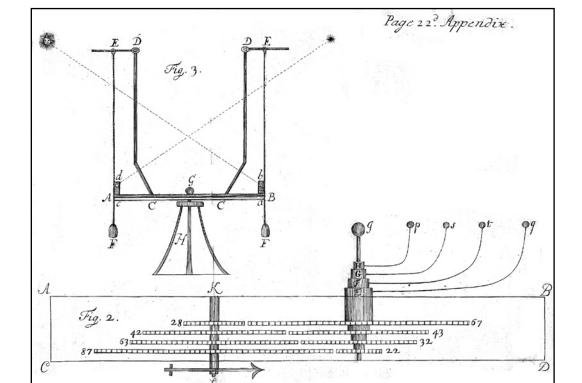
Superscript notation and table abacus, D 43



He indicates in the preface that he first wrote this book:
... in a rude manner, only to please my self, and
divert the vacant hours of a Solitary Country Life.

This work became the standard manual for clockmakers in Britain for many years and was reprinted several times. It contains, besides the instructions on the gear works of clocks and watches, a history of horology and information on the spiral spring balance wheel (invented by Huygens but also claimed by Hooke) that became the standard mechanism for watches. He also includes a discussion of the mechanism for striking the hours and the music for two suitable tunes it might play. An appendix gives a description of a mechanical device, invented by Olaus Romer, to simulate the rotation of the four moons of Jupiter. The term *artificial* in the title was to indicate that he was considering only mechanical devices and not sundials or other instruments that depended on the movement of stars.

Illustrations available: Title page Music Jupiter device



Romer's simulation of Jupiter's moons, D 44



D 4

Des Bordes, Guillaume (16th century)

La declaration et usage de l'instrument nommé Canomettre

> Year: 1570 Place: Paris

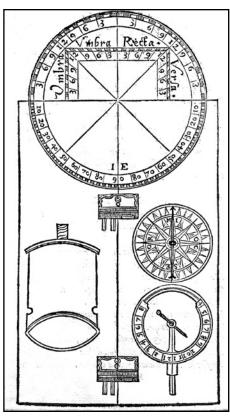
Publisher: Jerome de Marnef et Guilliaume Cavellat

Edition: 1st Language: French

Figures: plate of instrument on C3v Binding: modern paper boards Pagination: ff: [2], 17, [1] Collation: A–B*C⁴ (C4 blank) Size: 153x101 mm

Little is known of the author except the information on the title page that indicates he was a mathematician from Bordeaux. He originally practiced medicine but soon left his career as a physician for his main interest in science and mathematics. He eventually became a professor of mathematics and wrote several works, including a translation and commentary on **Johannes Sacrobosco**'s *Sphera*.

This slim work describes an instrument much like those often seen on the back of an astrolabe. It contains the umbra recta and umbra versa shadow scales and a separate compass and inclinometer.



Des Bordes' canomettre, D 45

Illustrations available:

Title page Instrument

Deshayes, Jean, editor

See [Henrion, Denis]; L'usage du compas de proportion ... Nouvellement revu, corrigé, & augementé en toutes ses parties de plusieurs propositions nouvelles & utiles par le Sieur Deshayes.

D 46

DeTurk, John E.; H. L. Garner; J. Kaufman; H. W. Bethel and R. E. Hock

Basic Circuitry of the MIDAC and MIDSAC

Year: 1954 Place: Ypsilanti

Publisher: University of Michigan

Edition: 1st Language: English

Binding: original paper wrappers

Pagination: pp. [1], vi, 34, 19, 7, 20, 8, 20, [1]

Size: 280x208 mm

The MIDAC (Michigan Digital Automatic Computer) was constructed, under sponsorship of the U.S. Air Force,

by the University of Michigan Willow Run Research Center, MIDSAC (Michigan Digital Special Automatic Computer) was a variant designed for incorporation into real time (guided missile) control systems. Both were vacuum-tube, mercury delay line machines with ERA magnetic drums. This document describes the circuit elements developed during the 1951–1953 construction period.

Illustrations available: Title page

Deutsche Hollerith Maschinen Gesellschaft m.b.H. See IBM - [International Business Machines

Company]; Denkschrift zur Einweihung der neuen Arbeitsståtte der Deutschen Hollerith Maschinen Gesellschaft m.b.h.

See IBM - [International Business Machines

Company]; Festschrift zur 25-Jahrfeier der Deutsche Hollerith Maschinen Gesellschaft.

D 47

Diderot, Denis (1713–1784)

Lettre sur les aveugles, a l'usage de ceux qui voyent

Place: London (i.e., Paris)

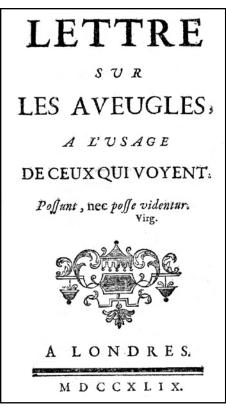
Publisher: n/p Edition: 1st Language: French Figures: 6 engraved plates

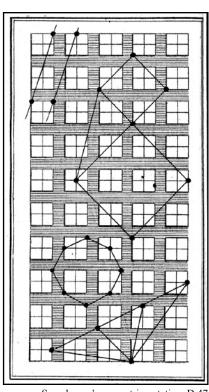
Binding: contemporary leather; spine gilt with raised bands; red leather label; marbled end papers

Pagination: pp. 220, [2] Collation: A-N8O7 Size: 159x95 mm

Diderot was born in Langres to a successful middle-class family. Schooled at first by the Jesuits, he received an M.A. from the University of Paris in 1732. As a student, he began living the good life, spending most of his time and money on books and women—something that would continue (and get him into difficulty) for the rest of his days. At first he earned a living by translating books from English into French but later wrote novels (often erotic in nature). In 1745, he became a household name as the man responsible for the great *Encyclopedia*. He was the author of this work even though it is officially anonymous. He spent time in various French jails for violating the norms of his time, including three months for questioning the existence of God as part of this *Letter* on the blind.

This is an essay on perception as illustrated by the life of the famous. Nicholas Saunderson, Lucasian Professor at Cambridge University (see Saunderson, Nicholas,





Saunderson's geometric notation, D 47

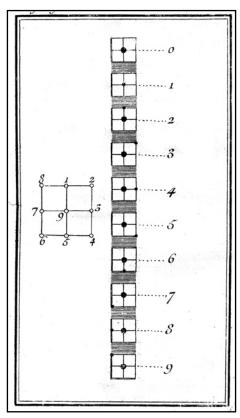
The elements of algebra, in ten books: ... To which are prefixed I. The life and character of the author II. His palpable arithmetic decyphered, Cambridge, 1741).

Saunderson was blind and had become famous for his lectures on mathematics and optics. This volume illustrates a system, devised by **Saunderson**, to represent both numbers and geometric figures by means of pins stuck into a board in predrilled holes.

This treatise was published after **Saunderson**'s own posthumous work in which he describes his system. Thus it is likely that Diderot obtained much of his material from that source.

Illustrations available:

Title page Saunderson's number system Saunderson's geometric system



Saunderson's numeric notation, D 47

D 48

Diderot, Denis (1713–1784) and **Jean le Rond d'Alembert** (1717–1783)

Instruments de mathematiques

Year: 1762–77 Place: Paris Publisher: Chez

Publisher: Chez Briasson

Edition: 1st

Language: French Figures: 3 engraved plates Binding: disbound

Jean d'Alembert was the illegitimate son of a moderately wealthy French artillery officer, Louis-Camus Destouches, and a Parisian courtesan named Mme. de Tencin. His father arranged for Jean's upbringing as a foster child and also paid for his education. His father died in 1726, when Jean was only nine years old, and left the young boy modestly secure financially. While in school, Alembert studied theology, law and medicine, but he found none of these subjects as attractive as the study of mathematics. In 1746, Alembert contracted to work with Diderot as an editor of the *Encyclopedia* for the subjects of mathematics and astronomy. It was to be an association that lasted many years.

This item consists of three plates showing calculating devices from Diderot's encyclopedia. Included are the plates of Pascal's calculating machine and Napier's bones

Illustrations available:

None

D 49

Diderot, Denis (1713–1784) and **Jean-le Rond** d'Alembert (1717–1783)

Instruments de mathematiques

Year: 1762–1777 Place: Paris Edition: 1st Language: French

Figures: 6 engraved plates (3 double-paged)

Binding: disbound

This item is a group of six of the illustrations of mathematical instruments from Diderot's encyclopedia. They have obviously been removed from the original work some time in the past.

Illustrations available:

None

D 50

Dietzgen Company

How to use a slide rule

Year: 1942 Place: Chicago

Publisher: Eugene Dietzgen

Edition: 1st Language: English

Binding: original paper wrappers

Pagination: pp. 18,[2] Size: 220x145 mm A manual on the use of Dietzgen's slide rules.

Illustrations available:

Cover



D 51

Dietzgen Company

The maniphase slide rule

Year: 1928 Place: Chicago

Publisher: Eugene Dietzgen

Edition: 1st Language: English

Binding: original paper wrappers

Pagination: pp. 80 Size: 220x145 mm

A tutorial on the use of Dietzgen's maniphase slide rule.

Illustrations available: Title page

D 52

Digges, Leonard (1510–1598)

Tectonicon: briefly shewing the exact measuring, and speedy reckoning all manner of land, squares, timber, stone, steeples, pillers, globes, &c. Futhermore declaring the perfect making and large use of the carpenters ruler, containing a quadrant geometricall comprehending also the rare use of the squire. And in the end a little treatise adjoyning, opening the

The Maniphase SLIDE RULE

A self - teaching practical manual with numerous illustrations and problems

> Copyright 1928 by EUGENE DIETZGEN CO.

> > D 51

composition and appliancy of an instrument called the profitable staffe: with other things pleasant and necessary, most conducible for surveyers, land-meeters, joyners, carpenters, and masons.

b/w: **Bedwell, William**, translator and editor; *De* numeris geometricus. Of the nature and properties of geometricall numbers. First written by Lazarus Schonerus, and now Englished, enlarged and illustrated with divers and sundry tables and observations concerning the measuring of plaines and solids; all teaching the fabricke, demonstration and use of a singular instrument, or rular, long since invented and perfitted by Thomas Bedwell Esquire

> Year: 1656 Place: Cambridge

Publisher: Richard Hodgkinsonne

Edition: late Language: English

Figures: 2 large letterpress folding tables

Binding: modern vellum

Pagination: ff. [2], 1–9, 11–27 (misnumbering ff. 8 as 9)

Collation: A-G4 Size: 179x131 mm

Leonard Digges studied and wrote on the practical geometry of his day, particularly surveying, navigation and ballistics. It is not known where he obtained his education, it being likely that he had traveled on the



continent and met other practitioners (such as his friend John Dee).

Digges had published large works on surveying (see other entries), but his *Tectonicon* was an elementary treatise designed to give simple instruction in the use of the carpenter's ruler, carpenter's square and Jacob's staff. It was first published in 1556, and this edition, one hundred years later, confirms its popularity. There were eight editions before 1600, and the last was in 1692.

Illustrations available:

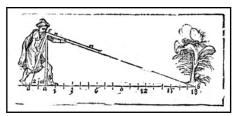
Title page
Carpenter's ruler front
Carpenter's ruler back with quadrant
Carpenter's square in use
Jacob's staff in use for heights
Jacobs staff in use for distances

D 53

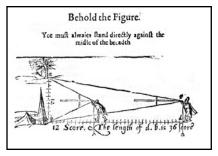
Digges, Leonard (1510–1558) and **Thomas Digges** (ca.1546–1595)

A geometrical practise, named Pantometria, divided into three bookes, longimetra, planimetra, and stereometria, containing rules manifolde for mensuration of all lines, superficies and solides: with sundry strange conclusions both by instrument and without, and also by perspective glasses, to set forth the true description or exact plat of an whole region. Framed by Leonard Digges, gentleman, lately finished by Thomas Digges, his sonne.

Who hath also thereunto adjoyned a mathematical



Carpenter's square, D 52



Jacob's staff, D 52

treatise of the five regulare Platonicall bodies, and their metamorphosis or transformation into five other equilater uniforme solides geometricall, of his owne invention, hitherto not mentioned of by any geometricians.

> Year: 1571 Place: London

Publisher: Henry Bynneman

Edition: 1st Language: English Figures: many in text

Binding: new half-bound leather over old marbled boards with

leather corners Pagination: ff. [128] Collation: *2A-2H⁴2I² Size: 180x140 mm

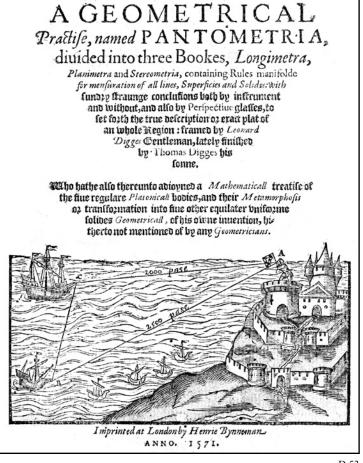
Reference: Smi Rara, p.603; Tay MP I, #4, p. 166 and #35 p.

175

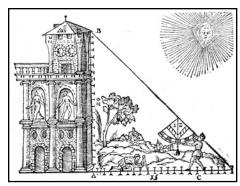
Leonard Digges' son, Thomas, was educated in Cambridge, became a Member of Parliament, and built his reputation as the engineer in charge of the rehabilitation of Dover harbor. From 1586 to 1593, Thomas was quartermaster-general of the British forces in the Netherlands. **Tycho Brahe** had a high opinion of his mathematical abilities (see letter in **Halliwell, James Orchard**; *Letters illustrative of the progress of science*), and he is considered to rank with the best of the English mathematicians of the sixteenth century.

See also the entry for **Regiomontanus (Daniel Santbech**, editor), *De triangulis planis et sphæricis*, 1561.

Leonard Digges published a small book on practical surveying in 1556, but this more ambitious work was still in manuscript when he died. Thomas, his son, further extended the work and had it published. The







Quadrant survey, D 53

early material is essentially that to be found in the works of such authors as **Gemma Frisius** and **Peter Apian** (quadrants, astrolabes with shadow scales, etc.). However this book, and his earlier work *Tectonicon*, are the first descriptions of the application of these instruments written in English.

All of the early instruments rely on the use of right-angle triangles in establishing a survey. Digges deals with a different type of survey instrument in a later part of this volume. This is the first description and illustration of the theodolite—the name being coined by Digges in this work. This device consisted of a table with an angle-sighting device mounted above it. While some authorities give credit to Digges for this invention, it seems certain that the theodolite was known on the European continent at least fifty years prior to the publication of this volume, e.g., it is illustrated in the 1512 edition of **Gregor Reisch**'s *Margarita Philosophica* (that edition not in this collection).

Another intriguing feature of this work is that Digges, in Chapter 21 of the first book, discusses the use of various optical devices and claims that:

... ye may by applycation of glasses in due proportion cause any peculiare house, or roume thereof dilate and shew it selfe in as ample fourme as the whole towne firste appeared, so that ye shall descerne any trifle, or read any letter lying there open ...

Digges senior had obviously been experimenting with a magnifying lens, and it seems very likely that he invented the telescope about a half-century before it was unambiguously described in Holland in 1608.

The first book, titled *Longimetra*, is a treatise on surveying using the quadrant, square and theodolite. The subsequent books, *Planimetra* and *Stereometra*, cover plane and solid geometry and their use in the calculation of area and volume—particularly gauging.

Illustrations available:

Astrolabe

Colophon

Quadrant usage

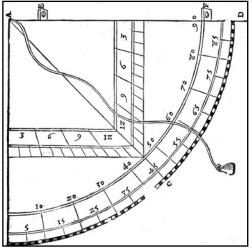
Quadrant

Theodolite angle sight

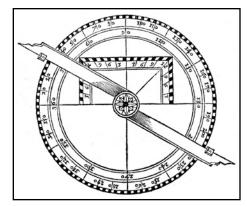
Theodolite table

Theodolite usage

Title page



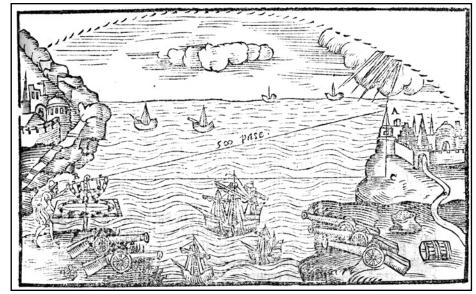
Quadrant, D 53



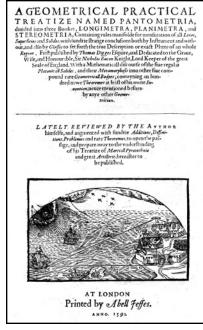
Astrolabe, D 53



D 53



Theodolite usage, D 53



D 54 **Digges, Leonard** (1510–1558) and **Thomas Digges** (ca.1546–1595)

A geometrical practical treatize named Pantometria, divided into three bookes, longimetra, planimetra, and stereometria. Containing rules manifolde for mensuration of all lines, superficies and solides: with sundrie strange conclusions both by instrument and without, and also by glasses to set forth the true description or exact platte of an whole region. First published by Thomas Digges Esquire, and dedicated to the grave, wise and honourable, Sir Nicholas Bacon Knight, Lord Keeper of the great seale of England. With a mathematicall discourse of the five regular Platonicall solides, and their metamorphosis into other five compound rare geometricall bodyes, conteyning an hundred newe theoremes at least of his owne invention, never mentioned before by anye other geometrician. Lately reviewed by the author himselfe, and augmented with sundrie additions, diffinitions, problemes and rare theoremes, to open the passage, and prepare away to the understanding of his treatize of martiall pyrotechnie and great artillerie, hereafter to be published

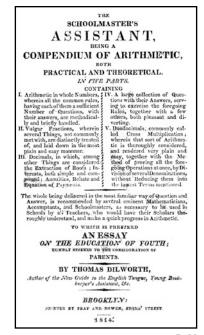
Year: 1591
Place: London
Publisher: Abell Jeffes
Edition: 2nd
Language: English
Figures: numerous in text
Binding: original limp vellum
Pagination: pp. [6], 152 (mis#40 as 48), 151–182,167–174,
191–195, [3]

Collation: [A]³B–2C⁴ Size: 284x200 mm

Reference: Ben GW, pp. 54-55

See the entry for the first (1571) edition of this work for details. This edition is essentially identical to the first with two significant additions by Thomas Digges: the *Mathematicall discourse of the five Platonicall solides...* and the first treatment of the science of ballistics in English. Also added to Book I is a short chapter (three leaves) on surveying in mines. Several authorities have described this volume as *second and best edition*, or *enlarged and revised*, and even *first published in considerably shorter form in 1571*. These descriptions border on overstatement. The work has a larger format than the first edition, but the majority of its content, other than as noted above, is identical to the earlier edition.

Illustrations available: Title page



D 55

D 55 **Dilworth, Thomas** (–1780)

The schoolmaster's assistant, being a compendium of arithmetic, both practical and theoretical in five parts

Year: 1814 Place: Brooklyn Publisher: Pray and Bowen Edition: late

Language: English Binding: contemporary leather rubbed

Pagination: pp. x, 194 Collation: A–R⁶ Size: 175x103 mm

Erwin Tomash Library

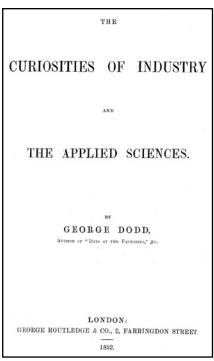
Dilworth was the author of several texts for arithmetic, English, bookkeeping, etc. This arithmetic (which was later known as *The Federal Calculator...*) was the most popular arithmetic in America prior to 1800 and remained in print up to 1850. **Karpinski** (*Mathematical works*) lists this 1814 version as at least the fiftieth edition.

Illustrations available: Title page

Dircks, Henry (1806–1873), editor

See Somerset, Edward, 2nd Marquis of Worcester;

The life, times, and scientific labours of the second Marquis of Worcester. To which is added, a reprint of his century of inventions, 1633, with a commentary thereon ...



D 56

D 56

Dodd, George (1808–1881) [**Charles Babbage** (1791–1871)]

The curiosities of industry and the applied sciences

Year: 1852 Place: London

Publisher: George Routledge & Co.

Edition: 1st Language: English

24, 24, 24, 24, 20 Collation: [A]²B-Q¹²R¹⁰ Size: 217x137 mm George Dodd wrote a series of articles on technical subjects for the *Penny Magazine* from 1841 to 1844. Here sixteen of these articles are collected together in one volume. The item of interest here is a twenty-four-page chapter titled *Calculating and Registering Machines*. After a brief introductory section, Dodd devotes six pages to the history of **Charles Babbage**'s Difference Engine as well as brief mention of the Analytical Engine. Dodd concludes with a section titled *Recent Arithmetical Machines* in which he describes the Thomas Arithmometre and other contemporary arithmetic machines.

Illustrations available: Title page

D 57

Dodd, George (1808–1881) [**Charles Babbage** (1791–1871)]

The curiosities of industry and the applied sciences

Year: 1854 Place: London

Publisher: George Routledge & Co.

Edition: 2nd Language: English

Binding: original paper wrappers; embossed covers Pagination: pp. [2], 16 parts of 24 pages except last with 20

Collation: [A]¹B–Q¹²R¹⁰ Size: 217x137 mm

The second edition of this work.

Illustrations available: Title page

D 58

Dodge, Nathaniel Shatswell (1810–1874) [Charles Babbage (1791–1871)]

Charles Babbage. In Annual report of the Board of Regents of the Smithsonian Institution, showing the operations, expenditures, and condition of the Institution for the year 1873.

Year: 1874

Place: Washington, D.C.

Publisher: United States Government Printing Office

Edition: 1st Language: English

Binding: original cloth boards; gilt spine

Pagination: pp. 452 Collation: 1S–28S⁸29S² Size: 227x140 mm Reference: Ran *ODC*, p. 415

N. S. Dodge was born in Massachusetts. He was an educator (principal of Maplewood Institute in Pittsfield, MA) and writer (mainly of articles for periodicals for

which he sometimes used the pen name John Carver, Esq.). He served as a quartermaster in the Army from 1862–1866 and as a civil servant in Washington, D.C., thereafter.

This obituary for **Charles Babbage** is quite extensive, with many quotations from other notables. It was republished in *Annals of the History of Computing*, Vol. 22, No. 4, 2000, pp. 22–43. Dodge also wrote an obituary for the Smithsonian Institution Annual Report on **J. F. W. Herschel**, Babbage's life-long friend, who also died in 1871.

Illustrations available: Title page

Dodgson, Charles Lutwidge

See Carroll, Lewis [pseudonym]; The game of logic.

D 59

Dodson, James (ca.1710–1757)

The calculator. Being, correct and necessary tables for computation. Adapted to science, business and pleasure.

Year: 1747 Place: London

Publisher: John Wilcox ... and James Dodson

Edition: 1st Language: English

Binding: 18th-century red morocco leather; gilt spine in compartments; edges of boards gilt tooled; front cover gilt tooled

Pagination: pp. 174

Collation: π^4 A–Y⁴⁴(-Y4)(lacks final leaf containing advertisements)

Size: 260x158 mm

Reference: Hend BMT, #74.0, p. 81

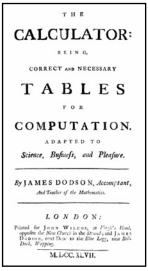
Dodson was an accountant and teacher of mathematics who was elected FRS in 1755 and became master of the Royal Military School, Christ's Hospital, that same year. Augustus DeMorgan was his great-grandchild, and he indicates that his great-aunt would not talk about Dodson because she thought his job at the Royal Military School was a blight on the family tree. He was refused coverage by the Amicable Life Assurance Society because he was over forty-five at the time of his application, whereupon he decided to found his own company, the Equitable Life Assurance Society. Its actual establishment was carried out by others the year after Dodson died.

This is a book of forty-nine miscellaneous tables for everything from simple interest to logarithm tables. In between are tables of sines and areas of circular segments, specific gravities, powers (1 to 9) of the nine

digits, permutations, combinations and even weights of various gold coins. The final table gives the products, from 1 to 9, of the first thousand integers. Dodson anticipates his later antilogarithmic table by providing a seventeen-page table of *Numbers to Brigg's Logarithms* which, while not nearly as extensive as his subsequent work, would have been very useful. This table lists the logarithms to three digits (and the corresponding number to 7), and his major work lists them to four (and the numbers themselves to 11 digits) (see entry for **Dodson**, **James**; *The anti-logarithmic canon*, 1742).

Illustrations available: Title page

Value of silver coins Sample products table



D 59

D 60

Dodson, James (ca.1710–1757)

The anti-logarithmic canon. Being a table of numbers, consisting of eleven places of figures, corresponding to all logarithms under 100000. Whereby the logarithm for any number, or the number for any logarithm, each under twelve places of figures, are readily found. With precepts and examples, shewing some of the uses of logarithms, in facilitating the most difficult operations in common arithmetic, cases of interest, annuities, mensuration, &c. To which is prefix'd, an introduction, containing a short account of logarithms, and of the most considerable improvements made, since their invention, in the manner of constructing them.

Year: 1742 Place: London

Publisher: James Dodson and John Wilcox

Edition: 1st Language: English Binding: modern leather Pagination: pp. [4], x, 84, [306] Collation: $\pi^2[a]-[b]^2[c]^1a-x^2A-4G^24H^1$

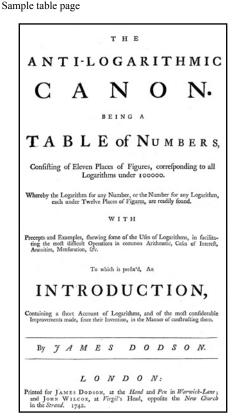
Size: 313x192 mm

Reference: Hend BTM, #201, p. 166; Glais RCMT, p. 63

This table of anti-logarithms was the first and remained the only such table in print until 1844. In the introduction Dodson reviews all the previous publications on logarithms. This was done by examining every item he could obtain, many of which came from the library of his friend **William Jones** (see entry A 11).

Two stories are known about the origin of these tables. One is that the table was calculated about 1630 by Walter Werner and John Pell. According to the *Dictionary of National Biography*, Pell wrote a letter in 1644 claiming that Werner had become bankrupt and to had left the table to Dr. H. Thorndike, who in turn passed it to Dr. Busby of Westminster. However, this version is not mentioned by **Charles Hutton** (*Mathematical Tables*, 1785, pp. 119–121), who describes these tables (calling Dodson *a very ingenious mathematician* and the tables *a very great performance*) and even notes how they were calculated.

Illustrations available: Title page



D 60

D'ooge, Martin Luther, translator See **Nicomachus of Gerasa**; *Introduction to arithmetic*.

Doppelmayr, Johann Gabriel (1671–1750), translator See **Bion, Nicholas**; *Neu eröffnete Mathematische Werkschule*.

See **Bion**, **Nicholas**; *Weitere Eröffnung der neuen Mathematische Werkschule*.

See **Bion**, **Nicholas**; *Zwote Eröfnung der neuen mathematischen Werkschule*.

See **Bion**, **Nicholas**; *Dritte Eröfnung der neuen Mathematischen Werkschule*.



D 61

D 61 **Doss, Milburn Price**, editor (1897–)

Information processing equipment

Year: 1955 Place: New York

Publisher: Reinhold Publishing

Edition: 1st Language: English

Binding: original cloth boards; with dust jacket

Pagination: pp. [12], 270 Size: 228x149 mm

Doss was the 1955 chair of the Division of Chemical Literature of the American Chemical Society. This group had long been interested in the storage and retrieval of the expanding chemical literature. In 1953, they had held a symposium on *Equipment for the preparation*, reproduction and utilization of technical information. This book is an edited version of the papers given at the meeting. The main topics are reproduction, storage (including microfilm), and indexing using both edge

punched cards and data processing cards. A single paper at the end deals with calculating machines and mentions computers.

The stamp of Calvin Mooers, a computer pioneer, indicates he was the original owner. A second copy of this book (without dust jacket or provenance) is in the collection.

Illustrations available:

Title page

D 62

Doty, Duane

Smith's interest tables at five, six, seven, seven and three-tenths, eight, eight and one half, ten and twelve per cent. Per annum. Showing the interest on any sum from \$1.00 to \$10,000, from one day to five years.

Year: 1875 Place: Racine, WI Publisher: C. R. Carpenter

Edition: 2nd Language: English

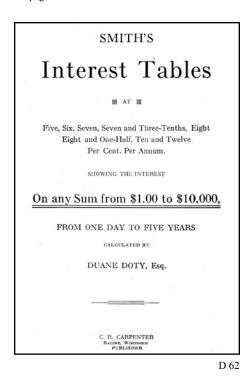
Binding: original cloth boards; gilt-embossed cover

Pagination: pp. 128 Size: 214x135mm

A ready reckoner for interest rates from 5% to 12%.

Illustrations available:

Title page



D 63

Dou, Jan Pieterszoon (1572–1635) **- [Sebastian Curtius** (1576–1659), translator]

Tractat vom machen und Gebrauch eines Neugeordneten Mathematischen Instrument: Inn welchem underschiedliche Künstliche stuck, die Geometriæ betreffende, verfasset und begriffen seind. Niderländisch beschrieben und in druck gegeben... Jetzt aber mäniglich zu nutz, und allen der Edlen Mathematischen Künsten Liebhabern, zu dienstlichem gefallen, auss gemelter Niderländischen, in unserer Hochteutsche sprach, ubergesetzt und transferiert.

Year: 1616 Place: Amsterdam Publisher: Wilhelm Jansz Edition: 1st (German) Language: German

Figures: 1 large engraved folding plate Binding: modern half bound vellum over boards

Pagination: pp. [8], 40, 49-72

Collation: *4A-H⁴ Size: 200x158 mm

Reference: Zin GBAL; Cha AI, p. 297

Jan Pieterszoon Dou was a surveyor and gauger in Leiden when he produced the original Dutch version of this work in 1612. Sebastion Kurz (Curtius), the translator, was a Nuremberg mathematician.

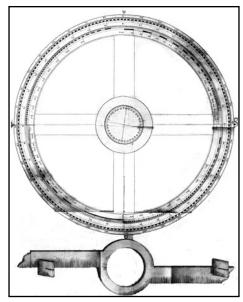
The work describes a circular surveying instrument with a compass in the center, two fixed sights at right angles (allowing the instrument to be used as a surveyor's cross), and a sighting alidade that fit over the compass.



Douglass, Raymond Donald

Dou had a Leiden instrument maker, Jan Davids, make this device around 1605 and, in 1608, used it when he was busy making the dykes around the Beemsterpolder. Today the instrument is usually referred to as a Holland Circle. That name (Cercle Hollandais) was probably first used by the Frenchman A. Laussedat in the nineteenth century, and it was then adopted by several others as Holland Circle, Hollandse Cirkel and Holländischer Kreis. Dou calls it a vollkreisgerätes and indicates it is his own invention. This is, perhaps, a slight exaggeration because of its close resemblance to the usual surveying astrolabe. It was another Dutchman, Gemma Frisius, who first suggested the incorporation of a compass in the back of an astrolabe, but Dou certainly added the fixed sights and this particular combination of scales. The circumference of the circle is graduated into both degrees and sines (the trigonometric scale being of the old form to a radius of 1,000 in one quadrant and over 10,000 in another). Dou's original Dutch edition of this work, also published in 1612, was called Tractaet vant maken ende Gebruycken eens nieuw gheordonneerden Mathematischen Instruments.

Illustrations available: Title page Instrument



Survey instrument, D 63

D 64 **Douglass, Raymond Donald** (1894–) and **Douglas Payne Adams** (1909–)

Elements of nomography

Year: 1947 Place: New York Publisher: McGraw-Hill Edition: 1st Language: English

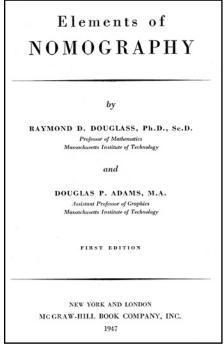
Figures: 1 folding plate (follows p. 24) Binding: original cloth boards; dust jacket

Pagination: pp. viii, 209 Size: 227x150 mm

Douglas was a professor of mathematics at MIT, and Adams was a professor of graphics at the same institution.

This is a textbook on nomography (see the Appendix essay on this topic). It covers everything that an engineer would be likely to need to know about the subject.

Illustrations available: Title page



D 64

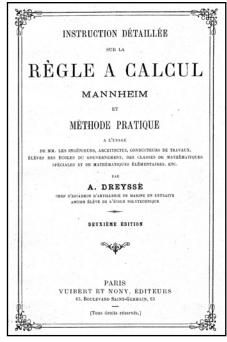
Downes, N., editor See **Fisher, George**; *The instructor; or, young man's best companion*.

D 65 **Dreysse, A.**

Instruction détaillée sur la règle a calcul Mannheim et méthode practique a l'usage de MM. les ingénieurs, architectes, conducteurs de travaux, élèves des écoles du gouvernement, des classes de mathematiques spéciales et de mathématiques élémentaires, etc.

> Year: 1910 Place: Paris

Publisher: Vuibert et Nony



Edition: n/e Language: French

Binding: original paper wrappers

Pagination: pp. 160 Collation: 1⁴2–9⁸10¹² Size: 222x144 mm

This is an extensive, but otherwise unremarkable, manual on the care and use of the Mannheim slide rule.

Illustrations available: Cover page

D 66

Dryander, Johann (1500–1560)

Annulorum trium diversi generis instrumentorum astronomicorum componendi ratio atq. usus, cum quibusdam aliis lectu iucundissimis, quorum catalogu[m] mox versa pagella indicabit.

Year: 1537 Place: Marburg

Publisher: Eucharius Cervicornus

Edition: 1st Language: Latin

Figures: 2 full-page woodcuts, on title and verso

Binding: contemporary vellum

Pagination: ff. [44] Collation: π⁴A–F⁴H–L⁴ Size: 200x148 mm

Reference: H&L, #2459, p. 573; Hymn, #903

Johann Dryander was an astronomer, physician and mathematician who taught at the University of Marburg.



D 66



Astronomer's rings, D 66

See **Beausard**, **Pierre**; *Anuli astronomici*, 1558. This volume contains many of the same items as does the one by Beausard. In particular, it contains the works by

- Boneto, Hebræo; or Bonetus, de Latus: a description of a papal ring made into the form of an astrolabe – very pretty but not very useful.
- Regiomontanus; Ad Bessarionem

M. T.; Compositio alterius annuli astronomici non universalis

Each of these entries should be consulted for a description of the contents.

This major work, by Dryander, is a larger version of that reprinted in 1558, but the content (astronomer's rings and quadrants) is much the same (see **Dryander**, 1558 entry, for details).

Illustrations available: Title page Astronomer's rings

D 67

Dryander, Johann (1500-1560)

Annulorum trium diversi generis instrumentorum astronomicoru[m] co[m]pone[n]di ratio usus, atque cu[m] quibusda aliis lectu iucu[m]dissimis, quoru[m] catalogum mox versa pagella indicabit.

Year: 1558 Place: Paris

Publisher: G. Cavellat Edition: 1st (Collected, 2nd issue)

Language: Latin

Language: Latin
Binding: modern vellum

Pagination: ff. 8, 159, [1] (i.e. ff. 103v-117)

Collation: A⁸a–v⁸ Size: 162x106 mm

Reference: H&L, #2589, p. 488

This work is bound, along with six others, in the volume Beausard, Pierre; Anuli astronomici, 1558. It deals with the multi-ringed sighting device, usually called Astronomical or Astronomer's Rings, shown on the title page. These rings are often ascribed to Gemma Frisius, but others are known to have described them as well. They consist of a set of three rings, usually hinged so that they will fold flat, which represent the meridian, equinoctial and declination circles. They have a suspension mechanism (shown here simply as a string) that can be moved so that the rings can be angled according to the user's latitude. They were not a very useful instrument, and Tycho Brahe considered it in the same category as a toy. Its main application was as a type of portable sundial—William Oughtred designed a universal ring dial on this same principle.

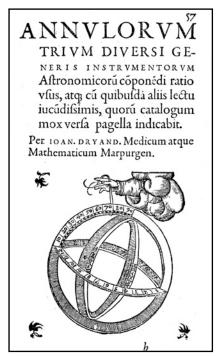
After describing the construction of the rings and giving tables for the markings, Dryander goes on to other astrolabe-like devices and gives a table for the latitudes spanned by the traditional eight *climates* of the earth. Two other works deal with this same topic in this volume (**Mithob**, 1558, and **Fine**, 1558)

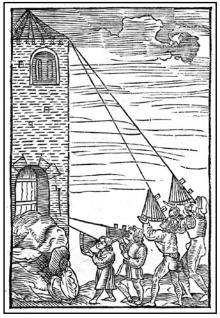
He ends with a section on the use of a quadrant-like sighting instrument and deals with the same problem (that of finding the height of a tower on a rock, the base of which is inaccessible) used by **Gemma Frisius** (1558) in the preceding work in this volume.

Illustrations available:

Title page

Finding heights of towers with Astronomer's rings





Quadrant survey problem, D 67

Dudley Observatory

Inauguration of the Dudley Observatory, Albany, August 28, 1856

Year: 1856 Place: Albany, NY

Publisher: Charles Van Benthuysen

Edition: 1st Language: English

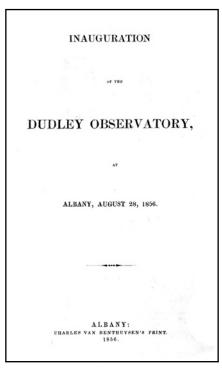
Binding: lacks original paper wrappers

Pagination: pp. 129, [1] Size: 230x145 mm

The Dudley Observatory became the home of the first Scheutz difference engine when it was purchased by Dr. B. A. Gould. This is a record of the speeches given by Gould and others at the inauguration of the observatory.

Illustrations available:

Title page



D 68

D 69

Dudley, Robert (1574–1649)

Arcano del mare di D. Ruberto Dudleo Duca di Nortumbria, e Conte di Waruich diviso in libri sei. Nel primo, de'quali si tratta della longitudine practicabile in diversi modi, d'invenzione dell'autore. Nel secondo, della carte sue generali, e de'portalani rettificati in longitudine, e latitudine. Nel terzo, della disciplina sua marittima, e militare. Nel quarto, dell'architettura sua nautica di vascelli da guerra. Nel quinto, della navigazione scientifica, e perfetta, cioè spirale, ò di gran circoli. Nel sesto, delle carte sue geografiche, e particolari. (Book Six lacking). Impressione seconda. Corretta & accresciuta, secondo l'originale del medesimo Eccellentiss. Signor Duca, che si conserna nella Libreria da Convento di Firenze della Pace, di Monaci di S. Bernardo dell'ordine Fuliense.

> Year: 1661 Place: Florence

Publisher: Giuseppe Cocchini

Edition: 2nd Language: Italian

Figures: 144 plates on 88 leaves

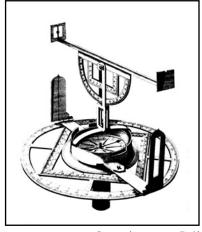
Binding: contemporary leather; rebacked

Pagination: pp. [4], 30, 24, 26 (mis# 7 as 5, 8 as 6),12, 26

Collation: π^1 § 1 A-P 1 A-M 1 A-N 1 A-F 1 A-N 1

Size: 519x385 mm Reference: Not In Rcdi *BMI*

Robert Dudley was the son of Robert Dudley, Earl of Leicester, one of the courtiers of Queen Elizabeth I. He studied in Oxford and, according to the DSB, at the age of twenty-one he was given command of two ships to the West Indies. In 1605, he left his wife and children and moved to Italy with Elizabeth Southwell, one of the great beauties of the day, with whom he was to have thirteen children. He entered the service of the Duke of Tuscany and was given charge of several major engineering works. When he failed to heed a government order to return to England in 1606, his lands were forcibly sold, and some of the proceeds were used to support his English wife and daughters. His titles (Duke of Northumberland and Earl of Warwick) were invented by him and were invalid in England (they were, however, confirmed by the Holy Roman Emperor Ferdinand II in recognition of his services). He became interested in problems of navigation while a student largely because of his association with Thomas Cavendish (brother-inlaw via his first wife and famous as a circumnavigator).



Survey instrument, D 69



His Arcano del Mare (Secrets of the Sea) was published in three very large volumes. It is the earliest printed sea atlas to cover the entire world and the first to use the Mercator projection. It is an encyclopedia of everything connected with the sea from shipbuilding to navigation to cartography. This volume, the only one of the three in this collection, contains the text and volvelles for the sections devoted to navigation. It has been said that this volume is to the history of precision instruments of the seventeenth century what Peter Apian's Astronomicum Caesareum (not in this collection) was to the sixteenth.

The magnitude of this work can be judged from what Antonio Francisco Lucini says in the introduction-that he worked on the copper plates for twelve years and used no less than 5,000 pounds of copper in the process. The first edition was published in Florence in 1646–1647.

Illustrations available:

Title page

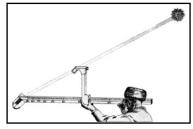
Title page instrument

Back sight of sun

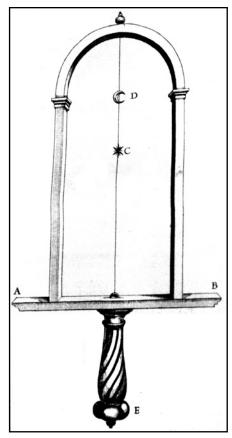
Survey instrument

Mariner's astrolabe Sighting instrument with hairline sight

Quadrants



Back staff, D 69



Sighting device, D 69

D 70

Dufet, Léon

Baréme - Nouveau calculateur universel

Year: n/d Place: [Paris] Publisher: Léon Dufet Edition: n/a

Language: French Size: 514x600 mm

This is a large single sheet—printed in red, blue and black—of a multiplication table of all products of numbers from 1 to 60 by all numbers from 1 to 100.

Illustrations available: Portion of table (color)

	1	2	3	4	5	6	7	8	9	10	11
1	1	2	3	4	5	6	7	8	9	10	11
2	2	4	. 6	8	10	12	14	16	18	20	25
3	3	6	9	12	15	18	21	24	27	30	33
4	4	8	12	16	20	24	28	32	36	40	4
3	5	10	15	20	25	30	35	40	45	50	55
6	6	12	18	24	30	36	42	48	54	60	66
7	7	14	21	28	35	42	49	56	63	70	77
8	8	16	24	32	40	48	56	64	72	80	88
9	9	18	27	36	45	54	63	72	81	90	99
10	10	20	30	40	50	60	70	80	90	100	110
11	11	22	33	44	-55	66	77	88	99	110	121
12	12	24	36	48	60	72	84	96	108	120	139

D 70

Dunlop, Henry Cleland (1855-) and Charles Samuel Jackson (1867–1916)

Slide rule notes

Year: 1913 Place: London

Publisher: Longmans, Green and Company

Edition: 1st Language: English Binding: original cloth boards Pagination: pp. [8], 128

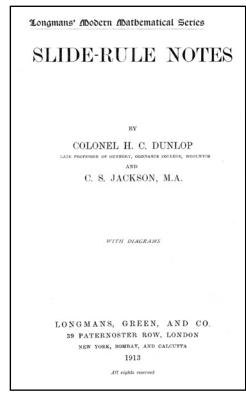
Collation: π⁴A-H⁸ Size: 185x121 mm

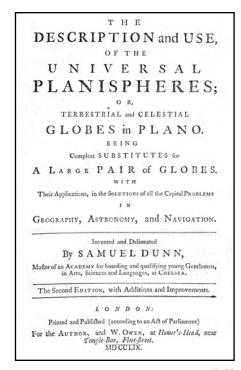
Dunlop was a colonel in the British army and a professor of gunnery at the Ordnance College, Woolwich. Jackson was one of three editors of the Longmans' Modern Mathematical Series books of which this work was a part.

This is an instruction book on the Mannheim slide rule. According to the short preface, it is an expanded version of an earlier (1911) pamphlet written by the same two authors.

Illustrations available:

Title page





D 72

D 72

Dunn, Samuel (1723–1794)

The description and use of the universal planispheres; or, terrestrial and celestial globes in plano. Being compleat substitutes for a large pair of globes. With their applications, in the solutions of all the capital problems in geography, astronomy, and navigation.

> Year: 1759 Place: London

Publisher: For the author and W. Owen

Edition: 2nd Language: English Binding: original paper boards Pagination: pp. [8], xxx, [2], 159, [1] Collation: π^4 a- d^4 B- G^4 H-4H 4 I- S^4

Size: 226x145 mm

Samuel Dunn was a mathematics teacher in Devon until 1751, when he established a school and observatory in the Chelsea district of London. He is known to have published a large number of books and pamphlets, all of them on the general subject of navigation and the observation of astronomical phenomena. In 1774, he was appointed to the position of mathematical examiner to candidates for service with the East India Company.

This was the first of Dunn's navigational publications. It is a description of a set of maps outfitted with a transparent index that, when placed over the maps, shows the circles of the sphere instantly projected on the plane of the meridian.

The work contains a number of recommendations (in both English and French) attesting to the usefulness of these *universal planispheres*. It also contains an expanded preface (from that found in the first edition) in which Dunn justifies his projection of the sphere as being correct.

The material included is comprehensive in that it covers all aspects of the use of globes. It also contains tables that facilitate calculation of the dates for movable Christian feasts, etc. A previous owner has heavily annotated some of the tables with corrections and additions.

The first edition was in 1757.

Illustrations available: Title page

73

Du Pasquier, Louis-Gustave (1876–1957)

Le développement de la notion de nombre

Year: 1921 Place: Paris

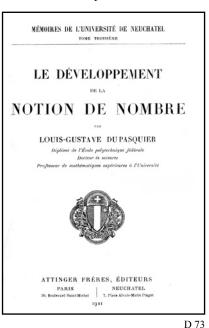
Publisher: Attinger Frères

Edition: 1st Language: English

Binding: contemporary three-quarter leather over boards

Pagination: pp. [8], 192 Collation: π^41-12^8 Size: 237x153 mm

Du Pasquier was a professor of mathematics at the École Polytechnique. He also wrote a number of books on actuarial science, hypercomplex numbers and other advanced mathematical topics.



This work is an examination of the number concept. He covers the beginnings of numeration and describes the different number systems that have evolved in various societies. The emphasis here is different from that of many similar works in that he mainly considers the many different forms of counting in an oral context rather than a written one, although written systems are discussed.

Illustrations available:

Title page

D 74

Dupuit, Jules (1804–1866)

Notice sur un procede mecanique pour la measure des surfaces, et specialment de celles des deblais et remblais des projets de routes, canaux, chemins de fer, etc., etc.

Year: 1843

Place: Chalons sur Marne

Publisher: Imprimerie de Boniez - Lambert

Edition: 1st Language: French

Figures: large folding plate

Binding: original paper wrappers; uncut

Pagination: pp. [ii], 18 Size: 220x140 mm

This work is uncut and consequently difficult to examine. It apparently describes a device that will measure areas.

Illustrations available:

Title page





D 75 **Dürer, Albrecht** (1471–1528) [**Joachim Camerarius** (1500–1574), translator]

Institutiones geometricae

Year: 1532 Place: Paris

Publisher: Christian Wechel

Edition: 1st (Latin) Language: Latin Figures: 9 plates

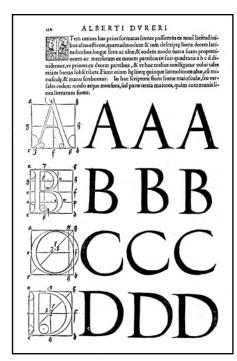
Piglines: 9 places Binding: contemporary vellum Pagination: pp. [8], 188 Collation: a⁴A–P⁶Q⁴ Size: 315x215 mm

Reference: Harvard, 225; Bru MLAL II, pp. 912-913

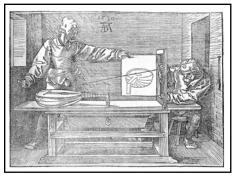
Albrecht Dürer, the celebrated painter and engraver from Nuremberg, is famous for his woodcuts, many of which show mathematical themes both in the subject (e.g., a magic square in *Melancholia*) and in the composition. He engraved the largest woodcut ever done (100 sq. ft.)(9 sq. m.).

Dürer's landmark work on perspective, *Underweysung der messung*, Nuremberg, 1525, was written in German and thus had limited distribution in Europe. This translation into Latin by his friend Joachim Camerarius made Dürer famous.

It is a work of great importance in the history of art, perspective and mathematics. The woodcuts in this edition, dated 1530, are not those used in the original German edition, but are very close copies. Dürer was



Type design, D 75



Perspective instrument, D 75



Letter design, D 75



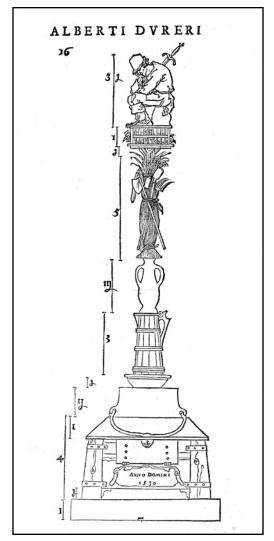
Perspective instrument, D 75

the first to construct instruments to help the artist with problems in perspective (a technique just then developing in Europe). Two famous woodcuts illustrate these devices, one showing a painter doing a portrait on a screen while looking through an adjustable eyepiece, and the other noting the outlines of a lute while the artist's assistant controls a string representing the line of sight.

The work is divided into four basic sections, each of which is used to illustrate some aspect of Dürer's practical approach to art and esthetics. It begins with problems in geometry and then applies this material in sections dealing with architecture, engineering, and typography. The entire work had a great influence on type design, presentation of three-dimensional bodies (sight lines, lighting, shadows, etc.) and perspective.

Illustrations available:

Title page
Perspective 1 (lute)
Perspective 2 (portrait)
Colophon
Letter sample (gothic)
Letter design
Architecture



Architecture design, D 75



Am, Bilibalde præstantissime amicissimé que, scribé di finem faciam, atque deo optimo maximo fauete ad eos libros quos de humana proportione conscripsi, & alios quos dam ad idem spectantes edédos suo tempore me accingam.

Deo omnipotenti sit laus gloria & imperium.

FINIS.

Lutetiæ apud Christianum Wechelum, Anno M.D.XXXII. Nonis Augusti.

Durr, Karl (1888–)

The propostitional logic of Boethius

Year: 1951 Place: Amsterdam Publisher: North-Holland

Edition: 1st Language: English

Binding: original paper boards; with dust jacket

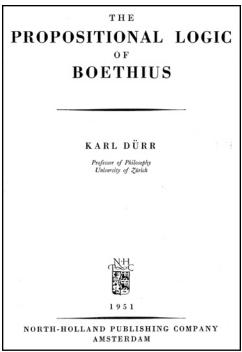
Pagination: pp. 79 Size: 215x151 mm

Durr was a professor of philosophy at Zurich.

This work, a commentary on the work of **Boethius**, was scheduled for publication as part of a larger work in 1939 but World War II put a halt to the project. It finally appeared in 1951 as part of a series of works, *Studies in Logic and the Foundation of Mathematics*, published by North-Holland.

Illustrations available:

Title page



D 76

D 77

Duyrcantius, Petrus Andreas

Gereduceerde tafelen van interest ...

Year: 1638 Place: Rotterdam

Publisher: Widow of Matthijs Bastiaensz

Edition: 1st Language: Dutch

Figures: engraved title page Binding: old vellum recased Pagination: ff. [2], 162, [4] Collation: A–X⁸

Size: 190x147 mm

Reference: B de H BNHS, #1285, p. 80

Little is known of the author other than the fact that he was a school teacher in Loosduinen, Netherlands.

This is a ready reckoner for interest.

Illustrations available:

Title page Sample table

	laren teffens/	Ober 7 Jaren teffens/				
	Gul, ftv. pen.	DUE				
	1409—18—6	anna milhaud	Oul. fin. pen.			
1000 anipens		1000 guidens	665			
900 guldeng	704—19—3 634—9—4	900 guldeng	598-11-0			
800 guldeng	563-19-5	800 guidens	532-0-14			
700 guldeng	493 7	700 guldens	465-10-12			
600 gulbens	422-19-8	600 guidens	399			
coo guldens	352- 9- 9	500 guldens	332-10-9			
400 guldens	281-19-10	400 guldens	266 7			
300 guldeng	211 912	300 guidens				
200 guldeng	140-19-13	200 guldens	199-10-5			
100 guldens	70	100 auldens	66-10- I			
90 aufbeng	63 814	90 gulbens	59-17- I			
80 aufdens	56 714	80 aufbens	53 4 I			
70 gulbeng	49 6 15	70 guldens	53—4— r 46—11— r 39—18— r			
60 gulbens	42 5	60 guldens	3918 I			
50 guidens	35 4	50 guldeng	33 5 0			
40 guldens	28	40 guldens	260			
30 guldens	2115	30 gulbeng	19-19-0			
20 guldeng	14-1-15	20 guldeng	13 6 0			
10 gulbeng	7 0	10 guldeng	613 0			
9 guldens	614	9 gulbens	5			
8 guldeng	51212	8 guldeng	5 6 6			
7 guldens	41811	7 guidens	4-13-1			
6 guldens	4 4 9	6 guldeng	3-19-12			
5 gulbens	3-10-7	5 guldens				
4 guldens	2166	4 guldeng	2-13-3 1-19-14			
3 gulbens		3 gulbens	1			
2 guldeng	1 8 3 014 1	2 gulbens	0-13-4			
ı gulben	070	1 gulden 10 ftupvers	0610			
10 ftupbers	0 6 5	o flupbers	0-5-15			
9 stupbers	0-5-10	8 ftupbers	0			
7 ftupbers	0	7 ftupbers	0 410			
6 stupbers	0 4 3	6 Aupbers	0			
s finovers	0 3 8	s ftupbers	0 3 5			
4 ftupbers	0-2-13	4 ftupbers	0			
3 ftupbers	0-2-1	3 ftupbers	0			
2 ftupberg	0 6	2 ftupbers	0 5			
1 ftupber	011	ı ftupber	019			

Interest table, D 77

