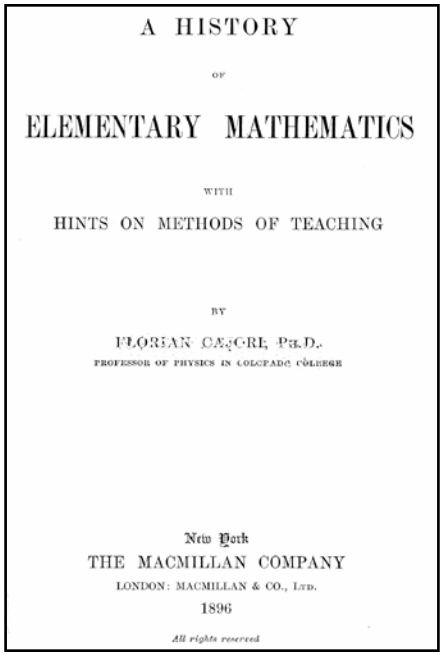
Boethius, *Arithmetica Duobus*, 1521

C 1

Cajori, Florian (1859–1930)

A history of elementary mathematics with hints on methods of teaching

Year: 1896
Place: New York
Publisher: Macmillan
Edition: 1st
Language: English
Binding: original cloth boards; gilt spine
Pagination: pp. viii, 304, [6]
Collation: $A^4B–U^8\chi3$
Size: 203x132 mm
Reference: Cre *CL*, p. 103



A HISTORY

OF

ELEMENTARY MATHEMATICS

WITH

HINTS ON METHODS OF TEACHING

BY

FLORIAN CAJORI, PH.D.

PROFESSOR OF PHYSICS IN COLORADO COLLEGE

New York

THE MACMILLAN COMPANY

LONDON: MACMILLAN & CO., LTD.

1896

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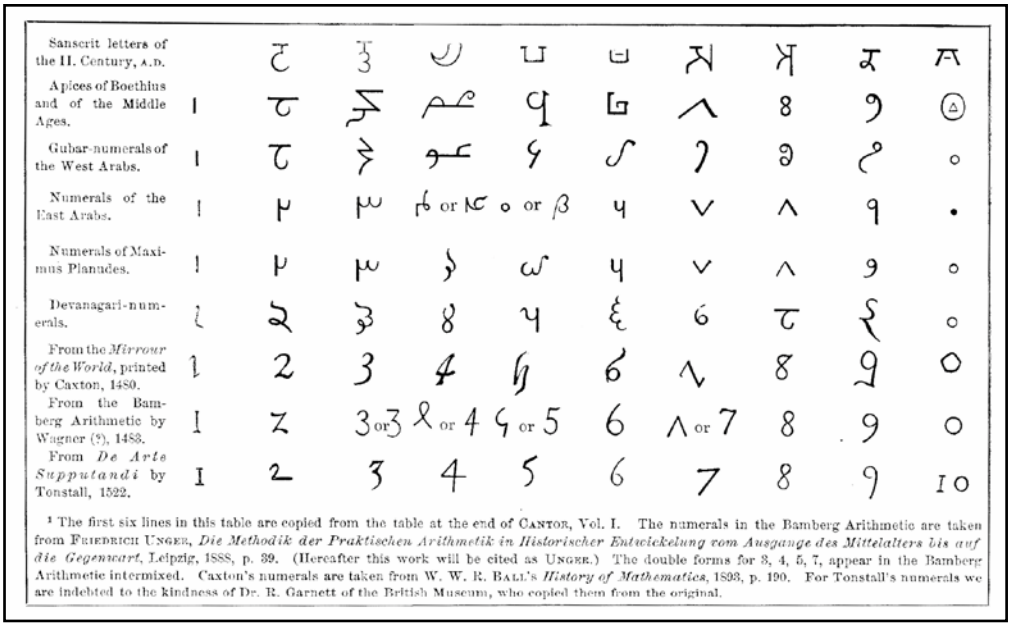
C 1

Florian Cajori was born in Switzerland and emigrated to the United States when he was sixteen years old. He started his career a teacher of mathematics at Tulane University and by the time of this publication had become a professor at Colorado College in Colorado Springs, where he eventually rose to be dean of the School of Engineering. Eventually he was invited to become professor of the history of mathematics at the University of California, a post he held for the rest of his life. His publications deal mostly with the elementary aspects of mathematics, e.g., arithmetic, mathematical signs and symbols, etc., but he also wrote on the history of physics and produced some less successful works in mathematics itself. While he often described these areas as *elementary* (as in the title of this work), the level of his scholarship was certainly not.



Sanskrit letters of the II. Century, A.D.

Apices of Boethius and of the Middle Ages.

Gubar-numerals of the West Arabs.

Numerals of the East Arabs.

Numerals of Maximus Planudes.

Devanagari-numerals.

From the *Mirrour of the World*, printed by Caxton, 1480.

From the Bamberg Arithmetic by Wagner (?), 1488.

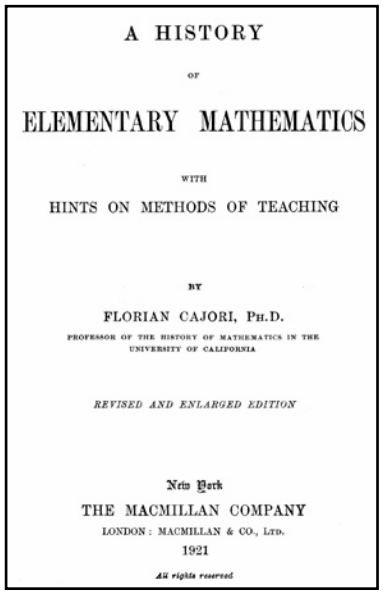
From *De Arte Supputandi* by Tonstall, 1522.

[1] The first six lines in this table are copied from the table at the end of CANTOR, Vol. I. The numerals in the Bamberg Arithmetic are taken from FRIEDRICH UNGER, *Die Methodik der Praktischen Arithmetik in Historischer Entwickelung vom Ausgange des Mittelalters bis auf die Gegenwart*, Leipzig, 1888, p. 39. (Hereafter this work will be cited as UNGER.) The double forms for 3, 4, 5, 7, appear in the Bamberg Arithmetic intermixed. Caxton's numerals are taken from W. W. R. BALL'S *History of Mathematics*, 1893, p. 190. For Tonstall's numerals we are indebted to the kindness of Dr. R. Garnett of the British Museum, who copied them from the original.

Numeral shapes, C 1

This work deals with the history of arithmetic, geometry, and elementary algebra from the earliest times through the Middle Ages. It touches on other developments prior to the twentieth century, but other than the section that deals with the development and teaching of arithmetical processes, this is really a survey. This work is particularly valuable for its account of the different types of arithmetic processes that have been used.

Illustrations available:
Title page
Table of numeral shapes


A HISTORY
OF
ELEMENTARY MATHEMATICS
WITH
HINTS ON METHODS OF TEACHING
BY
FLORIAN CAJORI, PH.D.
PROFESSOR OF THE HISTORY OF MATHEMATICS IN THE UNIVERSITY OF CALIFORNIA
REVISED AND ENLARGED EDITION
New York
THE MACMILLAN COMPANY
LONDON: MACMILLAN & CO., LTD.
1921
All rights reserved

C 2

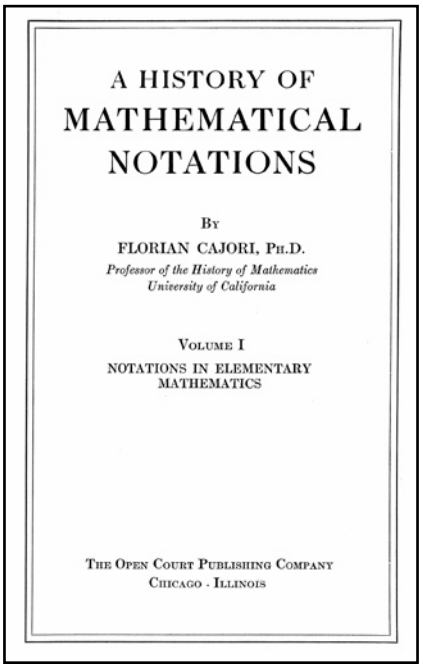
C 2
Cajori, Florian (1859–1930)

A history of elementary mathematics with hints on methods of teaching

Year: 1921
Place: New York
Publisher: Macmillan
Edition: 4th
Language: English
Binding: original cloth boards; gilt spine
Pagination: pp. viii, 324
Collation: $A^4B–T^8\chi^8P^{10}$
Size: 200127 mm
Reference: Cre *CL*, p. 103

A revision was done to this text in 1916. Although the title page states that this edition is *Revised and Enlarged*, the changes are minor. The greatest change is the addition of nineteen pages at the end discussing *recent movements in teaching*. In this section, Cajori mentions the famous 1836 attack on the value of mathematics education by Sir William Hamilton. Indeed, it was this incident that inspired **George Boole** into considering the subject of logic mathematically (see entry for **Boole**, 1854).

Illustrations available:
Title page


A HISTORY OF
MATHEMATICAL
NOTATIONS
BY
FLORIAN CAJORI, PH.D.
Professor of the History of Mathematics
University of California
VOLUME I
NOTATIONS IN ELEMENTARY MATHEMATICS
THE OPEN COURT PUBLISHING COMPANY
CHICAGO · ILLINOIS

C 3

C 3
Cajori, Florian (1859–1930)

A history of mathematical notations. Volume I. Notations in elementary mathematics

Year: 1928
Place: Chicago
Publisher: Open Court
Edition: 1st
Language: English
Binding: original cloth boards; with dust jacket
Pagination: pp. xvi, 452
Size: 229x150 mm
Reference: Pul *HA*, p. 117

The publication for which Cajori is best remembered, this is an in-depth examination of the systems of notation used by mathematicians. It is, by far, the best work on the subject. Volume 1 treats numerals and signs used in notation and elementary algebra, the signs used both for arithmetical operations and for designation of roots and symbols used in geometry. The second volume deals with similar subjects from the areas of algebra, analysis, logic, calculus, and others. The last section quotes various historical figures (e.g., **Charles Babbage**, **A. DeMorgan**, **D. E. Smith**, etc.) on teaching the history of mathematics. This work has been reprinted and is available in a paperback edition.

The collection lacks Volume II of this first edition.

Illustrations available:
Title page
One page of a table of Oughtred's use of symbols.

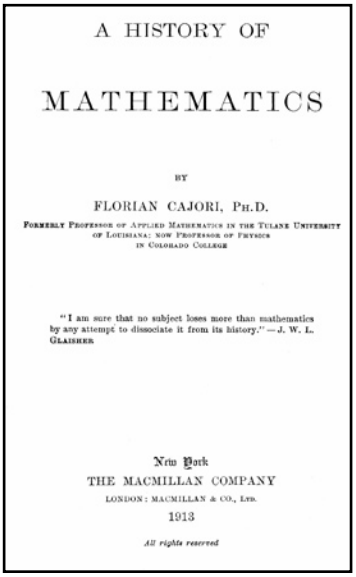
C 4
Cajori, Florian (1859–1930)

A history of mathematical notations. Volume I. Notations in elementary mathematics. Volume II. Notations mainly in higher mathematics

Year: 1928
Place: Chicago
Publisher: Open Court
Edition: 1st (3rd Printing)
Language: English
Binding: original cloth boards; with dust jacket
Pagination: v.1: pp. xvi, 451, [1]; v.2: pp. xx, 367, [1]
Size: 229x150 mm

This third printing is identical to the earlier ones. Both volumes are present in the collection.

Illustrations available:
None


A HISTORY OF

MATHEMATICS

BY

FLORIAN CAJORI, PH.D.

FORMERLY PROFESSOR OF APPLIED MATHEMATICS IN THE TULANE UNIVERSITY OF LOUISIANA; NOW PROFESSOR OF PHYSICS IN COLORADO COLLEGE

"I am sure that no subject loses more than mathematics by any attempt to dissociate it from its history." — J. W. L. GLAISHER

New York
THE MACMILLAN COMPANY
LONDON: MACMILLAN & CO., LTD.
1913
All rights reserved

C 5

C 5
Cajori, Florian (1859–1930)

A history of mathematics

Year: 1913
Place: New York
Publisher: Macmillan
Edition: 1st (7th issue)
Language: English
Binding: original cloth boards; gilt spine faded
Pagination: pp. xiv, 422, 22, [6]
Size: 201x131 mm
Reference: Cre *CL*, p. 103; Pul *HA*, p. 117

This general history of mathematics was written prior to Cajori's decision to concentrate on the history of the *elementary* aspects of mathematics. Although he deals with the usual figures and events, his focus on numeration and arithmetic is quite evident as the largest portion of the book is devoted to those topics. Cajori clearly experienced difficulties with his analysis of developments in nineteenth century mathematics, insufficient time having passed to provide the perspective historians require on their topics.

Illustrations available:
Title page

C 6
Cajori, Florian (1859–1930)

A history of mathematics

Year: 1919
Place: New York
Publisher: Macmillan
Edition: 2nd
Language: English
Binding: original cloth boards; gilt spine
Pagination: pp. x, 516
Size: 213x140 mm
Reference: Cre *CL*, p. 103

This second edition was revised and many sections enlarged with new material. In particular, the treatment of nineteenth-century developments, not particularly well done in the earlier version, was almost completely recast and substantially expanded.

Illustrations available:
Title page

C 7
Cajori, Florian (1859–1930)

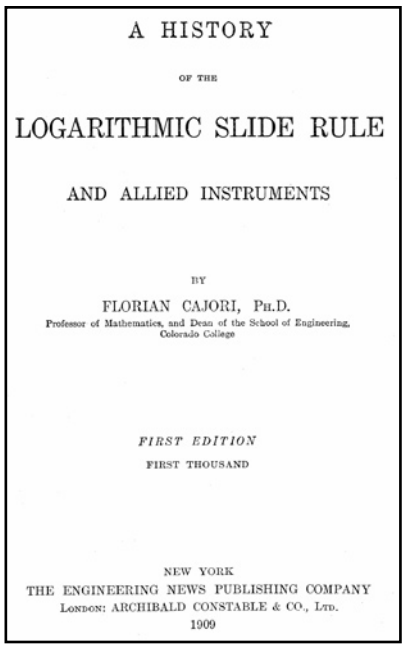
A history of the logarithmic slide rule and allied instruments

Year: 1909
Place: New York
Publisher: Engineering News
Edition: 1st
Language: English
Figures: 5 engraved plates (4 folding)
Binding: original cloth boards
Pagination: pp. viii, 126, x
Size: 189x125 mm
Reference: Cre *CL*, p. 103

Cajori's interest in calculation naturally led him to consider the subject of the slide rule. At the time this book was written, that topic was obscure, with historians attributing the invention of the slide rule variously to **William Oughtred**, **Richard Delamain** or **Edmund**

Wingate. While Cajori could not travel to inspect all the relevant publications himself, he did arrange for them to be inspected on his behalf and had copies made of a large number. He concluded that **Oughtred** invented the circular slide rule, and **Wingate** had published a description of a linear slide rule in 1630, as did **Oughtred** in 1632. The dates of invention are, of course, not the dates of publication, and modern scholarship usually gives the credit for sliding one logarithmic scale against another (as opposed to using **Gunter**'s line of numbers and a compass) to **Oughtred**. Cajori illustrates his history with examples from the works of authors such as **Bion**. The last section lists slide rules manufactured since 1800 and a bibliography. Both of these have been superseded by Peter M. Hopp, *Slide rules: Their history, models, and makers*, Astragal Press, 1999. This work by Cajori was also reprinted by Astragal Press in 1994.

Illustrations available:
Title page
Attribution of its invention


A HISTORY

OF THE

LOGARITHMIC SLIDE RULE

AND ALLIED INSTRUMENTS

BY

FLORIAN CAJORI, PH.D.
Professor of Mathematics, and Dean of the School of Engineering, Colorado College

FIRST EDITION
FIRST THOUSAND

NEW YORK
THE ENGINEERING NEWS PUBLISHING COMPANY
LONDON: ARCHIBALD CONSTABLE & CO., LTD.
1909

C 7

C 8
Cajori, Florian (1859–1930)

William Oughtred. A great seventeenth - century teacher of mathematics

Year: 1916
Place: Chicago
Publisher: Open Court
Edition: 2nd
Language: English
Binding: original cloth boards; gilt-stamped cover and spine
Pagination: pp. vi, 100
Size: 186x123 mm

After investigating the history of the slide rule, Cajori was naturally drawn to the major figure in its creation and produced this fascinating biography, still considered the definitive work on **William Oughtred**. A second copy is available in the collection.

Illustrations available:
Title page

C 9

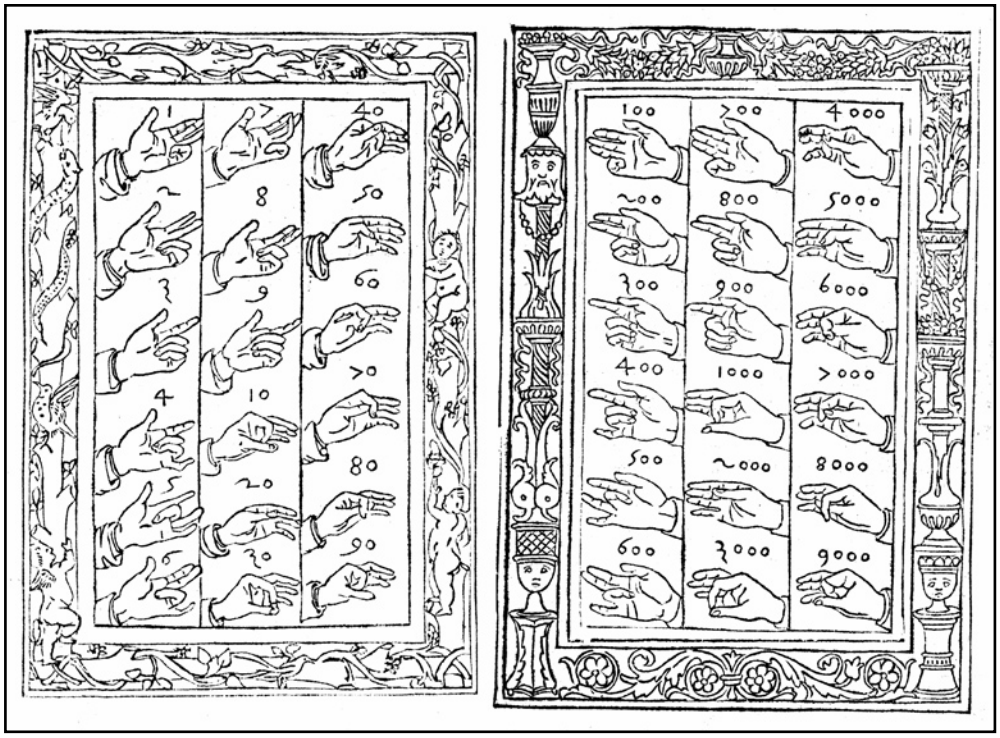
C 9
Calandri, Filippo (ca.1430–)

Pictagoras arithmetrice introductor. [Incipit] Philippi Calandri ad nobilem et studiosum Julianum Laurentii Medicem de arimethrica opusculum

Year: 1491
Place: Florence
Publisher: Lorenzo de Morgiani et Giovanni Thedesco da Maganza
Edition: 1st
Language: Italian
Binding: modern vellum
Pagination: ff. [104]
Collation: $a^4b–i^8l–o^8p^4$
Size: 139x100 mm

Calandri (Philippus Calender, Philippus Calandrus, Philippi Calandri) authored the first Italian book on arithmetic with illustrated problems.

The woodcut frontispiece illustrates Pythagoras giving an arithmetic lesson to two students. The incipit heads the facing page, followed by the text. In the introduction, Calandri attributes the first description of the Arabic

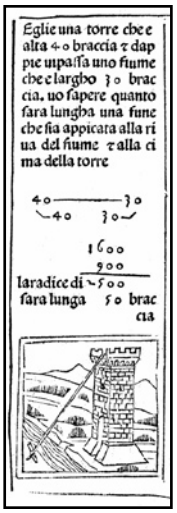


Finger numerals, C 9

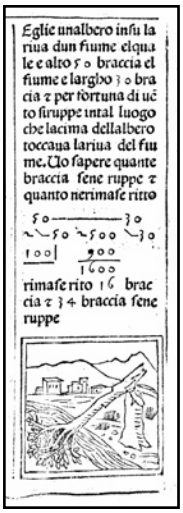
numerals to Leonardo of Pisa (Fibonacci) in 1200 and notes that they originated in India. The text reads:

> Vero e che il mondo del notare e numeri con decte figure dice Lionardo pisano haver nel Mcc incirca rechato dindia in Italia: et decti carateri: o vero figure essere indiane: et appresso deglindi havere imparato la copulatione desse.

A free-form translation would be "The figures were introduced into Italy by Leonardo Pisano in approximately 1200. It was learned Indians that taught him the methods of calculation."



Example 4, C 9

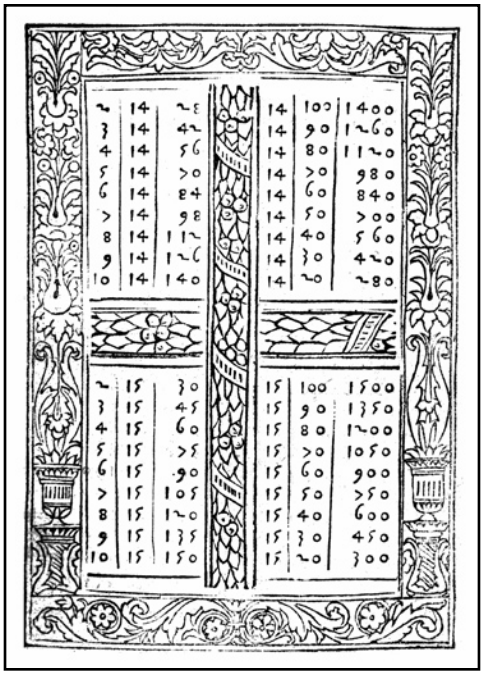


Example 5, C 9

This very early arithmetic illustrates the link between the Arabic and later European forms of the numerals, which only became standardized in Europe with the introduction of printing. While the figures are easily recognizable (see the illustration of the multiplication tables), they clearly show their Arabic heritage, particularly in the form of the 2 and the 7. The alphabetic portions of the text are printed in what is usually called *black letter* from its rather heavy style. The numbers are set in a much lighter font, a choice that might imply that they were made for this (or a similar) project—at that time it would have been more common to use the black letter font for the usual Roman numerals.

There are many noteworthy aspects to this work: one is the inclusion of the finger numerals in a form often attributed to the **Venerable Bede** (see the entry for **Bede, Venerabilis**; *De computo per gestum digitorum*, 1525); another is the illustration Calandri uses to introduce the numerals and how they are to be read—it shows strong Arabic influences, particularly in the right to left order in which the numerals are presented.

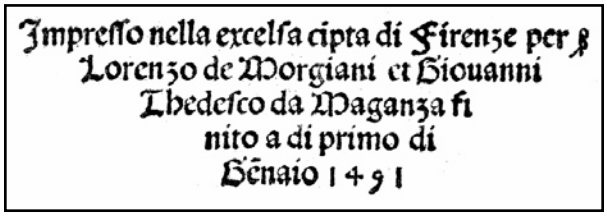
Before this was published (and for at least a hundred years after), the *galley form* was the usual way of performing division. Calandri was the first to use the modern form of division in print (see division example where 53497 is divided by 83 – see also **Smith**, *Rara*, for an explanation of this example).



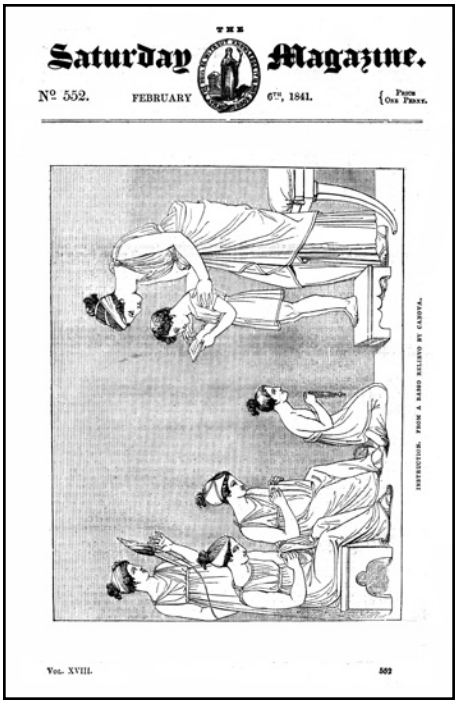
Multiplication table, C 9

After describing the methods for performing arithmetical operations (division is only shown by example and not actually described), Calandri demonstrates their use by giving the solutions to a large number of problems, many accompanied by small illustrations, the first such book to do so. These problems involve finding the lengths of diagonals, circumference of circles ($\pi = 3\ ^1/_7$) and various volume and weight-related questions.

Illustrations available:
- Frontispiece (title page 1)
- Incipit (title page 2)
- Introduction (remark about Leonardo of Pisa)
- Number names (and an extract of this image)
- Multiplication table 1
- Multiplication table 2
- Finger numerals
- Finger numerals A (first page)
- Finger numerals B (second page)
- Division example (see Smith *Rara*)
- Example 1 (diagonal of a rectangle – Pythagorean theorem)
- Example 2 (circumference) PI
- Example 3 weight of cylinder
- Example 4 height of tower
- Example 5 (tree, River)
- Colophon



Colophon, C 9



C 10

C 10
[**Calculating Machines**]

Calculating machines. In *The Saturday Magazine, Part 1. Vol. XVIII, No. 547, January 9, 1841; Part 2. Vol. XVIII, No. 549, January 23, 1841; Part 3. Vol. XVIII, No. 552, February 6, 1841.*

Year: 1841
Place: London
Publisher: John William Parker
Edition: 1st
Language: English
Binding: disbound
Pagination: Part 1: pp. 11–12; Part 2: pp. 28–30; Part 3: pp. 52–54
Size: 176x183 mm

These three issues contain an unsigned column on calculating machines. The first is about **Charles Babbage**'s Difference Engine; the second, the calculating board of the blind mathematician **Nicholas Saunderson** as well as the machines of **Gersten** and **Pascal** while the third describes **Napier**'s bones and the abacus.

Illustrations available:
- Cover page of first issue

Calculating Machines
See entry for **Conservatoire National Des Arts Et Métiers - [France]**; *Catalogue du musée section A: Instruments et machines a calculer.*

See entry for: **Conservatoire National Des Arts Et Métiers -** [**France**]; *Catalogue officiel des collections du Conservatoire National des Arts ...*

Further information about the Pascal calculator can be found in *De la machine à calculer de Pascal à l'ordinateur. 350 ans d'informatique*, Conservatoire National Des Arts Et Métiers, Paris, 1990.

Calculating Machines – Bollée

Further information on Bollée's machine can be found in *Rapport fait par M. le Général Sebert, au nom du Comité des arts économiques, sur les machines à calculer de M. Léon Bollée, du Mans.* in *Bulletin de la Société d'Encouragement pour l'Industrie Nationale, Vol. 132, September-October 1920.*

Calculating Machines - Didelin

Further information on the little-known Didelin machine can be found in *Rapport fait par M. le General Sebert, au nom du Comité des arts économiques, sur un appareil ca'culateur presenté par M. Didelin 21,rue Bréa, à Paris.* in *Bulletin de la Société d'Encouragement pour l'Industrie Nationale, Vol. 132, September-October 1920.*

Calculating Machines - Lagros

Further information on the little-known Lagros machine can be found in *Rapport fait par M. Jomard sur un procédé mécanique pour faire les additions, imaginé par M. Lagros, quai de l' Horloge, no. 65, Paris.* in *Bulletin de la Société d'Encouragement pour l'Industrie Nationale, Vol. 132, September-October 1920.*

Calculating Machines - Maurel et Jayet

See **Maurel and Jayet**; *Machine arithmétique, de MM. Maurel et Jayet.*

C 11

Calculating Machines - Payen

Arithmomètre L. Payen. Machine à calculer

Year: c.1910
Place: Paris
Publisher: Widow of L. Payen
Edition: 1st
Language: French
Binding: original paper wrappers
Pagination: pp. XXVIII, [1], 13
Size: 240x155 mm
Reference: Ran *ODC*, p. 430

This is an account of the calculating machine built by L. Payen, which was essentially identical to the machines produced by **Thomas de Colmar**. The Thomas machines had always been manufactured by contractors to Thomas' design. When **Thomas de Colmar** died in 1870, his son, Thomas de Bojano, ran the firm for a short period, then sold the patents to several of the contractors, one of whom was Payen. He essentially continued the Thomas firm in Paris and licensed other manufacturers (Darras, Peerless, **Burkhardt**, Bunzel, etc.) who established themselves in other countries. A four-page product brochure is laid in.

Illustrations available
None

Calculating Machines – Roth

Further information about the Roth calculating machine can be found in *Rapport fait par M. Théodore Olivier, au nom du Comité des arts mécaniques, sur des machines à calculer présentées par M. le docteur Roth, boulevard des Capucines, 24,* in *Bulletin de la Société d'Encouragement pour l'Industrie Nationale, Vol. 132, September-October 1920.*

Calculating Machines - Thomas De Colmar

Further information about the Thomas machine can be found in the following two articles:

Rapport fait par M. Benoit, au nom du Comité des arts mécaniques, sur l'arithmométre perfectionné, inventé par M. Thomas de Colmar, directeur de la Compagnie d'assurance du Soleil, rue du Helder, 13.

Rapport fait par M. Sebert, au nom du Comité des arts économiques, sur la machine à calculer, dite arithmométre, inventé par M. Thomas (de Colmar) et perfectionée par M. Thomas de Bojano, 44, rue de Châteaudun, à Paris.

Both are in *Bulletin de la Société d'Encouragement pour l'Industrie Nationale, Vol. 132, September-October 1920.*

C 12

Callender, A.; **Douglas Rayner Hartree** (1897–1958) and **Arthur Porter** (1910–)

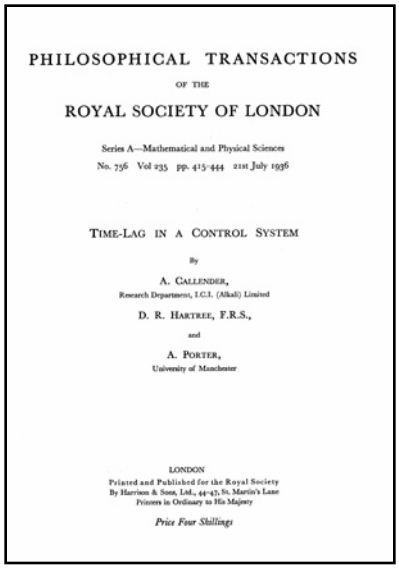
Time-lag in a control system. In *Philosophical Transactions of the Royal Society of London. Series A. No. 756, Vol. 235, 21 July 1936*

Year: 1936
Place: London
Publisher: Royal Society

Edition: offprint
Language: English
Binding: original paper wrappers (lacks back cover)
Pagination: pp. 415–444
Size: 293x213 mm

This is a technical paper on time-lag problems in control mechanisms. It is noteworthy in that the small *Meccano* (*Erector Set*) model of the differential analyzer, constructed at Manchester University, was used to solve some of the differential equations involved.

Illustrations available:
Title page



PHILOSOPHICAL TRANSACTIONS
OF THE
ROYAL SOCIETY OF LONDON

Series A—Mathematical and Physical Sciences
No. 756 Vol 235 pp. 415-444 21st July 1936

TIME-LAG IN A CONTROL SYSTEM

By

A. CALLENDER,
Research Department, I.C.I. (Alkali) Limited
D. R. HARTREE, F.R.S.,
and
A. PORTER,
University of Manchester

LONDON
Printed and Published for the Royal Society
By Harrison & Sons, Ltd., 44-47, St. Martin's Lane
Printers in Ordinary to His Majesty
Price Four Shillings

C 12

C 13
Callet, François (1744–1798)

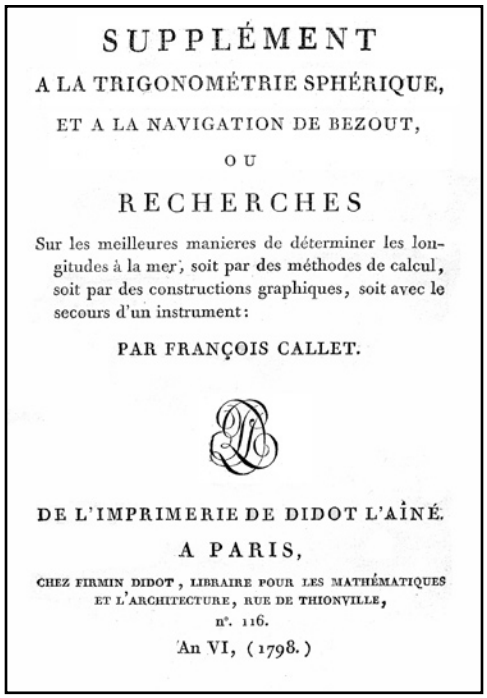
Supplément a la trigonométrie sphérique et a la navigation de Bezout, ou recherches sur les meilleures manieres de déterminer les longitudes à la mer, soit par des méthodes de calcul, soit par des constructions graphiques, soit avec le secours d'un instrument.

Year: 1798
Place: Paris
Publisher: Didot L'Aine
Edition: 1st
Language: French
Figures: 1 engraved folding plate
Binding: half-bound marbled paper boards; gilt spine; marbled endpapers
Pagination: pp. 96
Collation: A–M^4
Size: 228x169 mm

Callet, who was distantly related to Rene Descartes, held a number of teaching positions in smaller French towns but eventually became a teacher of mathematics in Paris. He is best known for the tables that he edited.

This book includes a description and directions for the use of a navigational instrument, based on a concept developed by **Lagrange**, for solving problems in spherical trigonometry while at sea. It was constructed by a prominent French instrument maker named Richer, who received an award when he presented the instrument to the French Academy in 1792 as a sample of the quality of his work. According to Dumas (Maurice Dumas, *Scientific instruments of the 17th and 18th centuries*, p. 281), the device never became popular because of its very high price. Consisting of four hinged arms, it suffered from the same defect as the sector in that the hinges had to be constructed to very high tolerances if the instrument was to give accurate results.

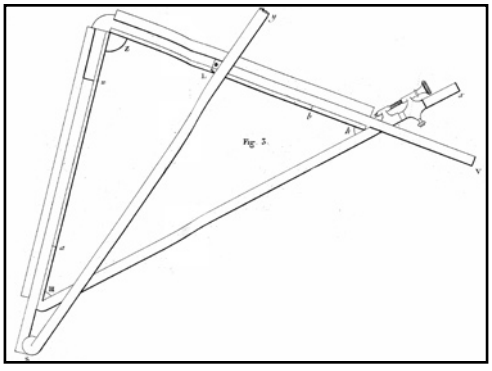
Illustrations available:
Title page
Instrument



SUPPLÉMENT
A LA TRIGONOMÉTRIE SPHÉRIQUE,
ET A LA NAVIGATION DE BEZOUT,
OU
RECHERCHES
Sur les meilleures manieres de déterminer les longitudes à la mer, soit par des méthodes de calcul, soit par des constructions graphiques, soit avec le secours d'un instrument:
PAR FRANÇOIS CALLET.

DE L'IMPRIMERIE DE DIDOT L'AÎNÉ.
A PARIS,
CHEZ FIRMIN DIDOT, LIBRAIRE POUR LES MATHÉMATIQUES ET L'ARCHITECTURE, RUE DE THIONVILLE, n°. 116.
An VI, (1798.)

C 13



Callet's instrument, C 13

C 14

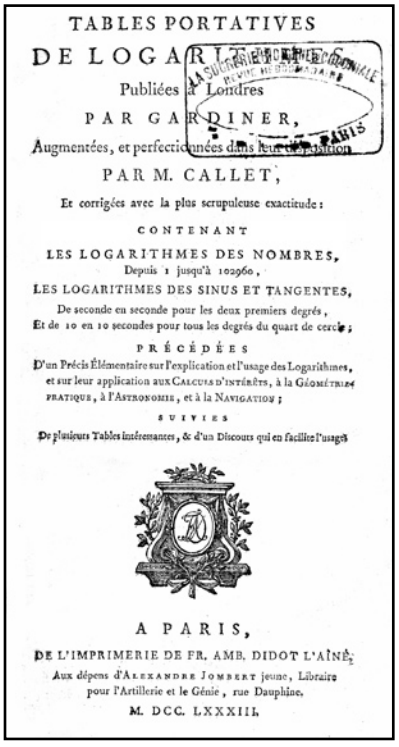
Callet, François (1744–1798) **- [William Gardiner]**

Tables portatives de logarithmes, publiées à Londres par Gardiner, augmentées, et perfectionnées dans leur disposition par M. Callet, et corrigées avec la plus scrupuleuse exactitude: contenant les logarithmes des nombres, depuis 1 jusqu'à 102960, les logarithmes des sinus et tangentes, de seconde en seconde pour les deux premiers degrés, et de 10 en 10 secondes pour tous les degrés du quart de cercle; précédées d'un précis élémentaire sur l'explication et l'usage des logarithmes, et sur leur application aux calculs d'intérêts, á la géométrie practique, á l'astronomie, et á la navigation; suivies de plusieurs tables intéressantes, & d'un discours qui en facilite l'usages.

Year: 1783
Place: Paris
Publisher: Fr. Amb. Didot L'Aîné
Edition: 1st
Language: French
Figures: 1 folding table, (after p. 60)
Binding: contemporary leather, worn edges and corners
Pagination: pp. 64, [522]
Collation: a–e^{6}f^{2}A^{3}B–O^{6}A–2G^6
Size: 194x105 mm
Reference: Pogg Vol. I, p. 363

This is an edition of **Gardiner**'s 1742 tables. These were widely regarded as being highly accurate but were only produced in small print runs and hence were difficult to find. Gardiner's original tables were published in a larger format (see entries for **Gardiner**) described by Callet as *équivalent à un petit in-folio*. This French edition was designed to provide them at less cost and in a smaller format that would be more convenient to use.

Illustrations available:
Title page
Sample table page


TABLES PORTATIVES
DE LOGARITHMES,
Publiées à Londres
PAR GARDINER,
Augmentées, et perfectionnées dans leur disposition
PAR M. CALLET,
Et corrigées avec la plus scrupuleuse exactitude:
CONTENANT
LES LOGARITHMES DES NOMBRES,
Depuis 1 jusqu'à 102960,
LES LOGARITHMES DES SINUS ET TANGENTES,
De seconde en seconde pour les deux premiers degrés,
Et de 10 en 10 secondes pour tous les degrés du quart de cercle;
PRÉCÉDÉES
D'un Précis Élémentaire sur l'explication et l'usage des Logarithmes, et sur leur application aux Calculs d'intérêts, à la Géométrie pratique, à l'Astronomie, et à la Navigation;
SUIVIES
De plusieurs Tables intéressantes, & d'un Discours qui en facilite l'usage.
A PARIS,
DE L'IMPRIMERIE DE FR. AMB. DIDOT L'AÎNÉ;
Aux dépens d'Alexandre Jombert jeune, Libraire pour l'Artillerie et le Génie, rue Dauphine.
M. DCC. LXXXIII.

C 14

C 15

Callet, François (1744–1798)

Tables portatives de logarithmes, contenant les logarithmes des nombres, depuis 1 jusqu'à 108000; les logarithmes des sinus et tangentes, de seconde en seconde pour les cinq premiers degrés, de dix en dix secondes pour tous les degrés du quart de cercle; et, suivant la nouvelle division centésimale, de dix-millieme en dix-millieme. Précédées d'un discours préliminaire sur l'explication, l'usage et la sommation des logarithmes, et sur leur application á l'astronomie, a la navigation, a la géométrie-pratique, et aux calculs d'intérêts. Suivies de nouvelles tables plus approchées, et de plusiers autres utiles à la recherche des longitudes en mer, etc.

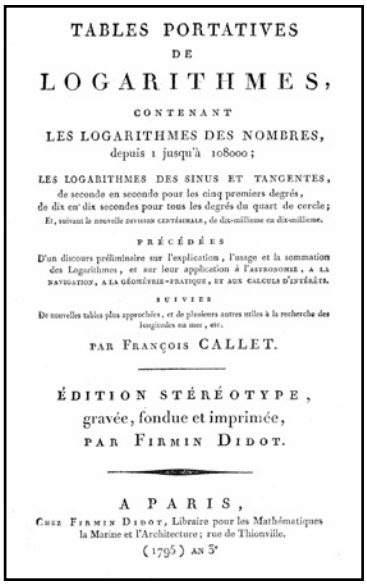
Year: 1795
Place: Paris
Publisher: Firmin Didot
Edition: 2nd
Language: French
Figures: 2 folding plates
Binding: contemporary leather; rebacked; gilt trimmed; red leather label
Pagination: pp. [2], vi, 7–118, [666]
Collation: π^{1}A–G^{8}H^{4}A–S^{8}a–z^{8}2a^4
Size: 256x189 mm
Reference: Hend *BTM*, #98.0, p. 182

This edition of Callet's tables was printed by Firmin Didot (the son of the printer of the first edition). Didot explains in a preface that he is using stereotype plates so that any errors may be easily corrected in the future without the danger of introducing new ones. He offers to supply the corrected sheets to those who had purchased the original version. The typeface was newly designed for this work. **Glaisher** (1873) indicates that this is *the most complete and practically useful collection of logarithms for the general computer that has been published*. While this edition keeps the name *portable tables*, the size and weight of this volume can hardly be considered *portatives*.

Didot implies that stereotype printing had just been invented; the process was actually developed in Holland

at the end of the seventeenth century but was little known and had to be rediscovered several times before becoming common technology shortly after this volume was produced.

Illustrations available:
Title page
Sample table page


TABLES PORTATIVES
DE
LOGARITHMES,
CONTENANT
LES LOGARITHMES DES NOMBRES,
depuis 1 jusqu'à 108000;
LES LOGARITHMES DES SINUS ET TANGENTES,
de seconde en seconde pour les cinq premiers degrés,
de dix en dix secondes pour tous les degrés du quart de cercle;
Et, suivant la nouvelle division centésimale, de dix-millième en dix-millième.
PRÉCÉDÉES
D'un discours préliminaire sur l'explication, l'usage et la sommation des Logarithmes, et sur leur application à l'Astronomie, a la Navigation, a la Géométrie-pratique, et aux Calculs d'Intérêts.
SUIVIES
De nouvelles tables plus approchées, et de plusieurs autres utiles à la recherche des longitudes en mer, etc.
PAR FRANÇOIS CALLET.
ÉDITION STÉRÉOTYPE,
gravée, fondue et imprimée,
PAR FIRMIN DIDOT.
A PARIS,
Chez Firmin Didot, Libraire pour les Mathématiques la Marine et l'Architecture; rue de Thionville.
(1795) an 3e

C 15

C 16
Callet, François (1744–1798)

Table of the logarithms of sines and tangents, for every second, of the first five degrees, and of the sines, cosines, tangents and cotangents, for every ten seconds of the quadrant.

Year: 1827
Place: Paris (London?)
Publisher: Firmin Didot
Edition: 1st
Language: English
Binding: contemporary half-bound calf; red leather label on spine reading "Babbage & Callet"
Pagination: ff. [186]
Collation: a–u^{8}v–y^{8}z^{2}
Size: 233x147 mm
Reference: Hend *BTM*, p. 98

These tables were stereotyped and printed on yellow paper to accompany **Charles Babbage**'s tables of logarithms that issued in a similar format the same year. They are the logarithms of sines and tangents from Callet's tables of 1795. The two tables were issued independently, but the association is clear. The original label on the spine identifies them as *Babbage & Callet Logarithms*.

Illustrations available:
Title page

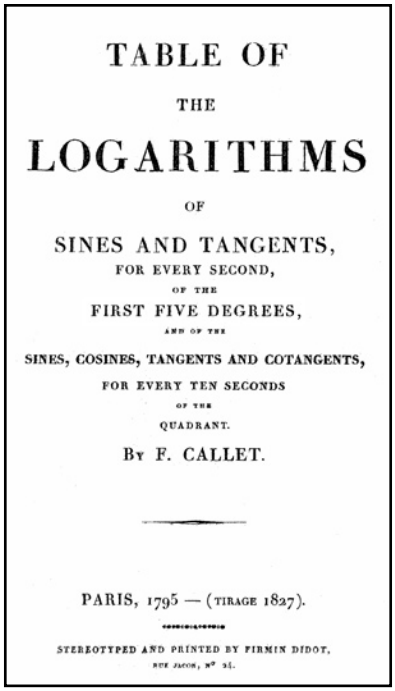


TABLE OF
THE
LOGARITHMS
OF
SINES AND TANGENTS,
FOR EVERY SECOND,
OF THE
FIRST FIVE DEGREES,
AND OF THE
SINES, COSINES, TANGENTS AND COTANGENTS,
FOR EVERY TEN SECONDS
OF THE
QUADRANT.
By F. CALLET.
PARIS, 1795 — (tirage 1827).
STEREOTYPED AND PRINTED BY FIRMIN DIDOT,
RUE JACOB, Nº 24.

C 16

C 17
Camerarius, Joachim (1500–1574)

Explicatio Joachimi Camerarii Papebergensis in duos libros Nicomachi Geraseni Pythagorei deductionis ad scientiam numerorum. Et notæ Samuel Tennulii in arithmeticam Iamblichi Chalcidensis.

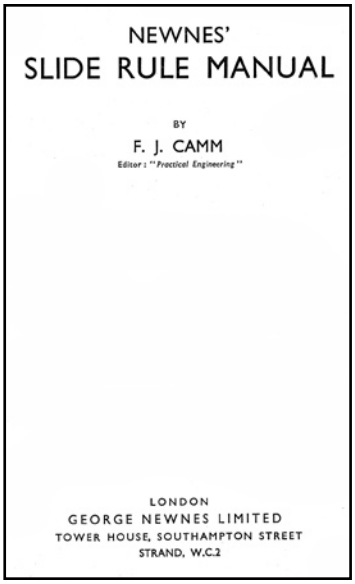
b/w: **Iamblichus**; *Arithmeticam introductionem et de fato nunc primum editus, in latinum sermonem conversus, notis perpetuis illustratus à Samuele Tennulio accedit Joachimi Camerarii explicatio in duos libros Nicomachi, cum indice rerum & verborum locupletissimo,* 1668.

Year: 1667
Place: Deventer
Publisher: Wilhelmi Wier
Edition: 3rd
Language: Latin
Binding: contemporary vellum
Pagination: pp. 239, [1]
Collation: a–z^{4}2a^{3}2b–2f^{4}2g^{5}
Size: 188x147 mm
Reference: Smi *Rara*, p. 186, 262

See entry for **Iamblichus**, 1668, where information and illustrations can be found for this work.

Illustrations available:
None

Camerarius, Joachim
See **Dürer, Albrecht**; *Institutiones geometricae*



C 18

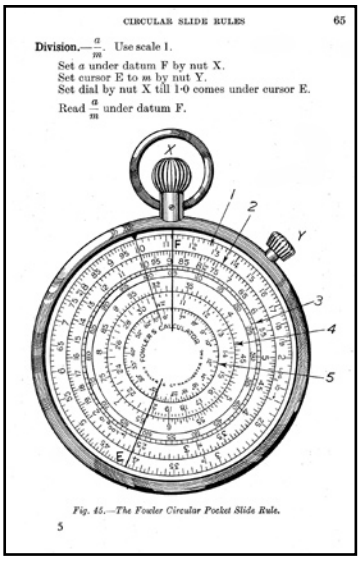
C 18

Camm, Frederick James (1897–)

Newnes' slide rule manual

Year: 1946
Place: London
Publisher: George Newnes Ltd.
Edition: 2nd
Language: English
Figures: 51 figures in text
Binding: original cloth boards
Pagination: pp. 112
Size: 186x120 mm

Camm was the editor of *Practical Engineering* and the author of over a dozen works consisting of tables, hints and ready reckoners for engineers.



Fowler circular slide rule, C 18

This manual contains the usual information on how to use a simple slide rule as well as a section on circular slide rules. The examples mainly derive from various branches of engineering, but there are also tables giving constants for commercial problems. This work, the first edition of which was 1944, was reprinted several times.

Illustrations available:
Title page
Fowler circular slide rule

Campatio, Aluigio [School of]
See **Arithmetic**; *Figure de numerar.*

C 19

C 19

Cantone, Oberto

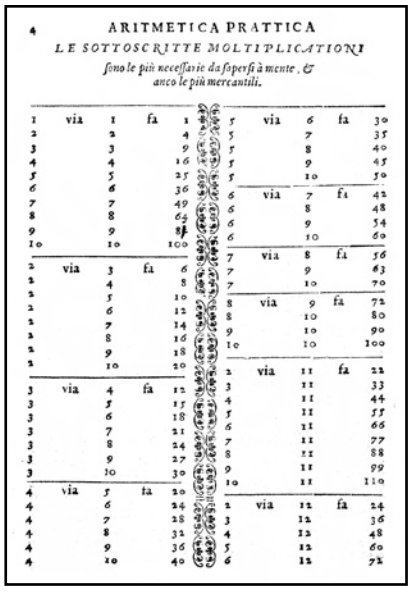
L'uso prattico dell' aritmetica ... nel quale con nuova inventione s'insegna in materia di conti, l'uso tanto della regia camera della sommaria, quanto di negotianti, mercadanti, & artegiani. E come Napoli cambij, e recambij in ciascuna piazza.

Year: 1599
Place: Naples
Publisher: Tarquinio Longho
Edition: 1st
Language: Italian
Binding: contemporary vellum repaired with renewed ties
Pagination: pp. [8], 292 (mis#194 as 186, 195 as 187,198 as 190, 199 as 191, 223 as 224, 291 as 281)
Collation: $+^4$A–2N^{4}2O^2
Size: 202x150 mm
Reference: Smi *Rara*, p. 416

Cantone, a native of Genoa, was a professor of mathematics in Naples when this work was written.

This is a commercial arithmetic book. **Smith** (*Rara*) describes it as being based on those of Borghi and other writers from the north of Italy. It describes our current methods of multiplication and division (*a danda* or *the giving*) rather than the use of the gelosia and galley methods. An eighteen-page table lists prices for trade goods, and many of the problems deal with rates of exchange between Naples and its trading partners. The book was evidently not a success, and copies are rare.

Illustrations available:
Title page
Table of trade goods
Multiplication table


4 ARITMETICA PRATTICA
LE SOTTOSCRITTE MOLTIPLICATIONI
sono le più necessarie da saperfi à mente, & anco le più mercantili.

Multiplication table, C 19

C 20

Capek, Karel (1890–1938) [**Paul Selver**, translator]

R. U. R. (Rossum's universal robots). A fantastic melodrama.

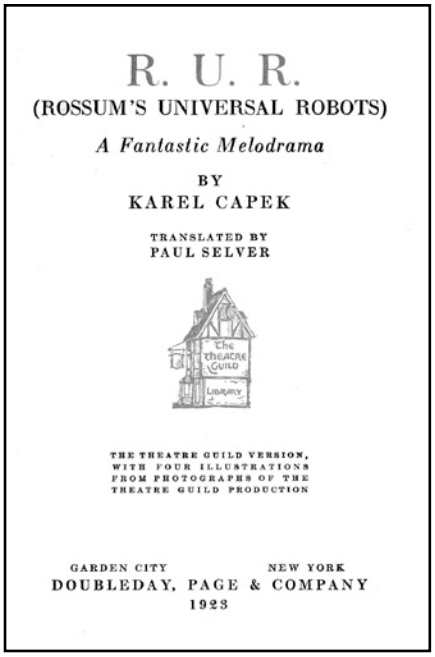
Year: 1923
Place: New York
Publisher: Doubleday, Page & Company
Edition: 1st (U.S.)
Language: English
Figures: 3 photolith plates
Binding: original cloth boards
Pagination: pp. Xii, 187, [1]
Size: 190x130 mm

Karel Capek and his brother Josef were highly regarded literary and artistic personages in Czechoslovakia following World War I. This work was produced in Prague in 1921. It was translated into English and produced in London and New York in 1922.

This, Karel Capek's best-known work, features machines (robots) that simulate human beings. The play introduced the word *robot* into the English language. The Czech word *robota* refers to the feudal system under which peasants were required to work for noblemen a few days a week without recompense. In the modern Czech language, the term is used to describe work that is dull or extremely routine.

For a biography, see Klima, Ivan (Norma Comrada, translator); *Karel Capek: Life and work*, Catbird Press, North Haven, CT., 2002.

Illustrations available:
Title page (color)


R. U. R.
(ROSSUM'S UNIVERSAL ROBOTS)
A Fantastic Melodrama
BY
KAREL CAPEK
TRANSLATED BY
PAUL SELVER
THE THEATRE GUILD VERSION, WITH FOUR ILLUSTRATIONS FROM PHOTOGRAPHS OF THE THEATRE GUILD PRODUCTION
GARDEN CITY NEW YORK
DOUBLEDAY, PAGE & COMPANY
1923

C 20

C 21

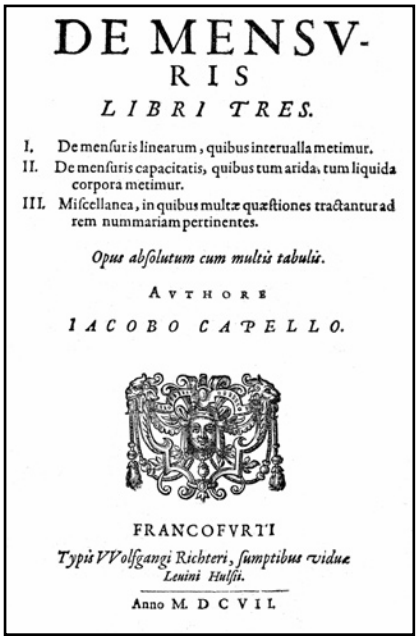
Capello, Jacobo

De mensuris libri tres. I. De mensuris linearum, quibus intervalla metimur. II. De mensuris capacitatis, quibus tum arida, tum liquida corpora metimur. III. Miscellanea, in quibus multæ quæstiones tractantur ad rem nummariam pertinentes. Opus absolutum cum multis tabulis.

Year: 1607
Place: Frankfurt
Publisher: Wolfgang Richter & Levinus Hulsius
Edition: 1st
Language: Latin
Figures: 1 engraved folding plate
Binding: modern vellum
Pagination: pp. 191, [1]
Collation: A–2A^4
Size: 196x142 mm

The multitude of different national systems of weights and measures was a problem for the growing international trade in seventeenth-century Europe. This work attempts to relate many of the different systems in Europe and Asia Minor. The text presents difficulties as it contains sections in Hebrew and Greek illustrating different units—usually Biblical. It ends with thirty-nine *miscellanea* that discuss everything from the size of Noah's Ark to the reconstruction of Solomon's temple.

Illustrations available:
Title page


DE MENSV-
RIS
LIBRI TRES.
I. De menſuris linearum, quibus interualla metimur.
II. De menſuris capacitatis, quibus tum arida, tum liquida corpora metimur.
III. Miſcellanea, in quibus multæ quæſtiones tractantur ad rem nummariam pertinentes.
Opus abſolutum cum multis tabulis.
AVTHORE
IACOBO CAPELLO.
FRANCOFVRTI
Typis VVolfgangi Richteri, ſumptibus viduæ Lenini Hulſii.
Anno M. D C VII.

C 21

C 22

Capra, Baldassar (c.1580–1626)

Usus et fabrica circini cuiusdam proportionis, per quem omnia ferè tum Euclidis, tum mathematicorum omnium problemata facili negotio resoluuntur

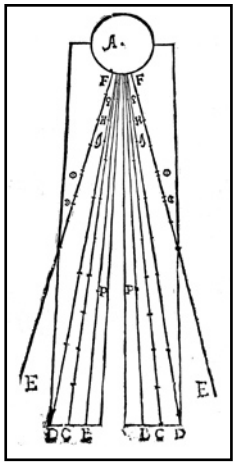
Year: 1607
Place: Padua
Publisher: P. P. Tozzi
Edition: 1st
Language: Latin
Figures: an engraving on the title page plus numerous woodcuts
Binding: contemporary vellum
Pagination: ff. 56 (misnumbering 53 as 54, 55 as 56)
Collation: A–O^4
Size: 194x140 mm
Reference: Rcdi *BMI*, Vol. I, p. 236

Baldassar (or Baldesar) Capra came from a noble Italian family. He was a philosopher, doctor, and astronomer but is best remembered today for the attacks he made upon the work of **Galileo** and for plagiarizing his book on the sector (*Le operazioni del compasso geometrico e militare*, 1606).

This is the extremely rare first edition of Capra's plagiarism. Capra published this work in early 1607, and soon thereafter all copies were ordered destroyed when a University tribunal acted favorably on **Galileo**'s complaint. Five copies of the first edition are known to have survived, as a few copies had already been distributed and could not be recovered. One of these is **Galileo**'s personal copy, in which he notes in the margin not only the plagiarized sections but, more importantly, the errors that reveal Capra's lack of fundamental understanding of the sector. These notes were eventually compiled into **Galileo**'s complaint and subsequently published (see the entry for **Galileo**; *Difensa*, 1607).


VSVS
ET FABRICA
CIRCINI
CVIVSDAM PROPORTIONIS,
Per quem omnia ferè tum Euclidis, tũ Mathematicorum omnium problemata facili negotio reſoluuntur.
Opera & ſtudio BALTHESARIS CAPRÆ Nobilis Mediolanenſis explicatum.
TRIANGVLVS.
MAGISTER
RECTANGVLVS.
EST MATHESEOS.
PATAVII, Apud Petrum Paulum Tozzium. M.DC.VII

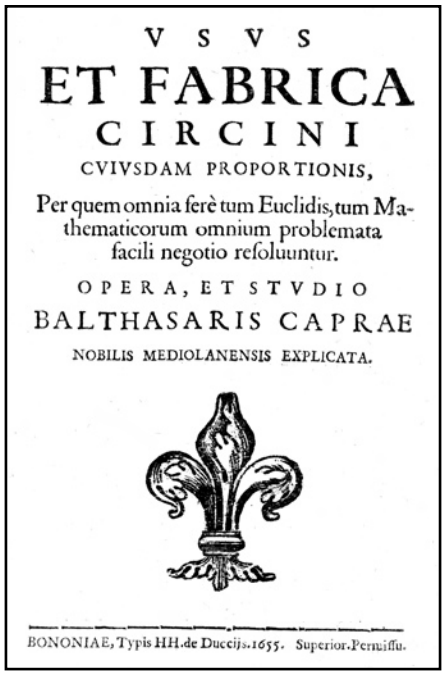
C 22



Capra's sector, C 22

This is essentially a Latin translation of Galileo's manuscript notes, originally written in Italian. These notes had been in circulation for a few years, and Stillman Drake indicates that Capra obtained a copy through a mutual friend (see Stillman Drake; *Galileo Galilei operations of the geometric and military compass*, Smithsonian Institution Press, Washington DC, 1978).

Illustrations available:
Title page
Capra's sector showing line of metals
Last page showing colophon


V S V S
ET FABRICA
CIRCINI
CVIVSDAM PROPORTIONIS,
Per quem omnia ferè tum Euclidis, tum Mathematicorum omnium problemata facili negotio resoluuntur.
OPERA, ET STVDIO
BALTHASARIS CAPRAE
NOBILIS MEDIOLANENSIS EXPLICATA.
BONONIAE, Typis HH. de Duccijs. 1655. Superior. Permiſſu.

C 23

C 23
Capra, Baldassar (1580–1626)

Usus et fabrica circini cuiusdam proportionis, per quem omnia ferè tum Euclidis, tum mathematicorum omnium problemata facili negotio resoluuntur

Year: 1655
Place: Bologna
Publisher: H.H. de Ducciis
Edition: 2nd
Language: Latin
Figures: numerous woodcuts
Binding: contemporary vellum
Pagination: pp. [8], 80
Collation: §^{4}A–K^4
Size: 232x170 mm
Reference: Rcdi *BMI*, Vol. I, p. 236

This second edition attests that, despite Capra's plagiarization, his work was a well-written and useful document. Stillman Drake notes that even **Galileo**'s own students studied the Capra material. This text is bound together with **Galileo**'s own publication, pointing out errors in the Capra text (see illustration of **Galileo**'s title page). Both works are from the first collected works of **Galileo** printed by Dozza (see **Galileo**; *Opera del Galileo*, 1655–1656).

Illustrations available:
Title page
Title page of Galileo's work bound together with this one


DIFESA
DI GALILEO GALILEI
NOBILE FIORENTINO,
Lettore delle Matematiche nello Studio di Padoua.
Contro alle Calunie & impoſture
DI BALDESSAR CAPRA
MILANESE,
V'ſategli sì nella Conſiderazione Aſtronomica ſopra la nuova Stella del M DC IIII. come (& aſſai più) nel publicare nuouamente come ſua inuenzione la fabrica, & gli vſi del Compaſſo Geometrico, & Militare,
SOTTO IL TITOLO DI
Vſus & fabrica Circini cuiuſdam proportionis, &c.
IN BOLOGNA MDCLV.
Per gli HH. del Dozza. Con licenza de' Superiori.

C 23

C 24
Capra, Baldassar (1580–1626)

Usus et fabrica circini cuiusdam proportionis, per quem omnia feré tum Euclidis, tum mathematicorum omnium problemata facili negotio resoluuntur.

Year: 1655
Place: Bologna
Publisher: H.H. de Ducciis
Edition: 2nd
Language: Latin
Figures: numerous woodcuts in text
Binding: modern leather; embossed covers
Pagination: pp. [8], 80
Collation: §^{4}A–K^4
Size: 231x163 mm
Reference: Rcdi *BMI*, Vol. I, p. 236

This is another copy of the second edition of Capra, in this case not bound with the *Difensa di Galileo*. In this edition the text is, except for some very minor points, identical to that of the 1607 edition. While having been redone, the illustrations are still very crude.

Illustrations available:
Title page

C 25

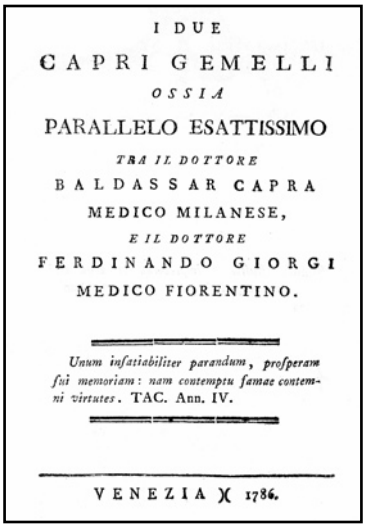
[Capra, Baldassar (1580–1626)**]**

I due Capri gemelli ossia parallelo esattissimo tra il Dottore Baldessar Capra medico Milanese e il Dottore Ferdinando Giorgi medico Fiorentino.

Year: 1786
Place: Venice
Edition: 1st
Language: Italian
Binding: modern boards
Pagination: pp. 26
Collation: *8*5
Size: 167x108 mm
Reference: Rcdi *BMI*, Vol. I, p. 255; Rcdi *BMI*, Vol. II, p. 106

This anonymous pamphlet, *The two Capra twins,* attempts to draw a parallel between the famous plagiarism dispute between **Galileo** and **Capra** over the invention of the sector and another dispute in Italy involving Dr. Ferdinado Giorgi and the author.

Illustrations available:
Title page


I DUE
CAPRI GEMELLI
OSSIA
PARALLELO ESATTISSIMO
TRA IL DOTTORE
BALDASSAR CAPRA
MEDICO MILANESE,
E IL DOTTORE
FERDINANDO GIORGI
MEDICO FIORENTINO.

Unum insatiabiliter parandum, prosperam fui memoriam: nam contemptu famae contemni virtutes. TAC. Ann. IV.

VENEZIA X 1786.

C 25

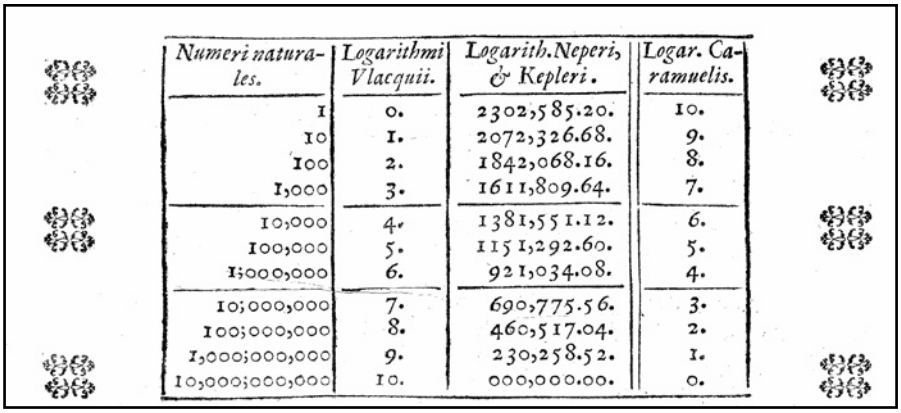
C 26

Caramuel y Lobkowitz, Juan (1606–1682)

Mathesis nova. Juniorum inventa cum veterum fundamentis conferens, vastis simamq mathematum encyclopediam speculativè et practice ad summam brevitatem et facilitatem reducens. Eius præcipuæ partes sunt, logarithmica, combinatoria, trigonometria, ΔΙΑΒΗΤΗΣ, seu geometricus circinus, architectura militaris, musica, metallaria, statica, et meteorologia.

Year: 1670
Place: Campagna
Publisher: S. Aleccia
Edition: 1st
Language: Latin
Binding: contemporary vellum
Pagination: pp. [6], 783–1711, [1]
Collation: π^2A–L^{4}M^{2}N–4H^{4}4I–4K^{2}4L–5C^4
Size: 308x202 mm

Caramuel was educated at the University of Alcalá and the University of Salamanca, the best Spanish universities at the time. He joined the Cistercian Order, in which he worked and taught all his life. He wrote some seventy works, the most famous being the *Mathesis biceps: Vetus et nova*, of which this is the second volume (the first volume is not in this collection). While the *Mathesis nova* does not contain major mathematical discoveries, it does propose a number of new concepts, or variations on older ones. Caramuel suggests a form of logarithm with 10^9 as the base: the log of 10^{10}= 0 and log 1 = 10 (see illustration, which shows his logarithms in comparison to those of **Vlacq**—better known as **Briggs'** logs—and those of **Napier** and **Kepler**). He also is reported to have considered number bases from 2 to 60 (thus predating the work of **Leibniz** in this area). However, his work on numbers to base *n* does not appear in this volume. In addition to logarithms, this volume is concerned with combinations of *n* things taken *m* at a time, and to astronomical and other considerations.



Numeri naturales.	*Logarithmi Vlacquii.*	*Logarith. Neperi, & Kepleri.*	*Logar. Caramuelis.*
1	0.	2302,585.20.	10.
10	1.	2072,326.68.	9.
100	2.	1842,068.16.	8.
1,000	3.	1611,809.64.	7.
10,000	4.	1381,551.12.	6.
100,000	5.	1151,292.60.	5.
1,000,000	6.	921,034.08.	4.
10,000,000	7.	690,775.56.	3.
100,000,000	8.	460,517.04.	2.
1,000,000,000	9.	230,258.52.	1.
10,000,000,000	10.	000,000.00.	0.

Caramuel's logarithms, C 26

C 26

The Δ*IABHTHΣ* [diabetes] in the title has nothing to do with the medical condition but is Greek for "siphon."

Illustrations available:
Title page
Caramuel's logarithms

C 27

Cardano, Girolamo (1501–1576)

Practica arithmetice, & mensurandi singularis. In qua que preter alias co[n]tinentur, versa pagina demonstrabit.

Year: 1539
Place: Milan
Publisher: Giovanni Antonio da Castiglione for Bernardinus Caluscus [Bernardino da Calusco]
Edition: 1st
Language: Latin
Figures: engraved portrait of author on title,
Binding: contemporary limp vellum
Pagination: ff. [304]
Collation: A–N^{8}O^{4}P–X^{8}2A–2R^{8}2S^{4}
Size: 157x105 mm
Reference: Smi *Rara*, p. 193

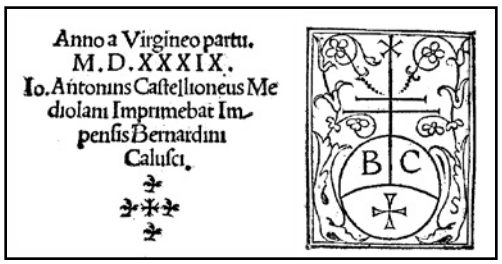
Cardano (sometimes referred to as *Cardan*) was a prolific author, publishing on medicine, mathematics, physics, philosophy, religion and music. Despite his brilliance, he was not well liked by his peers, for he had a difficult and contentious personality. Cardano first practiced as a physician near Padua and later taught mathematics at Milan from 1534 to 1559. He is best known for his mathematical work, particularly his *Ars Magna* of 1545, in which he published the solution to cubic and quartic equations (although they were not his discovery, and he had sworn an oath to **Tartaglia** not to publish them). The publication of the *Ars magna* is often considered as the founding of modern algebra.

Cardano's second publication, but the first on a mathematical subject, begins, as the title indicates, as a well-arranged practical arithmetic. However, it quickly evolves into a theoretical work of interest only to the skilled mathematician and not one suited to the needs of the user of arithmetic. For example, in the section on fractions, Cardano discusses the rationalization of denominators having cube roots—a subject not found in the usual elementary arithmetic book. This wide-ranging work is contains discussions of the properties of numbers, astronomical problems, the association of magic squares with celestial bodies, house rents, volumes of irregular solids including gauging problems, etc.

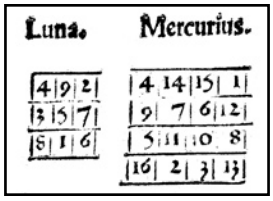
The title page displays a fine portrait of the author.

Illustrations available:
Title page
Magic squares
Colophon

C 27

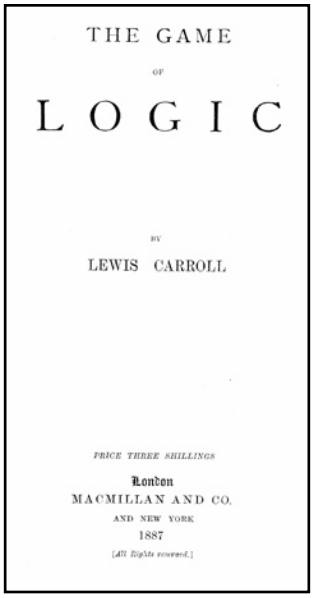


Colophon, C 27



Small magic squares, C 27

Carette, Antoine Michel (1772–1855)
See **Mascheroni, Lorenzo**; *Géométrie du compas*


THE GAME
OF
LOGIC
BY
LEWIS CARROLL
PRICE THREE SHILLINGS
London
MACMILLAN AND CO.
AND NEW YORK
1887
[All Rights reserved.]

C 28

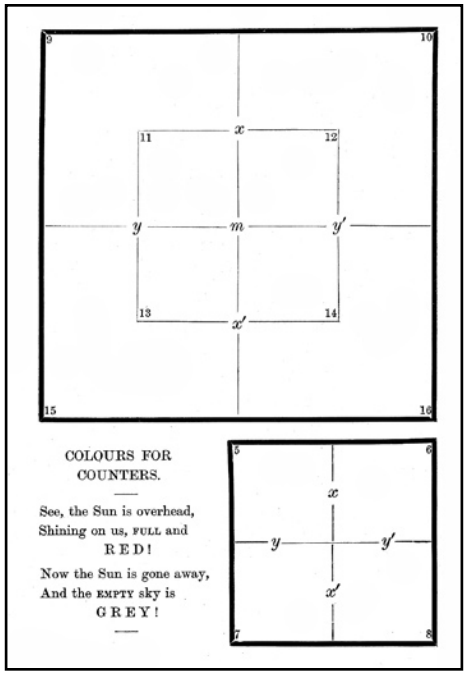
C 28
Carroll, Lewis [pseudonym for **Charles Lutwidge Dodgson** (1832–1898)]

The game of logic

Year: 1887
Place: London
Publisher: Macmillan and Company
Edition: 1st
Language: English
Figures: engraved frontispiece + envelope with counters
Binding: original cloth boards; gilt embossed
Pagination: pp. [10], 96, [4]
Collation: π^5B–G^{8}g^2
Size: 186x124 mm

Charles Lutwidge Dodgson, (his pen name, Lewis Carroll, is an anglicization and inversion of the Latin translation of his first two names) is best known for writing children's books, although he was a mathematician and logician who lectured in Oxford. In this little book he outlines a mechanism for representing logical statements and deducing conclusions from them using a diagram and small counters of red and gray (issued with the book). The diagram is also reproduced as the frontispiece. The book is written in a very chatty style and is meant to appeal to younger readers (see illustration of pages 6 and 7). While it is indeed a game, and the last few pages contain a number of problems for which the reader is asked to find conclusions, it is in reality a work intended to teach the rudiments of formal logic.

Illustrations available:
Title page
Page 6 and 7
Frontispiece game board



Frontispiece game board, C 28

C 29
Cartwright, Richard (ca.1623–)

The second part of arithmetick consisting of broken numbers or fractions with divers tables of timber; land measure; board glasse or wainscot: with tables of weight & loane & interest.

b/w: **Cartwright, Richard**; *The wel-spring of sciences*, 1661.

Year: 1661
Edition: manuscript
Language: English
Binding: contemporary blind-ruled sheep
Pagination: ff. [51]
Size: 153x90 mm
Reference: Hymn *AC*, #1123

See entry for the manuscript **Cartwright, Richard**; *The wel-spring of sciences*.

Illustrations available:
none

C 30
Cartwright, Richard (ca.1623–)

The wel-spring of sciences which teacheth the use and practice of arithmetick necessary for ech person belonging to art or trade written by Rich. Cartwright. Teach us to number our dayes that we may apply our hearts unto wisdom.

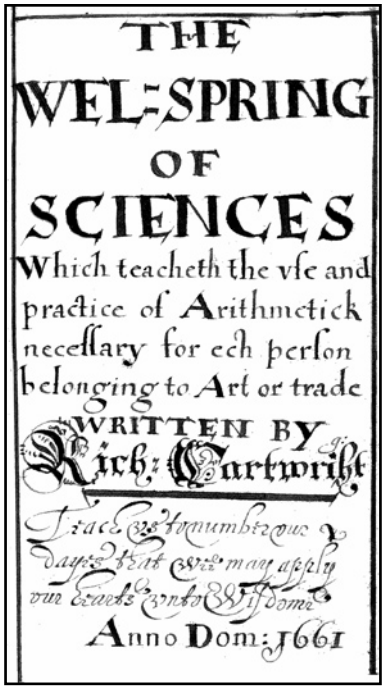
Year: 1661
Edition: manuscript
Language: English
Binding: contemporary blind-ruled sheep
Pagination: ff. [39]
Size: 153x90 mm
Reference: Hymn *AC*, #1123

This is a two-part manuscript version of a work on arithmetic. The first part presents the usual numeration and arithmetical operations, using both integers and *broken numbers* (mixed radix numbers of weights and measures) followed by the reduction of measures (pounds and ounces to ounces, etc.), a brief description of the rule of three and other similar topics. The second part consists of a number of tables (chiefly of measures of timber, but also of wages, lists of monarchs, etc.) followed by worked examples.

The title of the manuscript has a resemblance to an arithmetic by **Humphrey Baker** (1583), but that may simply be because the Baker work was famous as an elementary arithmetic of the day.

Illustrations available:
Title page
Multiplication table
Timber table

Multiplication table, C 30



C 30

C 31
Casanova, Alvise (16th Century)

Specchio lucidissimo, nel quale si vedeno essere diffinito tutti i modi, e ordini de scrittura, che si deve menare nelli negotiamenti della mercantia, cambii, recambii, con li loro corrispondentie, disgarbugliando, & illuminando l'intelletto a negotianti.

Year: 1558
Place: Venice
Publisher: Comin da Trino, Paolo
Edition: 1st
Language: Italian
Binding: Later antique paper over boards
Pagination: ff. [67], 55, 4, 7, 5
Collation: ^{*4}A–O^{4}2A^{6}2B–2Q^{4}A^{4}B^{2}C ^{4}D^{2}
Size: 205x149 mm
Reference: Rcdi *BMI*, Vol. I, p. 269; Smi *Rara*, p. 292

Casanova is known only as a teacher in Venice.

This is usually classified as an arithmetic, but as **Smith** (*Rara*) points out, it is really a description of bookkeeping and associated problems. It is full of bookkeeping notations and gives an insight into what a set of properly kept books would look like in the sixteenth century. This was the first major publication on double-entry bookkeeping since the pioneering work by **Pacioli** in 1494.

Illustrations available:
Title page
Sample page of problems

C 31

C 32

C 32

Casati, Paolo (1617–1707)

Fabrica, et uso del compasso di proportione, dove insegna à gli artefici il modo di fare in esso le necessarie divisioni, e con varii problemi usuali mostra l'utilità de questo stromento

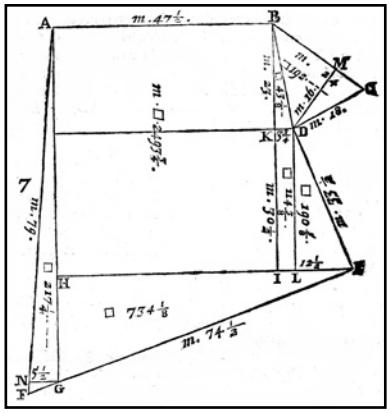
Year: 1664
Place: Bologna
Publisher: Giovanni Battista Ferroni
Edition: 1st
Language: Italian
Figures: woodcut engraved title page,12 engraved plates (4 folding)
Binding: modern vellum
Pagination: pp. [8], 172, [12]
Collation: $a^4A–X^4Y^8$
Size: 204x148 mm
Reference: Rcdi *BMI* Vol. I, p. 271; Som *BCJ*, VI 78 S 709; Cin *BG*, #141, p. 280

Paolo Casati was a Jesuit teacher of mathematics in Rome who wrote a number of books on physics, optics and mathematics. This text was done because, as he says in the introduction, there was a shortage of information on the sector (he indicates that he was only able to consult the first edition of **Galileo**'s *Le operazioni del compasso geometrico et millitare*). The earlier publications by its inventor, **Galileo**, were now difficult to obtain and prior to the 1640 edition were not illustrated. It is obvious that **Galileo** had managed to dominate the market in Italy because by this time there were many descriptions of the sector in other languages.

Apparently written for both the user and manufacturer of sectors, it not only contains good descriptions of usage, complete with many examples, but also discusses the manufacture of the device with two major foldout diagrams that could be used as patterns for the scales. Unlike many such works that state the method of usage but then give very simple problems involving triangles (for example), Casati provides the reader with realistic problems involving irregular shapes (see sample illustration).

A second copy of this work is available in the collection bound, in contemporary leather with a gilt spine.

Illustrations available:
Title page
Sector (side 1)
Sector (side 2)
Problem



Sample problem, C 32


FABRICA ET VSO
Del Compasso di Proportione,
Doue insegna à gli ARTEFICI il modo di fare in esso le necessarie diuisioni,
E con varij Problemi vsuali mostra l'vtilità di questo Stromento,
PAOLO CASATI
DELLA COMPAGNIA DI GIESV',
Dando le ragioni, & apportando le dimostrationi di tutte le operationi nella Fabrica, e nell'Vso.
OPERA VTILE
Non solo à Geometri, Agrimensori, Architetti ciuili, e militari, Pittori, Scoltori, & à tutti quelli, che vsano del Disegno, ma anche à Bombardieri, Sergenti di Battaglia, Mercanti, & altri, per molte operationi Arithmetiche, fatte con grandissima facilità,
Accresciuta notabilmente in questa seconda Editione dal medesimo Autore.
AB EXIS OMNIA
IN BOLOGNA, Per Gioseffo Longhi 1685. Con lic. de' Superiori.

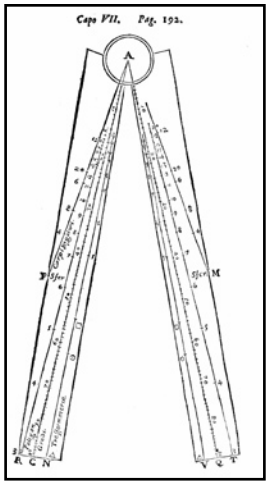
C 33

C 33

Casati, Paolo (1617–1707)

Fabrica et uso del compasso di proportione, dove insegna à gli artefici il modo di fare in esso le necessarie divisione, e con varii problemi usuali mostra l'utilità de questo stromento…

Year: 1685
Place: Bologna
Publisher: Gioseffo Longhi
Edition: 4th
Language: Italian
Figures: 4 engraved folding plates
Binding: contemporary vellum
Pagination: pp. [8], 235, [2], 236–250
Collation: *^{4}A–2G^{4}2H^6
Size: 209x145 mm
Reference: *Rcdi BMI* Vol. I, p. 271; Cin *BG*, #156, p. 302

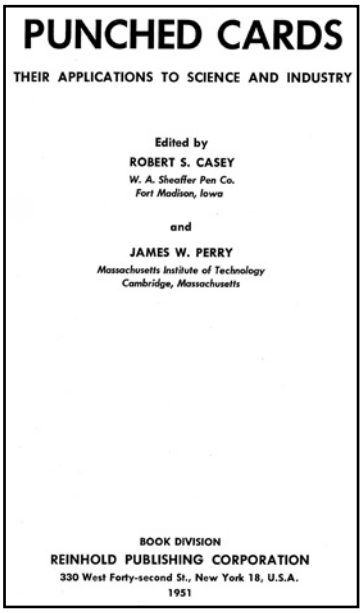

Capo VII. Pag. 192.

Sector, C 33

Advertised on the title page as a much-expanded second edition, this is actually the fourth edition and presumably identical with the second and third editions.

The major addition was the introduction of a few additional scales on the sector, and, as in the 1664 first edition, Casati illustrates them on a foldout diagram that could be used as a pattern for an instrument maker.

Illustrations available:
Title page
Sector (added scales)


PUNCHED CARDS
THEIR APPLICATIONS TO SCIENCE AND INDUSTRY
Edited by
ROBERT S. CASEY
W. A. Sheaffer Pen Co.
Fort Madison, Iowa
and
JAMES W. PERRY
Massachusetts Institute of Technology
Cambridge, Massachusetts
BOOK DIVISION
REINHOLD PUBLISHING CORPORATION
330 West Forty-second St., New York 18, U.S.A.
1951

C 34

C 34

Casey, Robert Sabert and **James Whitney Perry** (1907–)

Punched cards Their applications to science and industry

Year: 1951
Place: New York
Publisher: Reinhold Publishing
Edition: 1st
Language: English
Figures: many in text
Binding: original cloth boards
Pagination: pp. viii, 506
Size: 228x149 mm

This volume is the work of two chemists (Casey working for the Schaeffer Pen Co. and Perry for MIT's Modern Language Department) and is the result of their efforts to create systems for searching scientific literature. It consists of five sections; the first is an introduction to punched cards—mainly edge-punched cards, though

other systems are also mentioned. The second section consists of case histories of punched card usage while the third is an extensive discussion of the problem of creating a coding scheme for any given problem—a topic that has relevance beyond the punched card paradigm. The last sections contain speculations on the future and a bibliography.

Illustrations available:
Title page

C 35

Casey, Robert Sabert; **James Whitney Perry** (1907–); **Allen Kent** (1921–) and **Madeline M. Berry**

Punched cards Their applications to science and industry

Year: 1958
Place: New York
Publisher: Reinhold Publishing
Edition: 2nd
Language: English
Figures: illustrations in text
Binding: original cloth boards; with dust jacket
Pagination: pp. x, 697
Size: 229x148 mm

This very much enlarged second edition includes new and revised sections describing the use of punched card machinery that had become available since the first edition. James Perry, one of the two authors of the first edition, was joined by his colleague Allen Kent at the Western Reserve University, where they became the leaders in the study of problems in document retrieval.

Illustrations available:
Title page

C 36

Casmann, Otto (1562–1607)

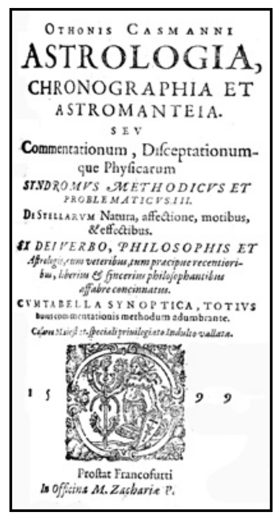
Astrologia, chronographia et astromanteia. Seu commentationum, disceptationumque physicarum syndromus methodicus et problematicus III. De stellarum natura, affectione, motibus, & effectibus …

b/w: **Pitiscus, Bartholomeo**; *Trigonometria: sive de solutione triangulorum. Tractatus brevis & perspicuus*, 1595.
b/w: **Scultetus, Abraham**; *Sphæricorum libri tres. Methodicé conscripti & utilibus scholiis expositi. Accessut de solutione triangulorum tractatus brevis & perspicus Bartholomæi Pitisci …,* 1595.

Year: 1599
Place: Frankfurt
Publisher: Zacharius Palthenius
Edition: 1st
Language: Latin
Binding: contemporary vellum boards
Pagination: pp. [24], 584, 99, 200–244, 145–247, [1]
Collation: $):(^{8}{**}^{4}A\text{–}2N^{8}2O^{4}2A\text{–}2P^{8}2Q^{4}$
Size: 167x98 mm

This critique of astrology and its interactions with Christian belief not only questioned the powers of the planets, as used by astrologers, but also argued that names and images of stars should not be used by Christians, and that the star of Bethlehem and the eclipse at the crucifixion were not natural physical phenomena but miracles. Thorndike (*History of magic*, VI, p. 198) states that *Casmann's arguments against astrology seem neither novel nor effective*. The work is divided into two major sections with the peculiar pagination noted above, the second of which is given the title *Pars altera astrologiae de astropraxia*, but both sections contain anti-astrological material.

Illustrations available:
Title page



C 36

C 37

Castagnola, Agostino

Libro d'abbaco doppio, con l'introduttione facile a' principianti d'apprendere l'arte aritmetica, aggiontovi diverse regole di far conti mercantili, con maniere facili da pratticarie da se stessi.

Year: n/d
Place: Milan
Publisher: Eredi Ghisolfi
Edition: unknown
Language: Italian
Binding: marbled paper wrappers
Pagination: ff. [8]
Collation: A^{8}
Size: 144x96 mm
Reference: Not in Rcdi *BMI*

This small ready reckoner consists chiefly of a multiplication table. The table is shown in both the Pythagorean (square) form for numbers up to 10 times 10, then in columnar form for all values up to 10 times 40, then again for a table of squares for 11 to 40; finally, the multiplication table continues for a selection of values up to 100.

Illustrations available:
Title page
Multiplication table


LIBRO
D' ABBACO
DOPPIO,
Con l'introduttione facile a' Principianti d'apprendere l'Arte Aritmetica,
AGGIONTOVI
Diuerse Regole di far Conti Mercantili, con maniere facili da praticarle da se stessi.
Di Agostino Castagnola publico Professore d'Aritmetica.
IN MILANO.
Nella Stampa degl'eredi Ghisolfi.
Con licenza de' Superiori.

C 37

C 38
Castaing, John (1680–a1712)

An interest book, at 4,5,6,7,8 per C. from 1000 l. to 1 l. for 1 day to 92 days, and for 3,6,9,12 months.

Year: 1712
Place: London
Publisher: Author
Edition: 3rd
Language: English
Binding: contemporary mottled paneled leather; rebacked; gilt spine
Pagination: ff. [88]
Collation: A–L^{8}
Size: 113x72 mm
Reference: Kress *LBE*, 2778

This is the third edition of this very small ready reckoner with tables for calculating interest. The work must have been popular because Henry Hills took the contents of the second edition and published an unauthorized third edition in 1710.

Illustrations available:
Title page
Sample table page

Castellano, Lorenzo, translator
See **Clavius, Christoph**; *Aritmetica prattica.*

C 39
Cataldi, Pietro Antonio (1548–1626)

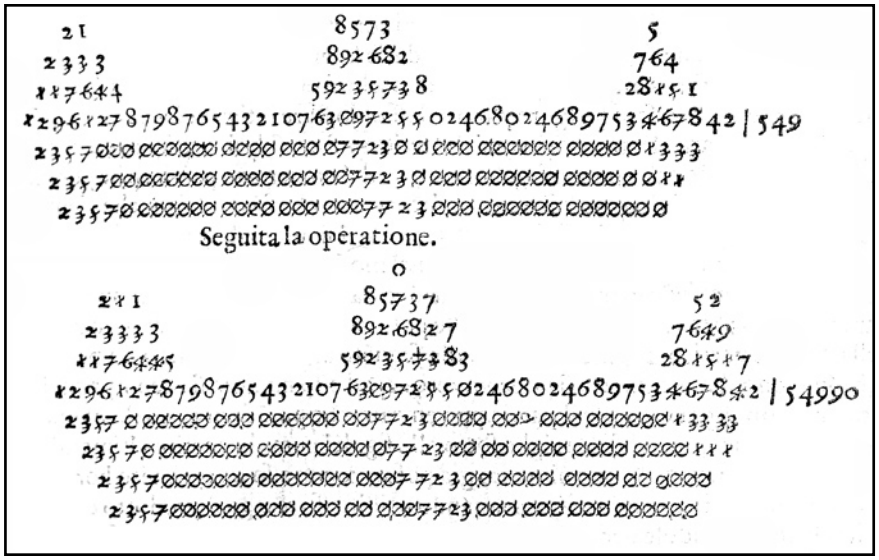
Prima parte della pratica aritmetica, overo elementi pratici delli numeri aritmetici. Dove si mostrano le operationi semplici d'essi numeri aritmetici, che sono sommare, sottrare, moltiplicare, & partire; Et questo con li suoi veri principii, diffinitioni, regole, & essempii, modo nuovo, reale, facile, & utilissimo; Data hora in luce da Perito Annotio à commune beneficio, essendo non solo necessaria alli principianti della scienze mathematiche, & da loro dependenti, ma anco ad ogni sorre d'artefici, & altre persone di qual si vogli qualità.

Year: 1602
Place: Bologna
Publisher: Heredi di Giovanni Rossi
Edition: 1st
Language: Italian
Figures: title in red and black
Binding: contemporary vellum; upper and lower spine defective
Pagination: pp. [12], 148
Collation: §^{6}A–R^{4}S^{6}
Size: 293x207 mm
Reference: Rcdi *BMI I*, 303/4

Cataldi was a native of Bologna, but there seems to be no record of his attending university there. He started his career as a teacher of mathematics in Bologna when only seventeen. He moved a number of times, taking posts teaching in various institutes and universities in Florence and Perugia, finally returning to Bologna


INITIVM SAPIENTIAE EST TIMOR DOMINI.
PRIMA PARTE
DELLA PRATICA
ARITMETICA,
OVERO ELEMENTI PRATICI DELLI NVMERI ARITMETICI,
Doue si mostrano le operationi semplici d'essi numeri Aritmetici, che sono Sommare, Sottrare, Moltiplicare, & Partire;
Et questa con li suoi veri principij, diffinitioni, regole, & essempij, Modo nuouo, reale, facile, & utilissimo;
Data hora in luce da PERITO ANNOTIO à commune beneficio, essendo non solo necessaria alli principianti delle Scienze Mathematiche, & da loro dependenti, ma anco ad ogni sorte d'Artefici, & altre persone di qual si vogli qualità.
IN BOLOGNA,
Presso gli Heredi di Giouanni Rossi. MDCII.
Con licenza de' Superiori.

C 39



Galley division examples, C 39

in 1584, where he taught mathematics for the rest of his life. A prolific author with over thirty books to his credit, mainly on mathematical topics, he was also a gifted numerical calculator and, by 1603, had produced a table of the 137 primes less than 750 and another of all the factors of numbers up to 800. He was interested in perfect numbers (where the sum of the divisors equals the number itself) and was able to show that $2^{17} - 1 = 131{,}071$ is prime, and thus $2^{16}(2^{17}-1) = 8{,}589{,}869{,}056$ is a perfect number. This result disproved a conjecture of **Nicomachus** that perfect numbers ended alternately in 6 and 8 because the fifth and sixth were now known to both end in 6. In 1588, Cataldi showed that $2^{19} - 1 = 524{,}287$ was prime. These were the largest such numbers known for the next two hundred years. While studying the methods used to calculate roots, he also produced the first steps in the theory of continued fractions: a notion that had not originated with Cataldi but that was still not well known.

His *Practical Arithmetic* was published in four parts in 1602, 1606, 1617 and 1616. The third and fourth parts were printed by different printers, possibly explaining why the fourth has an earlier date than the third. All four parts are bound into this one volume, each with its own title page and with only the third having a colophon. The first part was issued under the pseudonym *Perito Annotio,* an anagram of Cataldi's given names, which he had used for some of his earlier publications but obviously decided to abandon for the later volumes.

The actual content of this four-volume work is not particularly unusual, but it is notable for its examples. Comfortable in dealing with large numbers, Cataldi often illustrated his work with examples of 40 or 50 digits. Occasionally these provide extreme illustrations of operations such as galley division, where 48-digit numbers are used to show very realistic-looking ships.

Illustrations available:
- Title page for part 1 (color)
- Title page for part 2 (color)
- Title page for part 3 (color)
- Colophon for part 3 (color)
- Title page for part 4 (color)
- Galley method of division example

C 40

Cataldi, Pietro Antonio (1552–1626)

Seconda parte della pratica aritmetica, overo elementi practici delli numeri geometrici; Dove si mostrano le operationi, & nascimenti in essi numeri geometrici, che sono sommare, sottrare, moltiplicare, & partire: Et questo con li suoi veri principii, diffinitioni, regole, & essempii, modo nuovo, reale, facile, & utilissimo; Data hora in luce da Pietro Antonio Cataldi à commune beneficio, essendo non solo necessaria alli principianti della scienze mathematiche, & da loro dependenti, ma anco ad ogni sorre d'artefici, & altre persone di qual si vogli qualità.

Year: 1606
Place: Bologna
Publisher: Heredi di Giovanni Rossi
Edition: 1st
Language: Italian
Figures: title in red and black
Binding: contemporary vellum; spine defective
Pagination: pp. [4], 152
Collation: §^{2}A–T^{4}
Size: 293x207 mm
Reference: Smi *Rara*, p. 359

See entry for **Cataldi, Pietro Antonio**; *Prima parte*, 1602, for information and illustrations.

Illustrations available:
See main entry

C 41
Cataldi, Pietro Antonio (1552–1626)

Terza parte della pratica aritmetica, overo elementi practici delli numeri naturali, o'denominati; Dove si mostrano le operationi semplici d'essi numeri, che sono sommare, sottrare, moltiplicare, & partire: Et questo con li suoi veri principii, diffinitioni, regole, & essempii, modo nuovo, reale, facile, & utilissimo.

Year: 1617
Place: Bologna
Publisher: Sebastiano Bonomi
Edition: 1st
Language: Italian
Binding: contemporary vellum; upper and lower spine defective
Pagination: pp. [2], 6, 9–148
Collation: §^{2}A–2L^{2}2N^{2}2O^2
Size: 293x207 mm
Reference: Rcdi *BMI*, Vol. II, p. 307

See entry for **Cataldi, Pietro Antonio**; *Prima parte*, 1602, for information and illustrations.

Illustrations available:
See main entry

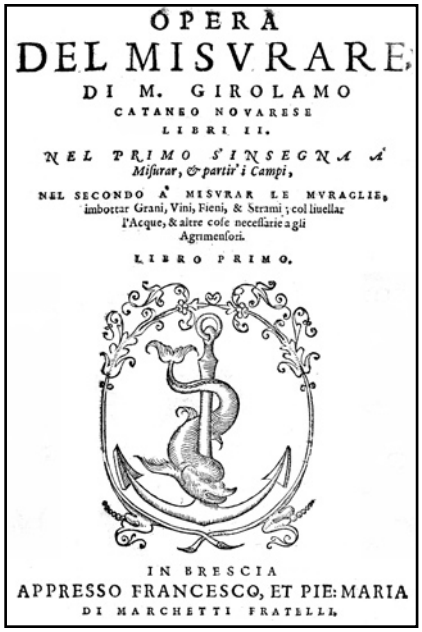
C 42
Cataldi, Pietro Antonio (1552–1626)

Quarta parte della pratica aritmetica dove si tratta della principalissima, & necessariissima regola chiamata comunemente del tre, Mostrando il nascimento, & inventione naturale d'essa, insieme con l'uso, & modi diversi ingegnosi d'operare.

Year: 1616
Place: Bologna
Publisher: Bartolomeo Cochi
Edition: 1st
Language: Italian
Binding: contemporary vellum; upper and lower spine defective
Pagination: pp. [4], 104
Collation: §^{2}A–2C^2
Size: 293x207 mm
Reference: Rcdi *BMI*, Vol. II, p. 306

See entry for **Cataldi, Pietro Antonio**; *Prima parte*, 1602, for information and illustrations.

Illustrations available:
See main entry


OPERA
DEL MISVRARE,
DI M. GIROLAMO
CATANEO NOVARESE
LIBRI II.
NEL PRIMO S'INSEGNA A' Misurar, & partir' i Campi,
NEL SECONDO A' MISVRAR LE MVRAGLIE, imbottar Grani, Vini, Fieni, & Strami; col liuellar l'Acque, & altre cose necessarie a gli Agrimensori.
LIBRO PRIMO.
IN BRESCIA
APPRESSO FRANCESCO, ET PIE: MARIA
DI MARCHETTI FRATELLI.

C 43

C 43
Cataneo, Girolamo (16th Century)

Opera del misurare ... Libri II. Nel primo s'insegna a misurar, & partir' i campi. Nel secundo a misurar le muraglie, imbottar grani, vini, fieni, & strami; col livellar l'acque, & altre cose necessarie a gli agrimensori.

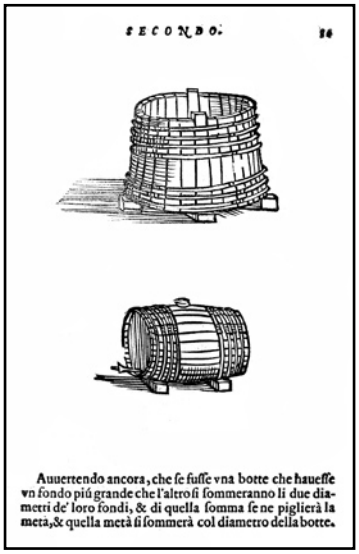
Year: 1572
Place: Brescia
Publisher: Francesco, et Pie[tro]: Maria di Marchetti, Fratelli
Edition: 1st
Language: Italian
Figures: 3 double-page woodcut diagrams
Binding: contemporary vellum
Pagination: v.1: ff. [8],1–39, 42–55, [1]; v.2: ff. [2], 62, [2]
Collation: v.1: *^{4}π^{4}A–N^{4}O^2; V.2: *^{4}A–F^{4}G^{10}H^{4}I^{6}K–M^{4}N^6
Size: 208x150 mm
Reference: Rcdi *BMI*, Vol. II, p. 316; Pogg Vol. I, p. 397

Little is known of Girolamo Cataneo (not to be confused with **Pietro Cataneo**) except that he came from Novara and was an architect who did work on fortifications. He evidently served Charles V in Lombardy as captain and sergeant major and spent some time in Venice and Verona, before moving to Brescia, where he published on military topics as well as surveying.

Though this work describes surveying and gauging, **Kiely** (*Surveying instruments*) suggests that Cataneo does not seem to be an experienced surveyor or gauger and that the presentation is theoretical. The first half of the work explains how area is measured and shows how irregular shapes (in this case the inside of a military fortification) may be subdivided into smaller, more regular shapes,

which are then added up to find the area. He also covers finding areas of simple plane figures. The second part considers volume and gauging problems as well as a short section on surveying for diverting streams, etc.

Illustrations available:
Title page
Area divisions in a fortification
Gauging of tubs and barrels
Colophon


SECONDO. 16

Auuertendo ancora, che se fusse vna botte che haueſſe vn fondo piú grande che l'altro ſi ſommeranno li due diametri de' loro fondi, & di quella ſomma ſe ne piglierà la meta, & quella metà ſi ſommerà col diametro della botte.

Gauging problems, C 43


IN BRESCIA,
APPRESSO VICENZO SABBIO;
Ad inſtantia di Franceſco, & Piet: Maria di Marchetti, Fratelli.
M. D. LXXII.

Colophon, C 43

C 44

Cataneo, Pietro (fl. ca.1500)

Le pratiche delle due prime mathematiche ... Libro d'albaco e geometria

Year: 1546
Place: Venice
Publisher: Niccolo Bascarini
Edition: 1st
Language: Italian
Figures: sheet of notes bound in
Binding: contemporary limp vellum; ties absent; spine retaped
Pagination: ff. 64
Collation: A–Q^4
Size: 209x151 mm
Reference: Smi *Rara*, p. 242

Cataneo was a teacher of arithmetic and an architect in Siena. Some booksellers have indicated that he was also interested in fortifications, but this may be due to confusion between Pietro and **Girolamo Cataneo**.

This work on arithmetic first quotes **Fibonacci** (Leonardo Pisano) as to the numerals and suggests that they were an Arabic invention. Following brief descriptions of addition and subtraction, the author describes several forms of multiplication (including the multiplication of mixed radix numbers such as money), and treats the modern form of division (*a danda*) before the galley methods—a very early work to do so. The applications treated in the second half are practical and involve commercial (money) calculations, area calculations, etc.

A page of manuscript notes bound into the back deals with square and cube roots. There are numerous pen manuscript annotations in the work itself.

Illustrations available:
Title page
Page with annotations
Colophon


LE PRATICHE DELLE DVE PRIME MATHEMATICHE DI PIETRO DE CATANI DA SIENA

LIBRO D'ALBACO E GEOMETRIA

NVOVAMENTE STAMPATE, IN VENETIA M D XLVI

BIBLIOTHECÆ PETRI BUONINSEGNI SENIS MDCCCII.

C 44

C 45

Cavalieri, Bonaventure Francesco (1598–1647)

Appendice della nuova prattica astrologica; Nella quale riepilogandosi la dottrina di quella, si aggiungono altri nuovi modi, formandosi come un esemplare di fare le direttioni, secondo la via rationale.

Year: 1640
Place: Bologna
Publisher: Clemente Ferroni
Edition: 1st
Language: Italian

Binding: modern boards; red leather label
Pagination: pp. 108, 166, [2]
Collation: A–D^{12}E^{6}A–G^{12}
Size: 147x70 mm
Reference: Cin *BG*, #111; Rcdi *BMI*, Vol. I, 328

Cavalieri was born in Milan and joined the Jesuit order while still a very young man. He considered himself a disciple of **Galileo**, and although they seldom met, one hundred and twelve letters of his to **Galileo** were published in the *Opere di Galileo*. Ordained in his late teens, he was moved by his religious superiors to many different places in Italy, eventually becoming a prior of a convent in Bologna. That position provided the leisure he needed for his mathematical studies, and he published a number of mathematical works while there. Though well known as an astrologer, he was careful to state that he did not believe in astrological predictions (this may well have been to placate his superiors). While in Bologna, Cavalieri developed the method of indivisibles, a step towards the eventual creation of the calculus. He is also credited with the introduction of logarithms into Italy (see entry for his *Compendio della regole de triangoli* of 1632).

This appendix to Cavalieri's work on astrology, published the previous year (Cavalieri, *Nuova prattica astrologica*, 1639), contains, besides an introduction to their use, two sets of logarithmic tables (one trigonometric and one of the natural numbers) together with tables of use in casting horoscopes.

Illustrations available:
Title page
Trigonometric log tables


APPENDICE
DELLA
NVOVA PRATTICA
ASTROLOGICA,
Nella quale riepilogandosi la dottrina di quella, si aggiungono altri nuoui modi, formandosi come vn' Esemplare di fare le Direttioni, secondo la Via Rationale.
Di F. Bonauentura Cauallieri, publico Matematico nell' Inclito Studio di Bologna.
Bologna presso Clemente Ferroni
M. DC. XXXX.
Con licenza de' Superiori.

C 45

C 46
Cavalieri, Bonaventure Francesco (1598–1647)

Centuria di varii problemi, per dimonstrare l'uso, e facilità, de logaritmi. Nella gnomonica, astronomia, geograffia, altimetria, planimetria, stereometria, & aritmetica practicca: Toccandosi anco qualche cosa nella meccanica, nell'arte militare, e nella musica.

b/w: **Cavalieri, Bonaventure Francesco**; *Nuova Prattica Astrologica*, 1639.

Year: 1639
Place: Bologna
Publisher: Giacomo Monti et Carlo Zenero
Edition: 1st
Language: Italian
Binding: contemporary vellum
Pagination: pp. 526, [2]
Collation: A–Y^{12}
Size: 147x70 mm
Reference: Rcdi *BMI*, Vol. II, p. 526

See entry for **Cavalieri, Bonaventure Francesco**; *Nuova prattica astrologica*, 1639.

Illustrations available:
See entry for *Nuova prattica astrologica*

C 47
Cavalieri, Bonaventure Francesco (1598–1647)

Compendio della regole de triangoli. Con le loro dimonstrationi

b/w **Cavalieri, Bonaventure Francesco**; *Nuova Prattica Astrologica*, 1639.

Year: 1638
Place: Bologna
Publisher: Giacomo Monti et Carlo Zenero
Edition: 1st
Language: Italian
Binding: contemporary vellum
Pagination: pp. 156
Collation: A–F^{12}G^{6}
Size: 147x70 mm
Reference: Rcdi *BMI*, Vol. II, p. 525

See entry for Cavalieri, *Nuova prattica* ..., 1639.

Illustrations available:
See entry for *Nuova prattica astrologica*.

C 48
Cavalieri, Bonaventure Francesco (1598–1647)

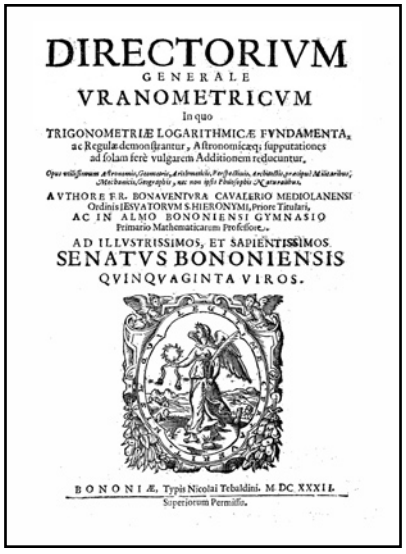
Directorium generale uranometricum in quo trigonometriæ logarithmicæ fundamenta, ac regulae demonstrantur, astronomicæq; supputationes ad solam ferè vulgarem additionem reducuntur.

Year: 1632
Place: Bologna
Publisher: Nicolai Tebaldini
Edition: 1st
Language: Latin
Figures: 1 large folding plate
Binding: contemporary paper boards
Pagination: pp. [16], 336, [320]
Collation: *^{4}……^{4}a–2t^{4}A–2R^4
Size: 215x165 mm
Reference: Hend *BTM*, #28 p. 60

It was this work that introduced logarithms into Italy, but as it was in Latin, that honor is often given to the author's later works written in Italian. Besides introducing logarithms, the work deals with spherical triangles, and Cavalieri introduces a new formula for calculating the area of a spherical triangle.

The tables consist of two major logarithmic tables, one trigonometric and the other numeric. A large errata is included at the end. These logarithmic tables are much more detailed than those appearing in Cavalieri's later Italian publications and have entries to every second of the arc whereas the later ones are only to every minute.

Illustrations available:
Title page
Table title page
Table page


DIRECTORIVM
GENERALE
VRANOMETRICVM
In quo
TRIGONOMETRIÆ LOGARITHMICÆ FVNDAMENTA,
AVTHORE F.R. BONAVENTVRA CAVALERIO MEDIOLANENSI
Ordinis IESVATORVM S. HIERONYMI, Priore Titulari,
AC IN ALMO BONONIENSI GYMNASIO
Primario Mathematicarum Professore.
AD ILLVSTRISSIMOS, ET SAPIENTISSIMOS
SENATVS BONONIENSIS
QVINQVAGINTA VIROS.
BONONIÆ, Typis Nicolai Tebaldini. M DC XXXII.
Superiorum Permissu.

C 48

C 49
Cavalieri, Bonaventure Francesco (1598–1647)

Nuova prattica astrologica di fare le direttioni secondo la vie rationale e conforme ancora al fondamento di Kepplero per via di logarithmi. Con una centuria di varii problemi, e con il compendio delle regole de triangoli.

b/w: **Cavalieri, Bonaventure Francesco**; *Centuria di varii problemi*, 1639
b/w: **Cavalieri, Bonaventure Francesco**; *Compendia della regole de triangoli*, 1638
b/w: **Cavalieri, Bonaventure Francesco**; *Tavola prima logarithmica*, 1638–1639

Year: 1639
Place: Bologna
Publisher: Clemente Ferroni
Edition: 1st
Language: Italian
Binding: contemporary vellum
Pagination: pp. 131, [1]
Collation: A–E^{12}F^6
Size: 147x70 mm
Reference: Rcdi *BMI*, Vol. II, p. 526

This volume has a complex publishing history and is known both as a sammelband, as in the present edition, and as individually bound items. Cavalieri had previously published on logarithms but in Latin (Cavalieri, *Directorium generale uranometricum*, 1632). These Italian versions were more readily accessible by the public, and thus they are usually considered to have introduced logarithms into Italy.


NVOVA PRATTICA ASTROLOGICA
Di fare le Direttioni secondo la via Rationale
E conforme ancora al fondam.to di Kepplero
per via di logaritmi.
Con vna Centuria di varij Problemi,
e con il compendio delle Regole
de Triangoli.
DI F. BONAVENTVRA CAVALIERI
Milanese Giesuato Priore alla Mascarella
e publico Matematico nello Studio di
Bologna.
All'Ill.mo et Rmo S.r Cardinale
Francesco Barberini
IN BOLOGNA
Per il Ferroni.

C 49

They introduce the use of logarithms to various fields: the *Nuova Prattica* deals with astrology; the *Centuria* with astronomy, sundials and gauging; the *Compendia* deals with triangles, mainly spherical; the *Tavola* contains the same tables as in the *Appendice* (Cavaliera, *Appendice della nuova prattica*, 1640). The tables show corrections that might well have been done by either the printer or the author himself because the same corrections appear, in the same hand, in the *Appendice* published a year later.

Illustrations available:
Title page for the volume
Centuria title page
Compendia title page
Tavola half title page


COMPENDIO
DELLE REGOLE
DE TRIANGOLI
Con le loro dimoſtrationi.
DI
FR. BONAVENTVRA
CAVALIERI.
INBOLOGNA, M.DC.XXXVIII.
Appreſſo Gicomo Monti.

C 47 and C49

C 50
Cavalieri, Bonaventure Francesco (1598–1647)

Tavola prima logarithmica

b/w: **Cavalieri, Bonaventure Francesco**; *Nuova prattica astrologica*, 1639

Year: 1638–1639
Place: Bologna
Publisher: Giacomo Monti et Carlo Zenero
Edition: 1st
Language: Italian
Binding: contemporary vellum
Pagination: pp. 166, [2]
Collation: A–G^{12}
Size: 147x70 mm
Reference: Rcdi *BMI*, Vol. II, p. 526

See entry for **Cavalieri**, *Nuova prattica astrologica*, 1639, for information and illustrations.

Illustrations available:
None

C 51
Cavalieri, Bonaventure Francesco (1598–1647)

Trattato della ruota planetaria perpetua e dell'uso di quella principalmente per ritrovare i luoghi de pianeti alla Lansbergiana; e par fare la figura celeste, & anco le direttioni, osservata pur la largezza, secondo la via rationale.

Year: 1646
Place: Bologna
Publisher: Giacomo Monti
Edition: 1st
Language: Italian
Figures: 1 folded table numbered page 87 & 2 large folded plates of instrument
Binding: later leather rebacked
Pagination: pp. [12], 86, [2]
Collation: a^{6}A–L^{4}
Size: 223x162 mm
Reference: Rcdi *BMI*, Vol. II, p. 528

Silvio Filomantio (the name of the author on the title page) was a pseudonym for Bonaventure Cavalieri.

This is the sole edition of this work. It describes a circular instrument (*ruota*) useful for the astronomical calculations necessary to determine the positions of the planets. Cavalieri chose to use astrological terminology in this work, a decision that, unhappily, only served to reawaken charges of his interest in the subject. He subsequently vehemently denied these accusations.

The one-foot-in-diameter instrument and its associated scales are shown full size on two plates designed to be cut out and pasted onto boards or engraved in metal. Examples, such as this copy, with the plates intact are rare.

Illustrations available:
Title page
Colophon
Portion of his instrument


BONONIÆ MDCXLVI.
Typis Iacobi Montij. Superiorum permiſſu.

Colophon, C 51


TRATTATO
DELLA RVOTA
PLANETARIA
PERPETVA
E DELL'VSO DI QVELLA
Principalmente per ritrouare i luoghi de' Pianeti alla Lansbergiana;
E per fare la Figura celeſte, & anco le Direttioni, oſſeruata pur la largheZZa, ſecondo la via Rationale.
DI SILVIO FILOMANTIO.
ALL'ILLVSTRISSIMO SIG.
PAOLO FRANCESCO
FALCONIERI.
IN BOLOGNA MDCXLVI.
Per Giacomo Monti. *Con licenZa de' Superiori.*

C 51

C 52
Cavalieri, Bonaventure Francesco (1598–1647)

Trigonometria plana, et sphaerica, linearis, & logarithmica. Hoc est tam per sinuum, tangentium, & secantium multiplicationem, ac divisionem juxta veteres: quam per logarithmorum simplicem ferè additionem juxta recentiores; ad triangulorum dimetiendos angulos, & latera procedens. Cum canone duplici trigonometrico, & chiliade numerorum absolutorum ab 1 usque ad 1000, eorumque logarithmis, ac differentiis.

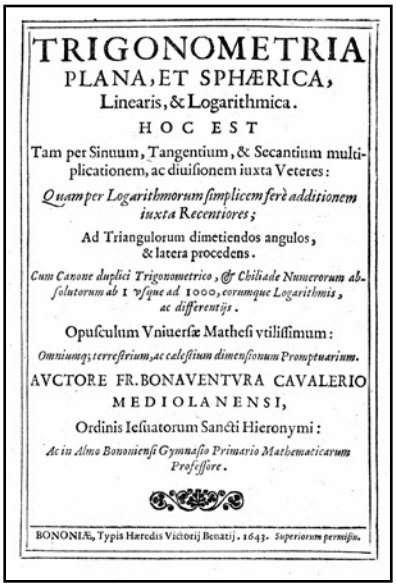
Year: 1643
Place: Bologna
Publisher: Victor Benatis
Edition: 1st
Language: Italian
Figures: engraved frontispiece, 1 engraved plate (p. 16)
Binding: modern quarter-vellum boards
Pagination: pp. 16, 72, [104]
Collation: a–b^{4}A–I^{4}A–N^4
Size: 228x161 mm
Reference: Rcdi *BMI*, Vol. I, p. 328; DSB II, p. 152

This is a treatise on plane and spherical trigonometry with, as was usual for Cavalieri, tables of logarithms. The table combines standard trigonometric values with logarithmic ones in what he terms a *Canon Duplex* (double table) that was well laid out for its day. The table gives logarithms of the numbers for only the first chiliad.

In the preface to this volume, Cavalieri refutes criticisms of his method of indivisibles made by Paul Guldin, a Jesuit scholar. The frontispiece is a beautiful allegory on the importance of mathematics in which the goddess Trigonometria opens the door to reveal the various applications of the art.

Illustrations available:
Title page
Frontispiece
Table page

Frontispiece, C 52


TRIGONOMETRIA
PLANA, ET SPHÆRICA,
Linearis, & Logarithmica.
HOC EST
Tam per Sinuum, Tangentium, & Secantium multiplicationem, ac diuiſionem iuxta Veteres:
Quam per Logarithmorum ſimplicem ferè additionem iuxta Recentiores;
Ad Triangulorum dimetiendos angulos, & latera procedens.
Cum Canone duplici Trigonometrico, & Chiliade Numerorum abſolutorum ab 1 vſque ad 1000, eorumque Logarithmis, ac differentijs.
Opuſculum Vniuerſæ Matheſi vtiliſſimum:
Omnium; terreſtrium, ac celeſtium dimenſionum Promptuarium.
AVCTORE FR. BONAVENTVRA CAVALERIO MEDIOLANENSI,
Ordinis Ieſuatorum Sancti Hieronymi:
Ac in Almo Bononienſi Gymnaſio Primario Mathematicarum Profeſſore.
BONONIÆ, Typis Hæredis Victorij Benatij. 1643. *Superiorum permiſſu.*

C 52

C 53
Ceneau, Robert (1483–1560)

De vera mensurarum po[n]derúmque ratione opus de integro instauratu[m]

Year: 1547
Place: Paris
Publisher: Joannem Roigny

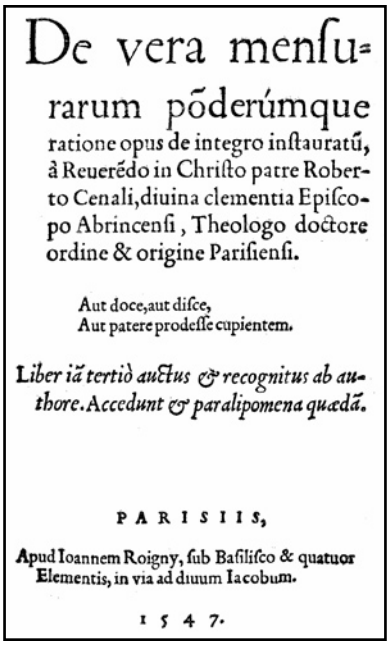
Edition: 2nd
Language: Latin
Figures: 1 folding plate
Binding: contemporary alum-tawed pigskin back over reused liturgical vellum mss. boards
Pagination: pp. 16, [40] ff. 173, [1]
Collation: A–C ^{8}D^{4}a–x^{8}y^{6}
Size: 169x102 mm

Other than the dates of birth and death and the fact that he was Parisian, nothing is known about Ceneau. A manuscript inscription in the flyleaf implies that he was also known as François Robert Cenau.

This treatise deals with ancient measures of all kinds. A thirty-seven-page index references entries for interest rates, incense, precious metals, Chinese and Egyptian money, spices, wine, etc. A folding plate shows, among other things, equivalents of measures (Palm = 4 digits, etc.) The first edition (1535) was evidently not as complete as the present one.

The book contains the bookplate of the French mathematician Michel Chasles.

Illustrations available:
Title page


De vera menſu-
rarum põderúmque
ratione opus de integro inſtauratũ,
à Reuerẽdo in Chriſto patre Rober-
to Cenali, diuina clementia Epiſco-
po Abrincenſi, Theologo doctore
ordine & origine Pariſienſi.

Aut doce, aut diſce,
Aut patere prodeſſe cupientem.

Liber iã tertiò auctus & recognitus ab au-
thore. Accedunt & paralipomena quædã.

PARISIIS,

Apud Ioannem Roigny, ſub Baſiliſco & quatuor Elementis, in via ad diuum Iacobum.

1547.

C 53

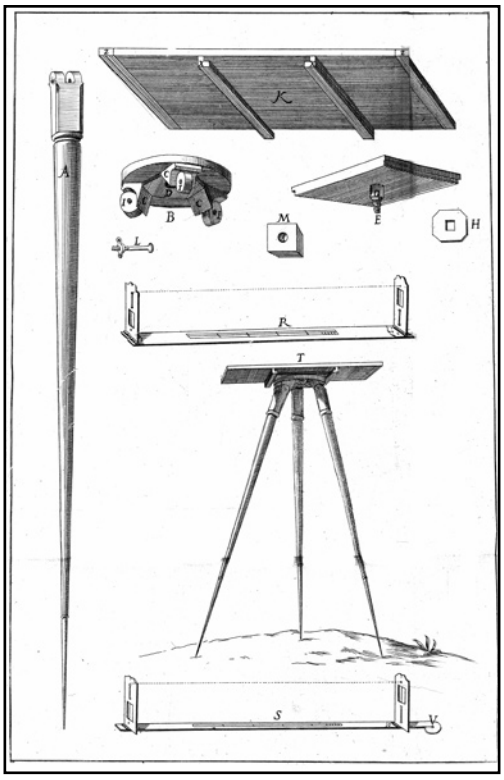
C 54
Ceneri, Angelo Maria

L'uso dello strumento geometrico detto la tavoletta pretoriana proposto, ed ampliato… In cui s'insegna il modo di misurare con questo strumento linee, angoli, e piani: e di più la maniera di renderlo idoneo, e di usarlo nelle misure dell'altimetria; Aggiuntavi la practica del paralellogrammo trigonometrico, per rilevare le quantità superficiali delle figure rettilinee, colle dimonstrazioni geometriche, sopra delle quali è fondata questa operazione, e quella del paralellogrammo del Padre Cristoforo Scheiner, per disegnare, e trasportare le mappe in qualungue data proporzione.

Year: 1728
Place: Bologna
Publisher: Lelio dalla Volpe
Edition: 1st
Language: Italian
Figures: 12 folding plates
Binding: original paper boards; uncut
Pagination: pp. 72, [4]
Collation: A–I^{4}K^{2}
Size: 255x194 mm
Reference: Rcdi *BMI*, Vol. I, 335.1

Little is known of Angelo Maria Ceneri except that he was active in the first half of the eighteenth century.

The plane table (*Tavoletta Pretoriana*) was a standard survey tool during the seventeenth and eighteenth centuries. Earlier instruments had required surveyors to take their readings and draw up a plan of the survey later. With the plane table, a sheet of paper was placed directly on the table, and sighting lines could be drawn as they were taken—by using the alidade sighting instrument directly as a straight edge. A large folding plate shows the table, tripod, alidade and other accessories.



Plane table, C 54

The first chapter is devoted to the history of the plane table (starting with the *mensula* of Jean Praetorius in the sixteenth century), then describes its use in both the horizontal (general survey) and vertical orientations (finding heights of towers, mountains, etc.). The final part is devoted to a description of a pantograph described by **Christopher Scheiner** in 1631.

Illustrations available:
Title page
Plane table


L' USO
DELLO STRUMENTO
GEOMETRICO
DETTO
LA TAVOLETTA
PRETORIANA
PROPOSTO, ED AMPLIATO.
OPERA POSTUMA
DEL SIG. ANGELO MARIA CENERI
GEOMETRA BOLOGNESE
In cui s'insegna il modo di misurare con questo Strumento Linee, Angoli, e Piani: e di più la maniera di renderlo idoneo, e di usarlo nelle misure dell' Altimetria;
Aggiuntavi la Pratica del Paralellogrammo Trigonometrico, per rilevare le quantità superficiali delle Figure rettilinee, colle dimostrazioni Geometriche, sopra delle quali è fondata questa Operazione, quella del Paralellogrammo del Padre CRISTOFORO SCHEINER, per disegnare, e trasportare le Mappe in qualunque data proporzione.
DEDICATA AL NOBIL' UOMO
SIGNOR CONTE
FILIPPO LEGNANI FERRI.
IN BOLOGNA M.DCC.XXVIII.
Nella Stamperìa di Lelio dalla Volpe.
Con Licenza de' Superiori.

C 54

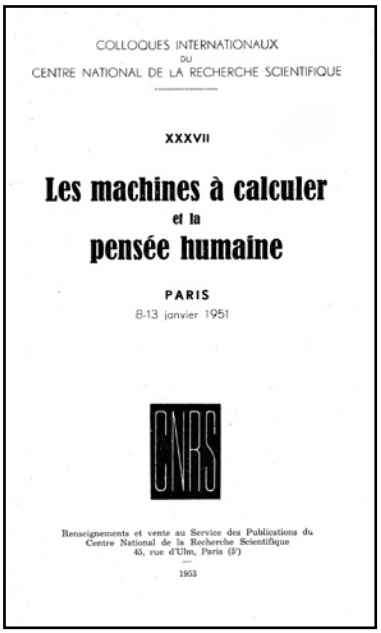
C 55
Centre National De La Recherche Scientifique - [France]

Les machines à calculer et la pensée humaine

Year: 1953
Place: Paris
Publisher: Editions du Centre National de la Recherche Scientifique
Edition: 1st
Language: French
Figures: Many figures in text
Binding: original paper wrappers
Pagination: pp. [20], 570, [2]
Collation: 1–37[8]
Size: 243x159 mm

These are the proceedings of a very early computer/calculating machine conference held in Paris on 8-13 January, 1951. It attracted 268 individuals from all parts of Western Europe and North America. The list of participants included all the major figures of the day. Many of the early machines (Howard Aiken's Mark IV, the Manchester Mark I, the NPL Pilot ACE, etc.) are described here, as are several of the less well-known examples, both analog and digital. Notable are the photographs and description of the machines produced by **Leonardo Torres y Quevedo**—a presentation made by his son, Gonzalo Torres y Quevedo. Also of interest are the Swedish reports on the BARK digital computer and on the differential analyzer (one of the best in the world prior to World War II) at Chalmers University.

Illustrations available:
Title page


COLLOQUES INTERNATIONAUX
DU
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
XXXVII
Les machines à calculer
et la
pensée humaine
PARIS
8-13 janvier 1951
CNRS
Renseignements et vente au Service des Publications du Centre National de la Recherche Scientifique
45, rue d'Ulm, Paris (5e)
1953

C 55

C 56
Cesareo, O.

The relay interpolator. In *Bell Laboratories Record, Vol. XXIV, No. 12, December 1946*

Year: 1946
Place: New York
Publisher: Bell Telephone Laboratories
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 457–460
Size: 254x180 mm
Reference: Ran *ODC*, p. 410

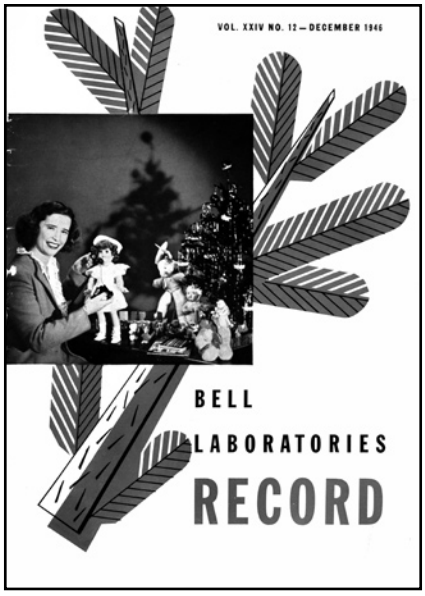
Cesareo was a member of the staff of Bell Telephone Laboratories. During World War II he worked on the Relay Interpolator (Bell Labs Model II), the Ballistic Computer (Model III) and other computing systems.

The M-9 gun director was used to aim heavy anti-aircraft artillery using information obtained either from optical sights or from radar. It was an electrical analog computer that solved the trigonometric problems involved in

shooting at a moving target. As part of its development, a large number of calculations were required. When it was estimated that these would take over a year to complete, **George Stibitz** suggested that a relay-based computing machine (taking instructions one at a time from punched paper tape) might be constructed to compute the desired results in a shorter time. After completing its task, the machine was set to work on other problems and, even though it was eventually made obsolete by later electronic machines, continued to be used by various groups until 1961.

In this issue an anonymous article, immediately preceding Cesareo's, describes the testing of the M-9 in cold weather conditions in Canada and in tropical conditions in Panama.

Illustrations available:
Title page
First page



C 56

Cespedes, Andres Garcia de
See **Garcia De Cespedes**, **Andres**; *Libro de instrumentos nuevos de geometria muy necessarios para medir distancias, y alturas, sin que intervengan numeros, como se demuestra en la practica.*

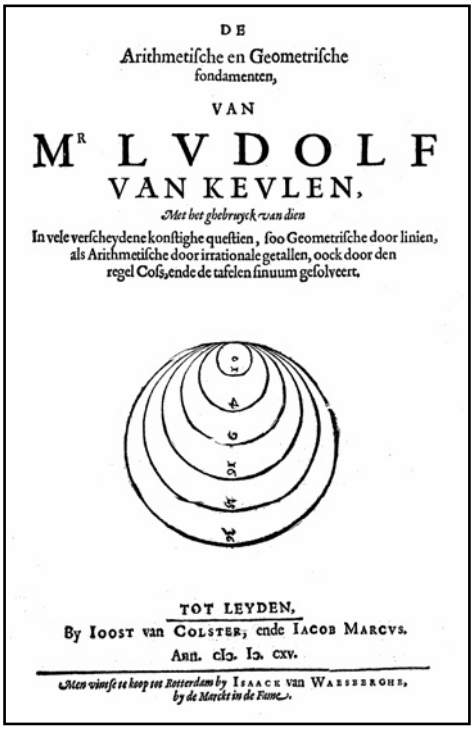
C 57
Ceulen, Ludolph van (1540–1610)

De arithmetische en geometrische fondamenten

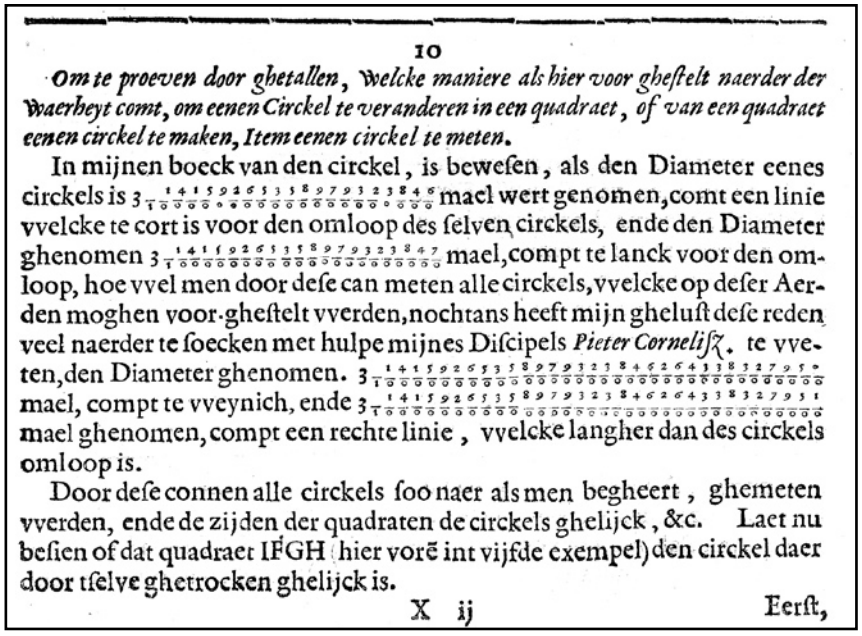
Year: 1615
Place: Leiden
Publisher: Joost van Colster & Jacob Marcus
Edition: 1st
Language: Dutch
Binding: contemporary vellum
Pagination: pp. iv, 272
Collation: $*^2A–2L^4$
Size: 295x195 mm
Reference: Cro *CL*, #130, p. 112

Originally from Hildesheim in Germany, Ceulen's family (aka Collen, Cuelen and Keulen) moved to the Netherlands when Ludolph was a child. He does not seem to have attended university but held a number of posts as a teacher of mathematics and also as a fencing master in Breda, Delft, Amsterdam and Leiden. In 1600, he became professor of military engineering at the University of Leiden. Published by van Ceulen's widow, this work contains a short section on arithmetic followed by one on geometry, but is best known for the inclusion of his calculation of π to 33 places (up from the value to 20 places given in his 1596 publication, which also appears here; see **Ceulen, Ludolph van**; *Vanden circkel*, 1596). In Germany π was often referred to as the *Ludolphine number*. His final calculation, π to 35 places, is inscribed on his tombstone in the Pieterskerk in Leiden and was published by his pupil Willebrord Snell in 1621. This work is well illustrated with fine geometric diagrams.

Illustrations available:
Title page
Value of π (page 163)
Colophon


DE
Arithmetiſche en Geometriſche
fondamenten,
VAN
M^R LVDOLF
VAN KEVLEN,
Met het ghebruyck van dien
In vele verſcheydene konſtighe queſtien, ſoo Geometriſche door linien, als Arithmetiſche door irrationale getallen, oock door den regel Coſs, ende de tafelen ſinuum gheſolveert.
TOT LEYDEN,
By Ioost van Colster, ende Iacob Marcvs.
Ann. cIↃ. IↃ. cxv.
Men vintſe te koop tot Rotterdam by Isaack van Waesberghe, *by de Marckt in de Fluwe.*

C 57



10

Om te proeven door ghetallen, welcke maniere als hier voor gheſtelt naerder der waerheyt comt, om eenen Circkel te veranderen in een quadraet, of van een quadraet eenen circkel te maken, Item eenen circkel te meten.

In mijnen boeck van den circkel, is beweſen, als den Diameter eenes circkels is $3\frac{14159265358979323846}{100000000000000000000}$ mael wert genomen, comt een linie vvelcke te cort is voor den omloop des ſelven circkels, ende den Diameter ghenomen $3\frac{14159265358979323847}{100000000000000000000}$ mael, compt te lanck voor den omloop, hoe vvel men door deſe can meten alle circkels, vvelcke op deſer Aerden moghen voor-gheſtelt vverden, nochtans heeft mijn gheluſt deſe reden veel naerder te ſoecken met hulpe mijnes Diſcipels *Pieter Cornelisz.* te vveten, den Diameter ghenomen. $3\frac{141592653589793238462643383279501}{100000000000000000000000000000000}$ mael, compt te vveynich, ende $3\frac{141592653589793238462643383279502}{100000000000000000000000000000000}$ mael ghenomen, compt een rechte linie, vvelcke langher dan des circkels omloop is.

Door deſe connen alle circkels ſoo naer als men begheert, ghemeten vverden, ende de zijden der quadraten de circkels ghelijck, &c. Laet nu beſien of dat quadraet IFGH (hier vorē int vijfde exempel) den circkel daer door tſelve ghetrocken ghelijck is.

X ij Eerſt,

Value of π, C 57

C 58

Ceulen, Ludolph van (1540–1610)

Vanden circkel. Daer in gheleert werdt te vinden de naeste proportie des circkels-diameter tegen synen omloop, daer door alle circkels (met alle figueren, ofte landen met cromme linien besloten) recht ghemeten kunnen werden. Item aller figueren-sunden in den circkel beschreven, beginnende van den 3, 4, 5, 15 hoeck in irrationale ghetallen te brengen, al hadde de figuer veel hondert-duysent hoecken. Item des 7, 11,13, 17, 19, 23 hoecx syden, ende wat syden ofte coorden men begeerde welcker boge groot ziin graden, minuten, secunden. &c. Naer elcx behaghen. Noch de tafelen sinuum, tangentium, ende secantium, met her gebruyck van dien, hoogh-noodigh voor de land-meters: Met veel andere konstighe stucken, dierghelijcke noyt in duck uytghegheven. Ten laetsten van interest, met alderhande tafelen daertoe dienende met het gebruyck, door veel constighe exempelen gheleerdt, ende door gheheele werck bewesen, ende gheproest.

Year: 1596
Place: Delft
Publisher: Jan Andriesz
Edition: 1st
Language: Dutch
Figures: engraved portrait of author on title
Binding: modern leather, panel stamped
Pagination: ff. [6], 72, [2],77–113, [1]
Collation: π^{4}*^{2}A–S^{4}T^{2}V–2E^{4}2F^{2}
Size: 317x194 mm
Reference: B de H *BNHS*, #837 p. 55; Cro *CL*, #131, p. 113a/131b (1615 ed.)

This work, while best known for Ceulen's calculation of π to 20 decimal places, is mainly concerned with calculation. Among its many early tables is one in which powers of 2 are explicitly written out. It also contains a table of sines, tangents and secants (done to a radius of 10,000,000—stated as a diameter of 20,000,000) and several other tables designed for surveying applications. The second half of the work contains a large number of examples and tables relating to commercial problems and interest calculations.

VANDEN CIRCKEL.

Daer in gheleert werdt te vinden de naeste Proportie des Circkels-diameter tegen synen Omloop, daer door alle Circkels (met alle Figueren, ofte Landen met cromme Linien besloten) recht ghemeten kunnen werden. Item aller Figueren sden in den Circkel beschreven, Beginnende van den 3, 4, 5, 15 hoeck in Irrationale ghetallen te brengen, al hadde de Figuer veel hondert-duysent hoecken. Item des 7, 11, 13, 17, 19, 23 Hoecx syden, ende wat syden ofte Coorden men begeerde welcker Boge groot zijn Graden, Minuten, Secunden, &c. Naer elcx behaghen.

Noch de Tafelen SINVVM, TANGENTIVM, ende SECANTIVM, met het gebruyck van dien, hoogh-noodigh voor de Land-meters: Met veel andere konstighe stucken, dierghelijcke noyt in duck uytgheghe-ven.

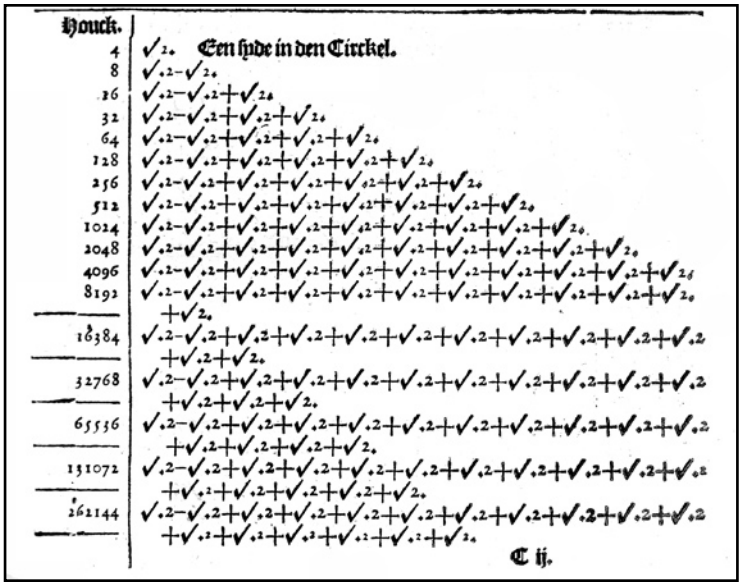
Ten laetsten van Interest, met alderhande Tafelen daer toe dienende, met het ghebruyck, door veel constighe Exempelen ghelee-rdt, ende door gheheele werck bewesen, ende ghe-proest.

Alles door LVDOLPH van CEVLEN, gheboren in HILDESHEIM, beschreven, ende in den druck ghebracht.

TOT DELF,

Ghedruckt by Jan Andriesz. Boeckverrooper, woonende aen't Waer-velde in't Gulden ABC. Anno 1596.

C 58



Powers of 2, C 58

The value of π to 20 decimal places is shown on the title page, which also contains a fine portrait of Ceulen. See entry for **Ceulen, Ludolph van**; *De arithmetische*, 1615, for his additional calculations of π.

Illustrations available:
Title page
Table sample
Powers of 2

C 59

Ceulen, Ludolph van (1540–1610)

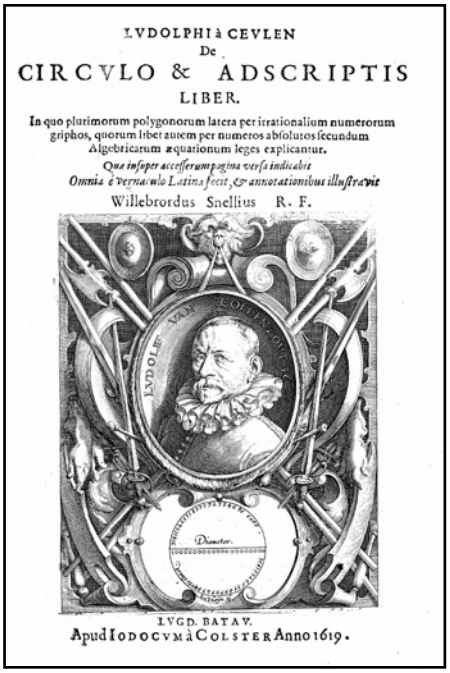
De circulo & adscriptis liber. In quo plurimorum polygonorum latera per irrationalium numerorum griphos, quorum libet autem per numeros absolutos secundum algebraicarum æquationum leges explicantur. Qua in super accesserunt pagina versa indicabit. Omnia é vernaculo Latina fecit & annotationibus illustravit Willebrordus Snellius.

Year: 1619
Place: Leiden
Publisher: Apud Iodocum à Colster
Edition: 1st (Latin)
Language: Latin
Figures: engraved portrait of author on title
Binding: contemporary vellum; black leather label
Pagination: pp. [8], 40, 220
Collation: (?)^{4}a–e^{4}A–2D^{4}2EF^{2}
Size: 240x174 mm
Reference: B de H *BNHS*, p. 841; RG I, 219; Smi, *HM I*, p. 331

This is an edited Latin translation of Ceulen's *Van den Circkel*, 1596, with additions from his posthumous ... *fondamenten* ... of 1615, done by van Ceulen's pupil Willebrord Snel, best known for his work on optics and for Snel's law of refraction. Many of the diagrams are the same as those used in the 1596 edition, and the title page engravings (showing Ceulen and his 20-digit calculation for π) are identical. While several of the tables from the earlier works are repeated here, the large trigonometric tables are not.

Ceulen's 33-place value for π (from the 1615 publication) is given on p. 92.

Illustrations available:
Title page



C 59

C 60

Chace, Arnold Buffum (1845–1932) and **Henry Parker Manning** (1859–1956), editors

The Rhind mathematical papyrus Volume I

Year: 1927
Place: Oberlin, Ohio
Publisher: Mathematical Association of America
Edition: 1st
Language: English
Binding: original cloth boards
Pagination: v.I: pp. [10], 212;_v.II: pp. xvi, [220 i.e. (109 engraved red and black plates)], [22]
Size: 287x203 mm
Reference: Smi *HM II*, p. 436, 498 and 500

Henry P. Manning obtained his Ph.D. degree in mathematics from Johns Hopkins University in 1891. He then spent his career at Brown University, where he worked with Arnold B. Chace in editing this famous manuscript. From 1919 to 1922, he was associate editor of the *American Mathematics Monthly*.

See entry for another copy (complete with Volume II) for information and illustrations.

Illustrations available:
None

C 61

Chace, Arnold Buffum (1845–1932) and **Henry Parker Manning** (1859–1956), editors

The Rhind mathematical papyrus. Volume I

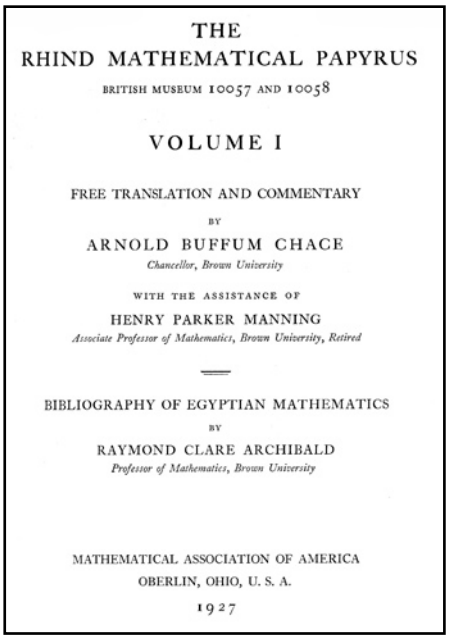
Year: 1927
Place: Oberlin
Publisher: Mathematical Association of America
Edition: 1st
Language: English
Binding: original half-bound cloth boards; gilt spine
Pagination: v.I: pp. [10], 212
Size: v.I: 289x208 mm
Reference: Smi *HM II*, p. 436, 498 and 500

The Rhind papyrus, the work of an Egyptian scribe, Ahmose, from about 1650 BC, is one of the best-known Egyptian works on mathematics. Once the property of Henry Rhind, upon his death it became part of the collections of the British Museum. Written in hieratic (a cursive form of hieroglyphics more suited to pen and ink), it had already been described and translated by Egyptologists. Chace wanted to produce another translation because the earlier commentaries were more concerned with the language than with the mathematical content.

Volume I contains an introduction to Egyptian mathematical knowledge and other subjects, such as calendar and measures that would help the reader follow the problems. This is followed by a free translation and commentary designed to emphasize the methods used by the scribe to perform arithmetical operations. **R. C. Archibald** provided an annotated bibliography of Egyptian mathematics (with index) to provide a starting point for other research in the area.

This volume is a presentation copy to **R. C. Archibald** and is inscribed *To my esteemed friend Doctor Raymond Clare Archibald. Arnold B Chace, Jan. 5 1928*. It also has the book label of Robert B. & Marion S. Honeyman.

Illustrations available:
Title page


THE
RHIND MATHEMATICAL PAPYRUS
BRITISH MUSEUM 10057 AND 10058
VOLUME I
FREE TRANSLATION AND COMMENTARY
BY
ARNOLD BUFFUM CHACE
Chancellor, Brown University
WITH THE ASSISTANCE OF
HENRY PARKER MANNING
Associate Professor of Mathematics, Brown University, Retired
BIBLIOGRAPHY OF EGYPTIAN MATHEMATICS
BY
RAYMOND CLARE ARCHIBALD
Professor of Mathematics, Brown University
MATHEMATICAL ASSOCIATION OF AMERICA
OBERLIN, OHIO, U. S. A.
1927

C 61

C 62

Chace, Arnold Buffum (1845–1932); **Henry Parker Manning** (1859–1956) and **Ludlow Bull** (1886–1954), editors

The Rhind mathematical papyrus. Vol II

Year: 1929
Place: Oberlin, Ohio
Publisher: Mathematical Association of America
Edition: 1st
Language: English
Figures: v.II: 31 lithograph plates, inserted small page at end
Binding: original half-bound cloth boards; gilt spine
Pagination: v.II: pp. xvi, [220 i.e. (109 engraved red and black plates)], [22]
Size: v.II: 358x284 mm
Reference: Smi *HM II*, p. 436, 498 and 500

Ludlow Bull, who joined Chace and Manning as an editor of Volume II, was trained as an attorney and practiced law for a number of years before obtaining his

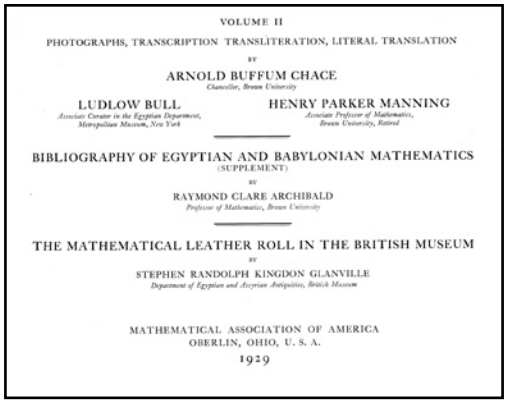
Ph.D. in archaeology at the University of Chicago. He was a member of the Oriental Institute while at Chicago and was later curator of Egyptian collections at the Metropolitan Museum, New York.

Several fragments of the Rhind Papyrus had, in past years, become separated from the main scroll, and some of these were currently in the Metropolitan Museum.

Volume II of this work is bound in a larger format to accommodate the full-sized lithographic plates of the scroll. Each problem is shown in the original, then in a drawing (usually in both red and black ink to represent the two different inks used on the scroll) of the hieratic script followed by its transliteration into the more familiar hieroglyphics with a phonetic pronunciation. The facing page has a copy of the free translation into English together with the method carefully laid out in modern notation. The problems range from simple examples of arithmetic to calculations of area and volume. Problem 50, shown in the illustration, is to determine the area of a circular field 9 *khet* in diameter. Although they knew nothing of π, the ancient Egyptian method of calculation essentially resulted in a value for π of 3.16, which is sufficient for most purposes.

Two years had elapsed since the publication of Volume I, which had obviously given the mathematicians time to reconsider some of the contents of that first volume. Included here are a supplement to **R. C. Archibald**'s annotated bibliography in the first volume (extending it to Babylonian as well as to Egyptian mathematics) and a very short item by S. R. K. Glanville on another leather scroll of mathematical material in the British Museum.

Illustrations available:
Title page
Problem 50 (2 pages in color)


VOLUME II

PHOTOGRAPHS, TRANSCRIPTION TRANSLITERATION, LITERAL TRANSLATION

BY

ARNOLD BUFFUM CHACE

Chancellor, Brown University

LUDLOW BULL

Associate Curator in the Egyptian Department, Metropolitan Museum, New York

HENRY PARKER MANNING

Associate Professor of Mathematics, Brown University, Retired

BIBLIOGRAPHY OF EGYPTIAN AND BABYLONIAN MATHEMATICS

(SUPPLEMENT)

BY

RAYMOND CLARE ARCHIBALD

Professor of Mathematics, Brown University

THE MATHEMATICAL LEATHER ROLL IN THE BRITISH MUSEUM

BY

STEPHEN RANDOLPH KINGDON GLANVILLE

Department of Egyptian and Assyrian Antiquities, British Museum

MATHEMATICAL ASSOCIATION OF AMERICA
OBERLIN, OHIO, U. S. A.
1929

C 62

C 63

Chamard, Charles-Henri

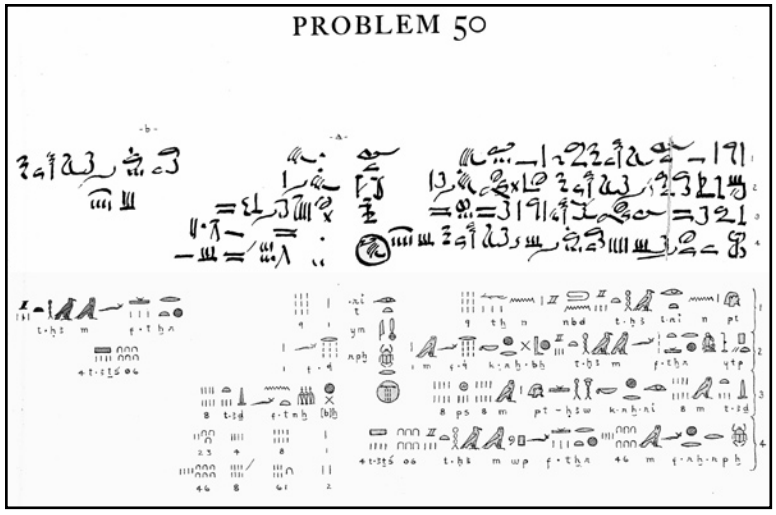
Contribution a l'etude des machines a calculer. De l'extraction des racines. Annexe sur la division et la multiplication automatiques.

Year: 1942
Place: Paris
Publisher: Gauthier-Villars
Edition: 1st
Language: French
Binding: original paper wrappers
Pagination: pp. [4], 62, [2]
Collation: π^2 1–4^8
Size: 240x156 mm

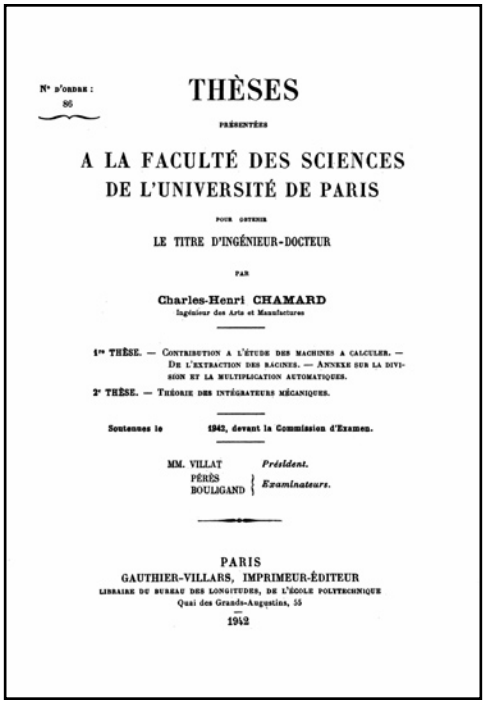
This dissertation describes the calculation of roots and automatic multiplication and division on mechanical calculating machines.

The second item, *Théorie des intégrateurs méchaniques*, mentioned on the wrappers is not present.

Illustrations available:
Title page



Areas of circles, C 62



N° D'ORDRE : 86

THÈSES

PRÉSENTÉES

A LA FACULTÉ DES SCIENCES
DE L'UNIVERSITÉ DE PARIS

POUR OBTENIR

LE TITRE D'INGÉNIEUR-DOCTEUR

PAR

Charles-Henri CHAMARD
Ingénieur des Arts et Manufactures

1re THÈSE. — CONTRIBUTION A L'ÉTUDE DES MACHINES A CALCULER. — DE L'EXTRACTION DES RACINES. — ANNEXE SUR LA DIVISION ET LA MULTIPLICATION AUTOMATIQUES.

2e THÈSE. — THÉORIE DES INTÉGRATEURS MÉCANIQUES.

Soutenues le 1942, devant la Commission d'Examen.

MM. VILLAT *Président.*
PÉRÈS
BOULIGAND *Examinateurs.*

PARIS
GAUTHIER-VILLARS, IMPRIMEUR-ÉDITEUR
LIBRAIRE DU BUREAU DES LONGITUDES, DE L'ÉCOLE POLYTECHNIQUE
Quai des Grands-Augustins, 55
1942

C 63

C 64
Chappell, Edwin (1883–1938)

A new method of second difference integration on the Brunsviga-Dupla machine.

b/w: **Comrie, Leslie John**; *Note on Mr. Chappell's method of second difference integration*, 1931

Year: 1931
Place: Edinburgh
Publisher: Royal Astronomical Society
Edition: reprint
Language: English
Binding: original paper wrappers
Pagination: pp. 817–819
Size: 228x146 mm

See entry for **Comrie, Leslie John**; *Note on Mr. Chappell's method of second difference integration*, 1931.

Illustrations available:
None

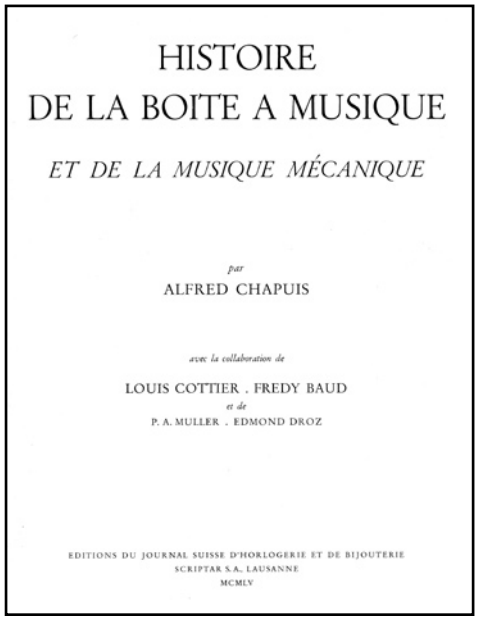
C 65
Chapuis, Alfred (1880–)

Histoire de la boite a musique et de la musique mécanique

Year: 1955
Place: Lausanne
Publisher: Editions du Journal Suisse d'Horlogerie et Bijouterie Scriptar
Edition: 1st
Language: French
Figures: 9 plates and 300 illustrations in the text
Binding: original cloth boards
Pagination: pp. 320
Collation: $1–20^8$
Size: 268x207 mm

This history of automatic mechanical music devices, from the late Roman period to modern times, is heavily illustrated with photographs depicting both the machines and techniques for their creation.

Illustrations available:
Title page



HISTOIRE
DE LA BOITE A MUSIQUE

ET DE LA MUSIQUE MÉCANIQUE

par
ALFRED CHAPUIS

avec la collaboration de
LOUIS COTTIER . FREDY BAUD
et de
P. A. MULLER . EDMOND DROZ

EDITIONS DU JOURNAL SUISSE D'HORLOGERIE ET DE BIJOUTERIE
SCRIPTAR S.A. LAUSANNE
MCMLV

C 65

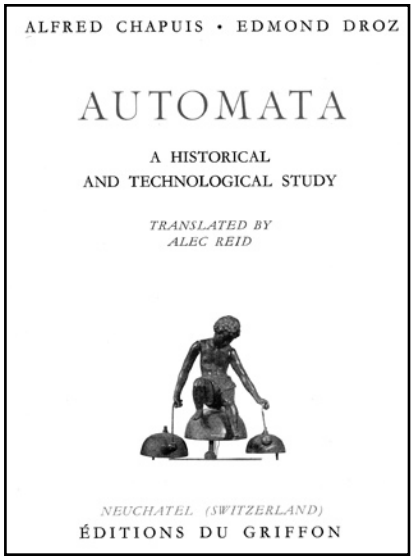
C 66
Chapuis, Alfred (1880–) and **Edmund Droz** [**Alec Reid**, translator]

Automata. A historical & technological study

Year: 1958
Place: Neuchatel
Publisher: Griffon
Edition: 1st (English)
Language: English
Figures: title in red and black; 18 color lithograph plates
Binding: original cloth boards; embossed covers
Pagination: pp. 408, [8]
Collation: $1–26^8$
Size: 273x204 mm

This is an English translation of *Les automates*. See entry for **Chapuis, Alfred** and **Edmund Droz**; *Les automates*, 1949.

Illustrations available:
Title page



C 66

C 67

Chapuis, Alfred (1880–) and **Edmund Droz**

Les automates. Figures artificielles d'hommes et d'animaux. Histoire et technique.

Year: 1949
Place: Neuchatel
Publisher: Griffon
Edition: 1st
Language: French
Figures: title in red and black; 18 color lithograph plates
Binding: original cloth boards; embossed covers
Pagination: pp. 426, [8]
Collation: $1–26^8\ 27^9(-27_{10})$
Size: 273x204 mm
Reference: Ran *ODC*, p. 410

This is a history of automata from the time of the early Egyptians, to motion picture robots, and the chess–playing machines of **Torres y Quevedo**.

Illustrations available:
Title page

C 68

Chapuis, Alfred (1880–) and **Edward Gelis**

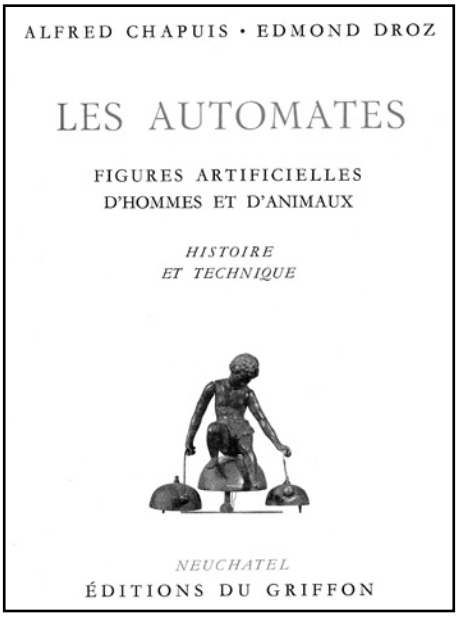
Le monde des automates. Etude historique et technique. 2 vols

Year: 1928
Place: Paris
Publisher: Blondel
Edition: 1st
Language: French
Figures: v.1: title in red and black; 1 color lithograph plate v.2: title in red and black; 6 color lithograph plates
Binding: original half-bound maroon leather buckram boards
Pagination: v.1: pp. xvi, 348, [4]; v.2: [viii], 352, [8]
Collation: v.1: $\pi^4 *^4 1–44^4$; v.2: $*^4 1–45^4$
Size: 277x223 mm

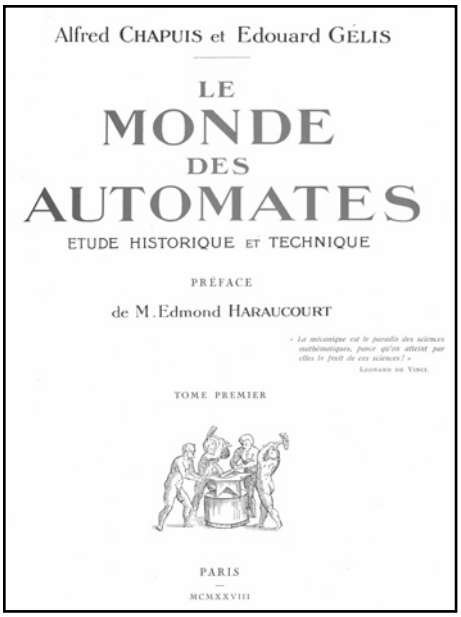
This well-illustrated history of automata contains photographs and drawings of most of the items discussed and any available portraits of their creators. The material from these volumes formed the starting point for Chapuis' later works (see his entries for 1949, 1955 and 1958).

The copies are numbered, this #813 of 1000.

Illustrations available:
Title page of Volume 1 (color)
Title page of volume 2 (color)



C 67



C 68

C 69

Chase, Stuart (1888–1985)

Men and machines

Year: 1929
Place: New York
Publisher: Macmillan
Edition: 1st
Language: English
Figures: wood block frontispiece
Binding: original cloth boards; with dust jacket
Pagination: pp. [10], 354
Size: 198x135 mm

Chase describes the effects of machines on the workforce and the economy in general. He briefly quotes **Charles Babbage** about how machines have not, invariably, thrown people out of work but notes that the data to support that conclusion had not yet been collected. The work is illustrated with pen and ink images by W. T. Murch—one of which can be seen on the title page.

Illustrations available:
Title page

C 70

Chasles, Michel (1793–1880)

Histoire de l'arithmétique. Explication des traités de l'abacus, et particulièrement du traité de Gerbert

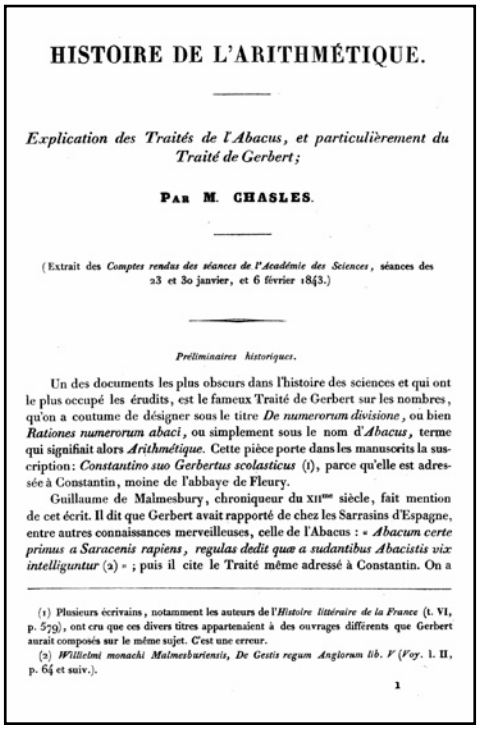
Year: 1843
Place: Paris
Publisher: University Press
Edition: extract - 1st
Language: French
Binding: disbound
Pagination: pp. 65, [1]
Collation: $1–8^4\ 9^1$
Size: 265x208 mm

Chasles, who was born into a wealthy family of merchants, made his reputation as an historian of mathematics in 1837 when he published his *Aperçu historique sur l'origine et le développement des méthodes en géométrie.* From 1841 to 1846 Chasles was a professor at the École Polytechnique and was then appointed to a chair at the Sorbonne. A noted collector of historical books, autographs, and manuscripts, he amassed a large collection of items relating to calculation as well as collecting heavily in other areas. He attracted unwelcome notoriety when it was revealed that he had been duped by Denis Vrain-Lucas into acquiring letters purportedly written in French by Cleopatra, Galileo and Lazarus among others.

This article is an extract from: *Comptes rendus des séances de l'Académie des Sciences*, séances des 23 et 30 Janvier, et 6 Février, 1843. It is a discussion of the tenth century writings on the abacus by the monk Gerbert (later Pope Sylvester II). Gerbert's abacus was not a standard table abacus, but had columns in which special counters (engraved with the figures 1–9) were placed. It is thought that Gerbert, disguised as an Arab, made his way into Spain and learned of the Hindu-Arabic numerals there. The Gerbert abacus was not convenient to use and was soon abandoned.

Gerbert was Pope during the fateful penultimate millennium year of 1000—a time when many Christians believed predictions that the world would come to an end. It is thought that Gerbert used his mathematical abilities to calculate and predict eclipses and other natural phenomena and thus was a stabilizing influence on Christendom during his papacy. He was, however, a believer in astrological predictions, and when a soothsayer indicated that he would die in the Holy Land, he attempted to avoid his fate by never leaving Rome. Ironically, he died while celebrating Mass in the Jerusalem Church in Rome.

Illustrations available:
First page
Gerbert's numerals



HISTOIRE DE L'ARITHMÉTIQUE.

Explication des Traités de l'Abacus, et particulièrement du Traité de Gerbert;

PAR M. CHASLES.

(Extrait des *Comptes rendus des séances de l'Académie des Sciences*, séances des 23 et 30 janvier, et 6 février 1843.)

Préliminaires historiques.

Un des documents les plus obscurs dans l'histoire des sciences et qui ont le plus occupé les érudits, est le fameux Traité de Gerbert sur les nombres, qu'on a coutume de désigner sous le titre *De numerorum divisione*, ou bien *Rationes numerorum abaci*, ou simplement sous le nom d'*Abacus*, terme qui signifiait alors *Arithmétique*. Cette pièce porte dans les manuscrits la suscription: *Constantino suo Gerbertus scolasticus* (1), parce qu'elle est adressée à Constantin, moine de l'abbaye de Fleury.

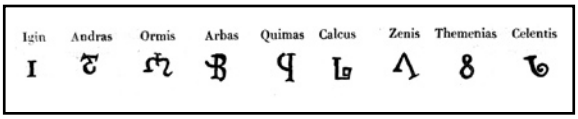
Guillaume de Malmesbury, chroniqueur du XII^me^ siècle, fait mention de cet écrit. Il dit que Gerbert avait rapporté de chez les Sarrasins d'Espagne, entre autres connaissances merveilleuses, celle de l'Abacus : « *Abacum certe primus a Saracenis rapiens, regulas dedit quæ a sudantibus Abacistis vix intelliguntur* (2) » ; puis il cite le Traité même adressé à Constantin. On a

(1) Plusieurs écrivains, notamment les auteurs de l'*Histoire littéraire de la France* (t. VI, p. 579), ont cru que ces divers titres appartenaient à des ouvrages différents que Gerbert aurait composés sur le même sujet. C'est une erreur.

(2) *Willelmi monachi Malmesburiensis, De Gestis regum Anglorum lib. V* (*Voy.* l. II, p. 64 et suiv.).

1

C 70



Gerbert's numerals, C 70

C 71
Chasles, Michel (1793–1880)

Observations adressees a la Societe royale de Londres, dans sa derniere seance annuelle, a l'occasion des medailles decernees par la Societe. In *Compte Rendu des Séances de l'Académie des Sciences, vol. XLII, no. 17, April 28, 1856.*

Year: 1856
Place: Paris
Publisher: Académie des Sciences
Edition: Extract
Language: French
Binding: disbound; unopened
Pagination: pp. 798–799
Size: 279x225 mm

Here Chasles reports to the French Academy on **Charles Babbage**'s remarks to the Royal Society concerning the **Scheutz** Difference Engine (see entry for **Babbage**, **Charles**; *Observations addressed, at the last anniversary, of the President and Fellows of the Royal Society, after the delivery of the medals*…, 1856). A second copy of this work is in the collection.

Illustrations available:
None

C 72
Chaucer, Geoffrey (ca.1343–1400) [**Robert Theodore Gunther** (1869–1940), editor]

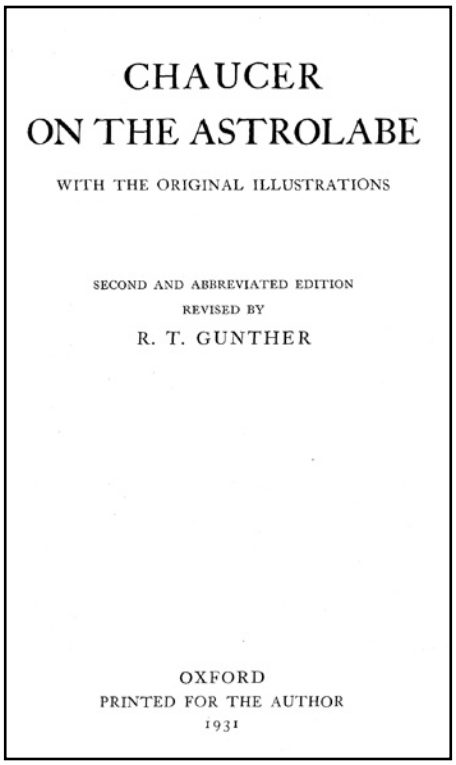
Chaucer on the astrolabe

Year: 1931
Place: Oxford
Publisher: printed for the Author
Edition: 2nd
Language: English
Figures: manuscript's original figures in text
Binding: original paper wrappers
Pagination: pp. [4], 92, [8]
Collation: π^2B–F^{8}G^{10}
Size: 218x141 mm
Reference: Bud *IOS*, p. 32–36

Geoffrey Chaucer held a number of posts in London, including clerk of the king's works. Besides his literary masterpieces, he wrote two astronomical works, one on the astrolabe and one on a similar device, a planetary equatorium (*The equatorie of the planetis*). The work on the astrolabe was taken from earlier Latin works; many think it came from a similar work of Messahalla.

This version, unlike the W.W. Skeat (1928) edition (also in this collection), provides little in the way of notes on the manuscript or transcription into modern English. It simply gives the original text with an occasional footnote to explain a difficult passage.

Illustrations available:
Title page


CHAUCER
ON THE ASTROLABE
WITH THE ORIGINAL ILLUSTRATIONS
SECOND AND ABBREVIATED EDITION
REVISED BY
R. T. GUNTHER
OXFORD
PRINTED FOR THE AUTHOR
1931

C 72

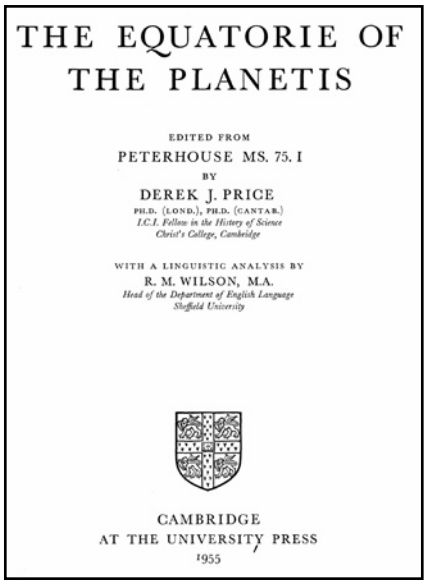
C 73
Chaucer, Geoffrey (ca.1343–1400) [**Derek John de Solla Price**, editor]

The equatorie of the planetis

Year: 1955
Place: Cambridge
Publisher: Cambridge University Press
Edition: 1st
Language: English
Figures: photolith frontispiece; 13 photolith plates
Binding: original cloth boards; with dust jacket
Pagination: pp. xvi, 214
Size: 178x194 mm

This volume describes a manuscript in Merton College, Oxford, thought to have been written by Chaucer himself. Unlike Chaucer's other astronomical works that describe astrolabes, this one deals with the Planetary Equatorium, a device for calculating the position of the planets rather than the fixed stars. This is a detailed description of the manuscript with a discussion ranging from the paleography to the science on which the instrument is based.

Illustrations available:
Title page
Instrument


THE EQUATORIE OF THE PLANETIS

EDITED FROM
PETERHOUSE MS. 75. I
BY
DEREK J. PRICE
PH.D. (LOND.), PH.D. (CANTAB.)
I.C.I. Fellow in the History of Science
Christ's College, Cambridge

WITH A LINGUISTIC ANALYSIS BY
R. M. WILSON, M.A.
Head of the Department of English Language
Sheffield University

CAMBRIDGE
AT THE UNIVERSITY PRESS
1955

C 73

Planetary equatorium, C 73

C 74

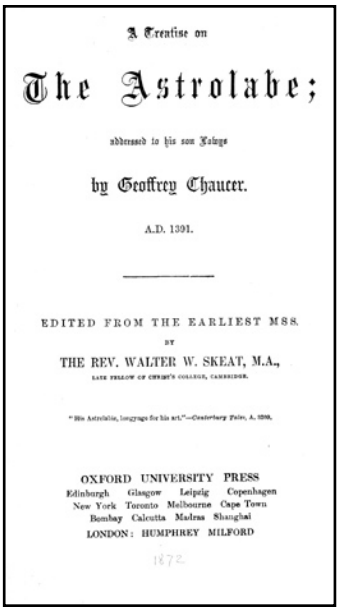
Chaucer, Geoffrey (ca.1343–1400) [**Walter William Skeat** (1835–1912), editor]

A treatise on the astrolabe

Year: 1928
Place: London
Publisher: Oxford University Press
Edition: reprint of the 1872 edition
Language: English
Figures: 7 plates
Binding: buckram library binding
Pagination: pp. lxx, 119, [1]
Collation: a–d^{8}e^{3}1–7^{8}8^{4}
Size: 218x135 mm
Reference: Bud *IOS*, pp. 32–36

Chaucer wrote this treatise for his ten-year-old son (some say nephew), Lewis. He indicates that he translated it from earlier Latin works. In contrast to Gunther's edition of this work, the original text is here accompanied by a full translation into modern English as well as by extensive notes on the original manuscript and explanations of many of the passages. The editor, Walter William Skeat, was the professor of Anglo Saxon at Cambridge.

Illustrations available:
Title page
Skeat's drawings of the scales on an astrolabe (4 images)


A Treatise on

The Astrolabe;

addressed to his son Lowys

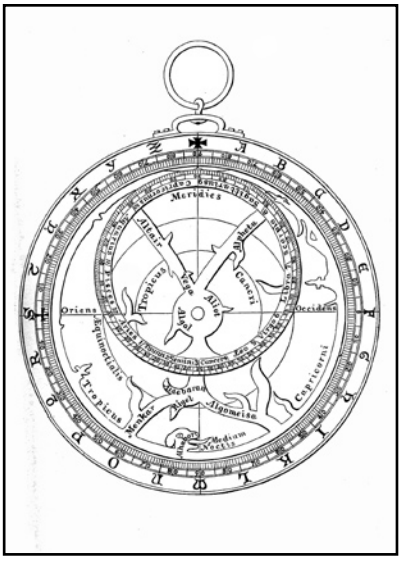
by Geoffrey Chaucer.

A.D. 1391.

EDITED FROM THE EARLIEST MSS.
BY
THE REV. WALTER W. SKEAT, M.A.,

OXFORD UNIVERSITY PRESS
Edinburgh Glasgow Leipzig Copenhagen
New York Toronto Melbourne Cape Town
Bombay Calcutta Madras Shanghai
LONDON: HUMPHREY MILFORD

C 74



Astrolabe rete, C 74

C 75

Chaulnes, Michel Ferdinand d'Albert d'Ailly, Duc de (1714–1769)

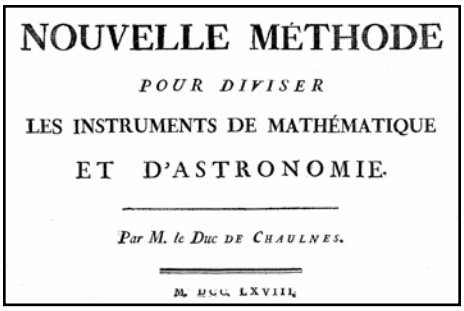
Nouvelle méthode pour diviser les instruments de mathématique et d'astronomie

Year: 1768
Place: Paris
Publisher: L. F. Delatours
Edition: 1st
Language: French
Figures: 15 engraved plates
Binding: contemporary marbled boards; untrimmed
Pagination: pp. [2], 44
Collation: π^1A–L^2
Size: 469x303 mm

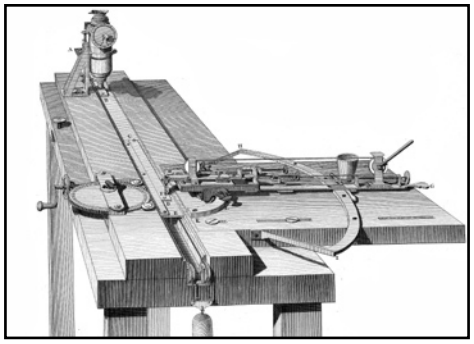
Chaulnes, one of the wealthiest aristocrats in France, was an accomplished astronomer and physicist. He collected rare books and fine art, had his own orchestra and was a patron of the sciences. In addition, he was a published scientist in his own right.

In this work Chaulnes describes two dividing engines of his invention: one for dividing circles and the other for dividing linear scales. First published in the *Description des Arts et Metiers*, Volume 13, it appears here separately in a large format.

The accurate division of the graduated rules and limbs of instruments was one of the most difficult problems facing early instrument designers and makers. The first circular dividing engine is attributed to Henry Hindley, a York clockmaker ca. 1739. In a note read to the Royal Society, John Smeaton reported seeing the Hindley machine in 1741. After Hindley came Chaulnes, who had experimented with a device of this nature for a number of years and was at work on it constantly in the early 1760s.


NOUVELLE MÉTHODE
POUR DIVISER
LES INSTRUMENTS DE MATHÉMATIQUE
ET D'ASTRONOMIE.
Par M. le Duc DE CHAULNES.
M. DCC. LXVIII.

C 75



Linear dividing engine, C 75

In England **Jesse Ramsden** was also experimenting with dividing engines in the 1760s. However, it was 1773 before he had built a successful operating prototype.

The use of the Chaulnes machine eliminated the need for a highly skilled craftsman when creating precision scales. Chaulnes used microscopes of his own design (also described here) to read the divisions on his scales. He also incorporated a screw drive mechanism to move his engraving tool, and this was the first publication to present to that technique.

Illustrations available:
Title page
Linear dividing engine.


Neue Art,
Mathematische
und
astronomische Instrumente
abzutheilen.
Nach der Anweisung
des Hrn. Duc de Chaulnes.
Aus dem Französischen übersetzt, und herausgegeben
von
Johann Samuel Halle,
Königl. Professor des adlichen Corps des Cadets zu Berlin.
Mit acht Kupfertafeln.
Berlin, bey Joachim Pauli, Buchhändler 1788.

C 76

C 76
Chaulnes, Michel Ferdinand d'Albert d'Ailly, Duc de (1714–1769) [**Johann Samuel Halle**, translator]

Neue Art, Mathematische und astronomische Instrumente abzutheilen. Aus dem Französischen übersetzt, und herausgegeben

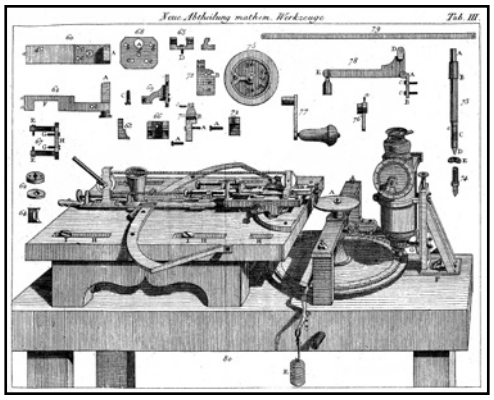
Year: 1788
Place: Berlin
Publisher: Joachim Pauli
Edition: 1st (German)
Language: German
Figures: 10 folding engraved plates
Binding: original paper boards
Pagination: pp. 70, [2]
Collation: A–I^4
Size: 235x190 mm
Reference: Pogg Vol. I, p. 426

This German translation of Chaulnes work originally appeared in volume XVII of *Schauplatz der Künste*

und Handwerke. See the entry for Chaulnes, *Nouvelle méthode pour diviser les instruments de mathématique et d'astronomie*, 1768.

This illustrates a device for accurately engraving the scales on astronomical and mathematical instruments. Two machines are described, one for circular scales and one for linear scales. While one bookseller has described the plates as illustrating *more than 160 astronomical and mathematical instruments*, in fact only the individual pieces of the dividing engines are illustrated. The plates are not identical to those in the original French edition and, while still showing sufficient detail, are smaller than in the original.

Illustrations available:
Title page
Circular dividing engine



Circular dividing engine, C 76

C 77

Chauvet, Jacques (fl.1578)

Instruction et usage du cosmometre, ou instrument universel pour les dimensions, tant geometriques que optiques, astronomiques & geographiques.

b/w: **Chauvet, Jacques**; *La pratique universelle de geometrie ... contenant l'explication de son cosmometre & de tous instrumens geometriques, avec les figures & demonstrations tres-utiles & necessaires pour l'intelligence d'iceux.*

b/w: **Chauvet, Jacques**; *La pratique universelle de l'arpenterie ... contenant l'explication de parfaictment mesurer, arpenter, toiser, aulner & prendre le plant de la superfice de tous corps & figures de telles formes qu'ils soient.*

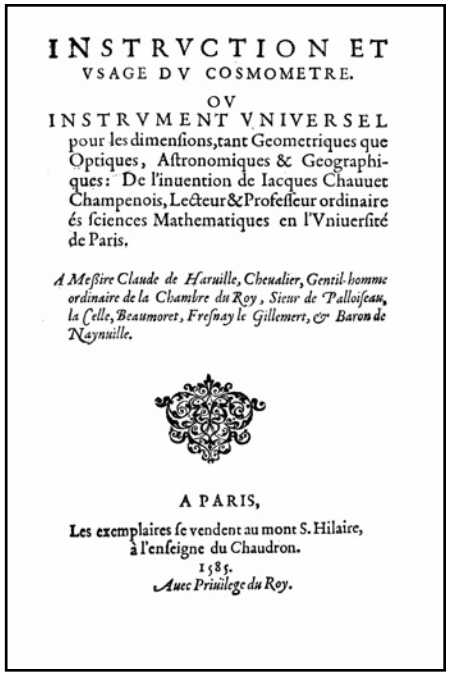
Year: 1585
Place: Paris
Publisher: Henry Thierry
Edition: 1st
Language: French
Binding: contemporary vellum in red morocco-backed folding box
Pagination: ff. [2], 29, [1]
Collation: A^2 A–G^4 H^2
Size: 218x168 mm
Reference: Kie *SI*, p. 141

Chauvet was a professor of mathematics at the University of Paris some time in the late 1500s, but little else is known about him.

These three works are usually found bound together as here, but while major libraries catalog them as separate works, it is not clear if they were ever issued separately. They form a whole in that they deal with astronomy, trigonometry and surveying, all in a practical manner. The instrument used resembles an astrolabe, and in the one illustration showing it in anything other than a simple diagram, it appears about three feet in diameter and heavy enough to require being hung from a special stand (see entry for **Chauvet, Jacques**; *La pratique universelle de geometrie*, 1585 for illustration).

The first book, *Instruction et usage du cosmometre*, describes the use of the instrument in astronomy. The second, *La pratique universelle de geometrie*, is a description of the use of the instrument in various surveying situations—typically finding heights of towers, distances between points, etc. The third, *La pratique universelle de arpenterie*, concerns more sophisticated survey situations involving irregularly shaped areas. See individual entries for illustrations.

Illustrations available:
Title page

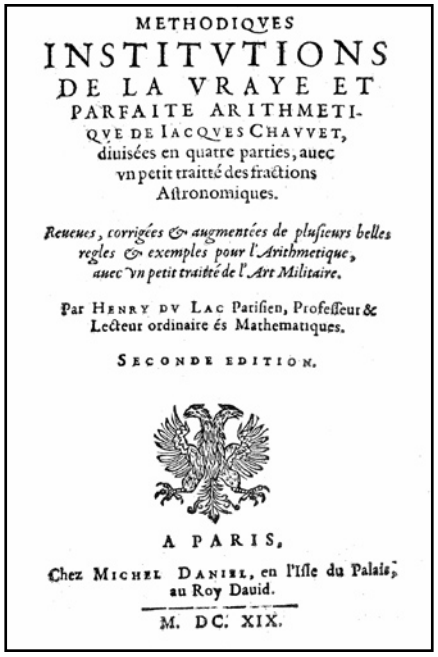


INSTRVCTION ET
VSAGE DV COSMOMETRE.
OV
INSTRVMENT VNIVERSEL
pour les dimenſions, tant Geometriques que Optiques, Aſtronomiques & Geographiques: De l'inuention de Iacques Chauuet Champenois, Lecteur & Profeſſeur ordinaire és ſciences Mathematiques en l'Vniuerſité de Paris.

A Meßire Claude de Haruille, Cheualier, Gentil-homme ordinaire de la Chambre du Roy, Sieur de Palloiſeau, la Celle, Beaumoret, Freſnay le Gillemert, & Baron de Naynuille.

A PARIS,
Les exemplaires ſe vendent au mont S. Hilaire, à l'enſeigne du Chaudron.
1585.
Auec Priuilege du Roy.

C 77


METHODIQVES
INSTITVTIONS
DE LA VRAYE ET
PARFAITE ARITHMETI-
QVE DE IACQVES CHAVVET,
diuisées en quatre parties, auec
vn petit traitté des fractions
Astronomiques.

Reueues, corrigées & augmentées de plusieurs belles regles & exemples pour l'Arithmetique, auec vn petit traitté de l'Art Militaire.

Par HENRY DV LAC Parisien, Professeur & Lecteur ordinaire és Mathematiques.

SECONDE EDITION.

A PARIS,
Chez MICHEL DANIEL, en l'Isle du Palais, au Roy Dauid.
M. DC. XIX.

C 78

C 78
Chauvet, Jacques (fl.1578)

Methodiques institutions de la vraye et parfaite arithmetique de Jacque Chauvet, divisées en quatre parties, avec un petit traitté des fractions astronomiques. Reveues, corrigées & augmentées de plusieurs belles regles & exemples pour l'arithmetique, avec un petit traitté de l'art militaire

Year: 1619
Place: Paris
Publisher: Michel Daniel
Edition: 2nd
Language: French
Figures: 1 large engraved folding table (p. 452)
Binding: contemporary vellum
Pagination: pp. 460
Collation: A–2E^{8}F^{6}
Size: 166x103 mm
Reference: Smi *Rara*, p. 359

This is an arithmetic book that contains little except a description of elementary operations and a short treatise on arithmetic operations with sexagesimal numbers (*fractions astronomiques*). However, as **Smith** (*Rara*) points out, it was written by a man interested in the military, and many of the problems that deal with daily life in the army were prepared just for this book. A large foldout illustrates the arrangement of an army in the field. An index has been added manually in a contemporary hand.

Illustrations available:
Title page
Portion of the foldout

C 79
Chauvet, Jacques (fl.1578)

La practique universelle de l'arpenterie ... contenant l'explication de parfaictment mesurer, arpenter, toiser, aulner & prendre le plant de la superfice de tous corps & figures de telles formes qu'ils soient.

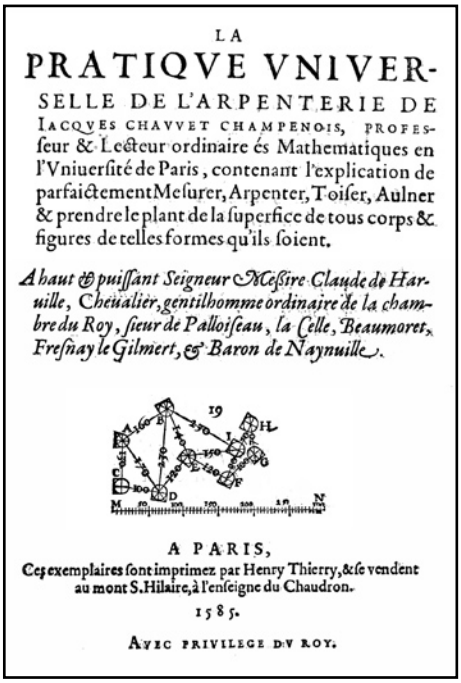
b/w: **Chauvet, Jacques**; *La pratique universelle de geometrie ... contenant l'explication de son cosmometre & de tous instrumens geometriques, avec les figures & demonstrations tres-utiles & necessaires pour l'intelligence d'iceux.*

b/w: **Chauvet, Jacques**; *Instruction et usage du cosmometre, ou instrument universel pour les dimensions, tant geometriques que optiques, astronomiques & geographiques*.

Year: 1585
Place: Paris
Publisher: Henry Thierry
Edition: 1st
Language: French
Binding: contemporary vellum in red morocco-backed folding box
Pagination: ff. [2], 26
Collation: *a*^{2} a–f^{4} g^{2}
Size: 218x168 mm

See entry for Chauvet, *Instruction et usage du cosmometre*.

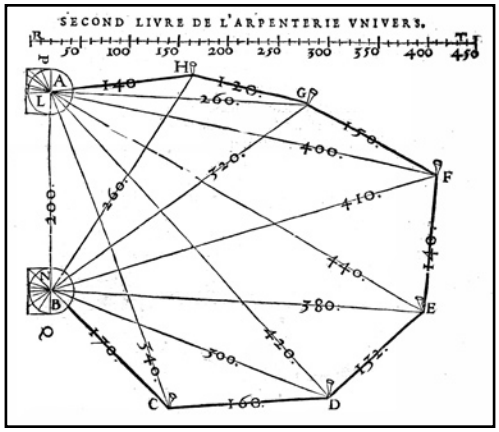
Illustrations available:
Title page
Survey problem


LA
PRATIQVE VNIVER-
SELLE DE L'ARPENTERIE DE
IACQVES CHAVVET CHAMPENOIS, PROFES-
seur & Lecteur ordinaire és Mathematiques en
l'Vniuersité de Paris, contenant l'explication de
parfaictement Mesurer, Arpenter, Toiser, Aulner
& prendre le plant de la superfice de tous corps &
figures de telles formes qu'ils soient.

A haut & puissant Seigneur Messire Claude de Harville, Cheualier, gentilhomme ordinaire de la chambre du Roy, sieur de Palloiseau, la Celle, Beaumoret, Fresnay le Gilmert, & Baron de Naynuille.

A PARIS,
Ces exemplaires sont imprimez par Henry Thierry, & se vendent au mont S. Hilaire, à l'enseigne du Chaudron.
1585.
AVEC PRIVILEGE DV ROY.

C 79



Survey example, C 79

C 80

Chauvet, Jacques (fl.1578)

La pratique universelle de geometrie … contenant l'explication de son cosmometre & de tous instrumens geometriques, avec les figures & demonstrations tres-utiles & necessaires pour l'intelligence d'iceux.

b/w *Instruction et usage du cosmometre, ou instrument universel pour les dimensions, tant geometriques que optiques, astronomiques & geographiques.*

b/w: La practique universelle de l'arpenterie … contenant l'explication de parfaictment mesurer, arpenter, toiser, aulner & prendre le plant de la superfice de tous corps & figures de telles formes qu'ils soient.


LA
PRATIQVE VNIVER-
SELLE DE GEOMETRIE DE IAC-
QVES CHAVVET CHAMPENOIS, PROFES-
seur & Lecteur ordinaire és Mathematiques, en l'Vniuersité de Paris, contenant l'explication de son Cosmometre & de tous instrumens Geometriques, auec les figures & demonstrations tres-vtiles & neceſſaires pour l'intelligence d'iceux.

A haut & puiſſant Seigneur Meßire Anne d'Anglure, Gentil-homme ordinaire de la chambre du Roy, Capitaine de cent cheuaux legers, Barõ de Bourſaut & Giury en Argonne, Beauuais, Neſle, Aygreuille, &c.

A PARIS,

Ces exemplaires ſont imprimez par Henry Thierry, & ſe vendent au mont S. Hilaire, à l'enſeigne du Chaudron.

1585.

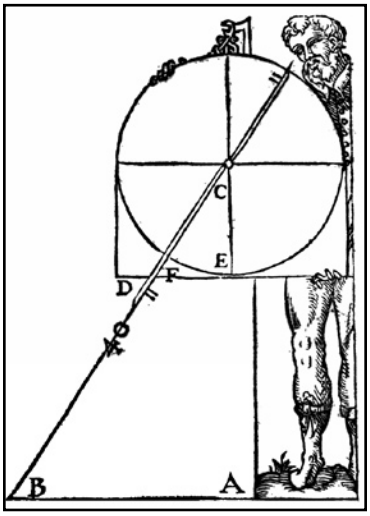
Auec Priuilege du Roy.

C 80

Year: 1585
Place: Paris
Publisher: Henry Thierry
Edition: 1st
Language: French
Binding: contemporary vellum in red morocco-backed folding box
Pagination: ff. [2], 46
Collation: q^2 A–L^4 M^2
Size: 218x168 mm

See entry for **Chauvet, Jacques**; *Instruction et usage du cosmometre*, 1585.

Illustrations available:
Title page
Instrument in use
Surveying problem



Survey instrument, C 80

Survey example, C 80

C 81

Chebyshev, Pafnuty Lvovich (1821–1894)

Oeuvres de P. L. Tchebychef. [two volumes]

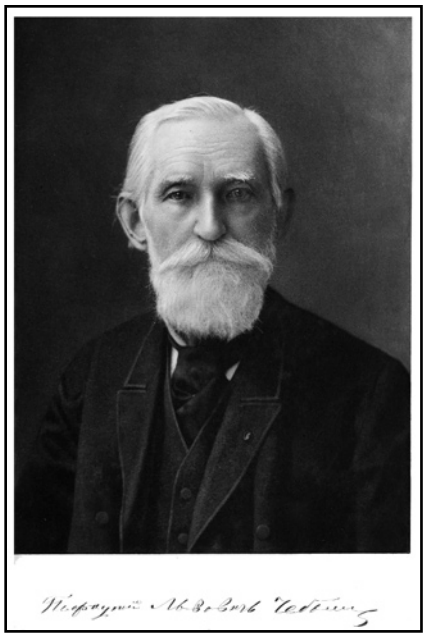
Year: 1899–1907
Place: Saint Petersburg
Publisher: Markoff
Edition: 1st
Language: French
Figures: v.1: engraved portrait frontispiece; v.2: 3 engraved portrait frontispieces
Binding: original cloth boards
Pagination: v.1: pp. [vi], 714; v.2: pp. iv, xx, 736
Collation: v.1: $\pi^3(-\pi 4)1–44^8 45^5(-45^6)$; v.2: $\pi^2 I^8 II^2 1–46^8$
Size: 291x200 mm

Chebyshev, a prominent Russian mathematician, was a professor at the University of St. Petersburg who had extensive contact with Western Europe. He was a fellow of the Royal Society and a member of the Institute de France. This collection of Chebyshev's works contains only one short mention of his arithmetic machine at the end of the second volume. A more detailed description of the device can be found in the work of **Ernst Martin;** *Die Rechenmaschinen*, 1925.

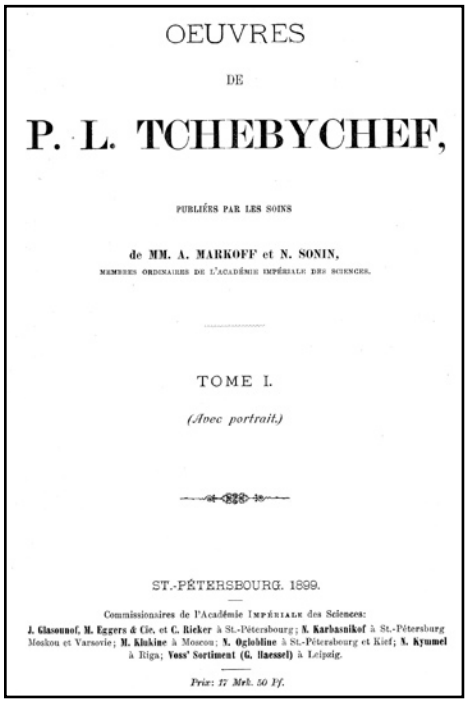
Illustrations available:
Title page
Three engraved portraits of Chebyshev.

Chelucci, Paulino

See **Paulinus a Sancto Josepho, Lucensi**; *Institutiones arithmeticæ cum appendice de natura, atque usu logarithmorum*.



Chebyshev, C 81



OEUVRES

DE

P. L. TCHEBYCHEF,

PUBLIÉES PAR LES SOINS

de MM. A. MARKOFF et N. SONIN,

MEMBRES ORDINAIRES DE L'ACADÉMIE IMPÉRIALE DES SCIENCES.

TOME I.

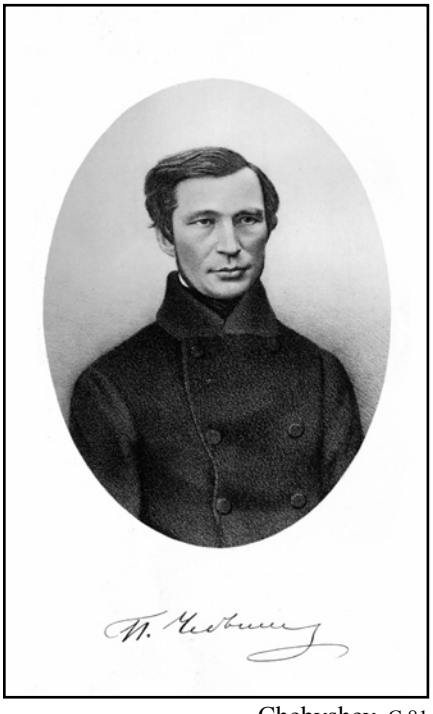
(Avec portrait.)

ST.-PÉTERSBOURG. 1899.

Commissionaires de l'Académie Impériale des Sciences:
J. Glasounof, M. Eggers & Cie, et C. Ricker à St.-Pétersbourg; N. Karbasnikof à St.-Pétersburg Moskou et Varsovie; M. Klukine à Moscou; N. Oglobline à St.-Pétersbourg et Kief; N. Kymmel à Riga; Voss' Sortiment (G. Haessel) à Leipzig.

Prix: 17 Mrk. 50 Pf.

C 81



Chebyshev, C 81

C 82

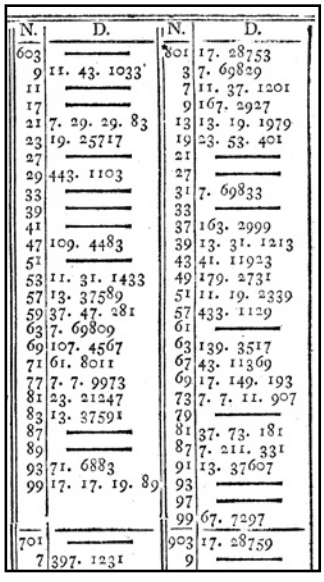
Chernac, Ladislaus (1740–1816)

Cribrum arithmeticum sive, tabula continens numeros primos, a compositis segregatos, occurrentes in serie numerorum ab unitate progredientium, usque ad decies centena millia, et ultra haec, ad viginti millia (1020000). Numeris compositis, per 2, 3, 5 non dividuis, adscripti sunt divisores simplices, non minimi tantum, sed omnino omnes.

Year: 1811
Place: Deventer
Publisher: J. H. de Lange
Edition: 1st
Language: Latin
Binding: contemporary three-quarter bound leather; rebacked
Pagination: pp. [ii], xxi, [1], 1020, [2]
Collation: π^1A-B^{4}C^{3}A-6B^{4}6C^3(includes both signatures U &V)
Size: 286x218 mm
Reference: Glais *RCMT*, p. 37

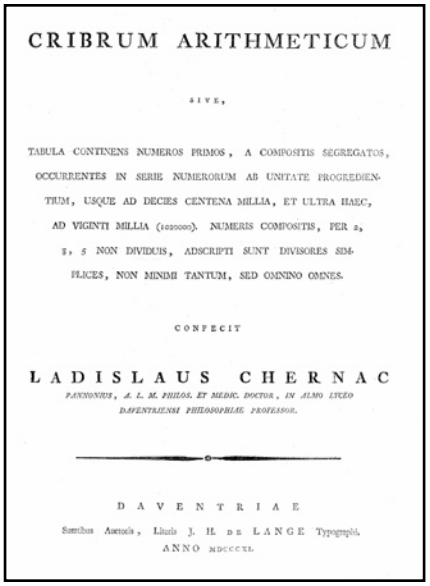
Chernac was born in Pápa, Hungary, and later was a professor at the Athenaem in Deventer, Holland. May (*Bibliography and research manual*), lists a biographical entry in a 1937 issue of the Hungarian journal *Debreceni szemle*, which we have been unable to locate. This table is cited (**Fletcher, Alan**; *An index of mathematical tables*, Vol. 1, p. 22) as the first complete factor table up to 1,000,000, no others being noted until those of **Vega** in 1849. The tables go up to 1,020,000 but are not complete in that they omit listing any obvious multiples of 2, 3 and 5. There is a short preface explaining the tables and a small table of errata at the end.

Illustrations available:
Title page
Table page



N.	D.	N.	D.
603		801	17. 28753
9	11. 43. 1033	3	7. 69829
11		7	11. 37. 1201
17		9	167. 2927
21	7. 29. 29. 83	13	13. 19. 1979
23	19. 25717	19	23. 53. 401
27		21	
29	443. 1103	27	
33		31	7. 69833
39		33	
41		37	163. 2999
47	109. 4483	39	13. 31. 1213
51		43	41. 11923
53	11. 31. 1433	49	179. 2731
57	13. 37589	51	11. 19. 2339
59	37. 47. 281	57	433. 1129
63	7. 69809	61	
69	107. 4567	63	139. 3517
71	61. 8011	67	43. 11369
77	7. 7. 9973	69	17. 149. 193
81	23. 21247	73	7. 7. 11. 907
83	13. 37591	79	
87		81	37. 73. 181
89		87	7. 211. 331
93	71. 6883	91	13. 37607
99	17. 17. 19. 89	93	
		97	
		99	67. 7297
701		903	17. 28759
7	397. 1231	9	

Factor table, C 82



CRIBRUM ARITHMETICUM

SIVE,

TABULA CONTINENS NUMEROS PRIMOS, A COMPOSITIS SEGREGATOS, OCCURRENTES IN SERIE NUMERORUM AB UNITATE PROGREDIENTIUM, USQUE AD DECIES CENTENA MILLIA, ET ULTRA HAEC, AD VIGINTI MILLIA (1020000). NUMERIS COMPOSITIS, PER 2, 3, 5 NON DIVIDUIS, ADSCRIPTI SUNT DIVISORES SIMPLICES, NON MINIMI TANTUM, SED OMNINO OMNES.

CONFECIT

LADISLAUS CHERNAC

PANNONIUS, A. L. M. PHILOS. ET MEDIC. DOCTOR, IN ALMO LYCEO DAVENTRIENSI PHILOSOPHIAE PROFESSOR.

DAVENTRIAE

Sumtibus Auctoris, Literis J. H. DE LANGE Typographi.

ANNO MDCCCXL.

C 82

C 83

Child, J. M. [**Gottfried Wilhelm von Leibniz** (1646–1716)]

The early mathematical manuscripts of Leibnitz

Year: 1920
Place: London
Publisher: Open Court Publishing Company
Edition: 1st
Language: English
Binding: original cloth boards; with dust jacket
Pagination: pp. iv, 238
Size: 232x146 mm

This is an English translation of several **Leibniz** manuscripts. The only mention of his arithmetical machine is a passing reference in a postscript Leibniz intended to attach to a letter to Bernoulli. Child also mentions the machine later in his own discussion, but to no consequence.

Illustrations available:
Title page

C 84

Chiusole, Antonio (1679–1755)

La geometria comune, legale, ed aritmetica, esposta in pratica colle sue dimostrazioni, e divisa in tre parti: I. La prima delle quali contiene la planimetria … II. La seconda contiene la geodesia … III. La terza contiene la longimetria, stereometria, iconografia ed aritmetica senza aritmetica…

Year: 1740
Place: Venice
Publisher: Gio Battista Recurti

Edition: 1st
Language: Italian
Figures: 44 engraved plates; title in red and black
Binding: contemporary vellum
Pagination: pp. [16], xxviii, 816
Collation: *⁴***⁴a–C⁴d²A–5H⁴I⁶5K²
Size: 230x168 mm
Reference: Pogg Vol. I, p. 438; Rcdi *BMI*, Vol. I, pp. 351–352

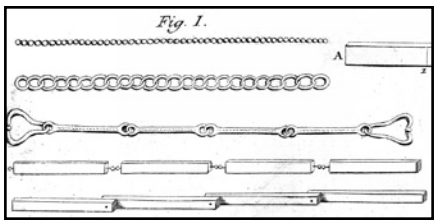
Antonio Chiusole, a widely travelled mathematician, was born in Italy and wrote on mathematical and geographical subjects.

This volume is devoted to calculations in the areas of mensuration, triangulation and surveying. It is very detailed and is pedantic in its exhaustive coverage. One of the few unusual items is a calculating aid. It is a large figure engraved to look like squared graph paper. Chiusole describes how this sheet of paper may be used to do arithmetic without actually doing any arithmetic—it involves moving down and across the diagram to accomplish elementary arithmetic operations. He also describes a few simple instruments (e.g., compass, plane table, etc.) that are used to illustrate the operations discussed.

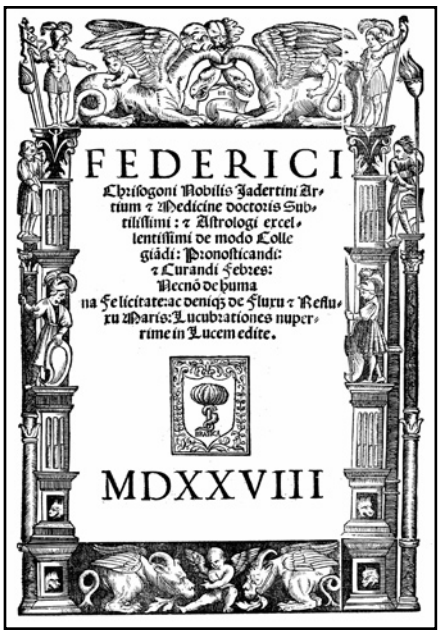
Illustrations available:
Title page (color)
Plane Table
Mensuration figure 1


L A
GEOMETRIA
COMUNE, LEGALE, ED ARITMETICA,
ESPOSTA IN PRATICA COLLE SUE DIMOSTRAZIONI,
E DIVISA IN TRE PARTI,
I. La Prima delle quali contiene la Planimetria, cioè le nuove Regole per misurare qualunque Piano giusta tutte le Misure dell'Universo, e per mostrare tanto bene la Quadratura del Cerchio, quanto bene si può mostrare qualunque operazione della Pratica Geometria.
II. La Seconda contiene la Geodesia, cioè il modo di dividere i Piani, e le Dottrine facili per misurare, e partire le Alluvioni, le Isole, e i Letti de' Fiumi dietro l'Infinita de Rev. Dreg., e de' gl. de Acq. Rev. Dom.
III. La Terza contiene la Longimetria, Stereometria, Icnografia, ed Aritmetica senza Aritmetica, cioè il modo di fare qualunque conto, proposto non solo nelle operazioni Geometriche, ma in qualsivoglia materia, senza le solite Regole dell'Aritmetica, senta timpo l'Abbaco, e senza saper Figure di Numeri.
Opera novissima, e facile tanto a' Letterati, quanto agl' Illetterati,
CONSEGNATA AL PUBBLICO
DA ANTONIO CHIUSOLE
NOBILE DEL SACRO ROMANO IMPERIO.
IN VENEZIA MDCCXL.
Presso Gio: Battista Recurti.
CON LICENZA DE' SUPERIORI, E PRIVILEGIO.

C 84



Length measures, C 84


FEDERICI
Chrisogoni Nobilis Iadertini Artium & Medicine doctoris Subtilissimi: & Astrologi excellentissimi de modo Colligadi: Pronosticandi: & Curandi Febres: Necnõ de huma na Felicitate: ac deniqz de Fluxu & Refluxu Maris: Lucubrationes nuperrime in Lucem edite.
MDXXVIII

C 85

C 85
Chrisogono, Federico (1472–1538)

De modo collegia[n]di, pronosticandi, et curandi febres; necno[n] de humana felicitate ac denique de fluxu et refluxu maris, lucubractiones nuperrime in lucem edite.

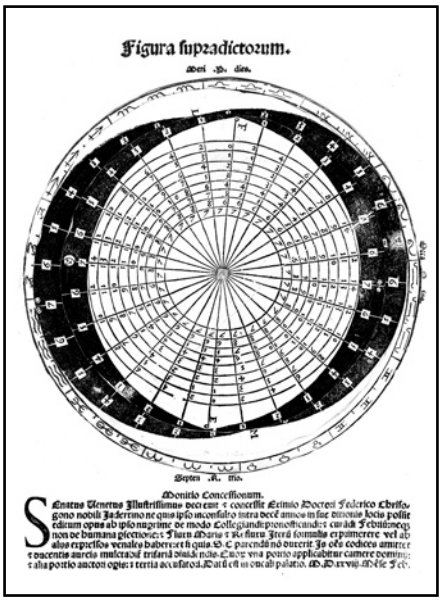
Year: 1528
Place: Venice
Publisher: Antonio de Sabbio & Brothers
Edition: 1st
Language: Italian
Figures: large volvelle f.28
Binding: later half leather over boards
Pagination: ff. 28
Collation: A–G⁴
Size: 301x208 mm
Reference: Not in Rcdi *BMI*

Chrisogono (sometimes known as Federicus Chrisogonus Iadertinus) is noted on the title page as a subtle doctor of arts and medicine and most excellent astrologer. In the dedication to the Doge of Venice, he styles himself as a professor of astronomy.

This work receives a lengthy description in **Thorndike** (*History of magic*, Vol. V, pp. 314–316). It is a work extolling the virtues of astrology in the treatment of disease and advises physicians to use Chrisogono's new method of comparing the patient's horoscopes at the time of birth and onset of the disease. In the later part of the work, he discusses the problems of alchemy and indicates that because the Sun hates Saturn, it should be impossible to transmute lead into gold. In a short remark he implies that tides are also of astronomical origin (something that

had been known by sailors but not, of course, why). A large three-part volvelle attached to the last page of text was to be used in preparing horoscopes.

Illustrations available:
Title page
Volvelle
Colophon



Horoscope volvelle, C 85

C 86

Christmann, Jacob (1554–1613)

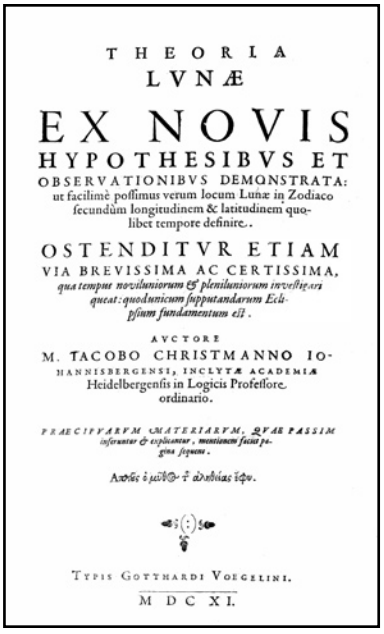
Theoria lunæ ex novis hypothesibus et observationibus demonstrata: ut facilimè possimus verum locum lunæ in zodiaco secundùm longitudinem & latitudinem quolibet tempore definire. Ostenditur etiam via brevissima ac certissima, qua tempus noviluniorum & pleniluniorum investigari queat: quodunicum supputandarum eclipsium fundamentum est.

Year: 1611
Place: Heidelberg
Publisher: Gotthard Voegelin
Edition: 1st
Language: Latin
Figures: 2 large folding plates (at end)
Binding: contemporary vellum over boards
Pagination: pp. [40], 25–172
Collation: *⁴***⁴A–X⁴Y²
Size: 310x193 mm

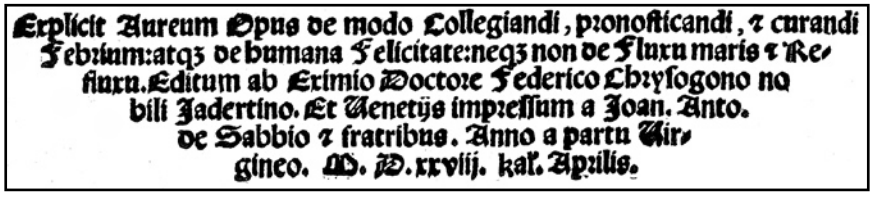
Christmann was a professor of logic at Heidelberg and in 1608, just prior to the publication of this book, was appointed to teach Arabic (only the second such appointment in Europe). He had inherited **G. J. Rheticus'** library, and this bequest, which included some instruments, prompted Christmann to make astronomical observations. He was the first to include telescopic sights on such instruments as the sextant and Jacob's staff.

This work is the result of his observations. It is notable not only for the astronomical content but also for his description of the method of prosthaphaeresis (see **Clavius**, *Astrolabium*, 1593). Using the formula [sin(a) sin(b) = (cos(a-b) – cos(a+b))/2] permits the difficult multiplication of two sines to be replaced by two subtractions, an addition and an easy division by two. He attributes the invention of this method to Iohannes Wernerus (Johann Werner), a mathematician from Nuremberg. The two large folding plates at the end are a sexagesimal multiplication table.

Illustrations available:
Title page
Method of prosthaphaeresis
Attribution to Werner (2 pages)
Multiplication table



C 86



Colophon, C 85

C 87

Chu, Jeffrey Chuan (1919 –), editor

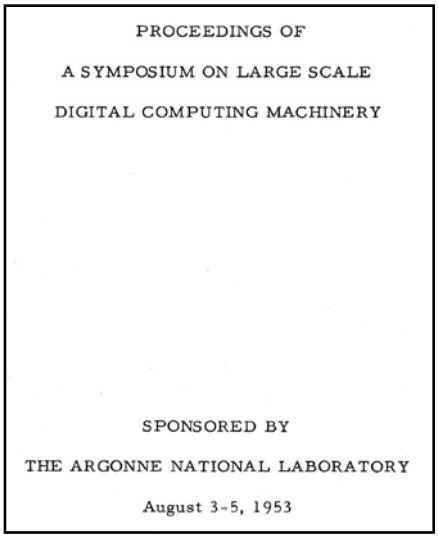
Proceedings of a symposium on large scale digital computing machines. Sponsored by the Argonne National Laboratory August 3–5, 1953.

Year: 1953
Place: Lemont, IL
Publisher: Argonne National Laboratory
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. xxvi, 295, [1]
Size: 276x214 mm

Chu, who was born in China but completed his education in the U.S., was a member of the ENIAC team and later worked at the Eckert-Mauchly Computer Corporation. He spent most of his professional career at Honeywell Corporation. At the time of this publication, he was with the Physics Division of the Argonne National Laboratory.

This is a collection of papers appearing at a fundamental turning point in the history of the computer. It contains several papers describing the use of electrostatic memory devices (often called Williams' tubes), a technology that was just being replaced by coincident-current magnetic core memory systems. A number of papers describe the early efforts in that direction. In addition, a technological shift was underway in the electronic components field, and a paper on the Bell Laboratories Tradic computer (constructed entirely from transistors) heralded the new silicon era.

Illustrations available:
Title page
Table of contents


PROCEEDINGS OF
A SYMPOSIUM ON LARGE SCALE
DIGITAL COMPUTING MACHINERY
SPONSORED BY
THE ARGONNE NATIONAL LABORATORY
August 3-5, 1953

C 87

Churchill, T. O.

See **Bossut**, **Charles**; *A general history of mathematics from the earliest times, to the middle of the eighteenth century.*

C 88

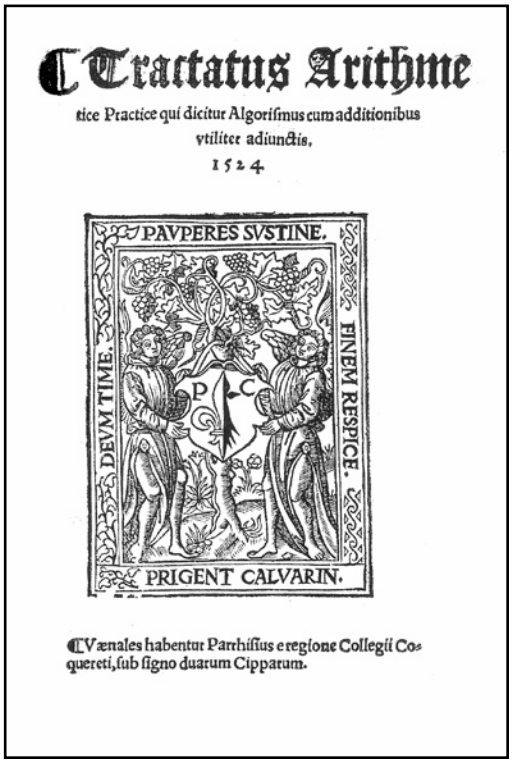
[Ciruelo, Pedro Sanchez]

Tractatus arithmetice practice qui dicitur Algorismus cum additionibus utiliter adiunctis.

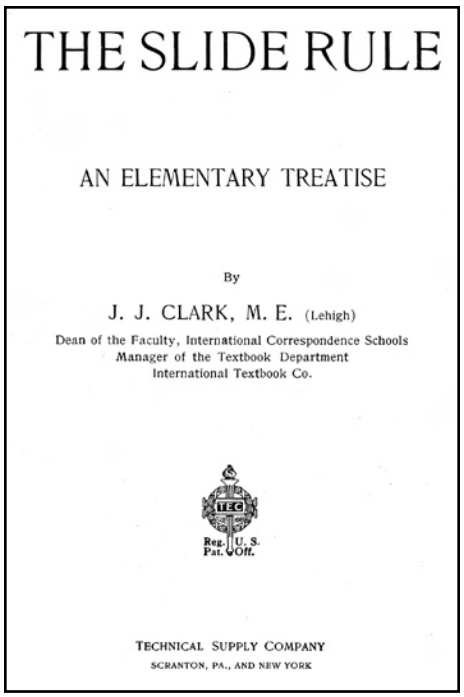
Year: 1524
Place: Paris
Publisher: Prigent Calvarin
Edition: 3rd
Language: Latin
Binding: 18th-century leather, gilt spine in compartments; red leather label; red edges; edges of boards gilt tooled
Pagination: ff. [14]
Collation: A^8–B^6
Size: 1752x1204 mm

This work is nicely produced in what is usually called *black letter* because of the dark nature of the font. It contains examples of elementary arithmetic, including galley division. A short section on geometry follows the initial arithmetic.

Illustrations available:
Title page


Tractatus Arithme
tice Practice qui dicitur Algorismus cum additionibus
vtiliter adiunctis,
1524
PAVPERES SVSTINE.
DEVM TIME.
FINEM RESPICE.
PRIGENT CALVARIN.
Vænales habentur Parrhisius e regione Collegii Co-
quereti, sub signo duarum Cipparum.

C 88


THE SLIDE RULE

AN ELEMENTARY TREATISE

By

J. J. CLARK, M. E. (Lehigh)

Dean of the Faculty, International Correspondence Schools
Manager of the Textbook Department
International Textbook Co.

Reg. U. S. Pat. Off.

TECHNICAL SUPPLY COMPANY
SCRANTON, PA., AND NEW YORK

C 89

C 89
Clark, John Jesse (1866–1939)

The slide rule. An elementary treatise

Year: 1909
Place: Scranton, PA
Publisher: Technical Supply Company
Edition: 1st
Language: English
Figures: 1 folding plate
Binding: original cloth boards
Pagination: pp. 62
Size: 172x124 mm

J. J. Clark was Dean of the Faculty of the International Correspondence Schools and manager of the Textbook Department from 1892 to 1915. He was the author of a number of introductory texts on engineering subjects.

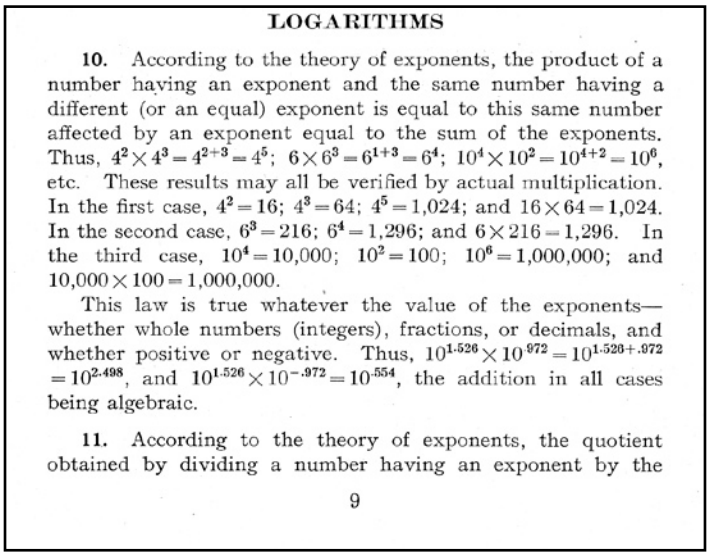
It was only in the late 1800s that the slide rule, which had been known since the early 1600s, became popular. Its use was just entering the curriculum of engineering schools, and there was an obvious need for books of instruction. This volume, while certainly not the first, is typical of the genre at the beginning of the twentieth century. In the preface Clark indicates that many of the earlier books were ambiguous or difficult and that he is going to explain the elementary principles *so thoroughly that they cannot be forgotten*. Sad to say, he tried and failed.

Illustrations available:
Title page
Sample explanation of logarithms

C 90
Clark, John Jesse (1866–1939)

The slide rule and logarithmic tables including a ten-place table of logarithms. A concise and accurate reference work on the application of the slide rule and logarithmic tables to practical problems.

Year: 1941
Place: Chicago
Publisher: Frederick J. Drake
Edition: 3rd
Language: English
Binding: original cloth boards; gilt-stamped spine and front cover
Pagination: pp. [6], 9–219, [1]
Size: 170x109 mm


LOGARITHMS

10. According to the theory of exponents, the product of a number having an exponent and the same number having a different (or an equal) exponent is equal to this same number affected by an exponent equal to the sum of the exponents. Thus, $4^2 \times 4^3 = 4^{2+3} = 4^5$; $6 \times 6^3 = 6^{1+3} = 6^4$; $10^4 \times 10^2 = 10^{4+2} = 10^6$, etc. These results may all be verified by actual multiplication. In the first case, $4^2 = 16$; $4^3 = 64$; $4^5 = 1{,}024$; and $16 \times 64 = 1{,}024$. In the second case, $6^3 = 216$; $6^4 = 1{,}296$; and $6 \times 216 = 1{,}296$. In the third case, $10^4 = 10{,}000$; $10^2 = 100$; $10^6 = 1{,}000{,}000$; and $10{,}000 \times 100 = 1{,}000{,}000$.

This law is true whatever the value of the exponents—whether whole numbers (integers), fractions, or decimals, and whether positive or negative. Thus, $10^{1.526} \times 10^{.972} = 10^{1.526+.972} = 10^{2.498}$, and $10^{1.526} \times 10^{-.972} = 10^{.554}$, the addition in all cases being algebraic.

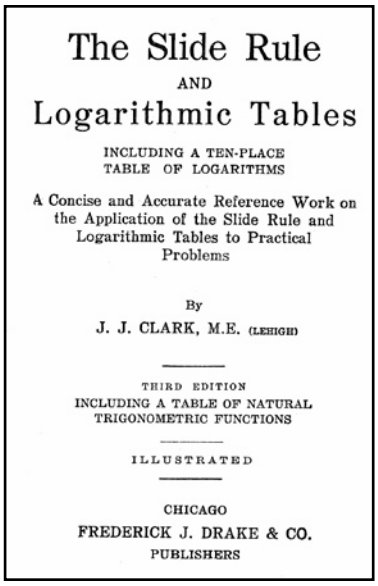
11. According to the theory of exponents, the quotient obtained by dividing a number having an exponent by the

9

Sample explanation, C 89

Clark's small 1909 book on the slide rule (q.v.) had by now been taken over by *the editors*, who had thankfully rewritten the explanations, expanded the number of examples, and added many new sections, including tables of logarithms, trigonometric functions, conversions factors and an index.

Illustrations available:
Title page


The Slide Rule
AND
Logarithmic Tables
INCLUDING A TEN-PLACE TABLE OF LOGARITHMS
A Concise and Accurate Reference Work on the Application of the Slide Rule and Logarithmic Tables to Practical Problems
By
J. J. CLARK, M.E. (LEHIGH)
THIRD EDITION
INCLUDING A TABLE OF NATURAL TRIGONOMETRIC FUNCTIONS
ILLUSTRATED
CHICAGO
FREDERICK J. DRAKE & CO.
PUBLISHERS

C 90

C 91
Clark, John Jesse (1866–1939)

The slide rule and logarithmic tables including a ten-place table of logarithms. A concise and accurate reference work on the application of the slide rule and logarithmic tables to practical problems.

Year: 1943
Place: Chicago
Publisher: Frederick J. Drake
Edition: 3rd
Language: English
Binding: original cloth boards; gilt-stamped spine and front cover
Pagination: pp. 219
Size: 168x110 mm

This 1943 printing is unchanged from the 1941 edition.

Illustrations available:
Title page

C 92
Clark, John Jesse (1866–1939)

The slide rule and logarithmic tables including a ten-place table of logarithms. A concise and accurate reference work on the application of the slide rule and logarithmic tables to practical problems.

Year: 1954
Place: Wilmette
Publisher: Frederick J. Drake
Edition: 3rd
Language: English
Binding: original cloth boards
Pagination: pp. [6], 9–222
Size: 180x120 mm

A reprinting of the 1941 edition.

Illustrations available:
Title page

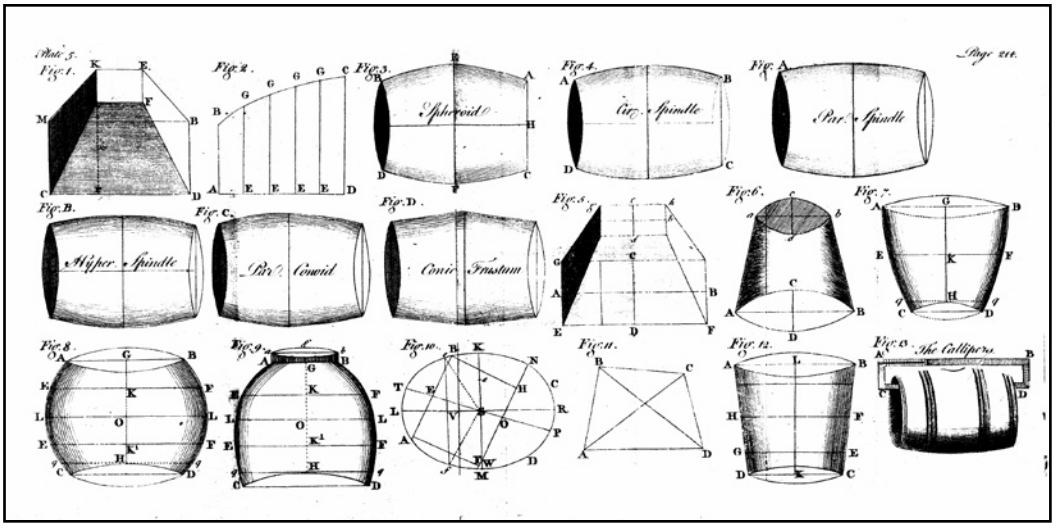
C 93
Clark, Samuel (fl.1761–1767)

The British gauger: or, trader and officer's instructor, in the Royal revenue of the excise and customs. Part I. Containing the necessary rules of vulgar and decimal arithmetic, and the whole art of practical gauging, both by pen and rule; illustrated with a great variety of curious and useful examples. Part II. An historical and succinct account of all the laws relating to the excise, from the first commencement thereof, to the present time. To which are added, tables of the old and new duties, drawbacks, &c. on beer, ale, spirits, soap, candles, &c. And a large and copious index.

Year: 1765
Place: London
Publisher: J. Nourse
Edition: 1st
Language: English
Figures: 6 folding engraved plates (one hand colored)
Binding: modern quarter-bound calf over marbled boards
Pagination: pp. [10], 448, [12]
Collation: $A^5B–2N^6 2O^5 *2P^6 *2Q^3 2P^6$
Size: 174x100 mm
Reference: Tay *MP II*, #584

This later Samuel Clark was a teacher of mathematics and an excise officer in London. He authored a number of books on practical mathematics. He should not be confused with the earlier Samuel Clark (1675–1729), a friend of Newton, who devised a mathematical proof of God's existence.

The practice of gauging was the measurement of irregular vessels such as tubs and barrels in an effort to calculate the volume of their contents, mainly for the levying of taxes but also for trade in these goods. This book begins with simple arithmetic, mostly dealing with fractions, and then gives a description of a slide rule designed for gauging and its use in calculating areas and volumes. Numerous small tables give conversion factors for *hard sope*, *soft green sope*, *wine gallons*, etc. Clark



Types of cask, C 93

acknowledges that his work has *a Resemblance to that published in the name of Mr. Charles Leadbetter* (see **Leadbetter**, *The Royal Gauger*, 1743 and 1755) but that this work corrects some errors *contained through every edition of that work*. Like Leadbetter's illustrations of the slide rule, Clark's have been hand-colored yellow.

The second half of the book is an historical description of the duties applied to various goods from 1660 to the middle of the 1700s. This includes tables of the excise charges on wine, spirits, paper and many other items, as well as fine points of the law such as the different rates for *Cyder and Perry* from those for ale and beer.

Illustrations available:
- Title page
- Slide rule (color)
- Cask gauging
- Illustration of types of casks

THE
BRITISH GAUGER:
OR,
Trader and Officer's Inſtructor,
IN THE
ROYAL REVENUE
OF THE
EXCISE and CUSTOMS.

PART I.

Containing the neceſſary Rules of Vulgar and Decimal Arithmetic, and the whole Art of PRACTICAL GAUGING, both by Pen and Rule; illuſtrated with a great Variety of curious and uſeful EXAMPLES.

PART II.

An Hiſtorical and Succinct Account of ALL the Laws relating to the EXCISE, from the firſt Commencement thereof, to the preſent Time.

To which are added,
TABLES of the Old and New Duties, Drawbacks, &c. on Beer, Ale, Spirits, Soap, Candles, &c.
And a large and copious INDEX.

Embelliſhed with Six Folio COPPER PLATES, adapted to, and explanatory of, the whole Work.

By SAMUEL CLARK.

LONDON:
Printed for J. NOURSE, in the Strand,
Bookſeller in Ordinary to His MAJESTY.
MDCCLXV.

C 93

C 94

Clavius, Christoph (1537–1612) [**Lorenzo Castellano**, translator]

Aritmetica prattica

Year: 1602
Place: Rome
Publisher: Heirs of N. Mutius
Edition: 2nd (Italian)
Language: Italian
Figures:
Binding: contemporary limp vellum
Pagination: pp. [16], 280, [16]
Collation: a^8 A–S^8 T^4
Size: 158x103 mm
Reference: Smi *Rara*, pp. 378-379

Christoph (Christopher) Clavius, born Christoph Klau at Bamberg, Germany, entered the Jesuit Order in 1555 and received his education within the order. After study in Portugal, Clavius moved to the Jesuit Collegio Romano in Rome and remained there the rest of his life. He produced little mathematics of his own but spent his career working diligently to disseminate mathematical knowledge. His books were highly regarded and remained in use for at least a hundred years after his death.

Clavius was very influential in the 1582 calendar reform carried out by Pope Gregory XIII. Cumulative errors in the Julian calendar now amounted to eleven full days,

and Clavius proposed that Wednesday, October 4, 1582, be followed by Thursday, October 15, 1582. He further proposed that leap years occur in years exactly divisible by four, except for years ending in 00, which must be divisible by 400. Despite the improved accuracy achieved by the proposed Gregorian reform, it was not greeted with universal acceptance. Civil unrest followed in many places in Europe, and Clavius wrote *Novi calendarii romani apologia*, in 1595 in an attempt to further explain the changes.

This edition has been reset but appears to be identical in content to the 1613 edition.

Illustrations available:
Title page


ARITMETICA
PRATTICA
COMPOSTA DAL MOLTO
Reuer. Padre Chriſtoforo Clauio
Bambergenſe della Com-
pagnia di IESV.
Et tradotta da Latino in Italiano dal Signor Lorenzo
Caſtellano Patritio Romano.
Reuiſta dal medemo Padre Clauio
con alcune aggiunte.
CON LICENTIA DE I SVPERIORI.
IN ROMA,
Per li Heredi di Nicolò Mutij.
M. DC. II.
1602

C 94

C 95

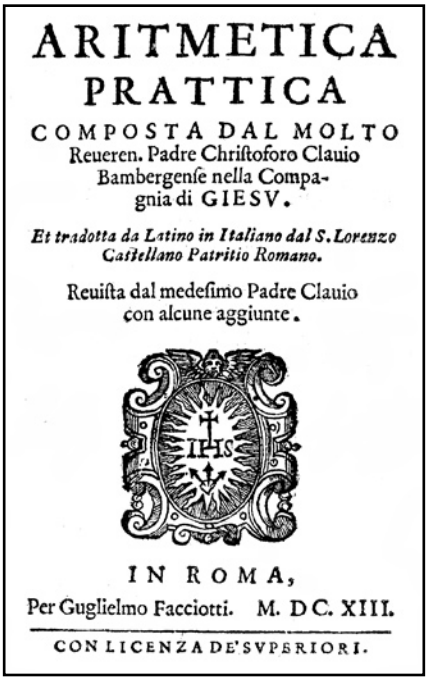
Clavius, Christoph (1538–1612)

Aritmetica prattica ... et tradotta da Latino in Italiano dal S. Lorenzo Castellano patritio Romano.

Year: 1613
Place: Rome
Publisher: Guglielmo Facciotti
Edition: 3rd (Italian)
Language: Italian
Binding: contemporary limp vellum
Pagination: pp. [16], 280, [16]
Collation: *^{8}A–R^{8}S^{12}
Size: 154x103 mm
Reference: Smi *Rara*, pp. 378-379

This arithmetic deals with the standard operations and applications and is described by **Smith** (*Rara*) as being a *model of good arrangement ... conservative in treatment....applications confined to the rule of three*. It was first issued in Latin in 1583, with a second edition in 1584 and a third in 1585. The first Italian edition was issued in 1586.

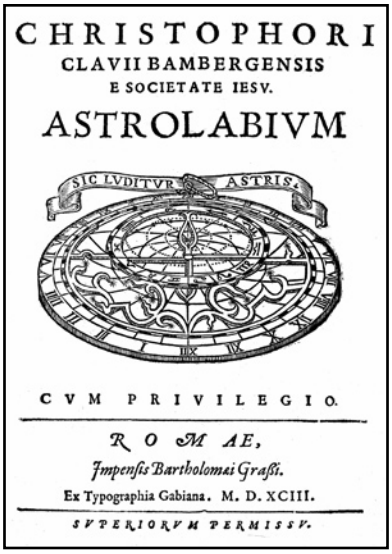
Illustrations available:
Title page
Colophon and register


ARITMETICA
PRATTICA
COMPOSTA DAL MOLTO
Reueren. Padre Chriſtoforo Clauio
Bambergenſe nella Compa-
gnia di GIESV.
Et tradotta da Latino in Italiano dal S. Lorenzo
Caſtellano Patritio Romano.
Reuiſta dal medeſimo Padre Clauio
con alcune aggiunte.
IHS
IN ROMA,
Per Guglielmo Facciotti. M. DC. XIII.
CON LICENZA DE'SVPERIORI.

C 95


Regiſtro.
✠ A B C D E F G H I K L M
N O P Q R S.
Tutti ſono fogli intieri, eccetto S, che è
vn foglio, e mezzo.
IN ROMA,
Appreſſo Guglielmo Facciotti. 1613.
CON LICENZA DE'SVPERIORI.

Colophon, C 95


CHRISTOPHORI
CLAVII BAMBERGENSIS
E SOCIETATE IESV.
ASTROLABIVM
SIC LVDITVR ASTRIS.
CVM PRIVILEGIO.
ROMAE,
Impensis Bartholomæi Grassi.
Ex Typographia Gabiana. M. D. XCIII.
SVPERIORVM PERMISSV.

C 96

C 96
Clavius, Christoph (1538–1612)

Astrolabium

Year: 1593
Place: Rome
Publisher: Bartolomeo Grassi
Edition: 1st
Language: Latin
Binding: contemporary leather
Pagination: pp. [48], 184, 189–196, 193–439, 450–759, [5] (misnumbering 31 as 13, 200 as 300, 299 as 289, 300 as 302, 392 as 382, 440 as 450, 597 as 581,
Collation: $*^4a$–e^4A–$5A^4B^5$
Size: 217x155 mm
Reference: Bud *IOS*, p. 32–36

This work on the astrolabe is another of Clavius' extensive summaries of everything known on a subject. He deals not only with the construction and use of the astrolabe but also with all aspects of spherical geometry. It was reprinted in his collected works in 1611. It is notable for Clavius' discussion of the method of prosthaphaeresis (*addition and subtraction*, in Greek), also known as the method of circular functions. This was the only known process for substituting addition and subtraction for multiplication and division prior to the invention of logarithms. Prosthaphaeresis depends on the identity $\text{Sin}(a) \cdot \text{Sin}(b) = [\text{Cos}(a - b) - \text{Cos}(a + b)]/2$. Thus a multiplication may be accomplished by substituting two subtractions, one addition and a simple division by two. While this method had been known in Arab mathematics from about the year 1000 and had been published by one Thomas Finck in 1583, it was only with this Clavius work that it became well known to European scientists.

Illustrations available:
Title page


COMPVTVS
ECCLESIASTICVS
PER DIGITORVM ARTICVLOS,
& Tabulas traditus.
AVCTORE
CHRISTOPHORO CLAVIO
Bambergensi è Societate
IESV.
IHS
ROMAE,
Apud Aloysium Zannettum.
MDCIII.
SVPERIORVM PERMISSV.

C 97

C 97
Clavius, Christoph (1538–1612)

Computus ecclesiasticus per digitorum articulos, & tabulas traditus

Year: 1603
Place: Rome
Publisher: Aloysius Zanetti
Edition: 4th
Language: Latin
Binding: contemporary limp vellum
Pagination: pp. 107, [21]
Collation: A–$E^{12}F^4$
Size: 155x86 mm
Reference: Zin *GBAL*, #3843

Computus ecclesiasticus was not directed to the subject of calendar reform but to the calculation of the dates of the Christian festivals, chiefly Easter. As implied by the title, Clavius explains two ways of performing the calculations, one using the fingers and another by means of the extensive set of tables included in the work. The text contains no diagrams of the finger methods.

Illustrations available:
Title page
Table of Golden Numbers

C 98
Clavius, Christoph (1538–1612)

Epitome arithmeticæ practicæ nunc denuo ab ipso auctore recognita

Year: 1585
Place: Rome

Publisher: Dominici Basæ
Edition: 3rd
Language: Latin
Binding: contemporary limp vellum; ties missing
Pagination: pp. 323, [13]
Collation: A–X^{8}
Size: 159x110 mm

This is the third Latin edition of Clavius' arithmetic. See the entry for **Clavius, Christoph**; *Aritmetica prattica*, 1613.

Illustrations available:
Title page

C 98

C 99
Clavius, Christoph (1538–1612)

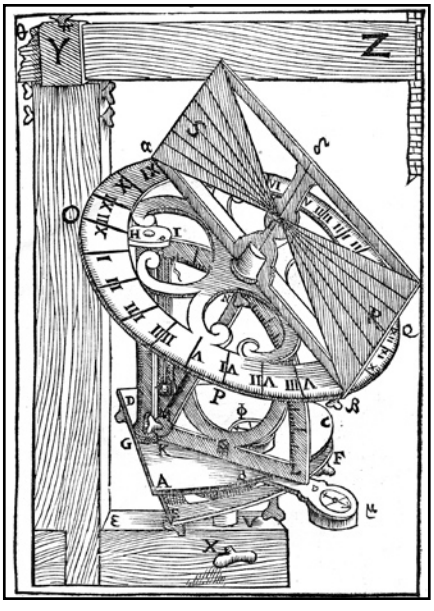
Fabrica et usus instrumenti ad horologiorum descriptionem per opportuni. Accessit ratio describendarum horarum a meridie & media nocte exquisitissima & nunquam ante hac in lucem edita.

Year: 1586
Place: Rome
Publisher: Giacomo Ruffinelli for Bartolomeo Grassi
Edition: 1st
Language: Latin
Figures: 28 full-page woodcuts
Binding: contemporary limp vellum
Pagination: pp. [4], 152
Collation: †^{2}A–T^{4}
Size: 220x150 mm
Reference: Bru *MLAL*, II, 92

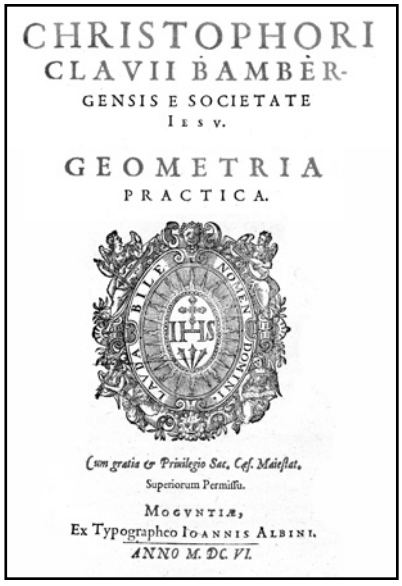
Not only was Clavius one of the principal architects of the Gregorian calendar reform; he was also well positioned to write this treatise on the creation of a universal sundial. Most sundials are not universal and are suitable only for one orientation at a particular latitude. Appearing five years after his massive work covering the same general subject (See **Clavius**, **Christoph**; *Gnomonices libri octo…*, 1581), some of the same woodcut diagrams were used in both works. His tutorial skills are in evidence as Clavius repeated the same illustration several times so that the reader need not turn pages in order to follow his arguments.

Illustrations available:
Title page
Sundial

C 99



Sundial, C 99


CHRISTOPHORI
CLAVII BAMBER-
GENSIS E SOCIETATE
IESV.

GEOMETRIA
PRACTICA.

Cum gratia & Priuilegio Sac. Cæs. Maiestat.
Superiorum Permissu.

MOGVNTIÆ,
Ex Typographeo IOANNIS ALBINI.
ANNO M. DC. VI.

C 100

C 100
Clavius, Christoph (1538–1612)

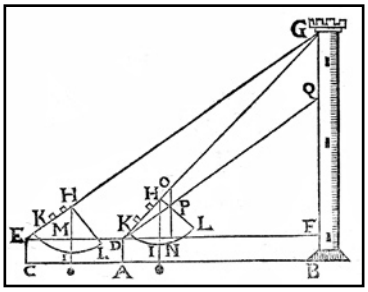
Geometria practica

Year: 1606
Place: Mainz
Publisher: Joannis Albini
Edition: 2nd
Language: Latin
Figures: title in red and black, figures in text
Binding: contemporary vellum; ties missing
Pagination: pp. [24], 336, 339–392, [26].
Collation: a–C ^{4}A–3F^4
Size: 248x181 mm
Reference: Ada *CBCE*, Vol. II, L 160

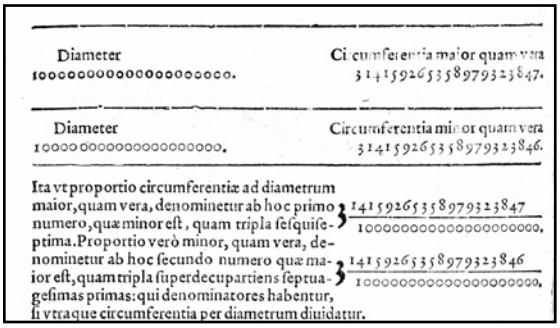
This is the second edition (first was in Rome, 1604) of Clavius' popular work on surveying. Clavius was known as the Euclid of the sixteenth century, and his work on surveying was highly regarded. It is divided into eight books dealing with ever increasingly sophisticated concepts.

Book 1 describes the basic surveying instruments: an early sector, a simple geometric square, a quadrant with sighting alidade, and the tables that allow these to be easily divided. Book 2 deals with survey problems using the quadrant. It is notable that, unlike many other works on surveying that proceed from very elementary concepts, Clavius' work begins with a genuinely useful example (height of a tower using two sightings with a known distance between them). Book 3 continues with the solution of practical surveying problems, this time using a standard geometric square and the tables necessary to construct it. Books 4 and 5 deal with the calculation of area. Book 4 includes a discussion of π and gives it correctly to twenty decimal places (as this was before the general use of decimal point notation, it provides a nice example of the fractional notation of the time–see illustration). The final books cover the squares, cubes and roots of numbers and include a table of squares and cubes of all integers from 1 to 1,000. Book 8 shows a table of cubes with their first and second differences.

Illustrations available:
- Title page (color)
- Sector
- Quadrant
- Height of tower problem
- Value of π
- Table of differences



Sample problem, C 100

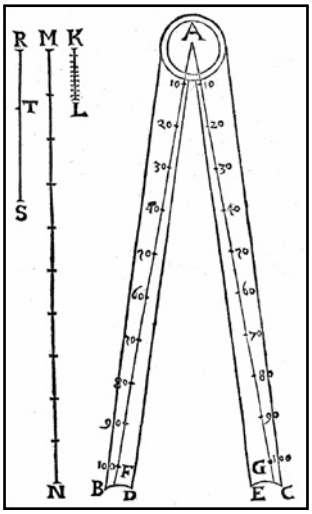

Diameter
100000000000000000000.
Circumferentia maior quam vera
3141592653589793238 47.

Diameter
100000000000000000000.
Circumferentia minor quam vera
3141592653589793238 46.

Ita vt proportio circumferentiæ ad diametrum maior, quam vera, denominetur ab hoc primo numero, quæ minor est, quam tripla sesquiseptima. Proportio verò minor, quam vera, denominetur ab hoc secundo numero quæ maior est, quam tripla superdecupartiens septuagesimas primas: qui denominatores habentur, si vtraque circumferentia per diametrum diuidatur.

$\frac{141592653589793238 47}{100000000000000000000}$

$\frac{141592653589793238 46}{100000000000000000000}$
Value of π, C 100



Sector, C 100

C 101

C 101
Clavius, Christoph (1538–1612)

Gnomonices libri octo, in quibus non solum horologiorum solarium, sed aliarum quoque rerum, quæ ex gnomonis umbra cognosci possunt, descriptiones geometrice demonstratur.

Year: 1581
Place: Rome
Publisher: Francisco Zanetti
Edition: 1st
Language: Latin
Binding: contemporary vellum boards
Pagination: pp. [16], 654, [2]
Collation: *^{8}A–E^{6}F^{8}G–3G^{6}3H^{8}
Size: 330x227 mm
Reference: Ada *CBCE*, #C-2098; H&L, #11383, p. 1279; Bru *MLAL II*, p. 93; Cro *CL*, #84, p. 87

This substantial work summarizes all that was known about sundials at the time. It formed the foundation used by all makers of sundials until well into the late seventeenth century.

Illustrations available:
Title page

Clavius, Christoph, editor
See **Theodosius of Bithynia**; *Theodosii Tripolitae Sphaericorum Libri III. A Christophoro Clavio Bambergensi Societatis Jesu perspicuis demonstrationibus, ac scholij illustrati. Item eiusdem Christophori Clavii sinus, lineae tangentes, et secantes, triangula rectilinea, atque sphaerica.*

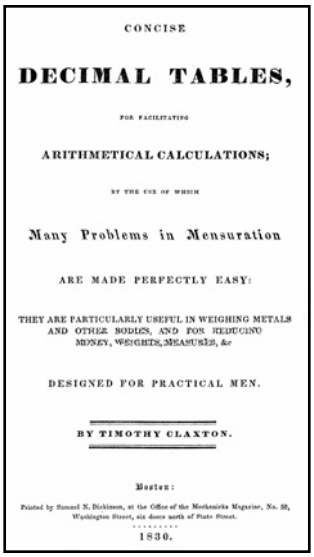
C 102
Claxton, Timothy (1790–)

Concise decimal tables, for facilitating arithmetical calculations; by the use of which many problems in mensuration are made perfectly easy: They are particularly useful in weighing metals and other bodies, and for reducing money, weights, measures, &c. Designed for practical men.

Year: 1830
Place: Boston
Publisher: Samuel N. Dickinson
Edition: 2nd
Language: English
Figures: 1 large engraved folding plate
Binding: original paper boards
Pagination: pp. 23, [1]
Collation: 1–3^{4}
Size: 223x137 mm
Reference: Karp *MWPA*, p. 312

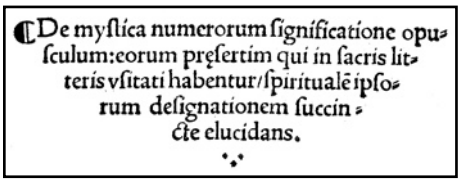
This ready reckoner is different from most. It consists of one large folding plate containing forty-eight small tables of conversion factors for things like cubic inches to bushels, the length of the side of a square that may be inscribed inside a circle of given diameter, the side of a square equal in area to a circle of given diameter, etc. The text provides a short description of arithmetic with decimal fractions and only one brief example for each table. Claxton also provides a scale, divided into a hundred parts, which may be compared to adjacent scales, which are divided into eight and twelve parts, for converting units of measurement into decimal fractions.

Illustrations available:
Title page
Conversion table (2)
Eighths and twelfths to decimals

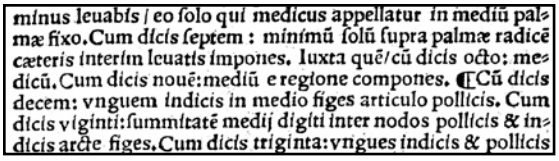


C 102

[**Clement, Joseph**]
See **Lewis, Thomas Crompton**; *Heroes of science. Mechanicians.*


¶De myſtica numerorum ſignificatione opuſculum:eorum preſertim qui in ſacris litteris vſitati habentur/ſpirituale ipſorum deſignationem ſuccincte elucidans.

C 103


minus leuabis / eo ſolo qui medicus appellatur in mediū palmæ fixo. Cum dicis ſeptem : minimū ſolū ſupra palmæ radicē cæteris interim leuatis impones. Iuxta quē/cū dicis octo: medicū. Cum dicis nouē: mediū e regione compones. ¶Cū dicis decem: vnguem indicis in medio figes articulo pollicis. Cum dicis viginti: ſummitatē medij digiti inter nodos pollicis & indicis arcte figes. Cum dicis triginta: vngues indicis & pollicis

Paragraph mark, C 103

C 103
Clichtove, Josse (–1543)

De mystica numerorum significatione opusculum: eorum presertim qui in sacris litteris vsitati habentur spirituale ipsorum designationem succincte elucidans

Year: 1513
Place: Paris
Publisher: Henri Estienne
Edition: 1st
Language: Latin
Binding: contemporary vellum over boards
Pagination: ff. 44
Collation: $a^8b^4c–f^8$
Size: 199x140 mm
Reference: Smi *Rara*, p. 95; Pul *HA*, p. 116

Clichtove (Jodocus Clichtoveus) was born in Flanders but spent his professional life in Paris. He edited a number of mathematical works, the most notable being the works of **Boethius** and **Sacrobosco**.

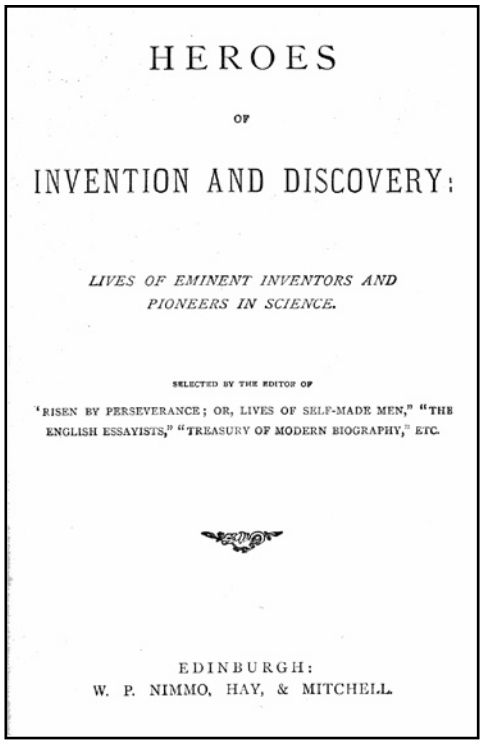
Smith (*Rara*) indicates that this volume is the first work to be devoted solely to the mystery of numbers and number symbolism; earlier treatments were simply part of larger works. Clichtove quotes many different authors on the properties of numbers (Pythagoras, Aristotle, **Boethius**, St. Augustine, etc.) but relies mainly on biblical passages. He systematically deals with the smaller numbers (up to fifteen), then sporadically considers integers up to a hundred. The rest of the text continues to deal with significant numbers (200, 300, 666, 144,000 etc.) and then 100,000 and 1,000,000 (*mille milia*).

Smith also remarks on the frequently overlooked chapter on finger numerals. In fact, it is the last chapter of the text, consists only of two pages and does nothing more than attribute finger numerals to **Boethius** and briefly describe how the fingers are positioned.

The printing is unusual. While the use of a special symbol to indicate a new topic (what we would think of today as a paragraph mark) was not unknown, it was usually placed at the start of a new line (see the mark used this way on the title page). This printer simply included the mark wherever necessary (see the illustration).

Illustrations available:
Title page
Paragraph mark

Clichtove, Josse
See **Boethius, Anicius Manlius Severinus**; *In hoc libro contenta. epitome compendiosaque introductio ...*


HEROES
OF
INVENTION AND DISCOVERY:
LIVES OF EMINENT INVENTORS AND PIONEERS IN SCIENCE.
SELECTED BY THE EDITOR OF
'RISEN BY PERSEVERANCE; OR, LIVES OF SELF-MADE MEN," "THE ENGLISH ESSAYISTS," "TREASURY OF MODERN BIOGRAPHY," ETC.
EDINBURGH:
W. P. NIMMO, HAY, & MITCHELL.

C 104

C 104
Cochrane, Robert

Heroes of invention and discovery. lives of eminent inventors and pioneers in science.

Year: 1879
Place: Edinburgh
Publisher: W. P. Nimmo, Hay, & Mitchell
Edition: 1st
Language: English
Figures: engraved frontispiece portrait of George Stephenson
Binding: original cloth-embossed boards; gilt spine
Pagination: pp. [10], 216, 16
Collation: $A^5B–O^8P^4\chi^8$
Size: 185x118 mm

This book, like many others of the era, was intended for the readership of young people. It includes two brief biographies of interest. The first of **Samuel Morland**, an inventor of two different types of calculating machine ca. 1666, and the second of **Charles Babbage**, the inventor of the Difference and Analytical Engines. Both biographies are limited to simple remarks.

Illustrations available:
Title page

C 105

Cock, David and **Salomon Cock**

De cyfer-konst, noyt voor desen den leerlingen grondiger, noch duydelijcker voorgestelt …

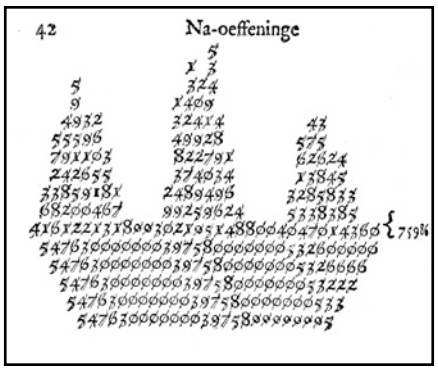
Year: 1664
Place: Dordrecht
Publisher: Abraham Andriessz
Edition: unknown
Language: Dutch
Binding: contemporary vellum
Pagination: pp. [12], 370, [2]
Collation: $*^6A–Z^8 2A^2$
Size: 144x91 mm
Reference: B de H *BNHS*, #902, p. 59

This arithmetic book deals with the usual operations on integers, fractions and mixed radix (money) amounts. The galley form of division is described followed by two spectacular examples which show vividly how the name originated. The basic operations are then illustrated with examples from commerce.

Illustrations available:
Title page
Galley division 1
Galley division 2
Colophon


DE
CYFER-KONST
Noyt voor desen
Den Leerlingen grondiger, noch
duydelijcker voorgestelt,
Beschreven door
DAVID COCK van ENCHUYSEN.
Den laetsten Druck,
Voorgaens vermeerdert / met de Solutie van de swaerste Exempelen; Ook noch verrijckt met verscheyden subtile Questien, voor den Regel Cosså ende Falsi opgeloost: uyt des Auteurs nagelatene Schriften met groote vlijt over-gesien / ende in 't licht gebracht door sijn Soon
S. COCK.
Ende van alle voor-gaende mis-druck gesuyvert / neerstelijck overlesen / en verbetert door
ISAAC LE DUC, Françoysche School-meester binnen Dordrecht.
TE DORDRECHT,
Voor de Weduwe van Abraham Andriessz., Boeckverkoopster, woonende by 't Stadt-huys, in 't Schrijfboeck. Anno 1664.

C 105



Galley division, C 105

C 106

Cocker, Edward (1631–1676)

Cockers arithmetick, being a plain and familiar method suitable to the meanest capacity for the full understanding of that incomparable art, as it is now taught by the ablest schoolmasters in city and countrey.

Year: 1678
Place: London
Publisher: John Hawkins; Printed for Thomas Passinger and Thomas Lacy
Edition: 2nd
Language: English
Figures: engraved portrait frontispiece
Binding: contemporary leather rebacked; red leather label; gilt spine
Pagination: pp. [10], 334, [2]
Collation: $A^5B–P^{12}$
Size: 145x78 mm
Reference: DeM *AB*, p. 56

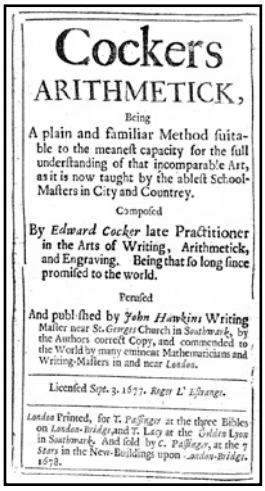
Edward Cocker was a London engraver who also operated a public school teaching penmanship and arithmetic. He was born in northern England but had settled in London by 1657. He was a friend of Samuel Pepys, who described him as *very ingenious and well read in all our English poets*. He published several books on writing during his life (perhaps as many as twenty-three, not all of which have survived). This arithmetic book was first published by John Hawkins after Cocker's death. Hawkins, who was also a *writing master*, claims, in his preface:

> I Having the Happiness of an Intimate Acquaintance with Mr. Cocker in his life time, often sollicited him to remember his Promise to the world of Publishing his Arithmetick, but (for Reasons best known to himself) he refused it, and (after his Death) the Copy falling accidentally into my hands, I thought it not convenient to smother a work of so considerable a moment, no questioning but it might be as kindly accepted as if it had been presented by his own hand.

Augustus DeMorgan and others have suggested that Hawkins wrote the book himself and simply traded on the

good reputation of Cocker's earlier publications. Recent scholarship seems to conclude that Cocker was indeed the author. The book went through at least a hundred recorded editions and was often imported into America, but seems never to have been printed there. It deals with the usual arithmetic operations, rule of three, fellowship and other common practices. The frontispiece has an engraved portrait of Cocker. Although this is listed as the second edition, it has also been identified as a second issue of the first edition.

Illustrations available:
Title page
Frontispiece


Cockers
ARITHMETICK,
Being
A plain and familiar Method suitable to the meaneſt capacity for the full underſtanding of that incomparable Art, as it is now taught by the ableſt School-Maſters in City and Countrey.
Compoſed
By *Edward Cocker* late Practitioner in the Arts of Writing, Arithmetick, and Engraving. Being that ſo long ſince promiſed to the world.
Peruſed
And publiſhed by *John Hawkins* Writing Maſter near St. *Georges* Church in *Southwark*, by the Authors correct Copy, and commended to the World by many eminent Mathematicians and Writing-Maſters in and near *London*.
Licenſed Sept. 3. 1677. *Roger L' Eſtrange.*
London Printed, for T. *Paſſinger* at the three Bibles on *London-Bridge*, and T. Lacy at the *Golden Lyon* in *Southwark*. And ſold by C. *Paſſinger*, at the 7 *Stars* in the New-Buildings upon *London-Bridge*. 1678.


Ingenious COCKER! (Now to Reſt thou'rt
Noe Art can Show thee fully but thine ow
Thy rare Arithmetick alone can ſh
Th' vaſt Sums of Thanks wee for thy La

C 106 Frontispiece, C 106

C 107

Cocker, Edward (1631–1675) [**John Hawkins** (fl. 1676–1692)**,** editor]

Cocker's decimal arithmetick, wherein is shewed the nature and use of decimal fractions, in the usual rules of arithmetick, and in the mensuration of planes and solids. Together with tables of interest, and rebate for the valuation of leases and annuities, present, or in reversion, and rules for calculating of those tables. Whereunto is added his artificial arithmetick, shewing the genesis or fabrick of the logarithmes, and their use in the extraction of roots, the solving of questions in anatocisme, and in other arithmetical rules in a method not usually practised. Also his algebraical arithmetick, containing the doctrine of composing and resolving an equation; with all other rules requisite for the understanding of that mysterious art, according to the method used by Mr. John Kersey in his incomparable treatise of algebra.

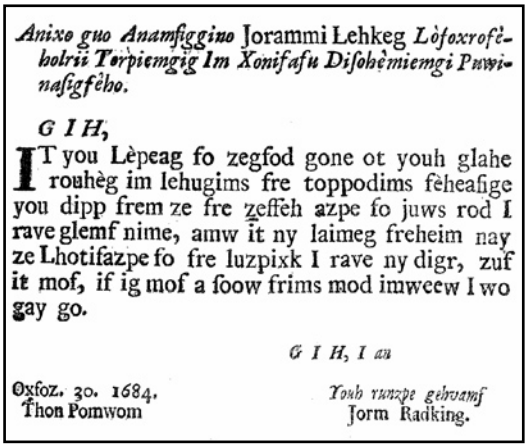
Year: 1685 (1684)
Place: London
Publisher: J. Richardson for Thomas Passinger and Thomas Lacy
Edition: 1st
Language: English
Binding: contemporary leather; gilt spine; gilt label
Pagination: pp. [16], 144, 135–181, 180– 436
Collation: A–2F^{8}
Size: 172x110 mm
Reference: Win *ESTC*, C4833

Cocker's original arithmetic (1678) contains an advertisement at the end that indicated that this volume was then *in the press and would be speedily published*. Hawkin's preface indicates that *other extraordinary occurrences intervening, occasioned its not seeing the light before this time*. The general title page is dated 1685 while the two subtitles are dated 1684 and have different imprints. The content of the first, arithmetic section differs from the 1678 work in that it now concentrates on practical problems involving decimals and the calculation of areas and volumes (with the necessary discussion of square and cube root) and both simple and compound interest (and tables for each). The second part describes the use of logarithms for the same types of problems, but without providing any tables. The final section is a work on elementary algebra up to quadratic equations.

The preface contains a curious dedication to John Perks that is written in a simple substitution cipher. The deciphered version reads:

> Sir, If you please to bestow some of your spare houres in perusing the following treatise you will then be the better able to judg how I have spent mine, and if my paines therein may be profitable to the publick I have my wish, but if not, it is not a good thing now indeed I do say so. Sir, I am your humble servant. John Hawkins. Octob. 30, 1684 From London"

Illustrations available:
Title page
Cipher dedication


Anixo guo Anamfiggino Jorammi Lehkeg *Lòfoxrofè-holrii Torpiemgig Im Xonifafu Diſohèmiemgi Puwi-naſigfèho.*

G I H,

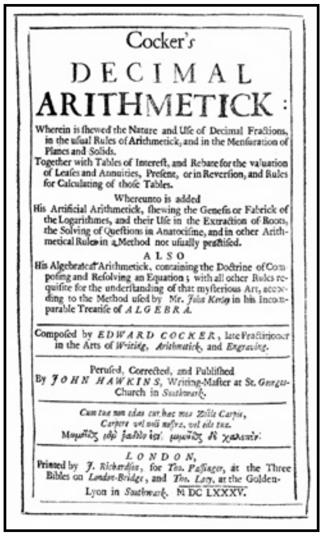
IT you Lèpeag fo zegfod gone ot youh glahe rouhèg im lehugims fre toppodims fèheafige you dipp frem ze fre zeffeh azpe fo juws rod I rave glemf nime, amw it ny laimeg freheim nay ze Lhotifazpe fo fre luzpixk I rave ny digr, zuf it mof, if ig mof a ſoow frims mod imweew I wo gay go.

G I H, I an

Oxfoz. 30. 1684.
Thon Pomwom

Youh ruazpe gèvuanf
Jorm Radking.

Cipher dedication, C 107


Cocker's
DECIMAL
ARITHMETICK:
Wherein is shewed the Nature and Use of Decimal Fractions, in the usual Rules of Arithmetick, and in the Mensuration of Planes and Solids.
Together with Tables of Interest, and Rebate for the valuation of Leases and Annuities, Present, or in Reversion, and Rules for Calculating of those Tables.
Whereunto is added
His Artificial Arithmetick, shewing the Genesis or Fabrick of the Logarithmes, and their Use in the Extraction of Roots, the Solving of Questions in Anatocisme, and in other Arithmetical Rules in a Method not usually practised.
ALSO
His Algebraical Arithmetick, containing the Doctrine of Composing and Resolving an Equation; with all other Rules requisite for the understanding of that mysterious Art, according to the Method used by Mr. John Kersey in his incomparable Treatise of ALGEBRA.
Composed by EDWARD COCKER, late Practitioner in the Arts of Writing, Arithmetick, and Engraving.
Perused, Corrected, and Published By JOHN HAWKINS, Writing-Master at St. George's-Church in Southwark.
Cum tua non edas cur hac mea Zoile Carpis, Carpere vel noli nostra, vel ede tua.
LONDON, Printed by J. Richardson, for Tho. Passinger, at the Three Bibles on London-Bridge, and Tho. Lacy, at the Golden-Lyon in Southwark. MDCLXXXV.

C 107

C 108

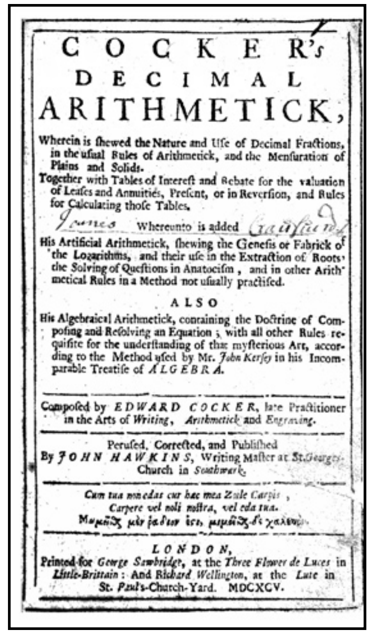
Cocker, Edward (1631–1675) **[John Hawkins** (fl.1676–1692), editor]

Cocker's decimal arithmetick, wherein is shewed the nature and use of decimal fractions, in the usual rules of arithmetick, and the mensuration of plains and solids. Together with tables of interest and rebate for the valuation of leases and annuities, present, or in reversion, and rules for calculating those tables. Whereunto is added his artificial arithmetick, shewing the genesis or fabrick of the logarithms, and their use in the extraction of roots, the solving of questions in anatocism, and in other arithmetical rules in a method not usually practised. Also his algebraical arithmetick, containing the doctrine of composing and resolving an equation; with all other rules requisite for the understanding of that mysterious art, according to the method used by Mr. John Kersey in his incomparable treatise of algebra.

Year: 1695
Place: London
Publisher: John Hawkins; Printed for George Sawbridge and Richard Wellington
Edition: 2nd
Language: English
Binding: modern leather
Pagination: pp. [16], 144, 135–181, 180–436
Collation: A–2F[8]
Size: 168x103 mm
Reference: DeM *AB*, p. 56; Win *ESTC*, C4834; Smi, *Rara*, pp. 635–641

This edition appear to be identical in content to that of the 1685 edition.

Illustrations available:
Title page


COCKER's
DECIMAL
ARITHMETICK,
Wherein is shewed the Nature and Use of Decimal Fractions, in the usual Rules of Arithmetick, and the Mensuration of Plains and Solids.
Together with Tables of Interest and Rebate for the valuation of Leases and Annuities, Present, or in Reversion, and Rules for Calculating those Tables.
Whereunto is added
His Artificial Arithmetick, shewing the Genesis or Fabrick of the Logarithms, and their use in the Extraction of Roots, the Solving of Questions in Anatocism, and in other Arithmetical Rules in a Method not usually practised.
ALSO
His Algebraical Arithmetick, containing the Doctrine of Composing and Resolving an Equation; with all other Rules requisite for the understanding of that mysterious Art, according to the Method used by Mr. John Kersey in his Incomparable Treatise of ALGEBRA.
Composed by EDWARD COCKER, late Practitioner in the Arts of Writing, Arithmetick and Engraving.
Perused, Corrected, and Published By JOHN HAWKINS, Writing Master at St. George's Church in Southwark.
Cum tua non edas cur hac mea Zoile Carpis, Carpere vel noli nostra, vel ede tua.
LONDON, Printed for George Sawbridge, at the Three Flower de Luces in Little-Brittain: And Richard Wellington, at the Lute in St. Paul's-Church-Yard. MDCXCV.

C 108

Coexeter, H. S. M., editor
See **Ball**, **Walter William Rouse**; *Mathematical recreations and essays.*

C 109

Coggeshall, Henry (1623–1690) [**John Ham**, editor]

The art of practical measuring, by the sliding rule: shewing how to measure round, square, or other timber, stone, board, glass, paving, painting, wainscot. Also gauging; with instructions in decimals, Mr. Townley's method of the logarithms, and the use of the diagonal scale applied to Gunter's chain … Whereto is added, in a short method, the use of Scamozzi's lines for finding the lengths and angles of hips, rafters, &c. at any pitch, in square, bevelling, or tapering frames. By John Ham

Year: 1745
Place: London
Publisher: John Oswald
Edition: 6th
Language: English
Figures: 4 engraved folding plates
Binding: contemporary leather
Pagination: pp. [12], 94
Collation: A[6]B–H[6]I[5]
Size: 165x92mm

Coggeshall invented a type of slide rule that was first described by him in 1677. The initial instrument was improved and the work revised and republished in 1682 with an improved rule. It was again modified in 1722.

John Ham took over editing this useful volume initially written by Henry Coggeshall. It describes a rule (much


THE
ART
OF
Practical Measuring,
BY THE
SLIDING RULE:
Shewing how to measure round, square or other Timber, Stone, Board, Glass, Paving, Painting, Wainscot.
Also Gauging; with Instructions in Decimals, Mr. *Townley's* Method of the Logarithms, and the Use of the Diagonal Scale applied to *Gunter's* Chain.
By Henry Coggeshall, *Gent.*
Whereto is added, in a Short Method,
The Use of *Scamozzi's* Lines, for finding the Lengths and Angles of Hips, Rafters, &c. at any Pitch, in Square, Bevelling or Tapering Frames.
By John Ham.
The Sixth Edition, Carefully Corrected.
LONDON:
Printed for John Oswald, at the *Rofs and Crown*, in the *Poultry*, near the *Manfion Houfe*. MDCCXLV.

C 109

like a slide rule) that was useful in the timber trade. This rule is described in **Edmund Stone**'s translation of **Bion**'s book on instruments. In the almost one hundred years between the first edition and this, the instrument had gone through a number of alterations that had changed its form from that of a slide rule to one of a sector in which the sliding rule remained as one of the legs of the sector. This was a natural line of development because a timber merchant would have need of the usual carpenter's rule (which hinges like a sector) for simple measurement. The combination of these two instruments naturally suggested the addition of sector scales.

In this version of the device, the sector lines are the so-called Scamozzi's lines (first introduced in Ham's edition of this work, 1729) used for finding lengths and angles in rafters and other architectural problems. The lines were first described by John Brown in his 1669 *Description and use of an ordinary joynt-rule fitted with lines for the ready finding the lengths and angles of rafters and hips and collar-beams*... This work was published by William Fisher as part of a volume containing a translation of Scamozzi's *Mirror of architecture*, and despite the fact that Scamozzi had nothing to do with them, the name came into common usage.

The innermost scale in the sector (marked *poll*) consists of a scale divided from 2 to 15 that is used to divide a circle into a number of equal parts (from 2 to 15). The next scale is divided into thirty units, each of which is subdivided into twelve. This represents feet and inches and is used as a *line of lines* for all the usual sector calculations, but the results are shown conveniently in feet and inches. Beside these two "30" scales are two others: the top one being a similar foot-inch scale (but here the subdivisions represent two-inch increments) and the lower scale being a line of chords (graduated from 10–180 degrees) used in the trigonometric calculations. See the essay on the use of the sector for more information on its operation.

The numbers inscribed on one arm of the sector form a multiplication table for the purchase of lumber. The first column indicates the price per foot, marked from 6d to 24d (2 shillings) with each major marking subdivided into four farthings. The other columns give the total for fifty feet at that price (in pounds, shillings, pence and farthings)

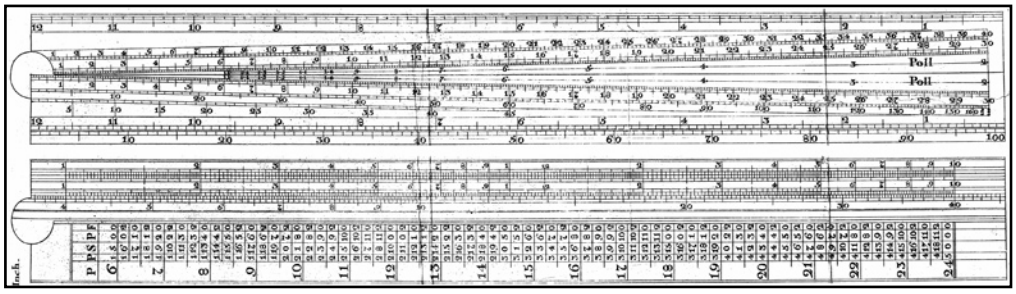
Illustrations available:
Title page

C 110

Coggeshall, Henry (1623–1690) [**John Ham**, editor]

The art of practical measuring, by the sliding rule: shewing how to measure round, square, or other timber, stone, board, glass, paving, painting, and wainscot. Also gauging; with instructions in decimals, Mr. Townley's method of the logarithms, and the use of the diagonal scale applied to Gunter's chain…Whereto is added, in a short method, the use of Scammozzi's lines for finding the lengths and angles of hips, rafters, &c. at any pitch, in square, bevelling, or tapering frames by John Ham

Year: 1767
Place: London
Publisher: Edward and Charles Dilly



Coggeshall's rule, C 110

Edition: 7th
Language: English
Figures: 4 engraved folding plates
Binding: contemporary leather; rebacked
Pagination: pp. 96
Collation: $A^6B–D^{12}E^6$
Size: 156x84 mm

This new edition of this work is essentially unchanged from the 1745 sixth edition.

Illustrations available:
Title page
Rule

THE
ART
OF
PRACTICAL MEASURING,
BY THE
SLIDING RULE:
Shewing how to measure
Round, Square, or other TIMBER, STONE, BOARD, GLASS, PAVING, PAINTING, and WAINSCOT.
Also GAUGING; with Instructions in Decimals, Mr TOWNLEY's Method of the Logarithms, and the Use of the Diagonal Scale applied to *Gunter*'s Chain.
By HENRY COGGESHALL, *Gent.*
Whereto is added, in a Short Method,
The Use of SCAMMOZZI's Lines for finding the Lengths and Angles of Hips, Rafters, &c. at any Pitch, in Square, Bevelling, or Tapering Frames.
By JOHN HAM.
The SEVENTH EDITION, Carefully Corrected.
LONDON:
Printed for EDWARD and CHARLES DILLY, in the *Poultry*, near the *Manſion-Houſe*.
M DCC LXVII.

C 110

C 111
Cohen, Aaron Kalman

Allgemeine Logarithmische Geld und Wechsel arbitrage tabellen Vermittels welchen blos durch eine Addition oder Subtraction, der Unterschied von verschidenen ein und ausländischen Münz-Sorten so wohl pro Cento als per Stück, hauptsächlich aber die Arbitrage der Wechsel Coursen.

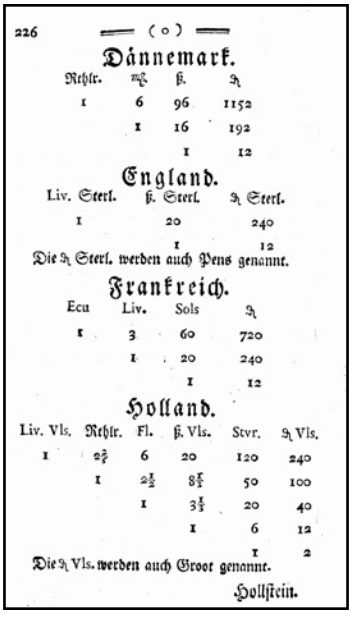
Year: 1772
Place: Düsseldorf
Publisher: Carl Philipp Ludwig Stahl
Edition: 1st
Language: German
Binding: uncut in contemporary wrappers; spine chipped
Pagination: pp. [8], 232, [104]
Collation:)(^{4}A–O^{8}P^{4}A–N^4
Size: 189x117 mm

This money changer's handbook consists of two major sections. The first describes the different currency systems in Europe and gives formulae, illustrated with examples, for exchange. The second part of the book consists of numerous exchange tables, one of which gives logarithms to four places for numbers (and fractional parts) between 0.5 and 1.77.

Illustrations available:
Title page
European money systems
Log table

Allgemeine
Logarithmiſche
Geld- und Wechſel-
ARBITRAGE-TABELLEN
Vermittels
welchen blos durch eine Addition oder Subtraction, der Unterſchied von verſchiedenen ein- und ausländiſchen Münz-Sorten ſo wohl pro Cento als per Stück, hauptſächlich aber die Arbitrage der Wechſel-Coursen,
Das iſt:
Wie aus verſchiedenen Wechſel-Preiſen der Vortheilhafteſte zur Rimeſſa oder Tratta zu erwählen iſt, beſtimmt werden kann.
Imgleichen
wie der Preiß ſo wohl vom feinen als rauhen oder vermiſchten Silber durch den Cours von Amſterdam oder Hamburg zu finden ſeye,
Verfaſſet und herausgegeben
von
AARON KALMAN COHEN
in
Düſſeldorf
Bey welchem es auch in Verlag zu finden iſt.
Düſſeldorf, gedruckt bey Carl Philipp Ludwig Stahl, Churfürſtlicher Hof- und Canzlei-Buchdrucker. 1772.

C 111


226 (o)
Dännemark.
Rthlr. ß. ß. ₰
1 6 96 1152
1 16 192
1 12
England.
Liv. Sterl. ß. Sterl. ₰ Sterl.
1 20 240
1 12
Die ₰ Sterl. werden auch Pens genannt.
Frankreich.
Ecu Liv. Sols ₰
1 3 60 720
1 20 240
1 12
Holland.
Liv. Vls. Rthlr. Fl. ß. Vls. Stvr. ₰ Vls.
1 2⅔ 6 20 120 240
1 2⅔ 8⅓ 50 100
1 3⅓ 20 40
1 6 12
1 2
Die ₰ Vls. werden auch Groot genannt.
Hollſtein.

Money systems, C 111

Cohen, Arnold A.
See **Mathematical Tables And Other Aids To Computation (MTAC)**, Vol. IV, No. 29, January, 1950, *Magnetic drum storage for digital information processing systems*

C 112

Cohen, Morris Raphael (1880–1947) and **Ernst Nagel** (1901–1985)

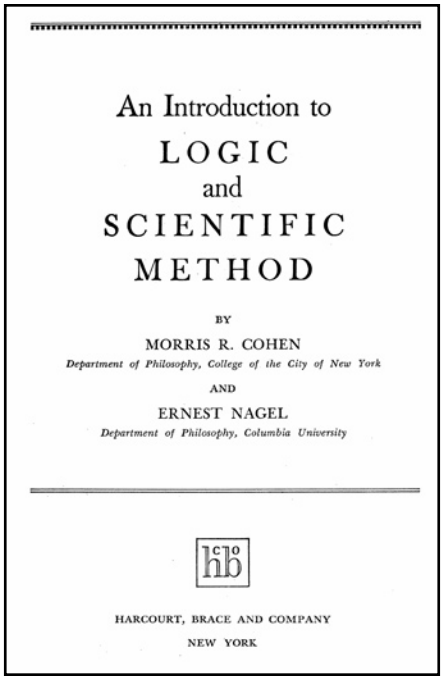
An introduction to logic and scientific method.

Year: 1934
Place: New York
Publisher: Harcourt, Brace and Co.
Edition: 1st
Language: English
Binding: original cloth boards; with dust jacket
Pagination: pp. xii, 467, [1]
Size: 215x145 mm

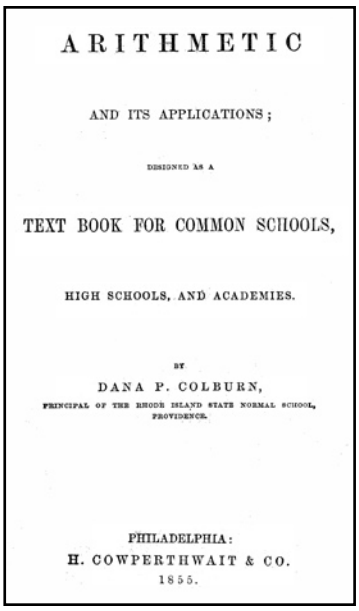
The two authors were immigrants: Nagel from Czechoslovakia and Cohen from Russia. They both were philosophers: Nagel at Columbia and Cohen at the City College of New York, and both have been ranked as some of the most eminent philosophers of their time. Cohen was also known as a charismatic teacher.

This classic text on logic demonstrated the basic principles and applications of logic better than any before it and was widely used as a text in philosophy courses.

Illustrations available:
Title page


An Introduction to
LOGIC
and
SCIENTIFIC
METHOD
BY
MORRIS R. COHEN
Department of Philosophy, College of the City of New York
AND
ERNEST NAGEL
Department of Philosophy, Columbia University
HARCOURT, BRACE AND COMPANY
NEW YORK

C 112


ARITHMETIC
AND ITS APPLICATIONS;
DESIGNED AS A
TEXT BOOK FOR COMMON SCHOOLS,
HIGH SCHOOLS, AND ACADEMIES.
BY
DANA P. COLBURN,
PRINCIPAL OF THE RHODE ISLAND STATE NORMAL SCHOOL, PROVIDENCE.
PHILADELPHIA:
H. COWPERTHWAIT & CO.
1855.

C 113

C 113
Colburn, Dana Pond (1823–1859)

Arithmetic and its applications; designed as a text book for common schools, high schools, and academies.

Year: 1855
Place: Philadelphia
Publisher: H. Cowperthwait & Co.
Edition: unknown
Language: English
Binding: original cloth boards
Pagination: pp. xii, 366
Collation: $a^6 1–30^6 31^3$
Size: 186x112 mm

This is a school arithmetic. Its later chapters contain descriptions and examples of various commercial applications.

Illustrations available:
Title page

C 114
Colburn, Warren (1793–1833)

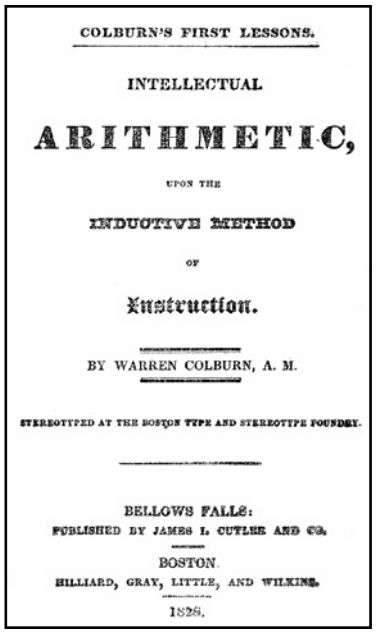
Colburn's first lessons. Intellectual arithmetic, upon the inductive method of instruction

Year: 1828
Place: Bellow Falls
Publisher: James Cutler
Edition: 7th
Language: English
Binding: quarter-bound leather marbled boards
Pagination: pp. xii, 172
Size: 148x94 mm

The first edition of this early school arithmetic textbook was published in 1821. The first, and major, section

contains the usual instruction and drill problems while a second section gives hints to instructors—including one that they need not fear teaching from this book even if they have not done fractions themselves.

Illustrations available:
Title page


COLBURN'S FIRST LESSONS.

INTELLECTUAL

ARITHMETIC,

UPON THE

INDUCTIVE METHOD

OF

Instruction.

BY WARREN COLBURN, A. M.

STEREOTYPED AT THE BOSTON TYPE AND STEREOTYPE FOUNDRY.

BELLOWS FALLS:
PUBLISHED BY JAMES I. CUTLER AND CO.

BOSTON.
HILLIARD, GRAY, LITTLE, AND WILKINS.

1826.

C 114

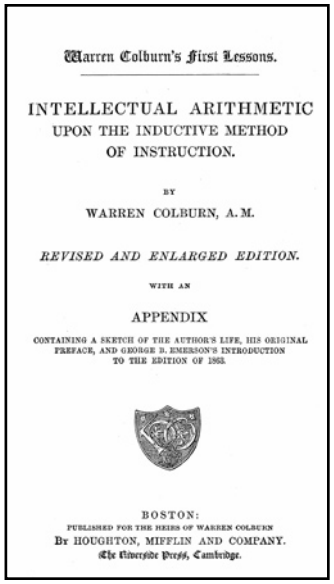
C 115
Colburn, Warren (1793–1833)

Intellectual arithmetic upon the inductive method of instruction

Year: 1884
Place: Boston
Publisher: Houghton, Mifflin and Co.
Edition: 3rd
Language: English
Figures: engraved portrait frontispiece
Binding: original heavy paper boards
Pagination: pp. [2], xiv, 216
Collation: $\pi^8$1-13^{8}14^4
Size: 175x109 mm

Colburn's arithmetic was used for many years in primary schools. By this edition it had changed little in content, but had acquired a few illustrations and an altered layout to make it more appealing to the students. The most interesting part of this volume is a few additions at the end that give a biography of Colburn and a few other encouraging paragraphs aimed at teachers and pupils. The frontispiece reproduces a sculpted bust of Colburn.

Illustrations available:
Title page
Colburn biography
Frontispiece portrait


Warren Colburn's First Lessons.

INTELLECTUAL ARITHMETIC
UPON THE INDUCTIVE METHOD
OF INSTRUCTION.

BY

WARREN COLBURN, A. M.

REVISED AND ENLARGED EDITION.

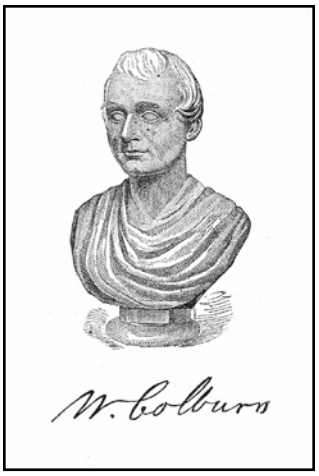
WITH AN

APPENDIX

CONTAINING A SKETCH OF THE AUTHOR'S LIFE, HIS ORIGINAL PREFACE, AND GEORGE B. EMERSON'S INTRODUCTION TO THE EDITION OF 1863.

BOSTON:
PUBLISHED FOR THE HEIRS OF WARREN COLBURN
By HOUGHTON, MIFFLIN AND COMPANY.
The Riverside Press, Cambridge.

C 115



Frontispiece, C 115

C 116
Colburn, Zerah (1833–1870)

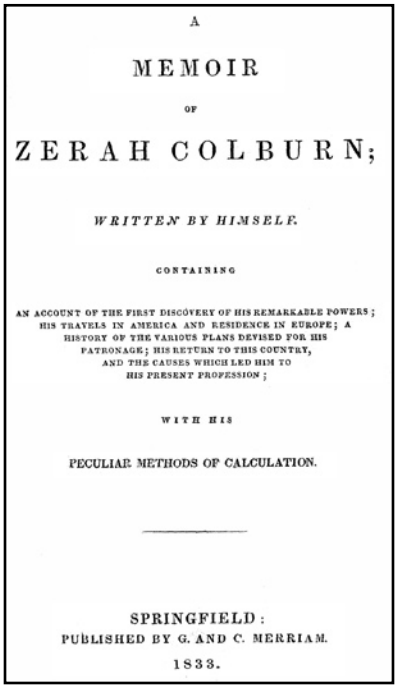
A memoir of Zerah Colburn; written by himself. Containing an account of the first discovery of his remarkable powers … with his peculiar methods of calculation.

Year: 1833
Place: Springfield
Publisher: G. and C. Merriam
Edition: 1st
Language: English
Binding: contemporary leather
Pagination: pp. 204
Collation: 1^{4}2–17^{6}8^2
Size: 185x110 mm

Colburn was one of the great calculating prodigies and is often mentioned in the literature (see, for example, the

entry for **Barlow, Fred**; *Mental prodigies*, 1952). This personal memoir details his life and accomplishments, at least up to the time he left the stage and began holding religious meetings. The sections of most interest are those near the end, where Colburn discusses the methods he used and the tables he memorized. Unfortunately, the work does not contain a portrait.

Illustrations available:
Title page


A

MEMOIR

OF

ZERAH COLBURN;

WRITTEN BY HIMSELF.

CONTAINING

AN ACCOUNT OF THE FIRST DISCOVERY OF HIS REMARKABLE POWERS; HIS TRAVELS IN AMERICA AND RESIDENCE IN EUROPE; A HISTORY OF THE VARIOUS PLANS DEVISED FOR HIS PATRONAGE; HIS RETURN TO THIS COUNTRY, AND THE CAUSES WHICH LED HIM TO HIS PRESENT PROFESSION;

WITH HIS

PECULIAR METHODS OF CALCULATION.

SPRINGFIELD:
PUBLISHED BY G. AND C. MERRIAM.
1833.

C 116

C 117
Colebrooke, Henry Thomas (1765–1837)

Address of Henry Thomas Colebrooke, president of the Astronomical Society of London, on presenting the gold medal to Charles Babbage. In *Memoirs of the Astronomical Society of London v. 1, pt. 2*

Year: 1822
Place: London
Publisher: Baldwin, Cradock and Joy
Edition: 1st
Language: English
Binding: contemporary three-quarter leather; spine gilt
Pagination: pp. viii, iii–vi, 532;
Collation: $A^6B–2C^4 2D^2 2E^2 2F–3Y^4 3Z^2$
Size: 267x208 mm
Reference: MCK *CBCW*, v. 2, pp. 57–60

Charles Babbage was awarded the gold medal of the Astronomical Society of London for his invention of the Difference Engine. This speech made by the president of the Society at the presentation simply lauds **Babbage**, noting that a model of the Difference Engine exists and that a much more refined machine was in the process of being constructed.

Illustrations available:
None

C 118
Coli, Gaudenzio

Il nuovo abbaco ovvero primi elementi intorno al sistema metrico decimale ad uso delle scuole elementari minori. Illustrato di molte figure inserite nel testo e di alcune tavole di ragguaglio

b/w: **Coli**, **Gaudenzio**; *Trattato elementare del sistema metrico decimale Bologna*, 1859

Year: 1859
Place: Bologna
Publisher: Giacomo Monti
Edition: unknown
Language: Italian
Binding: contemporary half-bound leather; wrappers bound in
Pagination: pp. 39, [1]
Collation: $1–2^8 3^4$
Size: 198x129 mm
Reference: Not in Rcdi *BMI*

See the entry for **Coli**, **Gaudenzio**; *Trattato*, 1859. This smaller pamphlet, printed on lesser quality paper, is an extract from Coli's larger work. It contains the same illustrations but lacks the numerous tables relating metric and Italian measures.

Illustrations available:
Title page


IL NUOVO ABBACO

OVVERO

PRIMI ELEMENTI

INTORNO AL

SISTEMA METRICO DECIMALE

AD USO

DELLE SCUOLE ELEMENTARI MINORI

ILLUSTRATO DI MOLTE FIGURE INSERITE NEL TESTO

E DI ALCUNE

TAVOLE DI RAGGUAGLIO

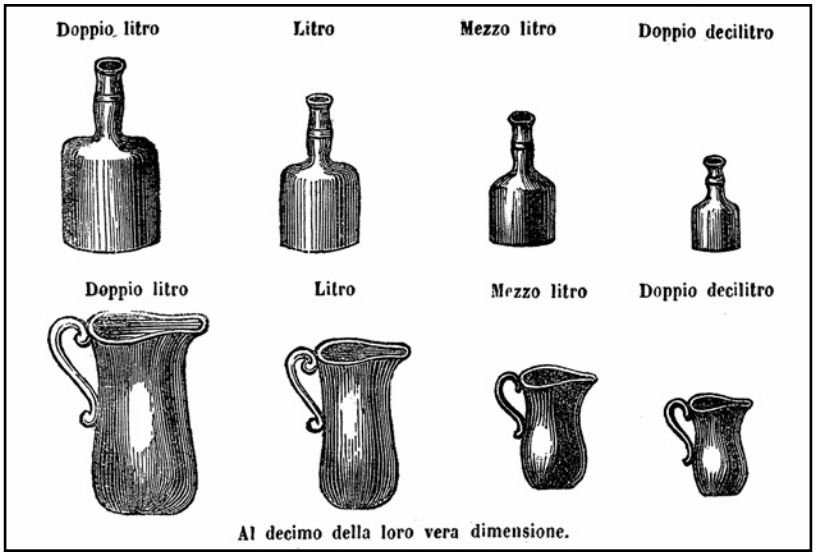
COMPILATO DA

GAUDENZIO COLI

Membro onorario dell' Accademia dei Ragionieri di Bologna

BOLOGNA
Tipografia di Giacomo Monti al Sole
1859

C 118



Volume measures, C 119

C 119

Coli, Gaudenzio

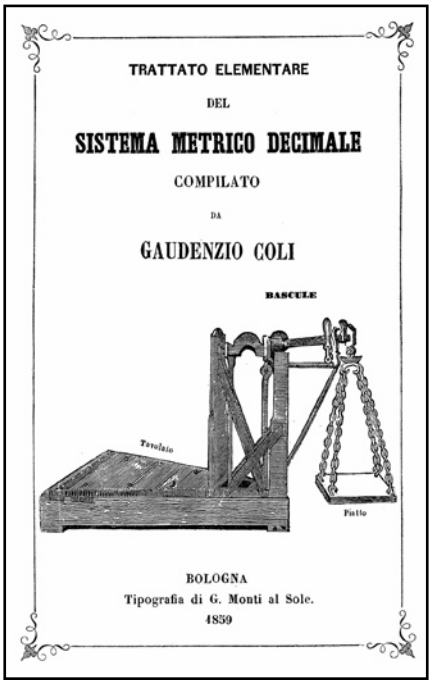
Trattato elementare del sistema metrico decimale

Year: 1859
Place: Bologna
Publisher: Giacomo Monti
Edition: 1st
Language: Italian
Binding: contemporary half-bound leather; wrappers bound in
Pagination: pp. 148
Collation: $1–8^{8}9^{10}$
Size: 215x140 mm
Reference: Not in Rcdi *BMI*

Several items of different sizes have been bound into one volume. See also the entries for:

Arithmetic; *Principi elementari d'aritmeticaPrincipi elementari d'aritmetica*
Coli, Gaudenzio, *Il nuovo abbaco …*
[**Ready Reckoner**]; *Conteggio sino a N, 50 per …*
[**Ready Reckoner**]; *Giornaletto per 1'anno*. 1861
[**Ready Reckoner**]; *Tabelle di ragguaglio del peso Romana e del Bolognese*
[**Ready Reckoner**]; *Tabelle di ragguaglio della moneta Romana e l'Italiana e del peso Romana …*
[**Ready Reckoner**]; *Tabelle di ragguaglio fra la moneta Romana e l'Italiana e fra la moneta Toscana e l'Italiana e viceversa*
[**Ready Reckoner**]; *Ragguaglio fra le nuove…*
Zavaglia, Sebastino; *Ragguaglio fra tutte le misure metriche…*

The first, and principal, work, an essay on the metric system, contains many tables of Italian measures with their metric equivalents. The work covers linear, area, and volume measurements, and is illustrated with drawings of the standard measures.

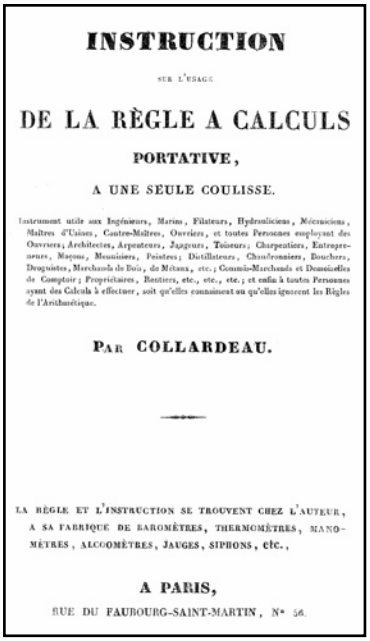

TRATTATO ELEMENTARE
DEL
SISTEMA METRICO DECIMALE
COMPILATO
DA
GAUDENZIO COLI
BASCULE
Tavolato
Piatto
BOLOGNA
Tipografia di G. Monti al Sole.
1859

C 119

Illustrations available:
Title page
Volume measures

Collange, Gabriel de, translator

See **Tritheimius, Johann**; *Polygraphie, et universelle escriture cabalistique de M.I. Tritheime Abbé, tradiucte par Gabriel de Collange, natif de Tours en Auvergne.*



INSTRUCTION

SUR L'USAGE

DE LA RÈGLE A CALCULS

PORTATIVE,

A UNE SEULE COULISSE.

Instrument utile aux Ingénieurs, Marins, Filateurs, Hydrauliciens, Mécaniciens, Maîtres d'Usines, Contre-Maîtres, Ouvriers, et toutes Personnes employant des Ouvriers; Architectes, Arpenteurs, Jaugeurs, Toiseurs; Charpentiers, Entrepreneurs, Maçons, Menuisiers, Peintres; Distillateurs, Chaudronniers, Bouchers, Droguistes, Marchands de Bois, de Métaux, etc.; Commis-Marchands et Demoiselles de Comptoir; Propriétaires, Rentiers, etc., etc., et enfin à toutes Personnes ayant des Calculs à effectuer, soit qu'elles connaissent ou qu'elles ignorent les Règles de l'Arithmétique.

PAR COLLARDEAU.

LA RÈGLE ET L'INSTRUCTION SE TROUVENT CHEZ L'AUTEUR, A SA FABRIQUE DE BAROMÈTRES, THERMOMÈTRES, MANOMÈTRES, ALCOOMÈTRES, JAUGES, SIPHONS, etc.,

A PARIS,

RUE DU FAUBOURG-SAINT-MARTIN, N° 56.

C 120

C 120

Collardeau du Héaulme, Charles-Félix (1796–1869)

Instruction sur l'usage de la règle a calculs portative, a une seule coulisse …

Year: 1833
Place: Paris
Publisher: For the author by the Widow Thuau
Edition: 1st
Language: French
Figures: 15 engraved folded figures inserted (0–14)
Binding: quarter leather marbled boards
Pagination: pp. [8], 92
Collation: $\pi^4 1–5^8 6^6$
Size: 202x126 mm

Collardeau was a Paris instrument maker who specialized in barometers, thermometers, and similar instruments. He is known to have made Jomard's slide rule as early as 1815.

This book, an instruction on the use of the slide rule, is dedicated to Gay-Lussac, who evidently helped him set up in business. A description of **Collardeau**'s siphon is included at the end. This is a presentation copy from the author, who inscribed the verso of the first half title, to an unknown recipient.

Illustrations available:
Title page
Slide rule illustration

C 121

Collardeau du Héaulme, Charles-Félix (1796–1869)

Notice sur le siphon

b/w: **Collardeau du Héaulme, Charles-Félix**; *Instruction sur l'usage …*, 1833

Year: 1833
Place: Paris
Publisher: For the author by the Widow Thuau
Edition: 1st
Language: French
Figures: 1 engraved folding plate by Benoit
Binding: contemporary quarter leather marbled boards; backstrip torn away
Pagination: pp. 16
Collation: 1^8
Size: 202x126 mm

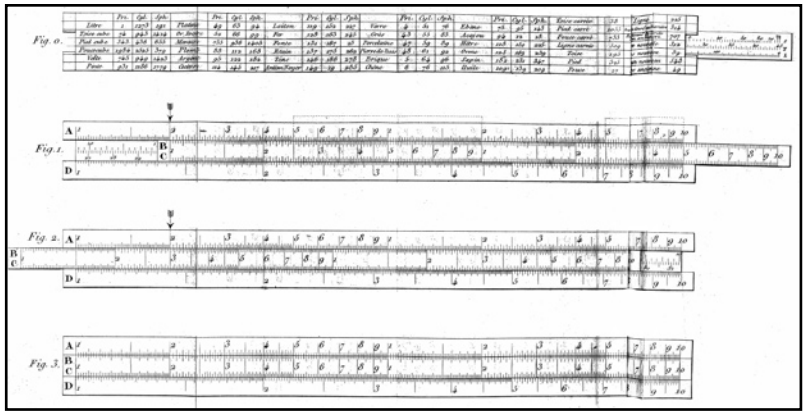
A description of a siphon invented by Collardeau.

Illustrations available:
First page

C 122

Collins, John (1624–1683)

The sector on a quadrant, or a treatise containing the description and use of three several quadrants; each rendred many ways both general and particular. Accommodated for dyalling, for the resolving of all proportions instrumentally, and for the ready finding

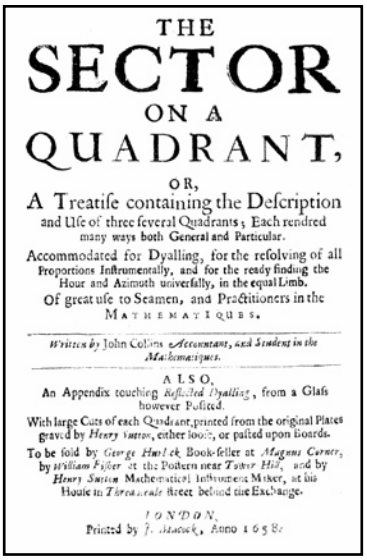


Slide rules, C 120

the hour and azimuth universally, in the equal limb. Of great use to seamen, and practitioners in the mathematiques… Also an appendix touching reflected dyalling from a glass however posited. With large cuts of each quadrant, printed from the original plates graved by Henry Sutton, either loose, or pasted upon boards

Year: 1658
Place: London
Publisher: J. Macock for George Hurlock, William Fisher and Henry Sutton
Edition: 1st (1st issue)
Language: English
Figures: 2 double-page plates (after title; 32), folding plate (p. 192), plate (p. 276)
Binding: contemporary panelled leather; gilt-stamped covers; red leather label
Pagination: pp. [16], 284, [2], 54, [10], 26
Collation: $A^{2*2}A–2M^{4}2N^{2}2O^{4}A–L^{4}M^{2}$
Size: 185x136 mm
Reference: Win *ESTC*, C.5381; Tay *MP I*, #238

John Collins, orphaned at the age of thirteen, began work as an apprentice bookseller in Oxford. In 1641, he became a clerk at Court (which had moved to Oxford because of civil war), and John Marr, who was then creating a large set of dials for the king, tutored him in mathematics. Collins later left England and joined the Venetian navy for seven years. Returning to London in 1649, he taught mathematics until 1660 and then held several different accounting positions, eventually becoming the librarian of the Royal Society in 1667. He knew most of the major British mathematicians of his day and corresponded with many of the great scientists of Europe. Collins' position as an accountant in international trade provided convenient access to books from other countries, and he accumulated a significant scientific library.


THE
SECTOR
ON A
QUADRANT,
OR,
A Treatise containing the Description and Use of three several Quadrants; Each rendred many ways both General and Particular.
Accommodated for Dyalling, for the resolving of all Proportions Instrumentally, and for the ready finding the Hour and Azimuth universally, in the equal Limb.
Of great use to Seamen, and Practitioners in the MATHEMATIQUES.
Written by John Collins Accountant, and Student in the Mathematiques.
ALSO,
An Appendix touching Reflected Dyalling, from a Glass however Posited.
With large Cuts of each Quadrant, printed from the original Plates graved by Henry Sutton, either loose, or pasted upon Boards.
To be sold by George Hurlock Book-seller at Magnus Corner, by William Fisher at the Postern near Tower Hill, and by Henry Sutton Mathematical Instrument Maker, at his House in Threadneedle street behind the Exchange.
LONDON,
Printed by J. Macock, Anno 1658.

C 122

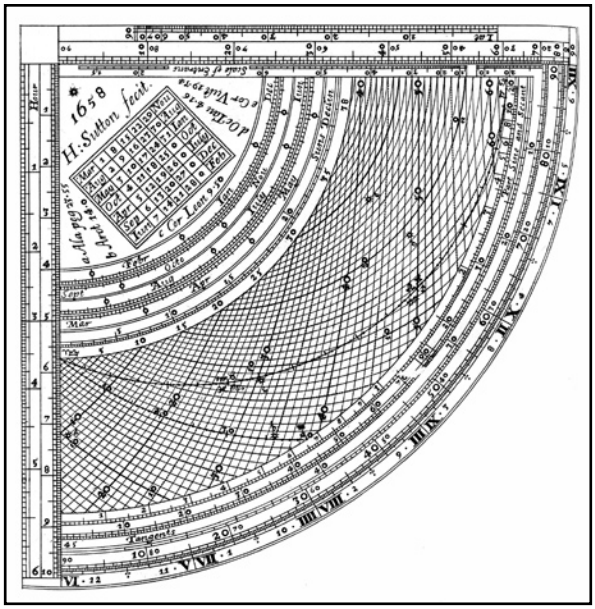
This volume is actually a combination of four separate works, the last two separately paginated. The first three are by Collins and describe various configurations of quadrants. The final work, an appendix by John Lyon, describes how sundials may be constructed to use light reflected into a room from a mirror on the windowsill.

Despite its popularity with the public, Collins did not have a high opinion of this work. He wrote to Dr. John Wallis:

> At the request of Mr. Sutton I wrote a despicable treatise of quadrants. His design was to demonstrate himself to be a good workman in cutting the prints of these quadrants, and therby to obtain customers.

Sutton's engravings are fine. While most of the surviving quadrants from this era are made of metal, Sutton seems to have specialized in paper quadrants that could be glued to boards for everyday use.

The title, linking the sector and quadrant, is rather misleading as the work contains very little material about sector operations. The scales originating from the center of the quadrant (scale of equal parts, tangents and sines) could be used (with the quadrant thread and a pair of dividers, as described in the essay on the sector at the end of this catalog) to do arithmetical operations. The text chiefly concerns the usual uses of a quadrant (time, dialing, navigation and surveying). Several different quadrants are described (based on a design by Collins' friend Thomas Harvey), and Sutton added examples of the astrolabic scales for latitudes from zero to ninety degrees.



Collins' quadrant, C 122

The modern reader will find the algorithmic notation quaint and difficult to follow. All the rules are given in the proportional notation common in Collins' time, e.g.:

> … to divide a Line of lesser length than the Radius of the Quadrant Proportionally into the like parts the Scale is divided: As the length of the graduated Scale, To any lesser length: So the parts of the Scale, To the Proportional like parts to that other length.

By the middle of the seventeenth century, algorithmic notation had progressed from the Latin verses of the thirteenth-century monk **Anianus**, but it clearly still had a long way to go!

Illustrations available:
Title page
Two sides of a quadrant
Double page of quadrants for different latitudes
Small pocket quadrant
Scales (in two images)

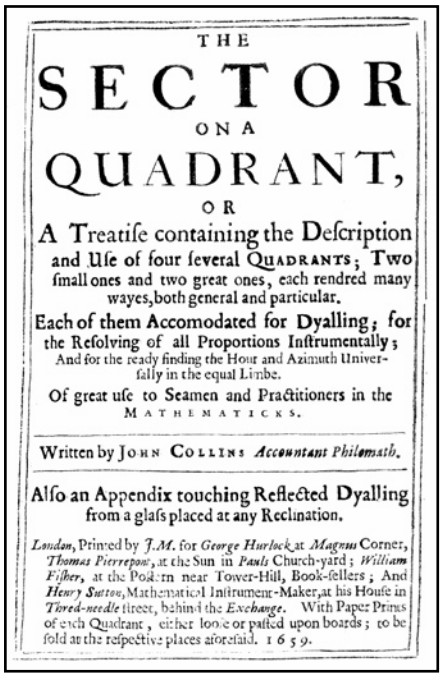
C 123
Collins, John (1624–1683)

The sector on a quadrant, or a treatise containing the description and use of four several quadrants; two small ones and two great ones, each rendred many wayes, both general and particular. Each of them accomodated for dyalling, for the resolving of all proportions instrumentally; and for the ready finding the hour and azimuth universally in the equal limbe. Of great use to seamen, and practitioners in the mathematicks… Also an appendix touching reflected dyalling from a glass placed at any reclination.
Second Title page:
The sector on a quadrant, or a treatise containing the description and use of three several quadrants; each rendred many ways both general and particular. Accommodated for dyalling, for the resolving of all proportions instrumentally, and for the ready finding the hour and azimuth universally, in the equal limb. Of great use to seamen, and practitioners in the mathematiques… Also an appendix touching reflected dyalling from a glass however posited. With large cuts of each quadrant, printed from the original plates graved by Henry Sutton, either loose, or pasted upon boards

Year: 1659
Place: London
Publisher: Printed by J. M[acock] for George Hurlock, Thomas Pierrepont, William Fisher, and Henry Sutton
Edition: 1st (2nd issue)
Language: English
Figures: 2 double-page plates (before p. 1; 35), folding plate (p. 192), plate (p. 276)
Binding: contemporary leather rebacked; red leather label
Pagination: pp. [14], 288, [2], 54, [10], 26
Collation: $A^3a^4B–2M^42N^22O^{4*2}A–L^4M^2$
Size: 187x143 mm

This volume is almost identical to the first issue. A second title page has been added as well as the original, and the book is made up slightly differently: the table of contents follows p. 284, the plate following p. 34 is marked as following p. 32, and the plate following p. 192 is so marked (it was unmarked in first issue).

Illustrations available:
Title page

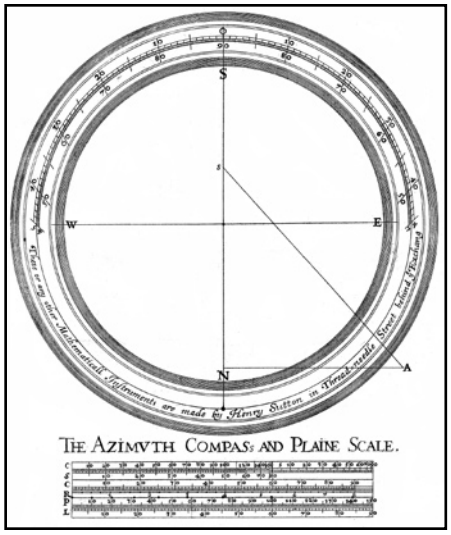

THE
SECTOR
ON A
QUADRANT,
OR
A Treatiſe containing the Deſcription and Uſe of four ſeveral QUADRANTS; Two ſmall ones and two great ones, each rendred many wayes, both general and particular.
Each of them Accomodated for Dyalling; for the Reſolving of all Proportions Inſtrumentally; And for the ready finding the Hour and Azimuth Univerſally in the equal Limbe.
Of great uſe to Seamen and Practitioners in the MATHEMATICKS.
Written by JOHN COLLINS *Accountant Philomath.*
Alſo an Appendix touching Reflected Dyalling from a glaſs placed at any Reclination.
London, Printed by *J. M.* for *George Hurlock* at *Magnus* Corner, *Thomas Pierrepont*, at the Sun in *Pauls* Church-yard; *William Fiſher*, at the Poſtern near Tower-Hill, Book-ſellers; And *Henry Sutton*, Mathematical Inſtrument-Maker, at his Houſe in *Thred-needle* ſtreet, behind the *Exchange*. With Paper Prints of each Quadrant, either loose or paſted upon boards; to be ſold at the reſpective places aforeſaid. 1659.

C 123

C 124
Collins, John (1624–1683)

The mariners plain scale new plain'd: or, a treatise shewing the ample uses of a circle equally divided, or of a line of chords and equal parts, divided into three books or parts … Of great use to sea-men, and students in the mathematicks
Second title page:
Navigation by the mariners plain scale new plain'd: or, a treatise of geometrical and arithmetical navigation; wherein sayling is performed in all the three kindes by a right line, and a circle divided into equal parts…

Year: 1659
Place: London
Publisher: Printed by Thomas Johnson for Francis Cossinet
Edition: 1st
Language: English



Compass and plane scale, C 124

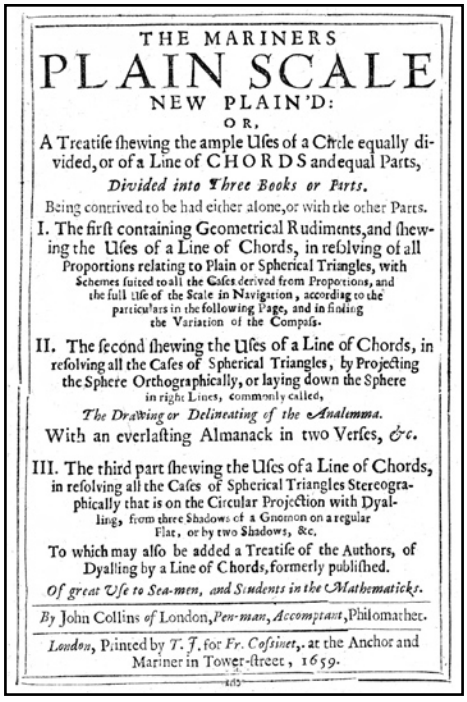
Figures: 1 folding plate
Binding: contemporary leather
Pagination: pp. [12], 56 (mis# 56 as 54), 128 (mis# 128 as 118), [4], 68, [4], 36
Collation: π^2A–H^{4}B–R^{4*2}B–K^{4}B–E^{4}F^2
Size: 190x136 mm
Reference: Tay *MP I*, #247

This work, in three parts, was designed to be made available either as one volume or in three separate parts. This example is of the single volume, but the details of the other two parts are in the entries for Collins, *The mariners plane scale: the second book, 1659* and Collins, *The mariners plane scale: the third part of book* ..., 1659.

As Collins' preface indicates, this was designed as an introductory text for students of navigation and warns that navigation is an inexact science because the exact longitude and latitude of most places are not known.

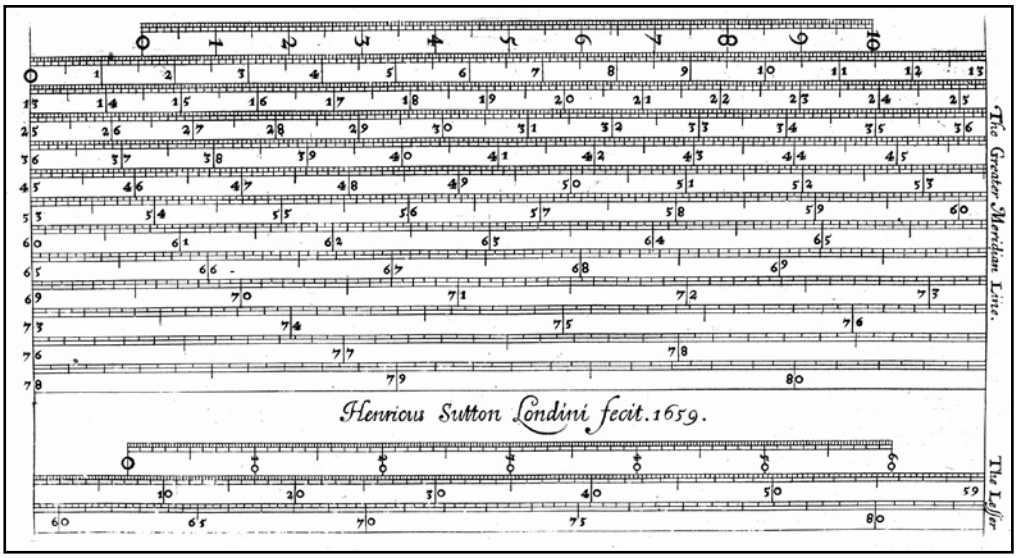
The major illustrations in this work are by Henry Sutton, a fine English instrument maker noted for his scientific illustrations.

Illustrations available:
- Title page 1
- Title page 2
- Meridian line
- Compass and plane scale

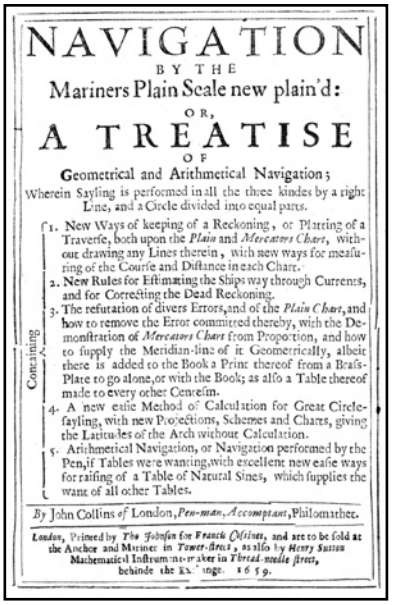


THE MARINERS
PLAIN SCALE
NEW PLAIN'D:
OR,
A Treatise shewing the ample Uses of a Circle equally divided, or of a Line of CHORDS and equal Parts,
Divided into Three Books or Parts.
Being contrived to be had either alone, or with the other Parts.
I. The first containing Geometrical Rudiments, and shewing the Uses of a Line of Chords, in resolving of all Proportions relating to Plain or Spherical Triangles, with Schemes suited to all the Cases derived from Proportions, and the full Use of the Scale in Navigation, according to the particulars in the following Page, and in finding the Variation of the Compass.
II. The second shewing the Uses of a Line of Chords, in resolving all the Cases of Spherical Triangles, by Projecting the Sphere Orthographically, or laying down the Sphere in right Lines, commonly called,
The Drawing or Delineating of the Analemma.
With an everlasting Almanack in two Verses, *&c.*
III. The third part shewing the Uses of a Line of Chords, in resolving all the Cases of Spherical Triangles Stereographically that is on the Circular Projection with Dyalling, from three Shadows of a Gnomon on a regular Flat, or by two Shadows, &c.
To which may also be added a Treatise of the Authors, of Dyalling by a Line of Chords, formerly published.
Of great Use to Sea-men, and Students in the Mathematicks.
By John Collins *of* London, *Pen-man, Accomptant*, Philomather.
London, Printed by *T. J.* for *Fr. Cossinet*, at the Anchor and Mariner in Tower-street, 1659.

Title page 1, C 124

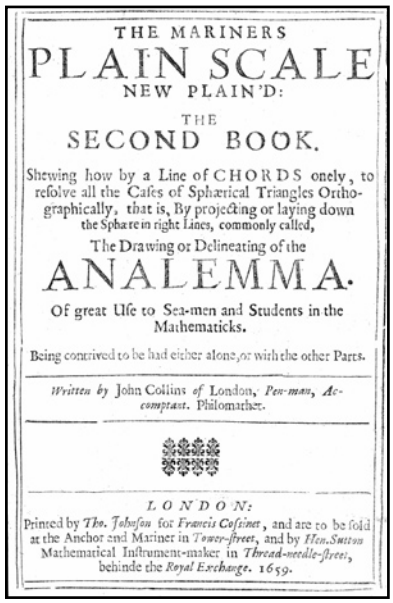


Meridian scale, C 124



NAVIGATION
BY THE
Mariners Plain Scale new plain'd:
OR,
A TREATISE
OF
Geometrical and Arithmetical Navigation;
Wherein Sayling is performed in all the three kindes by a right Line, and a Circle divided into equal parts.
Containing
1. New Ways of keeping of a Reckoning, or Plotting of a Traverse, both upon the *Plain* and *Meretators Chart*, without drawing any Lines therein, with new ways for measuring of the Course and Distance in each Chart.
2. New Rules for Estimating the Ships way through Currents, and for Correcting the Dead Reckoning.
3. The refutation of divers Errors, and of the *Plain Chart*, and how to remove the Error committed thereby, with the Demonstration of *Meretators Chart* from Proportion, and how to supply the Meridian-line of it Geometrically, albeit there is added to the Book a Print thereof from a Brass-Plate to go alone, or with the Book; as also a Table thereof made to every other Centesm.
4. A new easie Method of Calculation for Great Circle-sayling, with new Projections, Schemes and Charts, giving the Latitudes of the Arch without Calculation.
5. Arithmetical Navigation, or Navigation performed by the Pen, if Tables were wanting, with excellent new easie ways for raising of a Table of Natural Sines, which supplies the want of all other Tables.
By John Collins of London, *Pen-man, Accomptant*, Philomathes.
London, Printed by *Tho. Johnson* for *Francis Cossinet*, and are to be sold at the Anchor and Mariner in *Tower-street*, as also by *Henry Sutton* Mathematical Instrument-maker in *Thread-needle street*, behinde the Exchange. 1659.

Title page 2, C 124



THE MARINERS
PLAIN SCALE
NEW PLAIN'D:
THE
SECOND BOOK.
Shewing how by a Line of CHORDS onely, to resolve all the Cases of Sphærical Triangles Orthographically, that is, By projecting or laying down the Sphære in right Lines, commonly called,
The Drawing or Delineating of the
ANALEMMA.
Of great Use to Sea-men and Students in the Mathematicks.
Being contrived to be had either alone, or with the other Parts.
Written by John Collins *of* London, *Pen-man, Accomptant.* Philomathes.
LONDON:
Printed by *Tho. Johnson* for *Francis Cossinet*, and are to be sold at the Anchor and Mariner in *Tower-street*, and by *Hen. Sutton* Mathematical Instrument-maker in *Thread-needle-street*, behinde the *Royal Exchange*. 1659.

C 125

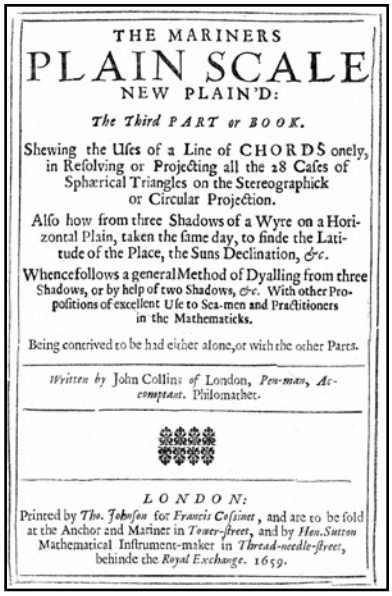
C 125
Collins, John (1624–1683)

The mariners plain scale new plain'd: the second book. Shewing how by a line of chords onely, to resolve all the cases of sphærical triangles orthographically, that is, by projecting or laying down the sphære in right lines, commonly called, the drawing or delineating of the analemma. Of great use to sea-men and students in the mathematicks. Being contrived to be had either alone, or with the other parts

Year: 1659
Place: London
Publisher: Printed by Thomas Johnson for Francis Cossinet
Edition: 1st
Language: English
Figures: 1 folding plate
Binding: contemporary leather
Pagination: pp. [12], 56 (mis# 56 as 54), 128 (mis# 128 as 118), [4], 68, [4], 36
Collation: π^2A–H^{4}B–R^4*^{2}B–K^{4}B–E^{4}F^2
Size: 190x136 mm
Reference: Tay *MP I*, #247

This is the second part of Collins' three-part work on navigation. It was available either bound with the others or alone. In this instance it is part of the combined volume—see the other **Collins** 1659 entries for details.

Illustrations available:
Title page



THE MARINERS
PLAIN SCALE
NEW PLAIN'D:
The Third PART or BOOK.
Shewing the Uses of a Line of CHORDS onely, in Resolving or Projecting all the 28 Cases of Sphærical Triangles on the Stereographick or Circular Projection.
Also how from three Shadows of a Wyre on a Horizontal Plain, taken the same day, to finde the Latitude of the Place, the Suns Declination, *&c.*
Whence follows a general Method of Dyalling from three Shadows, or by help of two Shadows, *&c.* With other Propositions of excellent Use to Sea-men and Practitioners in the Mathematicks.
Being contrived to be had either alone, or with the other Parts.
Written by John Collins *of* London, *Pen-man, Accomptant.* Philomathes.
LONDON:
Printed by *Tho. Johnson* for *Francis Cossinet*, and are to be sold at the Anchor and Mariner in *Tower-street*, and by *Hen. Sutton* Mathematical Instrument-maker in *Thread-needle-street*, behinde the *Royal Exchange*. 1659.

C 126

C 126
Collins, John (1624–1683)

The mariners plain scale new plain'd: the third part or book. Shewing the uses of chords onely, in resolving or projecting all the 28 cases of sphærical triangles on the stereographick or circular projection. Also how from three shadows of a wyre on a horizontal plain, taken the same day, to finde the latitude of the place, the suns declination, &c. Whence follows a general method of dyalling from three shadows, or by help of two shadows, & c. With other propositions of excellent use to sea-men and practitioners in the mathematicks. Being contrived to be had either alone, or with the other parts

Year: 1659
Place: London
Publisher: Printed by Thomas Johnson for Francis Cossinet

Edition: 1st
Language: English
Figures: 1 folding plate
Binding: contemporary leather
Pagination: pp. [12], 56 (mis# 56 as 54), 128 (mis# 128 as 118), [4], 68, [4], 36
Collation: π^2A–H^{4}B–R^4*^{2}B–K^{4}B–E^{4}F^2
Size: 190x136 mm
Reference: Tay *MP I*, #247

This is the third and final part of Collins' work on navigation. It was available either bound with the others or alone. In this instance it is part of the combined volume—see the other **Collins** 1659 entries for details.

Illustrations available:
Title page

Colson, John, editor
See **Sturmy, Samuel**; *The mariners magazine or Sturmy's mathematical and practical arts*.

Colson, John, translator
See **Agnesi, Donna Maria Gaetena**; Analytical institutions

C 127
Colson, Nathaniel (fl.1674)

The mariner's new kalendar. Containing the principles of arithmetick and geometry, with the extraction of the square and cube roots. Also rules for finding the prime, epact, moon's age, time of high-water, with tables for the same. Together with exact tables of the sun's place, declination, and right ascension. Of the right ascension and declination of the principal fixed stars. Of the latitude and longitude of places. A large table of difference of latitude and departure, for the exact working a traverse. Also the description and use of the sea-quadrant, fore-staff and nocturnal. The problem of plain-sailing and astronomy, wrought by the logarithms, and by Gunter's scale. A tide table. The courses and distances on the coast of Great Britain, Ireland, France, &c. And the soundings coming into the channel. With directions for sailing into some principal harbours.

Year: 1727
Place: London
Publisher: Thomas Page, William and Fisher Mount
Edition: late
Language: English
Binding: later Spanish tree calf; spine tooled in gilt; red morocco label
Pagination: pp. 132 (misnumbering p. 90–96 as 175–180)
Collation: A–Q^4 R^2
Size: 180x133 mm

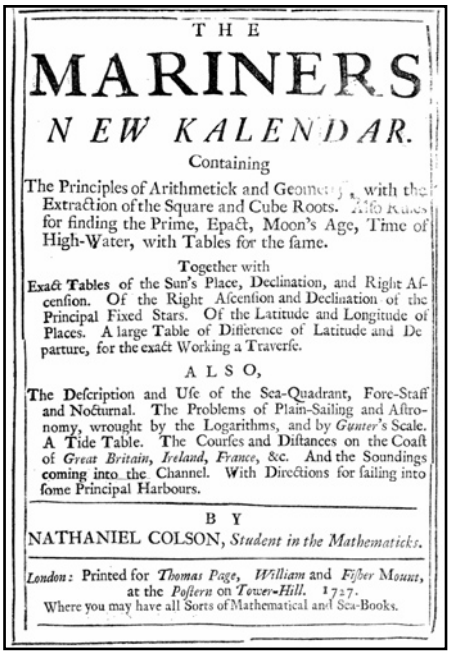
Little is known of the life of Nathaniel Colson. He describes himself as a 'student of mathematics' and is known to have edited **Sturmy**, **Samuel**; *The mariners magazine*, 1679. He was very likely a kinsman of **John Colson**, who contributed an addition of Mercator's sailing to the 1699 edition.

This nautical manual provides practical instruction on common navigational problems and contains everything that a mariner would want, including explicit sailing directions into various British harbors in both daylight and darkness. First published in 1675, it went through numerous editions until the end of the eighteenth century.

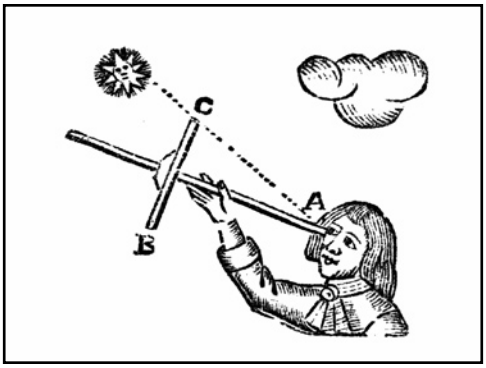
The book begins with simple arithmetic and a description of the mariner's compass, followed by tables for the phases of the moon, high and low tides, instruction on the use of the back staff or sea quadrant and Jacob's staff, and extensive tables of latitude and departure for plotting a course. William Mountaine edited and revised the editions of 1753 and later to accommodate the change from the Julian to Gregorian calendar, which did not occur in Britain until 1752. (See the entry for the 1769 edition).

This copy contains annotations in Spanish, and the end papers show evidence of having been part of a French-Spanish dictionary, thus attesting to the popularity of the work outside of Britain.

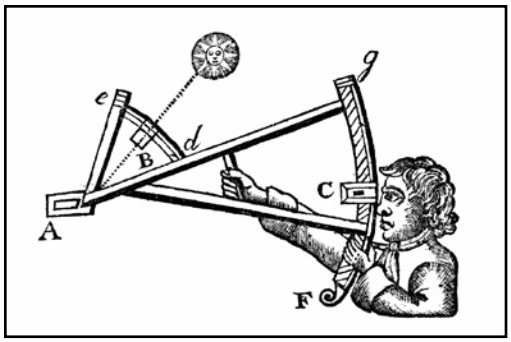
Illustrations available:
Title page


THE
MARINERS
NEW KALENDAR.
Containing
The Principles of Arithmetick and Geometry, with the Extraction of the Square and Cube Roots. Also Rules for finding the Prime, Epact, Moon's Age, Time of High-Water, with Tables for the same.
Together with
Exact Tables of the Sun's Place, Declination, and Right Ascension. Of the Right Ascension and Declination of the Principal Fixed Stars. Of the Latitude and Longitude of Places. A large Table of Difference of Latitude and Departure, for the exact Working a Traverse.
ALSO,
The Description and Use of the Sea-Quadrant, Fore-Staff and Nocturnal. The Problems of Plain-Sailing and Astronomy, wrought by the Logarithms, and by *Gunter*'s Scale. A Tide Table. The Courses and Distances on the Coast of *Great Britain*, *Ireland*, *France*, &c. And the Soundings coming into the Channel. With Directions for sailing into some Principal Harbours.
BY
NATHANIEL COLSON, *Student in the Mathematicks.*
London: Printed for *Thomas Page*, *William* and *Fisher* Mount, at the *Postern* on *Tower-Hill*. 1727.
Where you may have all Sorts of Mathematical and Sea-Books.

C 127



Jacob's staff, C 128



Back staff, C 128

C 128

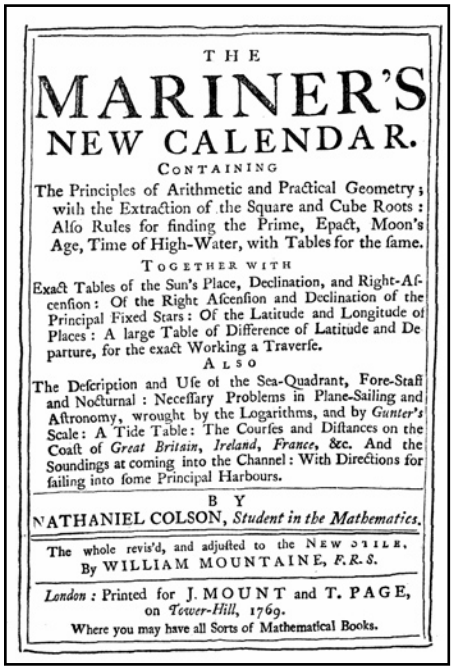
Colson, Nathaniel (fl.1674)

The mariner's new calendar. Containing the principles of arithmetic and practical geometry; with the extraction of the square and cube roots; also rules for finding the prime, epact, moon's age, time of high-water, with tables for the same. Together with exact tables of the sun's place, declination, and right-ascension. Of the right ascension and declination of the principal fixed stars. Of the latitude and longitude of places. A large table of difference of latitude and departure, for the exact working a traverse. Also the description and use of the sea-quadrant, fore-staff and nocturnal. Necessary problems in plane-sailing and astronomy, wrought by the logarithms, and by Gunter's scale. A tide table. The courses and distances on the coast of Great Britain, Ireland, France, &c. And the soundings at coming into the channel. With directions for sailing into some principal harbours.

Year: 1769
Place: London
Publisher: J. Mount and T. Page
Edition: late
Language: English
Binding: contemporary vellum
Pagination: pp. 136
Collation: A–R^4
Size: 195x143 mm

See entry for **Colson, Nathaniel**; *The mariner's new kalendar*, 1727. This edition is essentially identical with the earlier one, but its differences include modifications by Mountaine to account for the change from the Julian to the Gregorian calendar, and the addition of a few ports for the sailing directions, etc.

Illustrations available:
Title page
Illustration of the back staff
Illustration of the Jacob' staff


THE
MARINER'S
NEW CALENDAR.
CONTAINING
The Principles of Arithmetic and Practical Geometry; with the Extraction of the Square and Cube Roots: Alſo Rules for finding the Prime, Epact, Moon's Age, Time of High-Water, with Tables for the ſame.
TOGETHER WITH
Exact Tables of the Sun's Place, Declination, and Right-Aſcenſion: Of the Right Aſcenſion and Declination of the Principal Fixed Stars: Of the Latitude and Longitude of Places: A large Table of Difference of Latitude and Departure, for the exact Working a Traverſe.
ALSO
The Deſcription and Uſe of the Sea-Quadrant, Fore-Staff and Nocturnal: Neceſſary Problems in Plane-Sailing and Aſtronomy, wrought by the Logarithms, and by *Gunter's* Scale: A Tide Table: The Courſes and Diſtances on the Coaſt of *Great Britain*, *Ireland*, *France*, &c. And the Soundings at coming into the Channel: With Directions for ſailing into ſome Principal Harbours.
BY
NATHANIEL COLSON, *Student in the Mathematics.*
The whole reviſ'd, and adjuſted to the NEW STILE,
By WILLIAM MOUNTAINE, *F.R.S.*
London: Printed for J. MOUNT and T. PAGE, on *Tower-Hill*, 1769.
Where you may have all Sorts of Mathematical Books.

C 128

C 129

Colson, R.

La planchette-télémètre. Ses usages. Avec la planchette en portefeuille

Year: 1911
Place: Nancy
Publisher: Berger-Levrault
Edition: 1st
Language: French
Binding: original paper wrappers
Pagination: pp. 15
Size: 181x114 mm

Colson was a French military officer.

This short work, with the instrument in a pocket at back, describes the modern equivalent of the old quadrant for taking sights and elementary survey work.

Illustrations available:
Title page
Instrument (2)


R. COLSON
COMMANDANT DU GÉNIE EN RETRAITE
LIEUTENANT-COLONEL TERRITORIAL

LA

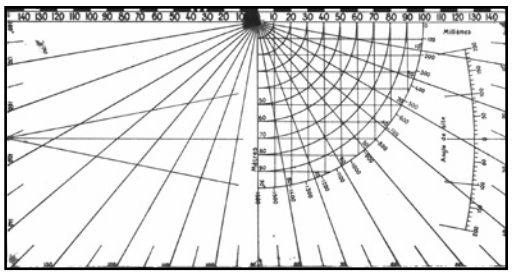
PLANCHETTE-TÉLÉMETRE

SES USAGES

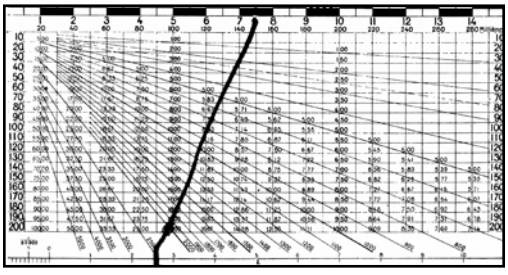
Avec la planchette en portefeuille

LIBRAIRIE MILITAIRE BERGER-LEVRAULT
PARIS
RUE DES BEAUX-ARTS, 5-7
NANCY
RUE DES GLACIS, 18
1911
Tous droits réservés

C 129



Instrument front, C 129



Instrument rear, C 129

Commission Temporaire des Poids et Mesures Républicaines, La

See [**Haüy, Réne-Juste**]; *Instruction abrégee sur les mesures déduites de la grandeur de la terre, uniformes pour toute la République, et sur les calculs relatifs á leur division décimale.*

C 130

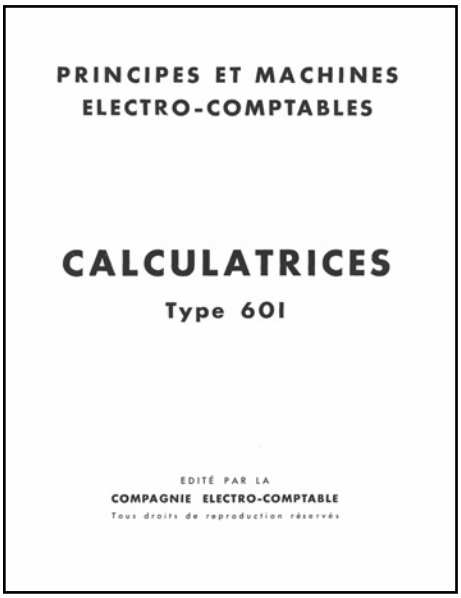
Compagnie Electro-Comptable

Principes et machines electro-comptables. Calculatrices Type 601

Year: 1943
Place: Paris
Publisher: Compagnie Electro-Comptable
Language: French
Binding: original paper wrappers
Pagination: pp. 16
Size: 270x200 mm

A French description of an early IBM 601 multiplying punch.

Illustrations available:
Title page
601 machine

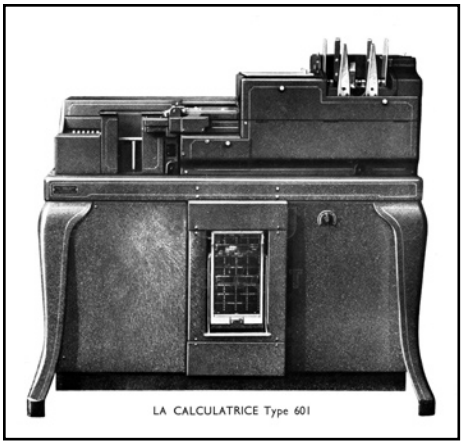

PRINCIPES ET MACHINES
ELECTRO-COMPTABLES

CALCULATRICES

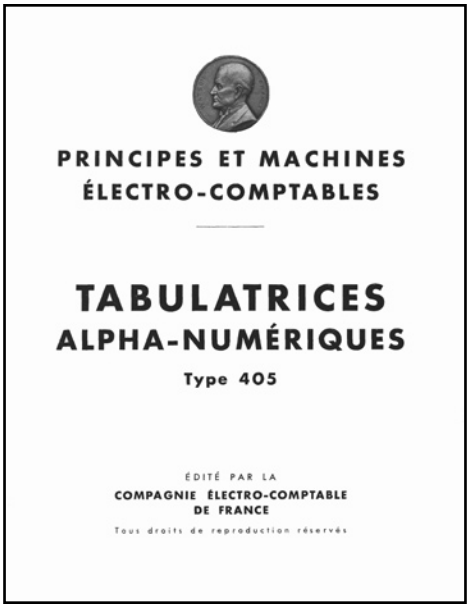
Type 601

EDITÉ PAR LA
COMPAGNIE ELECTRO-COMPTABLE
Tous droits de reproduction réservés

C 130



IBM 601 calculating punch, C 130



C 131

C 131
Compagnie Electro-Comptable

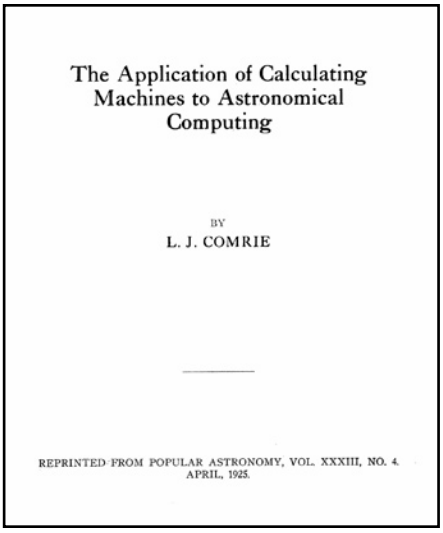
Principes et machines electro-comptables. Tabulatrices alpha-numeriques Type 405

Year: 1945
Place: Paris
Publisher: Compagnie Electro-Comptable
Language: French
Figures: folding plate inside rear wrapper
Binding: original paper wrappers
Pagination: pp. 24
Size: 271x210 mm

The Compagnie Electro-Comptable was IBM's French subsidiary. The companion item to this one (see entry for **Compagnie Electro-Comptable**, *Principes et machines electro-comptables. Calculatrices Type 601*) was published during World War II when IBM was not anxious to promote the connection. The war was over so it was acceptable for the *Watson France* medallion to be shown on the front cover

This is a French description of an early IBM 405 tabulating machine.

Illustrations available:
Title page
405 machine



C 132

C 132
Comrie, Leslie John (1893–1950)

The application of calculating machines to astronomical computing. In *Popular Astronomy, Vol. XXXIII, No.4, April 1925*

Year: 1925
Place: Northfield, MN
Publisher: Carelton College
Edition: reprint
Language: English
Binding: original paper wrappers
Pagination: pp. 4
Size: 254x167 mm

Widely regarded as the foremost computer and table maker between the two world wars, Comrie was born in New Zealand and studied mathematics in Auckland and Cambridge. During World War I he lost a leg and, during his recovery began experimenting with a mechanical calculator; these machines became his life-long passion. He joined the Nautical Almanac Office in 1926 and became Superintendent in 1930. In 1938, he formed the only commercial scientific computing service bureau of the day, Scientific Computing Service Ltd., in London. He is known for his innovative application of commercial accounting and punched card machines to scientific computation.

This reprint from *Popular Astronomy* was where Comrie announced that he was preparing seven publications concerned with the use of mechanical calculating machines in astronomy.

Illustrations available:
Title page

C 133
Comrie, Leslie John (1893–1950)

The application of commercial calculating machines to scientific computing. In *Mathematical Tables and Other Aids to Computation, Vol. II, No. 16, October 1946*

Year: 1946
Place: Washington, D.C.
Publisher: National Research Council
Edition: 1st
Language: English
Binding: library buckram
Pagination: pp. 149–159
Size: 226x146 mm
Reference: Ran *ODC*, p. 412

During World War II a number of advances in scientific computation took place, not the least of which was the development of the ENIAC. In this article Comrie defends the place of both desktop calculators and accounting machines in the field of scientific calculation. It was here that he explained the use of the National Accounting Machine as a difference engine. Despite his advocacy of accounting machines in the face of the increasing use of electronic and electromechanical computers, he does comment:

> Nevertheless I join with others in admiring these machines, and, after seeing so much binary multiplication, feel that Lewis Carroll should be alive now to write *Alice in Onederland*.

Illustrations available:
None

C 134
Comrie, Leslie John (1893–1950)

The application of the Brunsviga Twin 13Z Calculating Machine to the Hartmann formula for the reduction of prismatic spectrograms. In *The Observatory, Vol. 60, No. 754, March 1937*

Year: 1937
Place: Eastbourne
Publisher: Hailsham
Edition: reprint
Language: English
Figures: 1 photographic plate
Binding: original paper wrappers
Pagination: pp. 70–73
Size: 215x139 mm

Comrie describes an application of the Brunsviga twin machine. This was essentially two independent Brunsviga machines on one drive shaft (see illustration).

Illustrations available:
Twin machine

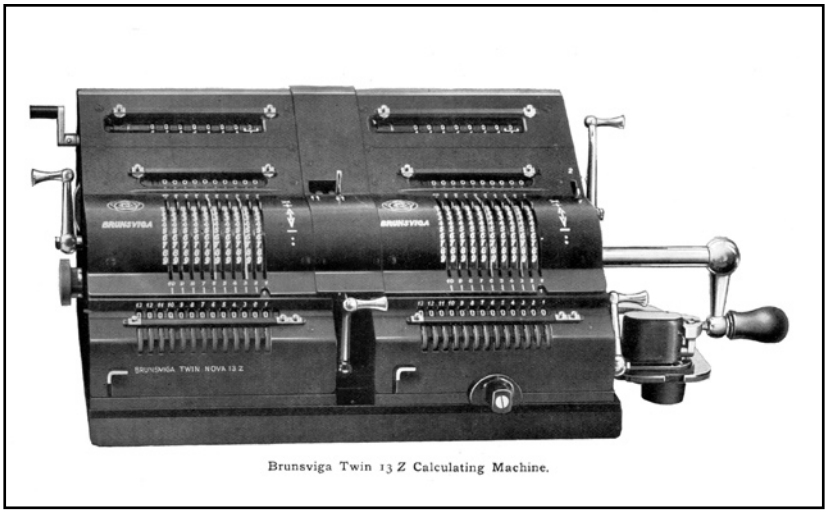
C 135
Comrie, Leslie John (1893–1950)

On the application of the Brunsviga-Dupla Calculating Machine to double summation with finite differences. In *Monthly Notices of the Royal Astronomical Society, Vol. 88, No. 5, March 1928*

Year: 1928
Place: London
Publisher: Priestley & Weale
Edition: reprint
Language: English
Figures: 2 photographic plates
Binding: original paper wrappers
Pagination: pp. 447–459, [1]
Size: 226x148 mm
Reference: Ran *ODC*, p. 411

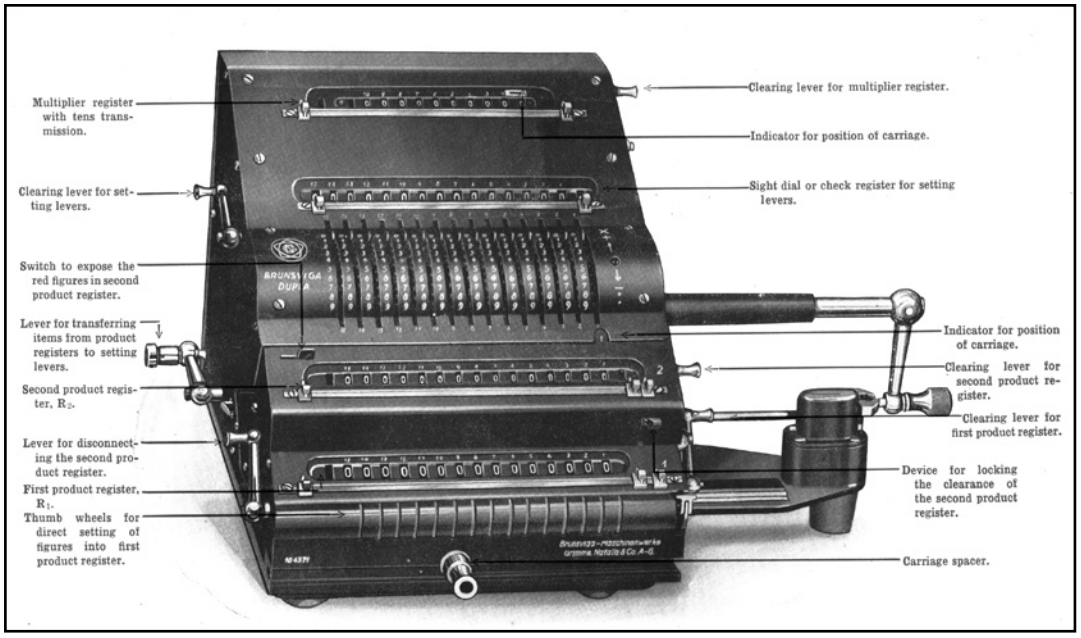
The Brunsviga-Dupla was a standard Brunsviga product (the Nova) augmented with an additional result register and a few other facilities. Here Comrie describes a problem that is easily solved using the machine. A second copy is in the collection.

Illustrations available:
Dupla (color)



Brunsviga Twin 13 Z Calculating Machine.

Brunsviga twin, C 134



Brunsviga dupla, C 135

C 136

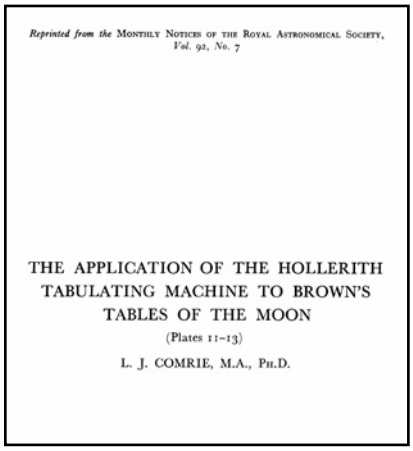
Comrie, Leslie John (1893–1950)

The application of the Hollerith Tabulating Machine to Brown's tables of the Moon. In *Monthly Notices of the Royal Astronomical Society, Vol. 92, No. 7, May 1932*

Year: 1932
Place: London
Publisher: Priestley & Weale
Edition: reprint
Language: English
Figures: 3 photographic plates
Binding: original paper wrappers
Pagination: pp. [1], 694–707
Size: 256x172 mm
Reference: Ran *ODC*, p. 411

Comrie recognized the power of standard Hollerith (IBM) punched card equipment as an aid to complex astronomical calculations. He was one of the first to apply these machines to navigational problems. Here he reports on the use of punches, sorters and tabulators to calculate the position of the moon at midnight and at noon for each day starting with the year 2000. A second copy of this paper is in the collection.

Illustrations available:
Title page
Hollerith machines


Reprinted from the MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY, *Vol. 92, No. 7*

THE APPLICATION OF THE HOLLERITH TABULATING MACHINE TO BROWN'S TABLES OF THE MOON

(Plates 11–13)

L. J. COMRIE, M.A., PH.D.

C 136

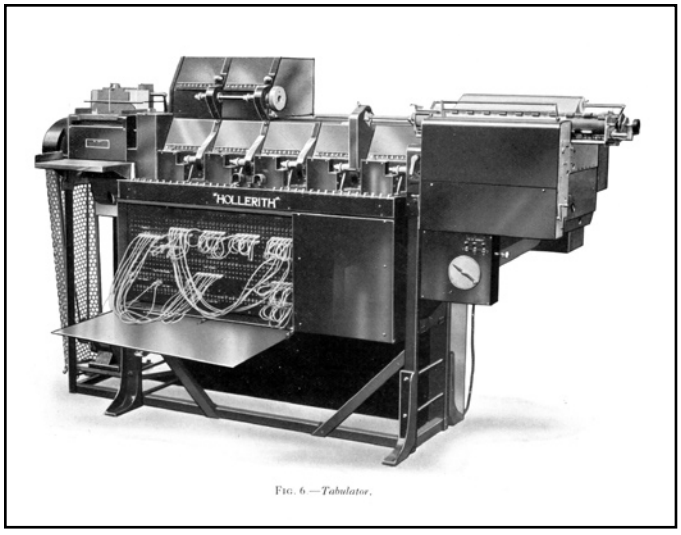


FIG. 6.—*Tabulator.*

Hollerith tabulating machine, C 136

C 137
Comrie, Leslie John (1893–1950)

Babbage's dream come true In *Nature, Vol. 158, No. 4017, October 26, 1946*

Year: 1946
Place: London
Publisher: Macmillan & Co.
Edition: 1st
Language: English
Binding: three-quarter bound leather
Pagination: pp. 567–568
Size: 248x165 mm
Reference: Ran *ODC*, p. 412

This is a review, by Comrie, of *A manual of operation for the Automatic Sequence Controlled Calculator* by **Howard Aiken** and the staff of the Harvard Mark I.

Illustrations available:
None

C 138
Comrie, Leslie John (1893–1950)

Book review: Bibliotheca Tabularum Mathematicarum: Being a descriptive catalogue of mathematical tables by James Henderson, Part I: Logarithmic Tables (A. Logarithms of Numbers). London, Cambridge University Press, 1926. In *Journal of the British Astronomical Association, Vol. 36, No. 9, 1926*

Year: 1926
Place: London
Publisher: British Astronomical Association
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 16
Size: 236x155 mm

See entry for **Comrie**, *Reprint of articles and reviews*, 1926.

Illustrations available:
None

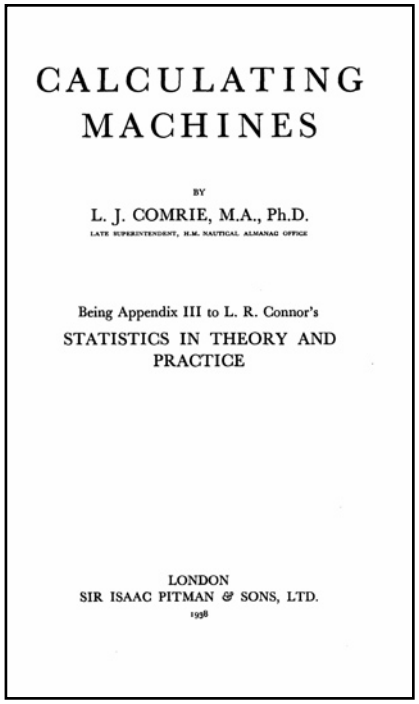
C 139
Comrie, Leslie John (1893–1950)

Calculating machines. Being appendix III to L. R. Connor's Statistics in Theory and Practice. Extract from: L.R. Connor's "Statistics in Theory and Practice"

Year: 1938
Place: London
Publisher: Pitman
Edition: Extract
Language: English
Binding: original printed wrappers
Pagination: pp. 349–371
Size: 222x140 mm
Reference: Ran *ODC*, p. 411

This is a tutorial on the different types of calculating machine on the market. He treats everything from simple adding machines to the latest IBM multiplying punch.

Illustrations available:
Title page


CALCULATING MACHINES

BY

L. J. COMRIE, M.A., Ph.D.

LATE SUPERINTENDENT, H.M. NAUTICAL ALMANAC OFFICE

Being Appendix III to L. R. Connor's

STATISTICS IN THEORY AND PRACTICE

LONDON
SIR ISAAC PITMAN & SONS, LTD.
1938

C 139

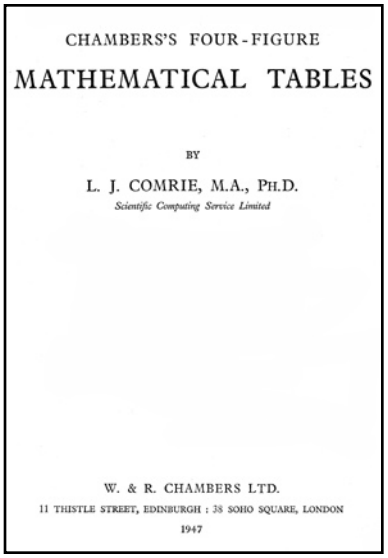
C 140
Comrie, Leslie John (1893–1950)

Chamber's four-figure mathematical tables

Year: 1947
Place: Edinburgh
Publisher: W. & R. Chambers Ltd.
Edition: 1st
Language: English
Binding: original cloth boards; taped spine
Pagination: pp. 64
Collation: $1–8^4$
Size: 254x190 mm

See entry for **Comrie, Leslie John**; *Chambers six-figure mathematical tables*, 1948. This small set of tables became a standard for quick calculation and student use during the 1950s and 1960s. Four-figure logarithms lack the accuracy of larger tables but, as all the entries can be put on only a few pages, have the advantage that they are very convenient to use.

Illustrations available:
Title page
Table page



C 140

C 141
Comrie, Leslie John (1893–1950)

Chambers's shorter six-figure mathematical tables.

Year: 1955
Place: Edinburgh
Publisher: W. & R. Chambers
Edition: 1st
Language: English
Binding: original cloth boards; with dust jackets
Pagination: pp. xxvi, 388
Collation: (6III)1–13[16] (minus leaf 16 of signature 13)
Size: 247x164 mm

See entry for **Comrie, Leslie John**; *Chambers six-figure mathematical tables*, 1948.

Illustrations available:
Title page

C 142
Comrie, Leslie John (1893–1950)

Chambers's six-figure mathematical tables. Vol. 1 Logarithmic values. [Vol. 2 Natural values]

Year: 1948–1949
Place: Edinburgh
Publisher: W. & R. Chambers
Edition: 1st
Language: English
Binding: original cloth boards; with dust jackets
Pagination: pp. v.1: xxii, 576; v.2: xxxvi, 576
Size: 260x172 mm

Chambers's *Mathematical tables* were first published in 1844. In 1944, on the one hundredth anniversary, the publishers asked Comrie to bring them up to date. This set of tables was the result. In his preface Comrie indicates that **Briggs**, in his first set of tables, used fourteen figures and that **Vlacq** had reduced these to ten places. In 1657, the number of decimals was further reduced to eight by **John Newton**. **Hutton**, in the 1800s, had realized that seven figures were sufficient for most problems, and his tables were further reduced to six places shortly thereafter. Comrie agrees that six figures are all that most professionals will ever need except, perhaps, for astronomers and surveyors.

Volume 1, published in 1948, consists of logarithms of the natural numbers and various trigonometric functions while volume 2, published in 1949, contains the natural values of these functions and tables of squares, cubes, factors, statistical values, etc. Two sets of these tables are in the collection.

Comrie produced a number of different tables for Chambers: two different sets of four-figure tables, one with 64 pages and a shortened version of 32 pages, for student use, and an abridged version, in one volume, of these six-figure tables.

Illustrations available:
Title page Volume 1
Title page Volume 2

C 142

C 143
Comrie, Leslie John (1893–1950)

Computing by calculating machines. In *The Accountant's Journal, Vol. XLV (May 1927)*

Year: 1927
Place: London
Publisher: Gee & Co.
Edition: Offprint
Language: English
Binding: original printed paper wrappers
Pagination: pp. 10
Size: 235x159 mm
Reference: Ran *ODC*, p. 411

Comrie was invited to give this lecture to the Office Machinery Users' Association. After a few general remarks, he quickly moves deeply into his topic with examples of *shortcut* multiplication methods. The lecture ends with a large number of comments on what facilities a good calculating machine should have and lists of those machines that do and do not have them.

Laid in is a signed note from Comrie on H. M. Nautical Almanac Office stationery consigning the pamphlet to an unknown recipient, dated August 28, 1928.

Illustrations available:
Title page


Computing by
Calculating Machines
By Dr. L. J. COMRIE
Being a lecture delivered under the auspices of the Office Machinery Users' Association at the London School of Economics on 15th February 1927
LONDON:
GEE & CO. (PUBLISHERS) LTD.
KIRBY STREET
1927

C 143

C 144
Comrie, Leslie John (1893–1950)

On the construction of tables by interpolation. In *Monthly Notices of the Royal Astronomical Society, Vol. 88, No. 6, April 1928*

Year: 1928
Place: London
Publisher: Priestley & Weale
Edition: extract
Language: English
Figures: 1 photolith plate
Binding: original paper wrappers
Pagination: pp. [1], 506–523, [1]
Size: 255x170 mm

Comrie here proposes a method of constructing tables by interpolating between already known values. He takes only the last digit of the known values and produces successive differences. When the third difference is reached, it is possible to deduce the third difference that would have resulted if the entire value of the initial data had been considered.

Two copies of this work are in the collection. The first is a preprint extract from the journal in its original paper wrappers, and the second copy is a disbound extract.

Illustrations available:
Title page

C 145
[**Comrie, Leslie John** (1893–1950)]

First report of the computing section. In *Memoirs of the British Astronomical Association, Vol. 24, Part 1, September 1921*

Year: 1921
Place: Hounslow West
Publisher: British Astronomical Association
Edition: 1st
Language: English
Figures: 1 engraved folding plate, 2 photolith plates
Binding: original paper wrappers
Pagination: pp. 28
Size: 244x153 mm

Comrie headed the Computing Section of the British Astronomical Association. In the introduction to this report, he indicates that the motive behind forming this Section was to foster amateur observation because:

> There are certain classes of work, especially predictions, which are in some cases a little difficult for the unaided amateur computer, and which lie outside the scope of the work of the professional astronomer.

Illustrations available:
Title page


Memoirs
OF THE
British Astronomical Association.
VOL. XXIV.—PART I.
FIRST REPORT OF THE COMPUTING SECTION
CONTAINING
I.—THE ANGULAR DISTANCES BETWEEN BRIGHT STARS, by the COMPUTING SECTION.
II.—TABLES FOR FINDING THE APPROXIMATE TIME OF NEW MOON AND FULL MOON BETWEEN A.D. 1900 AND A.D. 2100, by B. F. BAWTREE, Chief Assistant of H.M. Nautical Almanac Office.
III.—THE CORRECTION OF DECLINATION AND HOUR ANGLE FOR ATMOSPHERIC REFRACTION, by Major A. E. LEVIN, T.D., F.R.A.S.
Director—L. J. Comrie, M.A., F.R.A.S.
LONDON:
PRINTED AND PUBLISHED FOR THE ASSOCIATION
BY EYRE AND SPOTTISWOODE, LTD.,
HIS MAJESTY'S PRINTERS.
Price to Members, 1s. 6d.; Non-Members, 2s.
PUBLISHED SEPTEMBER 1921.

C 145

C 146

Comrie, Leslie John (1893–1950)

Four-figure tables of the natural and logarithmic trigonometrical functions with the argument in time

Year: 1931
Place: London
Publisher: Author
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 32
Size: 268x191 mm

Comrie had previously published a set of four-figure logarithm tables (see entry for **Milne-Thomson** and **Comrie**, *Standard four-figure mathematical tables*, 1930). The current tables, with their argument in time, were suitable for use by astronomers but would have been of little use to the general public and were therefore, published separately.

Illustrations available:
Title page


FOUR-FIGURE TABLES
OF THE
NATURAL AND LOGARITHMIC
TRIGONOMETRICAL FUNCTIONS
WITH THE ARGUMENT IN TIME
BY
L. J. COMRIE, M.A., PH.D.
PUBLISHED BY THE AUTHOR
LONDON
1931

C 146

C 147

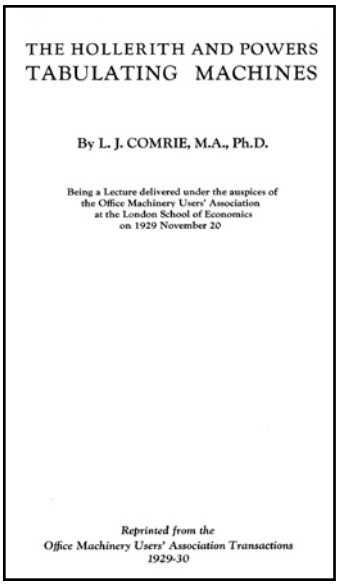
Comrie, Leslie John (1893–1950)

The Hollerith and Powers tabulating machines. From: Office Machinery Users' Association Transactions 1929–30

Year: 1930
Place: London
Publisher: OMUA
Edition: Offprint
Language: English
Binding: original printed paper wrappers
Pagination: pp. 15
Size: 276x210 mm
Reference: Ran *ODC*, p. 411

Comrie was once again asked to speak to the Office Machinery Users' Association (see entry for **Comrie, Leslie John**; *Computing by calculating machines*, 1927). On this occasion he compared the two major lines of tabulating equipment marketed in Britain by Hollerith (an IBM subsidiary) and by Powers. The Powers machines used a forty-five column card with round holes while the IBM machines used an eighty-column card with rectangular holes. Powers machines were entirely mechanical (signals were passed by moving bundles of cable wires) while IBM's machines were electrical.

Illustrations available:
Title page
Powers moving wire mechanism
Powers card and punch


THE HOLLERITH AND POWERS
TABULATING MACHINES
By L. J. COMRIE, M.A., Ph.D.
Being a Lecture delivered under the auspices of the Office Machinery Users' Association at the London School of Economics on 1929 November 20
Reprinted from the Office Machinery Users' Association Transactions 1929-30

C 147

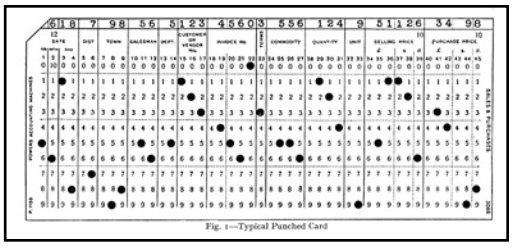


Fig. 1—Typical Punched Card

Powers punched card, C 147


Fig. 2—Powers Printing Punch

Powers card punch, C 147

C 148

[**Comrie, Leslie John** (1893–1950)]

Interpolation and allied tables

Year: 1942
Place: London
Publisher: HMSO
Edition: 2nd
Language: English
Binding: original paper wrappers
Pagination: pp. [3], 784–809, 926–943, [1]
Size: 247x168 mm

The growing importance of tables, particularly in time of war, meant that mathematicians were attempting to produce tables using methods, such as interpolation, that had been pioneered by Comrie and others. This set of tables helps with the formulae that were often involved in the job of interpolation. It is, in effect, a set of tables for making tables.

A slip *With the Compliments of the Superintendent - H. M. Nautical Office* is laid in (Comrie was superintendent at the time). The London Office address has been struck out, and their wartime location, *Bloc E Ersleigh Hutments, Lansdown, BATH*, stamped in.

Illustrations available:
Title page

C 149

Comrie, Leslie John (1893–1950)

Inverse interpolation and scientific applications of the National Accounting Machine. In *Supplement to the Journal of the Royal Statistical Society, Vol. III, No. 2, May 1936*

Year: 1936
Place: London
Publisher: Royal Statistical Society
Edition: reprint
Language: English
Figures: 2 photographic plates
Binding: original paper wrappers
Pagination: pp. 87–114
Size: 216x140 mm

This reprint describes the process known as inverse interpolation. The most important part of this paper concerns the National Accounting Machine (produced by the National Cash Register Co. and also sold in Britain under the Wales brand), a machine with several internal registers that Comrie used in computing tables. As Comrie describes it:

> The story of Babbage's attempt more than a century ago to construct a difference engine is well known. All that remains for an expenditure of £17,000 of public money is an incomplete section in the Science Museum. The two Scheutz machines, inspired by Babbage's, have long since become museum exhibits. The special Mercedes machines that produced Bauschinger and Peters' 8-figure tables is lost. The machine to be described may be called a modern Babbage machine: it does all that Babbage intended his difference to do and more. At a cost of £500-£600, it is not beyond the means of institutions where extensive computing is undertaken.

Illustrations available:
Cover
National Accounting Machine
Keyboard and controls

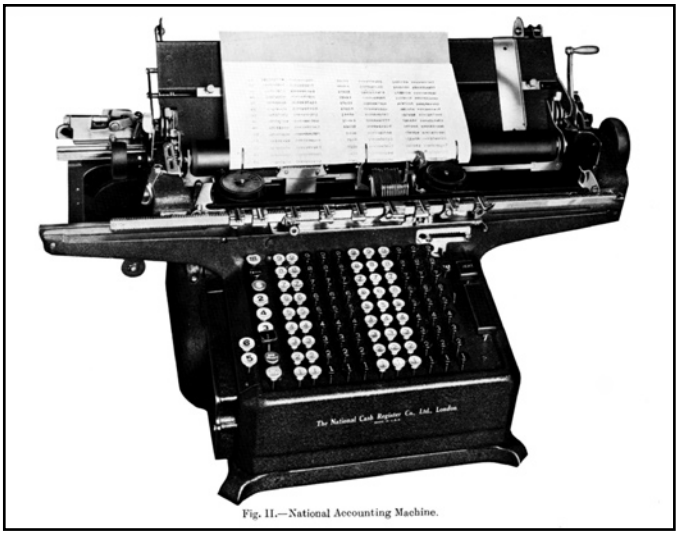
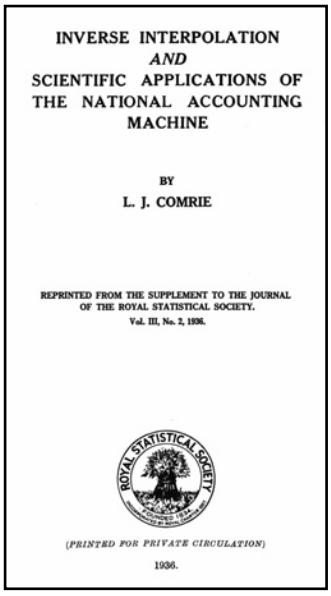


Fig. 11.—National Accounting Machine.

National accounting machine, C 149


INVERSE INTERPOLATION
AND
SCIENTIFIC APPLICATIONS OF THE NATIONAL ACCOUNTING MACHINE

BY
L. J. COMRIE

REPRINTED FROM THE SUPPLEMENT TO THE JOURNAL OF THE ROYAL STATISTICAL SOCIETY.
Vol. III, No. 2, 1936.

ROYAL STATISTICAL SOCIETY

(*PRINTED FOR PRIVATE CIRCULATION*)
1936.

C 149

C 150
Comrie, Leslie John (1893–1950)

Mathematical tables. From: British Astronomical Handbook for 1929

Year: 1929
Place: London
Publisher: Eyre and Spottiswoode
Edition: reprint
Language: English
Binding: original paper wrappers
Pagination: pp. 38–43, [1]
Size: 254x190 mm

In this paper Comrie recommends the best 4-, 5-, 6-, 7-, or 8-figure tables for the needs of astronomers.

Illustrations available:
Title page

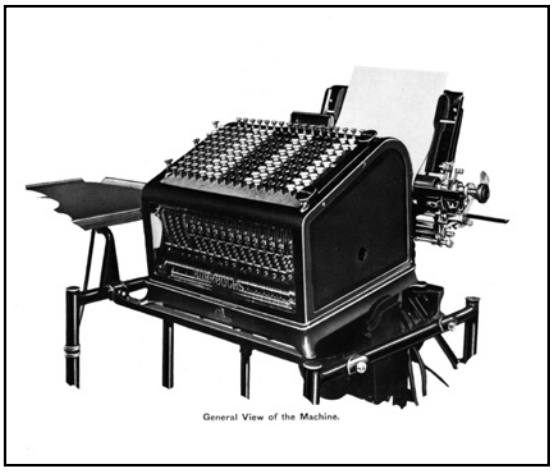
C 151
Comrie, Leslie John (1893–1950)

Mathematical tables. From: Monthly Notices of the Royal Astronomical Society, Vol. 92, No. 4

Year: 1932
Place: Edinburgh
Publisher: Neill & Co.
Edition: reprint
Language: English
Binding: original paper wrappers
Pagination: pp. [2], 339–347, [1]
Size: 255x170 mm

In this paper Comrie reviews the new mathematical tables published in the last seven years and those planned for publication in the near future.

Illustrations available:
Title page



Burroughs calculating machine, C 152

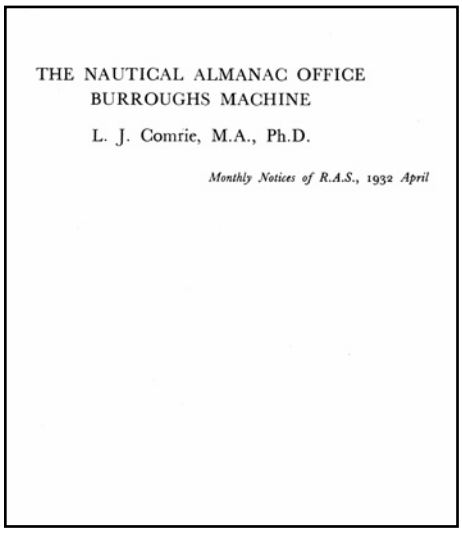
C 152
Comrie, Leslie John (1893–1950)

The Nautical Almanac Office Burroughs machine

Year: 1932
Place: London
Publisher: Royal Astronomical Society
Edition: reprint
Language: English
Figures: 2 photographic plates
Binding: original paper wrappers
Pagination: pp. 523–541
Size: 255x171 mm

This is a reprint from *Monthly Notices of the Royal Astronomical Society*, Vol. 92, No. 6, April 1932. It describes the Burroughs Class II accounting machine and how it could be used to integrate a function from the second differences—essentially a difference engine.

Illustrations available:
Cover
Burroughs Class II
Keyboard and controls (color)


THE NAUTICAL ALMANAC OFFICE
BURROUGHS MACHINE

L. J. Comrie, M.A., Ph.D.

Monthly Notices of R.A.S., 1932 April

C 152

C 153
Comrie, Leslie John (1893–1950)

Note on Mr. Chappell's method of second difference integration

b/w: **Chappell, Edwin**; *A new method…*, 1931

Year: 1931
Place: London
Publisher: Royal Astronomical Society
Edition: reprint
Language: English
Binding: original paper wrappers
Pagination: pp. 817–819
Size: 228x146 mm

This reprint from *Monthly Notices of the Royal Astronomical Society*, Vol. XCI, No. 7, May 1931, contains two short papers. The first, by Chappell, simply reports a slight improvement on a method of using the Brunsviga Dupla machine. The second, by Comrie, remarks that same improvement had been in use in the National Almanac Office for over two years.

Illustrations available:
Cover

C 154
Comrie, Leslie John (1893–1950)

Phenomena of Saturn's satellites. In *Second report of the computing section. Memoirs of the British Astronomical Association, Vol. 30, Part 3, December 1934*

Year: 1934
Place: Hounslow West
Publisher: British Astronomical Association
Edition: 1st
Language: English
Figures: 1 engraved folding plate, 2 photolith plates
Binding: original paper wrappers; lacks back cover
Pagination: pp. [1], 30–119, [1]
Size: 244x153 mm

In 1921, Comrie was asked by the president of the British Astronomical Association to produce a table containing predictions of various phenomena of Saturn's satellites during periods when the rings are edge-on to the Earth. This paper describes how the calculations were done and suggests some improvements to the procedure.

Illustrations available:
First page

C 155
Comrie, Leslie John (1893–1950)

Reprint of articles and reviews. In *Journal of the British Astronomical Association, Vol. 36, 1926*

Year: 1926
Place: London
Publisher: British Astronomical Association
Edition: 1st
Language: English
Binding: original paper wrapper
Pagination: pp. 16
Collation: A^8
Size: 236x155 mm

This item contains several papers not listed separately in this catalog:

Comrie, Leslie John; *A method of extending an n-figure table to n+1 figures.* In *Reprint of articles and reviews in the "Journal of the British Astronomical Association." Vol. 36 (1926), No. 7*

[**Eagle, Albert**], **Comrie, Leslie John**; *Book review: A practical treatise on Fourier's theorem and harmonic analysis, for physicists and engineers, London, Longmans, Green & Co., 1925.* In *Reprint of articles and reviews in the "Journal of the British Astronomical Association." Vol. 36, (1926), No. 7*

[**Scott, Ebenezer Erskine**], **Comrie, Leslie John**; *Book review: A short table of logarithms and anti-logarithms to ten places of decimals by E. Erskine Scott. London, C. & E. Layton, 1897.* In *Reprint of articles and reviews in the "Journal of the British Astronomical Association." Vol. 36, (1926), No. 6*

[**Stratton, Frederick John Marrian**], **Comrie, Leslie John**; *Book review: Astronomical physics, London, Methuen & Co., 1925.* In *Reprint of articles and reviews in the "Journal of the British Astronomical Association." Vol. 36, (1926), No. 6*

[**Henderson, James**], **Comrie, Leslie John**; *Book review: Bibliotheca Tabularum Mathematicarum: Being a descriptive catalogue of mathematical tables by James Henderson, M. A. Part I: Logarithmic Tables (A. Logarithms of Numbers). London, Cambridge University Press, 1926.* In *Reprint of articles and reviews in the "Journal of the British Astronomical Association." Vol. 36, (1926), No. 9*

[**Rigge, William F.**], **Comrie, Leslie John**; *Book review: The graphic construction of eclipses and occultations, Chicago, Loyola University Press, 1924.* In *Reprint of articles and reviews in the "Journal of the British Astronomical Association." Vol. 36, (1926), No. 6*

[**Tuttle, Lucius** and **Satterly, John**], **Comrie, Leslie John**; *Book review: The theory of measurements, London, Longmans, Green & Co., 1925.* In *Reprint of articles and reviews in the "Journal of the British Astronomical Association." Vol. 36, (1926), No. 7*

This collection contains eight items by Comrie, the most significant being the review of **James Henderson**'s *Bibliotheca Tabularum Mathematicarum*, 1926. He credits Henderson with doing a good job but points out several minor errors and mentions: *we wish to voice a protest against a fault which many authors share with Mr. Henderson—that of making long quotations in foreign languages*.

Illustrations available:
Cover

C 156
Comrie, Leslie John (1893–1950)

The rigorous calculation of the moon's parallax and apparent semi-diameter with the aid of a calculating machine. In *Journal of the British Astronomical Association, Vol. 51, No. 5, June 1941*

Year: 1941
Place: London
Publisher: British Astronomical Association
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 159–161
Size: 243x155 mm

This is a highly technical paper on calculations about the moon.

Illustrations available:
None

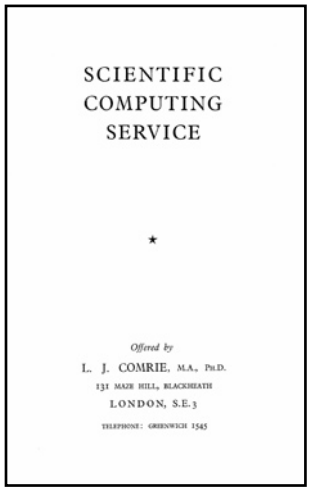
C 157
Comrie, Leslie John (1893–1950)

Scientific computing service.

Year: n/d [1937]
Place: London
Publisher: L. J. Comrie
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 8
Size: 219x141 mm

This pamphlet announces the establishment of Comrie's pioneering new business, the Scientific Computing Service.

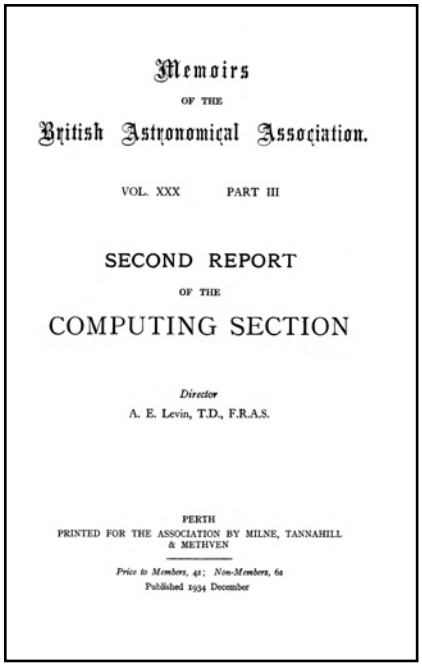
Illustrations available:
Title page
Complete text (4 images)


SCIENTIFIC
COMPUTING
SERVICE

★

Offered by
L. J. COMRIE, M.A., PH.D.
131 MAZE HILL, BLACKHEATH
LONDON, S.E.3
TELEPHONE: GREENWICH 1545

C 157


Memoirs
OF THE
British Astronomical Association.

VOL. XXX PART III

SECOND REPORT
OF THE
COMPUTING SECTION

Director
A. E. Levin, T.D., F.R.A.S.

PERTH
PRINTED FOR THE ASSOCIATION BY MILNE, TANNAHILL & METHVEN

Price to Members, 4s; Non-Members, 6s
Published 1934 December

C 158

C 158
[**Comrie, Leslie John** (1893–1950)]

Second report of the computing section. In *Memoirs of the British Astronomical Association, Vol. 30, Part 3*

Year: 1934
Place: Hounslow West
Publisher: British Astronomical Association
Edition: 1st
Language: English
Figures: 1 engraved folding plate, 2 photolith plates
Binding: original paper wrappers; lacks back cover
Pagination: pp. [1], 30–119, [1]
Size: 244x153 mm

See entry for **Comrie**, **Leslie John**; *First report of the computing section*, 1921.

Illustrations available:
Cover

C 159
[**Comrie, Leslie John** (1893–1950)]

Suggested formation of a computing section. In *Journal of the British Astronomical Association, Vol. XXX, No. 9, June 1920*

Year: 1920
Place: London
Publisher: British Astronomical Association
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 313
Size: 246x158 mm

Comrie had obviously volunteered to head a computing section of the BAA. A short note asked that members interested in participating send their names to the assistant secretary.

Illustrations available:
None

C 160
Comrie, Leslie John (1893–1950)

The twin Marchant calculating machine and its application to survey problems

Year: 1945
Place: London
Publisher: Scientific Computing Service
Edition: 3rd
Language: English
Figures: 1 photolith of machine
Binding: original paper wrappers
Pagination: pp. 40
Size: 286x227 mm

The Twin Marchant was an improvisation produced by the Marchant Company during World War II. While not ideal, it proved a serviceable replacement for the then–unavailable German Brunsviga Twin 13Z calculating machine. See also the entry for **Comrie, Leslie John**; *The application of the Brunsviga Twin 13Z Calculating Machine*, 1937.

This publication was reviewed by **Samuel Lilley** ("Mathematical machines" in *Nature*, Vol. 149, No. 3781, April, 18, 1942, p. 425) as:

> It would be difficult to exaggerate the importance at the present time of easy and rapid methods of solving the day-to-day mathematical problems … These pages will be useful, not only to those who have to deal with survey problems, but … particularly to beginners.

Illustrations available:
Title page
Marchant twin

C 161
Comrie, Leslie John (1893–1950), editor

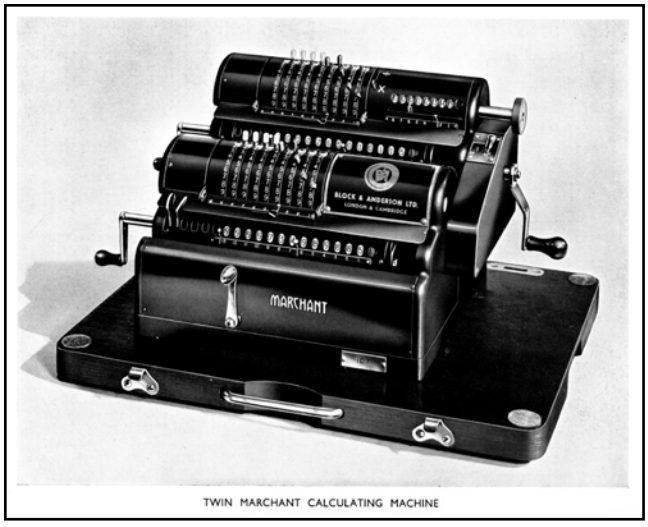
Barlow's tables of squares, cubes, square roots, cube roots, and reciprocals of all integer numbers up to 12,500.

Year: 1944
Place: London
Publisher: E. & F. N. Spon
Edition: 4th
Language: English
Binding: original cloth boards; with dust jacket
Pagination: pp. iii–xii, 258
Collation: $A^4B–Q^8R^{10}$
Size: 215x137 mm

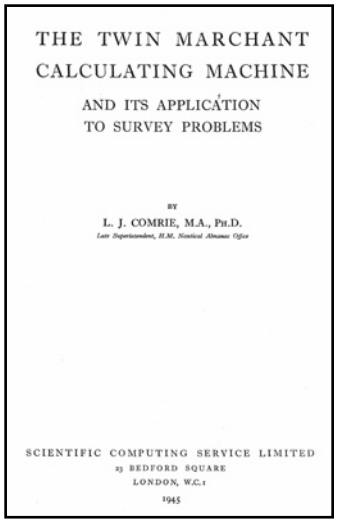
Comrie produced this extension (for numbers from 10,000 to 12,500) of Barlow's tables about the time he was preparing his report for the revision of Chambers's tables (see entry for **Comrie, Leslie John**; *Chambers's six-figure tables*, 1948). The tables consist of non-logarithmic items useful in scientific computations.

Illustrations available:
Title page

Comrie, Leslie John
See **Porter, J. G.**; *Obituary: Leslie John Comrie, M. A., Ph.D., F. R. S.*
See **Sabielny, H.**; *Modern machine calculation with the Facit calculating machine Model Lx.*



Marchant twin calculator, C 160


THE TWIN MARCHANT
CALCULATING MACHINE
AND ITS APPLICATION
TO SURVEY PROBLEMS
BY
L. J. COMRIE, M.A., PH.D.
SCIENTIFIC COMPUTING SERVICE LIMITED
23 BEDFORD SQUARE
LONDON, W.C.1
1945
C 160

C 162
Conant, Levi Leonard (1857–1916)

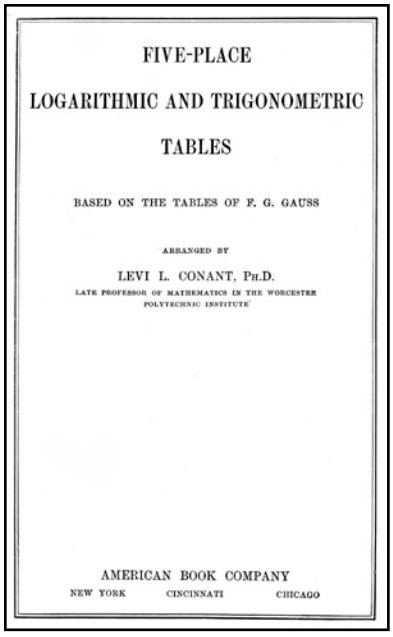
Five-place logarithmic and trigonometric tables. Based on the tables of F. G. Gauss

Year: 1909
Place: New York
Publisher: American Book Company
Edition: unknown
Language: English
Binding: original cloth boards; blind-stamped cover
Pagination: pp. 79, [1]
Size: 220x142 mm

Conant was a professor of mathematics at the Worcester Polytechnic Institute. He is best known for his study of number systems and number words in different cultures.

This set of five-digit logarithms for both natural numbers and trigonometric functions and five-place natural trigonometric tables is, according to the title page, based on the tables of Gauss. However, there is no explanation as to how they came to be published or why Gauss's tables should have been used.

Illustrations available:
Title page


FIVE-PLACE
LOGARITHMIC AND TRIGONOMETRIC
TABLES
BASED ON THE TABLES OF F. G. GAUSS
ARRANGED BY
LEVI L. CONANT, PH.D.
LATE PROFESSOR OF MATHEMATICS IN THE WORCESTER POLYTECHNIC INSTITUTE
AMERICAN BOOK COMPANY
NEW YORK CINCINNATI CHICAGO

C 162

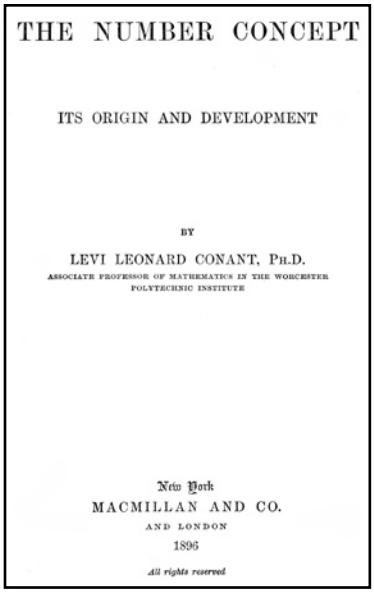
C 163
Conant, Levi Leonard (1857–1916)

The number concept. Its origin and development

Year: 1896
Place: New York
Publisher: Macmillan
Edition: 1st
Language: English
Binding: original cloth boards
Pagination: pp. viii, 218, [2]
Collation: $A^4B–O^8P^6$
Size: 198x132 mm

The work that made Conant famous, this is a detailed study of the origins of numbers, number names, and numerical systems from various cultures. While Conant does cover European number words and systems, the majority of the book is concerned with the latest ethnographic information from what he often calls *barbarous tribes*. The work remains a good source of information, but suffers from the Euro- and American-centric attitudes of its day.

Illustrations available:
Title page
Number words among native groups in British Columbia (2)


THE NUMBER CONCEPT
ITS ORIGIN AND DEVELOPMENT
BY
LEVI LEONARD CONANT, PH.D.
ASSOCIATE PROFESSOR OF MATHEMATICS IN THE WORCESTER POLYTECHNIC INSTITUTE
New York
MACMILLAN AND CO.
AND LONDON
1896
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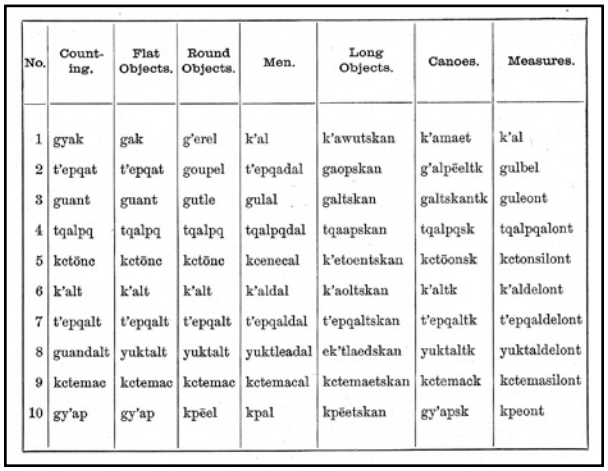
C 163



No.	Counting.	Flat Objects.	Round Objects.	Men.	Long Objects.	Canoes.	Measures.
1	gyak	gak	g'erel	k'al	k'awutskan	k'amaet	k'al
2	t'epqat	t'epqat	goupel	t'epqadal	gaopskan	g'alpēeltk	gulbel
3	guant	guant	gutle	gulal	galtskan	galtskantk	guleont
4	tqalpq	tqalpq	tqalpq	tqalpqdal	tqaapskan	tqalpqsk	tqalpqalont
5	kctōnc	kctōnc	kctōnc	kcenecal	k'etoentskan	kctōonsk	kctonsilont
6	k'alt	k'alt	k'alt	k'aldal	k'aoltskan	k'altk	k'aldelont
7	t'epqalt	t'epqalt	t'epqalt	t'epqaldal	t'epqaltskan	t'epqaltk	t'epqaldelont
8	guandalt	yuktalt	yuktalt	yuktleadal	ek'tlaedskan	yuktaltk	yuktaldelont
9	kctemac	kctemac	kctemac	kctemacal	kctemaetskan	kctemack	kctemasilont
10	gy'ap	gy'ap	kpēel	kpal	kpēetskan	gy'apsk	kpeont

Number names, C 163

C 164
Conant, Levi Leonard (1857–1916)

The number concept. Its origin and development.

Year: 1931
Place: New York
Publisher: Macmillan
Edition: 3rd
Language: English
Binding: original cloth boards
Pagination: pp. viii, 218
Collation: $A^4B–O^8P^5$
Size: 188x127 mm

This edition is unchanged from the first.

Illustrations available:
Title page

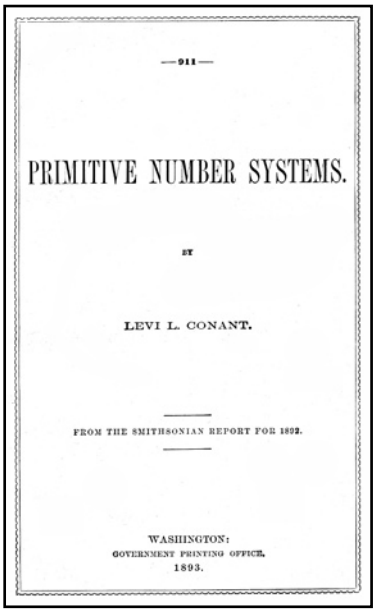
C 165
Conant, Levi Leonard (1857–1916)

Primitive number systems. From the Smithsonian report for 1892.

Year: 1893
Place: Washington, D.C.
Publisher: United States Government Printing Office
Edition: 1st
Language: English
Binding: original printed paper wrappers; uncut
Pagination: pp. [2], 583–594
Size: 243x155 mm

This uncut reprint discusses various *primitive* number systems and notes the different bases used.

Illustrations available:
Title page


—911—

PRIMITIVE NUMBER SYSTEMS.

BY

LEVI L. CONANT.

FROM THE SMITHSONIAN REPORT FOR 1892.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1893.

C 165

C 166
Condillac, Étienne Bonnot Abbé de (1714–1780)

La langue des calculs, ouvrage posthume et élémentaire, imprimé sur les manuscrits autographes de l'auteur; dans lequel des observations, faites sur les commencemens et les progrès de cette langue, démontrent les vices des langues vulgaires, et font voir comment on pourroit, dans toutes les sciences, réduire l'art de raisonner á une langue bien faite.

Year: 1798
Place: Paris
Publisher: Charles Houel
Edition: 1st
Language: French
Binding: modern mottled leather; red leather label
Pagination: pp. [4], 236, [4], 252
Collation: $\pi^2 1–9^{12}10–11^6 1–10^{12}11^6$
Size: 172x95 mm
Reference: DSB III, pp. 380–383

Étienne Bonnot Condillac was the third son of the Vicomte de Mably and took the name by which he is known from one of his father's estates. He was an ordained cleric but, as the *Dictionary of Scientific Biography* indicates:

> …For many an eighteenth century abbé, taking holy orders implied nothing special in the way of religious commitment. Their vocation was for ideas rather than beliefs. They entered the clergy because it was the only profession that accommodated an intellectual career, and they never let their priesthood spoil their interest and pleasure in the world.

Condillac is best known for his philosophy of *science as language* and his thought was of great influence upon subsequent generations of scientists. He published five works dealing with different aspects of the topic during his lifetime. This volume, the sixth, was left unfinished at this death and was seen though the press by others.

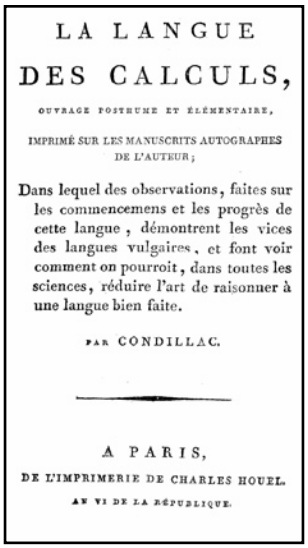
He viewed mathematics as the paradigm of knowledge. Algebra, for example, is both a language and a method of analysis while spoken language is vague, imprecise and encrusted by centuries of inexact usage.

The book opens with an announcement, "toute langue est une mêthode analytique, et toute méthode analytique est une langue," which is of relevance to modern linguistics and of even greater significance to computer science. Computers, after all, depend upon a 'language' for their basic operation.

The work deals with numbers, their names and meanings, as well as the arithmetic operations, and all topics up to algebra, logarithms and geometric sequences. Though written as two separate books, it was published as one

volume, and issued as the final volume of Condillac's *Oeuvres Philosophiques* and (as here) as a work in its own right. The separate issue does not have the volume number on the half title, and the errata page pertains only to this work. In the collected issue, the errata applies to all volumes.

Illustrations available:
Title page


LA LANGUE
DES CALCULS,
OUVRAGE POSTHUME ET ÉLÉMENTAIRE,
IMPRIMÉ SUR LES MANUSCRITS AUTOGRAPHES DE L'AUTEUR;
Dans lequel des observations, faites sur les commencemens et les progrès de cette langue, démontrent les vices des langues vulgaires, et font voir comment on pourroit, dans toutes les sciences, réduire l'art de raisonner à une langue bien faite.
PAR CONDILLAC.
A PARIS,
DE L'IMPRIMERIE DE CHARLES HOUEL.
AN VI DE LA RÉPUBLIQUE.

C 166

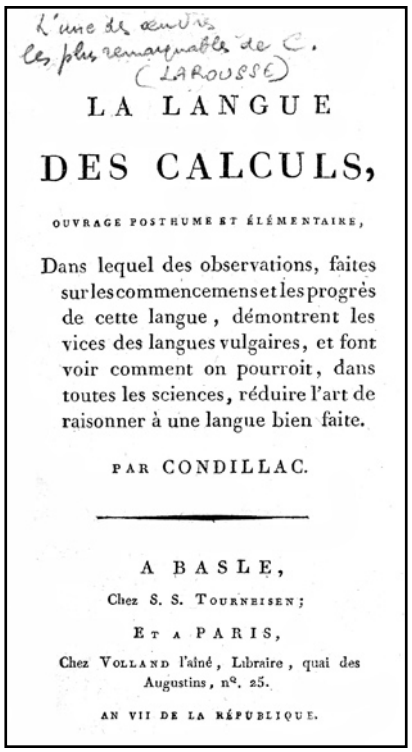
C 167
Condillac, Etienne Bonnot Abbe de (1714–1780)

La langue des calculs, ouvrage posthume et élémentaire, dans lequel des observations, faites sur les commencemens et les progrès de cette langue, démontrent les vices des langues vulgaires, et font voir comment on pourroit, dans toutes les sciences, réduire l'art de raisonne á une langue bien faite. [Two volumes in one.]

Year: 1799
Place: Basel & Paris
Publisher: S.S. Tourneisen and Volland
Edition: 3rd
Language: French
Binding: contemporary mottled leather; spine gilt; upper corners worn
Pagination: v.1: pp. [2], 234; v.2: pp. [6], 248, [4]
Collation: v.1: $\pi^1 1–14^8 15^5(-156)$; v.2: $\pi^3(-\pi 4)1–15^8\chi^6$
Size: 197x117 mm
Reference: DSB III, pp. 380–383

Second separate printing, but third edition. A pencil inscription on the title page indicates that Larousse evidently thought this work and its author very remarkable.

Illustrations available:
Title page


L'une de ces œuvres les plus remarquables de C. (LAROUSSE)
LA LANGUE
DES CALCULS,
OUVRAGE POSTHUME ET ÉLÉMENTAIRE,
Dans lequel des observations, faites sur les commencemens et les progrès de cette langue, démontrent les vices des langues vulgaires, et font voir comment on pourroit, dans toutes les sciences, réduire l'art de raisonner à une langue bien faite.
PAR CONDILLAC.
A BASLE,
Chez S. S. TOURNEISEN;
ET A PARIS,
Chez VOLLAND l'aîné, Libraire, quai des Augustins, nº. 25.
AN VII DE LA RÉPUBLIQUE.

C 167

Condillac, Étienne Bonnot de (1714–1780)
See **Laromiguiere, Pierre**; *Paradoxes de Condillac ou rèflexions sur la langue des calculs, overage posthume de cet auteur.*

C 168
Conservatoire National Des Arts Et Métiers [**France**]

Catalogue du musée section A: Instruments et machines a calculer

Year: 1942
Place: Paris
Publisher: Conservatoire National des Arts et Métiers
Edition: 1st
Language: French
Figures: 25 plates (1 folding)
Binding: original printed paper wrappers
Pagination: pp. 136
Size: 220x155 mm
Reference: Ran *ODC*, p. 442

See the entry for the 1906 catalog of the Conservatoire National Des Arts Et Métiers. This is an expanded version of their listing for *Salle 52–Instruments et Machines a Calculer*. This version contains lengthy descriptions of the major machines and many plates illustrating the instruments.

Illustrations available:
Title page

C 169

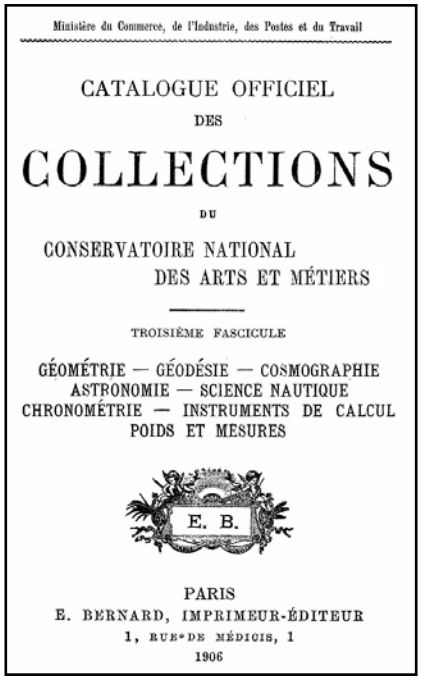
Conservatoire National Des Arts Et Métiers [France]

Catalogue officiel des collections du Conservatoire National des Arts et Métiers; troisième fascicule

Year: 1906
Place: Paris
Publisher: E. Bernard
Edition: 1st
Language: French
Figures: 3 folding plates at end, photographs in text
Binding: modern half-bound leather; original wrappers bound in
Pagination: pp. 272 (i.e. 266+3f.)
Collation: 1–17^{8}
Size: 214x132 mm
Reference: Ran *ODC*, p. 442

The Conservatoire National des Arts et Métiers is one of the leading French museums for scientific instruments. This catalog consists of short entries on each of the objects with an occasional sentence or two of description. Of particular interest is the listing of objects for room 52, *Instruments de Calcul*. The museum owns four original Pascal machines in addition to many other rare devices.

Illustrations available:
Title page


Ministère du Commerce, de l'Industrie, des Postes et du Travail

CATALOGUE OFFICIEL
DES
COLLECTIONS
DU
CONSERVATOIRE NATIONAL
DES ARTS ET MÉTIERS

TROISIÈME FASCICULE

GÉOMÉTRIE — GÉODÉSIE — COSMOGRAPHIE
ASTRONOMIE — SCIENCE NAUTIQUE
CHRONOMÉTRIE — INSTRUMENTS DE CALCUL
POIDS ET MESURES

E. B.

PARIS
E. BERNARD, IMPRIMEUR-ÉDITEUR
1, RUE DE MÉDICIS, 1
1906

C 169

C 170

Conservatoire National Des Arts Et Métiers [France]

Horologes et automates

Year: 1954
Place: Paris
Publisher: Conservatoire National des Arts et Métiers
Edition: 1st
Language: French
Figures: 21 photographic plates
Binding: original printed paper wrappers
Pagination: pp. [36]
Size: 210x160 mm

This catalog of the CNAM collection of clocks and automata was produced in connection with a special exhibition. It contains short descriptions of many of the items and photographs of the important ones.

Illustrations available:
Title page


MUSÉE DU CONSERVATOIRE NATIONAL
DES ARTS ET MÉTIERS

HORLOGES
ET
AUTOMATES

SEPTEMBRE - NOVEMBRE 1954

C 170

C 171

Cooke, Nelson Magor

K & E Cooke radio slide rule

Year: 1942
Place: Hoboken
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Binding: original printed paper wrappers, split
Pagination: pp. [3], 62, [7]
Size: 204x134 mm

Cooke was the Chief Radio Electrician in the U.S. Navy.

This is an instruction booklet for a slide rule (obviously designed by Cooke but produced by **Keuffel & Esser**) modified for use in electrical circuit calculations.

Illustrations available:
Title page

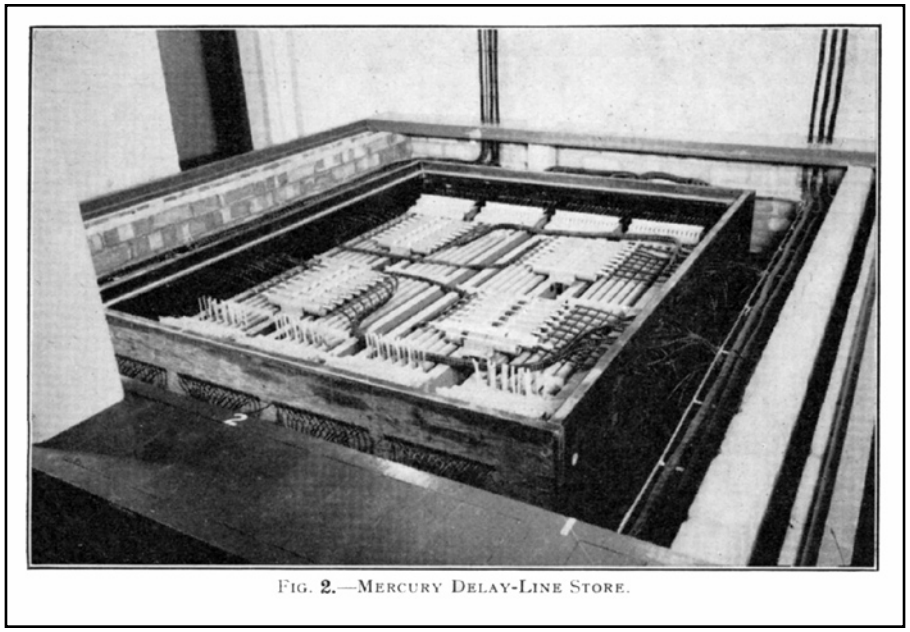


FIG. 2.—MERCURY DELAY-LINE STORE.

MOSAIC mercury delay line memory, C 172

C 172
Coombs, Allen W. M. (1911–1995)

"MOSAIC" - An electronic digital computer. Part 1 – Store and arithmetic units, In *Post Office Electrical Engineers' Journal, Vol. 48, Part 2, July 1955*

Year: 1955
Place: London
Publisher: Institution of Post Office Electrical Engineers
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 114–116
Size: 283x220 mm

Coombs, who worked for the British Post Office from 1936 to 1973, is best known for his work on the design and construction of the Mark II Colossus (the British electronic code-breaking machine) in conjunction with people like **Alan Turing** and Thomas Flowers.

This multi-part paper describes the Mosaic computer designed and constructed at the Post Office Research Station for the Ministry of Supply (Royal Radar Establishment) at Malvern. The machine was a mercury delay line, four-address machine typical of the first generation of computers.

Illustrations available:
Mercury delay line memory

C 173
Coombs, Allen W. M. (1911–1995)

"MOSAIC" - An electronic digital computer. Part 2 — The control and input-output units. In *Post Office Electrical Engineers' Journal, Vol. 48, Part 3, October 1955.*

Year: 1955
Place: London
Publisher: Institution of Post Office Electrical Engineers
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 137–141
Size: 283x220 mm

This is part 2 of Coombs' article.

Illustrations available
None

C 174
Coombs, Allen W. M. (1911–1995)

"MOSAIC" - An electronic digital computer. Part 3(a) - The art of programming. In *Post Office Electrical Engineers' Journal, Vol. 48, Part 4, January 1956*

Year: 1956
Place: London
Publisher: Institution of Post Office Electrical Engineers
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 212–215
Size: 283x220 mm

This is the first half of part 3 of Coombs' article.

Illustrations available:
None

C 175
Coombs, Allen W. M. (1911–1995)

"MOSAIC" - An electronic digital computer. Part 3(b) - The art of programing (continued). In *Post Office Electrical Engineers' Journal, Vol. 49, Part 1, April 1956*

Year: 1956
Place: London
Publisher: Institution of Post Office Electrical Engineers
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 18–21
Size: 283x220 mm

This is the second half of part 3 of Coombs' article.

Illustrations available:
None

C 176
Coombs, Allen W. M. (1911–1995)

"MOSAIC" - An electronic digital computer. Part 4 - Circuitry In *Post Office Electrical Engineers' Journal, Vol. 49, Part 2, July 1956*

Year: 1956
Place: London
Publisher: Institution of Post Office Electrical Engineers
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 126–132
Size: 283x220 mm

This is the final part of Coombs' article.

Illustrations available:
None

C 177
Coombs, Allen W. M. (1911–1995) and **W. W. Chandler**

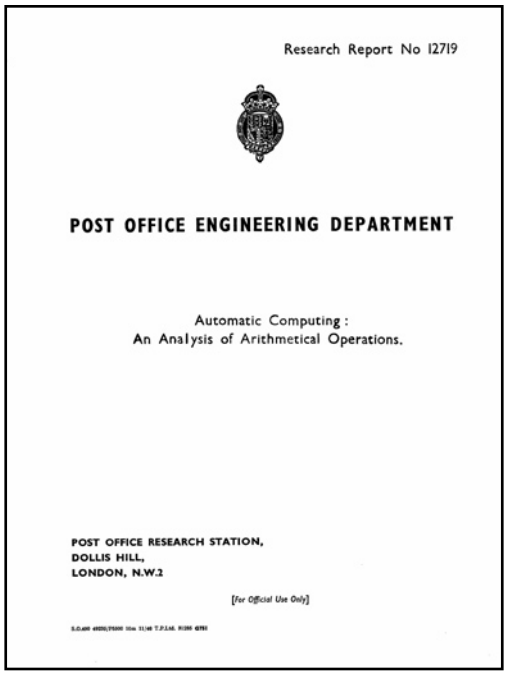
Automatic computing: An analysis of arithmetical operations

Year: 1946
Place: London
Publisher: Post Office Research Station
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 29, [1]
Size: 283x220 mm

Coombs and Chandler were engineers assigned to the Colossus code-breaking machine project during World War II. The name of Thomas ("Tommy") Flowers (Assistant Staff Engineer), another major figure in Colossus, also appears on the first page of the report. The authors worked at the British Post Office Research Station where Colossus was actually constructed.

This report describes various number bases and a variety of methods for performing the four standard arithmetical functions and for the extraction of roots.

Illustrations available:
Title page
First page


Research Report No 12719

POST OFFICE ENGINEERING DEPARTMENT

Automatic Computing :
An Analysis of Arithmetical Operations.

POST OFFICE RESEARCH STATION,
DOLLIS HILL,
LONDON, N.W.2

[For Official Use Only]

C 177

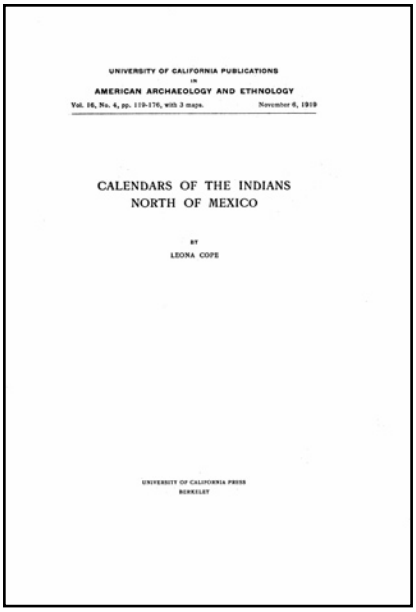
C 178
Cope, Leona (1890–)

Calendars of the Indians north of Mexico. In *University of California Publications in American Archaeology and Ethnology, Vol. 16, No. 4, November 6, 1919*

Year: 1919
Place: Berkeley
Publisher: UC Press
Edition: 1st
Language: English
Figures: 3 maps
Binding: original printed paper wrappers
Pagination: pp. 119–176
Size: 274x185 mm

This in-depth report examines many different aspects of the calendars of the native people in Canada and the United States. It groups tribes together by different aspects of their treatment of the seasons, their names, the method of designation, start of the year, etc.

Illustrations available:
Title page


UNIVERSITY OF CALIFORNIA PUBLICATIONS
IN
AMERICAN ARCHAEOLOGY AND ETHNOLOGY
Vol. 16, No. 4, pp. 119-176, with 3 maps. November 6, 1919

CALENDARS OF THE INDIANS
NORTH OF MEXICO

BY
LEONA COPE

UNIVERSITY OF CALIFORNIA PRESS
BERKELEY

C 178

C 179

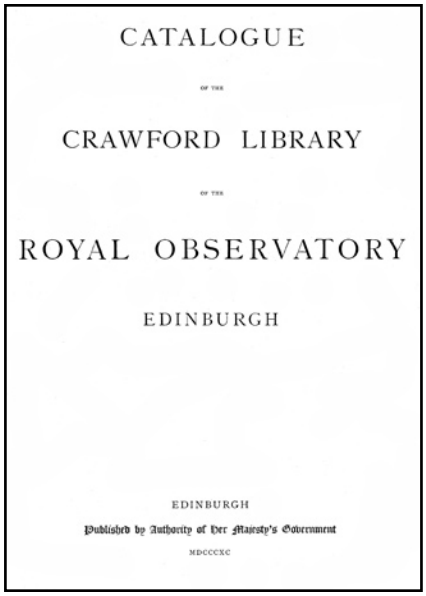
Copeland, Ralph

The catalogue of the Crawford library of the Royal Observatory Edinburgh

Year: 1890
Place: Edinburgh
Publisher: HMSO
Edition: 1st
Language: English
Binding: contemporary three-quarter leather; spine gilt; black leather label
Pagination: pp. viii, 497, [3]
Collation: A–U^{4}V^{4}W^{4}X–2U^{4}2V^{4}2W^{4}2X–3M^{4}3N^6
Size: 294x233 mm

This catalog lists the contents of the library of Dunecht Observatory during the period 1872-1888, the entirety of which was donated by James Ludovic, Earl of Crawford, to the Edinburgh Royal Observatory in 1888. The Earls of Crawford were well known for their collection of books and manuscripts in the humanities. James, who had his own observatory on the estate, also acquired scientific materials, particularly astronomy. When **Charles Babbage** died in 1871, his heirs decided to auction his extensive private library, but Crawford was able to purchase it privately (with the exception of a few items that the family wished to retain) before the sale was held. While many of the items listed here belonged to **Babbage**, Crawford was an active collector and added many items from other sources. The original auction catalog of Babbage's library is extant (Tucker, R.; *Mathematical and Scientific Library of the Late Charles Babbage. To be sold by private contract …*, C. F. Hodgson and Son, London, 1872) and should be consulted to confirm Babbage's actual holdings. A more recent catalog has been produced (c. 1980) by a librarian (Mary Smyth, now retired) at the Royal Observatory.

Illustrations available:
Title page


CATALOGUE

OF THE

CRAWFORD LIBRARY

OF THE

ROYAL OBSERVATORY

EDINBURGH

EDINBURGH
Published by Authority of Her Majesty's Government
MDCCCXC

C 179

C 180

Corachan, Juan Bautista (1661–1741)

Arithmetica demonstrada theorico-practica para lo mathematico y mercantil. Explicanse las monedas, pesos, y medidas de los Hebreos, Griegos, y Romanos; y de estos Reynos de España, conferidas entre si:

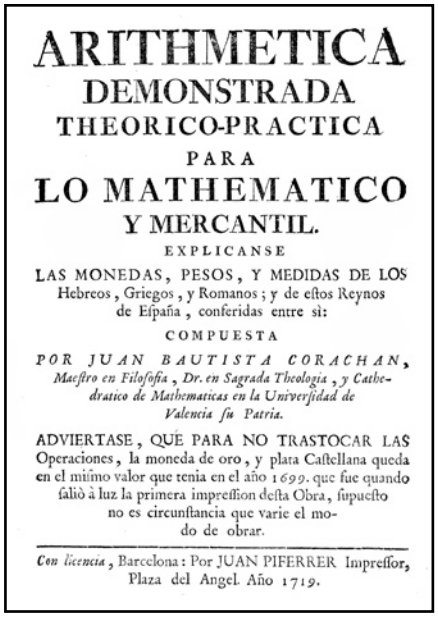
Year: 1719
Place: Barcelona
Publisher: Juan Piferrer
Edition: 2nd
Language: Spanish
Binding: contemporary vellum
Pagination: pp. [4], 494, [14]
Collation: π^2A–2H^{8}2I^6
Size: 216x147 mm
Reference: Pal, 61687

Corachan was a professor of mathematics at the University of Valencia. May (*Bibliography and research manual of the history of mathematics*) notes a biography in *Archeion, archivo de historia de la ciencia*, 25, pp. 289–290, but we have not been able to consult this.

A mercantile arithmetic that also treats more advanced subjects, it is divided into an introduction followed by four books. The introduction discusses arithmetic and the monetary systems used in various parts of Spain as well as those used by Hebrews, Greeks and Romans in ancient times. Book 1 treats the basic operations; Book 2

the rule of false position, etc; Book 3 extraction of roots; Book 4 progressions and combinations. An appendix discusses the arithmetic of music and other subjects.

Illustrations available:
Title page


ARITHMETICA
DEMONSTRADA
THEORICO-PRACTICA
PARA
LO MATHEMATICO
Y MERCANTIL.
EXPLICANSE
LAS MONEDAS, PESOS, Y MEDIDAS DE LOS Hebreos, Griegos, y Romanos; y de eſtos Reynos de Eſpaña, conferidas entre sì:
COMPUESTA
POR JUAN BAUTISTA CORACHAN, Maeſtro en Filoſofia, Dr. en Sagrada Theologia, y Cathedratico de Mathematicas en la Univerſidad de Valencia ſu Patria.
ADVIERTASE, QUE PARA NO TRASTOCAR LAS Operaciones, la moneda de oro, y plata Caſtellana queda en el miſmo valor que tenia en el año 1699. que fue quando ſaliò à luz la primera impreſſion deſta Obra, ſupueſto no es circunſtancia que varie el modo de obrar.
Con licencia, Barcelona: Por JUAN PIFERRER Impreſſor, Plaza del Angel. Año 1719.

C 180

C 181
Coradi, Gottlieb (1847–1929)

Catalogue des instruments mathématiques de précision

Year: 1918
Place: Zurich
Publisher: Institut Mécano - Mathématique G. Coradi
Edition: 1st
Language: French
Figures: 42 figures in the text
Binding: original paper wrappers
Pagination: pp. 48
Size: 258x197 mm

Coradi headed a Swiss firm renowned for its precision mathematical instruments.

This is an annotated catalog of its offerings. The price list, if it ever existed, is absent.

Illustrations available:
Title page

C 182
Coradi, Gottlieb (1847–1929)

Les planimètres Coradi. Systèmes Hohmann-Coradi et Lang-Coradi. Théorie générale. Description, emploi et fonctionnement des planimètres et leurs résultats pratiques

Year: 1897
Place: Zurich
Publisher: G. Aschmann
Edition: 1st
Language: French
Binding: original paper wrappers
Pagination: pp. 39
Size: 228x156 mm

A catalog of Coradi planimeters. The front cover and title page are stamped with the indication *EXPOSITION DE 1900 GRAND PRIX*.

Illustrations available:
Title page


EXPOSITION DE 1900
GRAND PRIX
LES
PLANIMÈTRES CORADI
Systèmes Hohmann-Coradi et Lang-Coradi.
THÉORIE GÉNÉRALE
Description, Emploi et Fonctionnement des Planimètres
et
leurs résultats pratiques
par
G. CORADI, ZURICH
1897
Prix 1 Fr.
Imprimerie C. Aschmann, Zurich
1897.

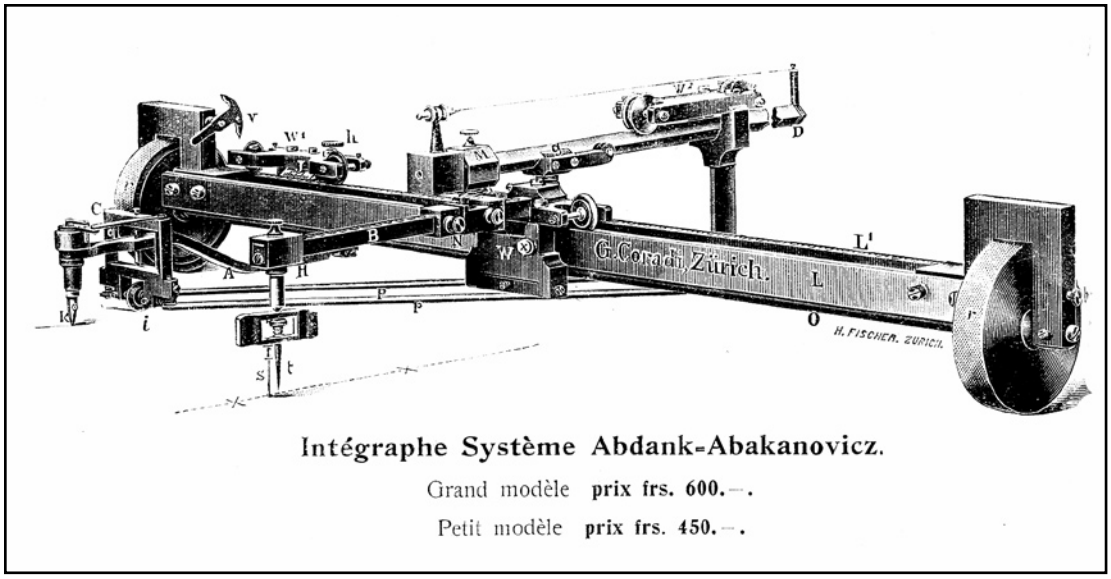
C 182

C 183
Coradi, Gottlieb (1847–1929)

Les planimètres Coradi. Systèmes Hohmann-Coradi et Lang-Coradi. Théorie générale. Description, emploi et fonctionnement des planimètres et leurs résultats pratiques

b/w: **Lefrancois, A**; *Nouveau planimètre de précision de G. Coradi. Théorie analytique. comparée des planimètres Amsler et Coradi. Avantages de ce dernier instrument. Description et usage*.
b/w: **Ott, L. A**; *Manuel élémentaire pratique et théorique du planimètre compensateur*
b/w: **Ott, A.**; *Planimètres et pantographes. Tarifs Nos 303 et 403*
b/w: **Deberon, Marcel**; *Théorie et mode d'emploi des planimétres et intégrateurs mécaniques*

Year: 1904
Place: Zurich



Integraph, C 183

Publisher: Aschmann & Scheller
Edition: 2nd
Language: French
Figures: 1 engraved folding plate
Binding: modern half morocco leather
Pagination: pp. 40
Size: 220x135 mm

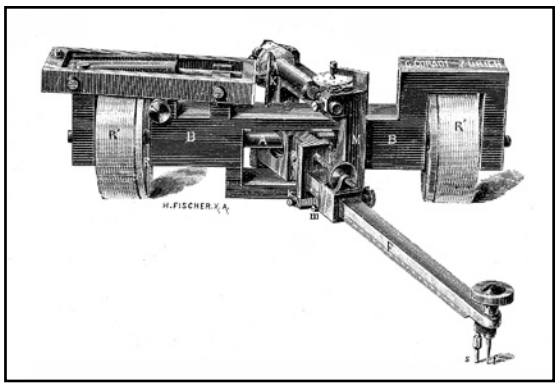
The Zurich firm of G. Coradi was one of the finest instrument makers at the end of the nineteenth and early twentieth century. See also the entry for **Abakanowicz**.

This description of its planimeters, the theory behind them and how they were to be used is illustrated with engravings of several of its products and an engraving of its version of the **Abakanowicz** integraph, and an early (one glass ball) version of its harmonic analyzer appears at the end.

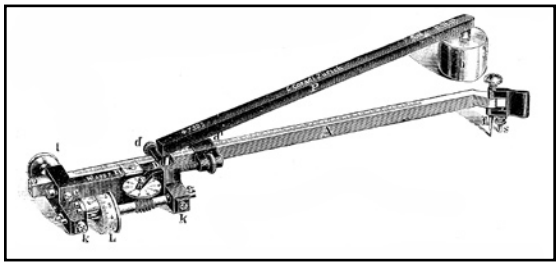
Illustrations available:
Title page
Planimeters (2)
Abakanowicz integraph and harmonic analyzer.


LES
PLANIMÈTRES CORADI
Systèmes Hohmann-Coradi et Lang-Coradi.
THÉORIE GÉNÉRALE
Description, Emploi et Fonctionnement des Planimètres
et
leurs résultats pratiques
par
G. CORADI, ZURICH
1904
Prix 1 Fr.
Imprimerie Aschmann & Scheller, Zurich.
1904.

C 183

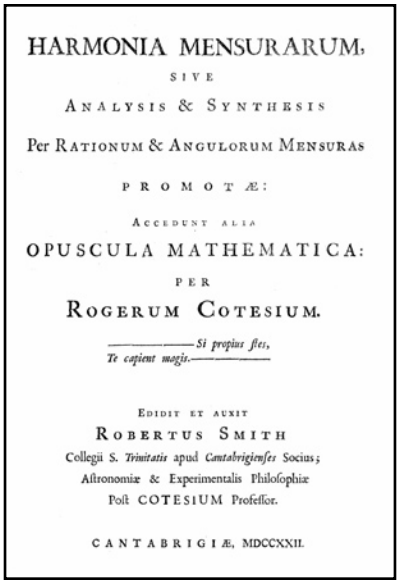


Planimeter, C 183



Planimeter, C 183

Coradi, Gottlieb (1847–1929)
See **Henrici, O**.; *Analyseur harmonique construit par G. Coradi à Zurich avec une théorie de Mr. le Professeur O. Henrici à Londres*


HARMONIA MENSURARUM,
SIVE
ANALYSIS & SYNTHESIS
Per RATIONUM & ANGULORUM MENSURAS
PROMOTÆ:
ACCEDUNT ALIA
OPUSCULA MATHEMATICA:
PER
ROGERUM COTESIUM.
——————Si propius ſtes,
Te capient magis.——————
EDIDIT ET AUXIT
ROBERTUS SMITH
Collegii S. Trinitatis apud Cantabrigienſes Socius;
Aſtronomiæ & Experimentalis Philoſophiæ
Poſt COTESIUM Profeſſor.
CANTABRIGIÆ, MDCCXXII.

C 184

C 184
Cotes, Roger (1682–1716) [**Robert Smith** (1689–1768), editor]

Harmonia mensurarum, sive analysis & synthesis per rationum & angulorum mensuras promotæ

Year: 1722
Place: Cambridge
Publisher:
Edition: 1st
Language: Latin
Figures: 1 engraved folding plates
Binding: contemporary leather rebacked
Pagination: pp. [20], 249, [3], 125, [1]
Collation: *******^{2}A–F^{4}G–3L^{2}a–2i^{2}[-2i2]
Size: 244x185 mm

In 1707, Cotes was appointed the first Plumian professor of astronomy and experimental physics in Cambridge, where he was the first to require students of physics to perform experiments as part of the course. Although he only lived to be thirty-three, he made significant advances in mathematics in a number of areas. He collaborated with **Newton**, particularly on the second edition of *Principia*, to which he wrote the preface.

This collection of much of Cotes' work on the relation between logarithms and inverse trigonometric functions was compiled and edited by his cousin, Robert Smith, who succeeded him as Plumian professor. It is mainly a systematic tabulation of integrals for many different classes of functions and methods of extending these results, with indications of the many problems in astronomy and physics to which these integrals apply.

Illustrations available:
Title page

C 185
Couffignal, Louis (1902–1966)

Sur un nouvelle machine a' calculer. In *Comptes Rendus Hebdomadaires des Seances de L'Academie des Sciences, Vol. 191, No. 20, November 17, 1930*

Year: 1930
Place: Paris
Publisher: Gauthier-Villars
Edition: 1st
Language: French
Binding: original paper wrappers; uncut
Pagination: pp. 924–925
Size: 280x225 mm

Couffignal was a French computer pioneer.

This short paper, and the following remarks by **Maurice d'Ocagne**, describes a mechanical calculating machine for computations involving a specific formula.

Illustrations available:
None

C 186
Couffignal, Louis (1902–1966)

Sur l' analyse mécanique. Application aux machines a calculer et aux calculs de la méchanique céleste.

Year: 1938
Place: Paris
Publisher: Gauthier-Villars
Edition: 1st
Language: French
Binding: original paper wrappers
Pagination: pp. viii, 136
Collation: π^{4}1–8^{8}9^{4}
Size: 243x155 mm
Reference: Ran *ODC*, p. 412

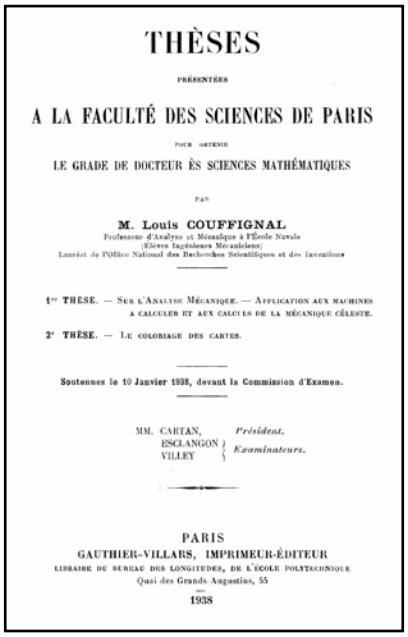
Couffignal started his career as a teacher of mathematics and mechanics at the Ecole des Élèves Ingenieurs Mecaniciens, which is part of the Ecole Navale de Brest. He became interested in the problem of calculation and wrote a thesis on the subject under the direction of **Maurice d'Ocagne** (who died very shortly after it was accepted in March 1938). This was the first time that the topic of calculating machines had been accepted for a thesis at the University of Paris. This volume is that thesis. Evidently it was intended to be augmented by work on the topic of map (or graph) coloring, (that subject is mentioned on the title page); however, that

topic was not ultimately included in this volume. The reference to *calculs de la méchanique céleste* reflects the participation of E. Esclangon, the professor of astronomy at the University of Paris, as another thesis supervisor and examiner. There is a brief mention of the topic in the introduction and a small chapter at the back dealing with astronomical calculations, but it would appear to be an after-thought perhaps to justify the inclusion of an astronomer in the process.

The bulk of the work consists of a description of mechanical calculating machines and a discussion of the binary number system. Couffignal proposes both mechanical and relay implementations of the binary functions.

A second copy of this work is in the collection.

Illustrations available:
Title page
Binary relay circuit example
Binary mechanics



THÈSES

PRÉSENTÉES

A LA FACULTÉ DES SCIENCES DE PARIS

POUR OBTENIR

LE GRADE DE DOCTEUR ÈS SCIENCES MATHÉMATIQUES

PAR

M. Louis COUFFIGNAL

Professeur d'Analyse et Mécanique à l'École Navale
(Élèves Ingénieurs Mécaniciens)
Lauréat de l'Office National des Recherches Scientifiques et des Inventions

1re THÈSE. — Sur l'Analyse Mécanique. — Application aux machines a calculer et aux calculs de la mécanique céleste.

2e THÈSE. — Le coloriage des cartes.

Soutenues le 10 Janvier 1938, devant la Commission d'Examen.

MM. CARTAN, ESCLANGON, VILLEY — *Président. Examinateurs.*

PARIS
GAUTHIER-VILLARS, IMPRIMEUR-ÉDITEUR
LIBRAIRE DU BUREAU DES LONGITUDES, DE L'ÉCOLE POLYTECHNIQUE
Quai des Grands-Augustins, 55

1938

C 186

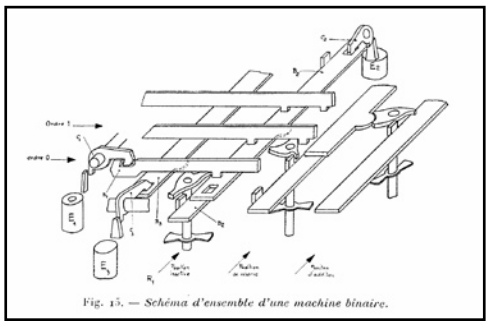


Fig. 15. — *Schéma d'ensemble d'une machine binaire.*

Binary mechanical mechanism, C 186

C 187
Couffignal, Louis (1902–1966)

Denkmaschinen

Year: 1955
Place: Stuttgart
Publisher: Gustav Kilpper
Edition: 1st (German)
Language: German
Figures: photographic plates
Binding: original cloth boards; with dust jacket
Pagination: pp. 186
Size: 207x130 mm
Reference: Ran *ODC*, p. 412

See entry for **Couffignal, Louis**; *Les machines a penser* 1952. This is the German translation of that work. This version has been slightly augmented by the addition of photographs of Aiken's Mark IV machine. A photograph of the Darmstadt differential analyzer replaces Bush's. Some slight alterations have been made in the text to mention these machines.

Illustrations available:
Title page

LOUIS COUFFIGNAL

Denkmaschinen

Mit einem Vorwort
von Prof. Dr. MAX BENSE

GUSTAV KILPPER VERLAG
STUTTGART

C 187

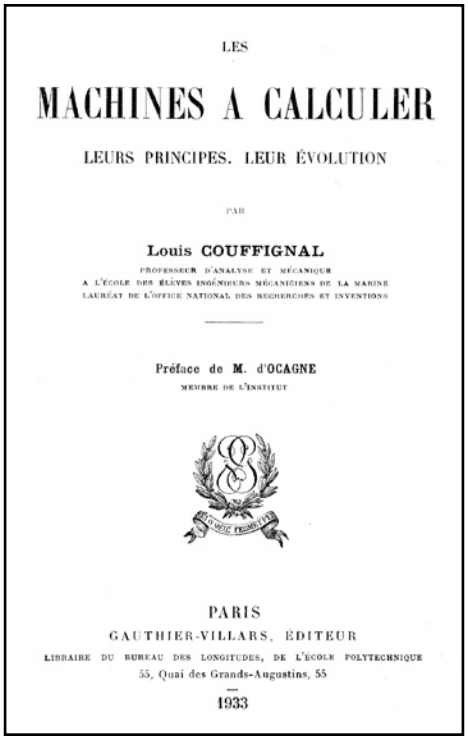
C 188
Couffignal, Louis (1902–1966)

Les machines a calculer. Leurs principes. Leurs évolution

Year: 1933
Place: Paris
Publisher: Gauthier-Villars
Edition: 1st
Language: French
Binding: original paper wrappers
Pagination: pp. x, 86, [6]
Collation: $\pi^5 1–5^8 6^6$
Size: 227x139 mm
Reference: Ran *ODC*, p. 412

Couffignal had been asked to present a talk to Collège de France on the topic of calculating machines. This must have been a stressful occasion because one of the people inviting him was **Maurice d'Ocagne**, the foremost expert in France and the author of a widely recognized book on calculating machines (see **Ocagne**, *Le calcul simplifié*), and later Couffignal's Ph.D. supervisor (see **Couffignal, Louis**; *Sur L'Analyse méchanique*). This published version of his talk includes illustrations from the filmstrip Couffignal showed with his talk. **Maurice d'Ocagne** provided a preface in which he states that he has no hesitation in recommending this book as an important complement to his work *Calcul simplifié*. It is very much in the same style as **d'Ocagne**'s (and others' work) in that it surveys the history of calculating machines and provides brief descriptions of the currently available calculators with some indication of how they perform their tasks.

Illustrations available:
Title page


LES

MACHINES A CALCULER

LEURS PRINCIPES. LEUR ÉVOLUTION

PAR

Louis COUFFIGNAL

PROFESSEUR D'ANALYSE ET MÉCANIQUE
A L'ÉCOLE DES ÉLÈVES INGÉNIEURS MÉCANICIENS DE LA MARINE
LAURÉAT DE L'OFFICE NATIONAL DES RECHERCHES ET INVENTIONS

Préface de M. d'OCAGNE
MEMBRE DE L'INSTITUT

PARIS
GAUTHIER-VILLARS, ÉDITEUR
LIBRAIRE DU BUREAU DES LONGITUDES, DE L'ÉCOLE POLYTECHNIQUE
55, Quai des Grands-Augustins, 55
—
1933

C 188

C 189
Couffignal, Louis (1902–1966)

Les machines a penser.

Year: 1952
Place: Paris
Publisher: Les Éditions de Minuit
Edition: 1st
Language: French


LOUIS COUFFIGNAL
Inspecteur général de l'Instruction Publique
Directeur du Laboratoire de Calcul mécanique
de l'Institut Blaise Pascal

LES MACHINES A PENSER

LES ÉDITIONS DE MINUIT
PARIS

C 189

Figures: 2 photographic plates
Binding: original paper wrappers printed in red and black
Pagination: pp. 153, [7]
Collation: 1–10^8
Size: 228x136 mm
Reference: Ran *ODC*, p. 412

As a description of both the analog and digital computing machines available in 1952, this book starts with an exploration of the question W*hat is a machine?* and then discusses such devices as ENIAC, Bush's differential analyzer, the IBM SSEC and Couffignal's own project at the Institut Blaise Pascal. In closing, he discusses the relationship of these machines to neurons and the human brain.

This work was published just prior to Couffignal being relieved of his position as Director of the Mechanical Calculation Laboratory at the Institut Blaise Pascal. His project to construct a computer had run into a number of technical difficulties (not the least of them was his neon diode memory) and was far behind schedule. The

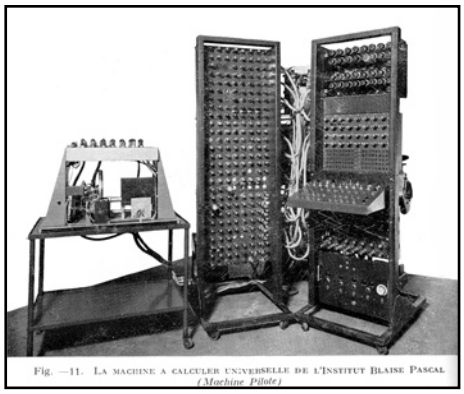


Fig. —11. La machine a calculer universelle de l'Institut Blaise Pascal
(Machine Pilote)

Couffignal's computer, C 189

project was never completed, and those French institutes awaiting its completion eventually turned to commercial (usually British and American) computing machines.

Illustrations available:
Title page
Photograph of Pascal's machine
Photograph of Couffignal's pilot machine
Circuit diagrams of Couffignal's diode memory machine

C 190
Coulson, Charles Alfred (1910–1974)

The spirit of applied mathematics. An inaugural lecture

Year: 1953
Place: Oxford
Publisher: Claredon Press
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 23
Size: 217x141 mm

This is the text of Coulson's inaugural lecture when he assumed the Rouse Ball Professorship of Applied Mathematics in Oxford. Intended as a public lecture, it simply describes the place of applied mathematics (as distinct from pure mathematics) in the profession.

Illustrations available:
Title page

C 191
Couturat, Louis (1868–1914) [**Lydia Gillingham Robinson**, translator]

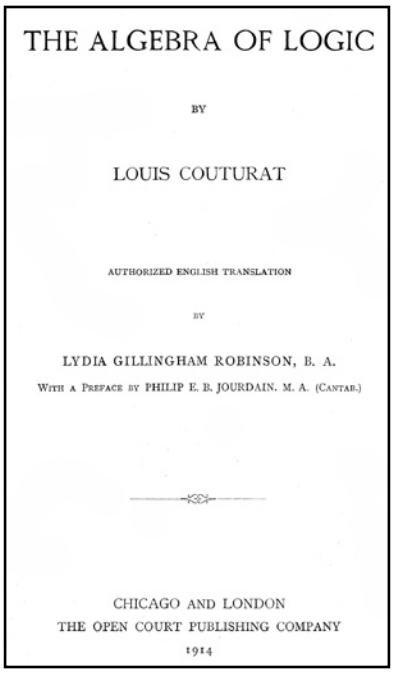
The algebra of logic

Year: 1914
Place: Chicago and London
Publisher: Open Court
Edition: 1st (English)
Language: English
Binding: original cloth boards; gilt stamped spine and front cover
Pagination: pp. xiv, 100
Collation: $\pi^{7}1–5^{8}6^{10}$
Size: 212x132 mm
Reference: DSB 3, pp. 455–457

The famous French philosopher Couturat specialized in logic, although he wrote on many other subjects. He held positions in several French Institutes and is best known for his work with Bertrand Russell (Couturat edited the second, 1905, edition of *Principia mathematica*) and his development of a modification of Esperanto called *Ido*. A well-known pacifist, he was killed by a speeding military vehicle carrying the orders for French mobilization on the day that Germany declared war on France.

This is an examination of mathematical logic, as begun by **George Boole**. It was pointed out, in the preface by Philip E. B. Jourdain, that logic had not grown since the time of **Boole**; rather, "we now see *more* of it and more *into* it."

Illustrations available:
Title page


THE ALGEBRA OF LOGIC

BY

LOUIS COUTURAT

AUTHORIZED ENGLISH TRANSLATION

BY

LYDIA GILLINGHAM ROBINSON, B. A.

WITH A PREFACE BY PHILIP E. B. JOURDAIN. M. A. (CANTAB.)

CHICAGO AND LONDON
THE OPEN COURT PUBLISHING COMPANY
1914

C 191

C 192
Cox, William (1847–)

The Mannheim and the duplex slide rules

Year: 1917
Place: New York
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Binding: original printed paper wrappers
Pagination: pp. 53, 8, [3]
Size: 221x142 mm

See entry for **Cox, William**; *The Mannheim Slide Rule*, 1891. The date for this version is contained in a copyright notice printed, upside down, on the last page recto.

Illustrations available:
Title page

C 193
Cox, William (1847–)

The Mannheim and polyphase slide rules (Mannheim type). Complete manual with table of settings, equivalents and gauge points.

Year: 1920
Place: New York
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Binding: original printed paper wrappers; rear upper left hand corner torn
Pagination: pp. [2], 37, 8, [5]
Size: 221x142 mm

See entry for **Cox**, *The Mannheim Slide Rule*, 1891.

Illustrations available:
Title page

C 194
Cox, William (1847–)

The Mannheim slide rule. Complete manual with table of settings, equivalents and gauge points.

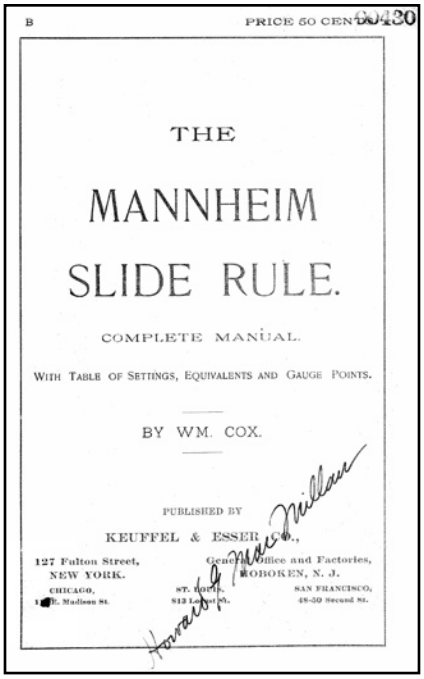
Year: 1891
Place: New York
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Figures: 1 plate pasted down
Binding: original printed paper wrappers; lower right hand corner torn
Pagination: pp. [2], 32
Size: 221x142 mm

William Cox (who should not be confused with Thomas Cox or F. B. Cox, who made slide rules in Britain) was apparently British as well, but moved to America some time after 1881. It was Cox who patented the first true duplex slide rule in 1891. While the concept of adding multiple scales to a slide rule was not new, it was Cox who took the simple step of aligning the scales on both sides so that readings could, by means of a double cursor, be transferred back and forth. Cox's relationship with Keuffel & Esser Co. is not clear—he seems to have been more of a consultant than an employee.

This manual for slide rules made by the **Keuffel & Esser Co.** went through a large number of editions and updates as K & E offerings of different types of slide rules increased. Another version of this work appeared in the same year, this one describing the new Duplex slide rule as well as the standard **Mannheim** version.

Letters printed on the cover or title page can often be used to distinguish the various versions. This one has a "B" in upper left-hand corner of the cover, which also acts as the title page.

Illustrations available:
Cover


B PRICE 50 CENTS
THE
MANNHEIM
SLIDE RULE.
COMPLETE MANUAL
WITH TABLE OF SETTINGS, EQUIVALENTS AND GAUGE POINTS.
BY WM. COX.
PUBLISHED BY
KEUFFEL & ESSER CO.,
127 Fulton Street, NEW YORK.
General Office and Factories, HOBOKEN, N. J.
CHICAGO, 149 E. Madison St.
ST. LOUIS, 813 Locust St.
SAN FRANCISCO, 48-50 Second St.

C 194

C 195
Cox, William (1847–)

The Mannheim slide rule (complete manual) and the duplex slide rules

Year: 1891
Place: New York
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Binding: original printed paper wrappers
Pagination: pp. [2], 52
Size: 223x138 mm

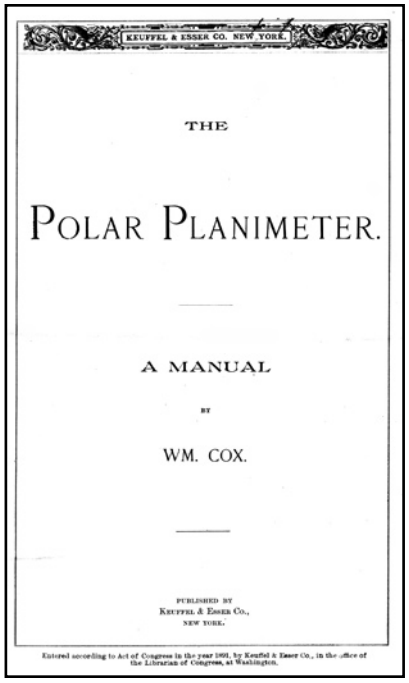
See entry for **Cox, William**; *The Mannheim Slide Rule*, 1891. This edition has an "E" in the upper left-hand corner

Illustrations available:
Cover

C 196
Cox, William (1847–)

The polar planimeter. A manual

Year: 1891
Place: New York
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Binding: original printed paper wrappers
Pagination: pp. 20
Size: 223x143 mm


KEUFFEL & ESSER CO. NEW YORK.

THE

POLAR PLANIMETER.

A MANUAL

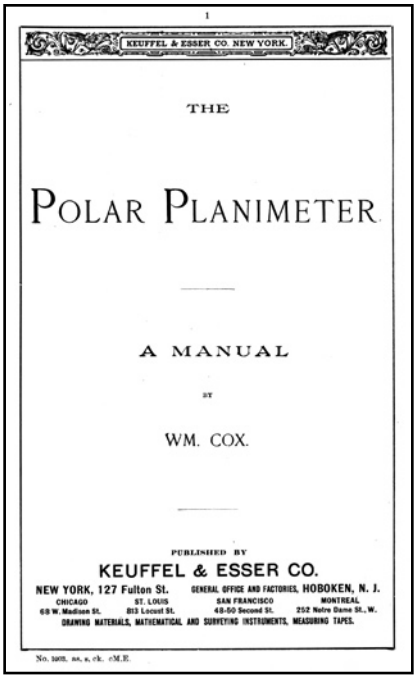
BY

WM. COX.

PUBLISHED BY
KEUFFEL & ESSER CO.,
NEW YORK.

Entered according to Act of Congress in the year 1893, by Keuffel & Esser Co., in the office of the Librarian of Congress, at Washington.

Copy 1, C 196


KEUFFEL & ESSER CO. NEW YORK.

THE

POLAR PLANIMETER.

A MANUAL

BY

WM. COX.

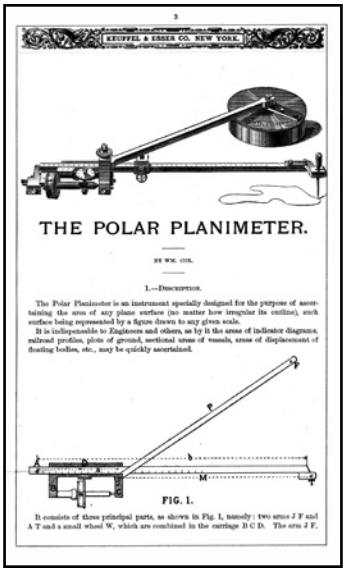
PUBLISHED BY
KEUFFEL & ESSER CO.
NEW YORK, 127 Fulton St. GENERAL OFFICE AND FACTORIES, HOBOKEN, N. J.
CHICAGO 68 W. Madison St. ST. LOUIS 813 Locust St. SAN FRANCISCO 48-50 Second St. MONTREAL 252 Notre Dame St., W.
DRAWING MATERIALS, MATHEMATICAL AND SURVEYING INSTRUMENTS, MEASURING TAPES.

Copy 2, C 196

This is an instruction manual on the use of the Keuffel & Esser Polar Planimeter—a device for finding the area contained in any plane figure.

A second copy of this item in the collection varies only in its title page and wrappers.

Illustrations available:
Title page (copy 1)
Title page (copy 2)
Polar planimeter


KEUFFEL & ESSER CO. NEW YORK.

THE POLAR PLANIMETER.

BY WM. COX.

I.—DESCRIPTION.

The Polar Planimeter is an instrument specially designed for the purpose of ascertaining the area of any plane surface (no matter how irregular its outline), such surface being represented by a figure drawn to any given scale.

It is indispensable to Engineers and others, as by it the areas of indicator diagrams, railroad profiles, plots of ground, sectional areas of vessels, areas of displacement of floating bodies, etc., may be quickly ascertained.

FIG. 1.

It consists of three principal parts, as shown in Fig. 1, namely: two arms J F and A T and a small wheel W, which are combined in the carriage B C D. The arm J F.

Polar planimeter, C 191

C 197

Cox, William, editor (1847–)

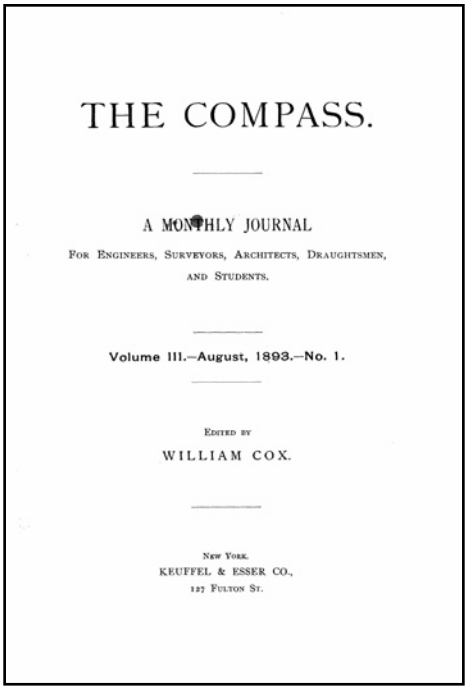
The compass. A monthly journal for engineers, surveyors, architects, draughtsmen, and students. Vol. III, No. 1, August 1893

Year: 1893
Place: New York
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Binding: original printed paper wrappers
Pagination: pp. 16
Size: 233x148 mm

See also the entry for **Cox, William**; *The polar planimeter. A manual,* 1891.

Cox, who was obviously attempting to produce a journal of interest to slide rule users, must have been running short of material because he reproduces much of his earlier work on the polar planimeter as one of the articles. This issue is also of interest because it contains an article on the metric system in which Cox claims that, at that time in the United States, the only Federal legislation in existence regarding weights and measures mandated the use of the metric system—all other systems being legislated locally, if at all.

Illustrations available:
Cover


THE COMPASS.

A MONTHLY JOURNAL

FOR ENGINEERS, SURVEYORS, ARCHITECTS, DRAUGHTSMEN, AND STUDENTS.

Volume III.—August, 1893.—No. 1.

EDITED BY

WILLIAM COX.

NEW YORK.
KEUFFEL & ESSER CO.,
127 FULTON ST.

C 197

C 198

Cracher, Christoph

Compendium oder Kurtz; jedoch klarer Begriff der Rechen-Kunst. Warauss ein jeder, so dess Lesen unnd Schreibens wol erfahren, unnd anderst ein judicium hat, ohne weitern Lehrmaister, sonderlich auch durch die Brüch (weil es einem mündlich nit wol deutlicher gezaigt werden mag) alles was zurechnen, erlernen. Also von sich selbst ein guter Rechner Werden, in welchen dass was in dem nechstvortgen Rechenbüchl nit einkommen ersetzt. Deme weiters wie im Bauwesen zurechen, die Weinfässer geschwind zu visirn, alle Gründ und Boden bey einem Werckschuech zumessen, so auff diese Weiss noch nie in Truck aussgangen, angehengt ist.

Year: 1671
Place: Munich
Publisher: Lucas Straub
Edition: 1st
Language: German
Binding: contemporary paper over boards
Pagination: pp. [4], 76
Collation: A–E^{8}
Size: 158x102 mm

This is a simple arithmetic text covering the usual operations with integers and fractions, and also contains a short section on mixed radix arithmetic applied to German money.

Illustrations available:
Title page


COMPENDIUM
Oder
Kurtz: jedoch klarer Begriff
Der
Rechen-Kunst/
Warauß ein jeder / ſo
deß Leſen vnnd Schreibens
wol erfahren / vnnd anderſt ein judi-
cium hat / ohne weitern Lehrmaiſter / ſonderlich
auch durch die Brüch (weil es einem mündlich nit
wol deutlicher gezaigt werden mag) alles was zurechnen / er-
lernen / Alſo von ſich ſelbſt ein guter Rechner werden kan /
in welchen daß / was in dem nechſtvorigen Rechen-
büchl nit einkommen erſetzt.
Deme weiters wie im Bauweſen zu-
rechnen / die Weinfäſſer geſchwind zů viſirn, alle
Gründ vnd Boden bey einem Werckſchuech zu-
meſſen / ſo auff diſe Weiß noch nie in Truck
außgangen / angehengt iſt.
Durch
Chriſtophen Cracher Notarium, vnd
Rechenmaiſter von München ge-
bürtig.
Getruckt zu München / durch Lucam Straub /
Im Jahr / 1671.

C 198

C 199

Craik, George Lillie (1798–1866)

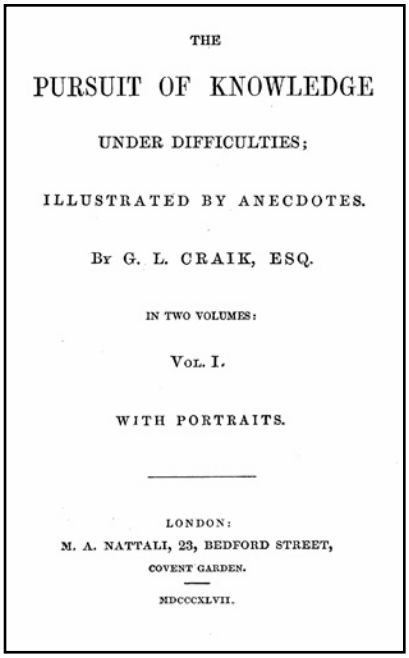
The pursuit of knowledge under difficulties illustrated by anecdotes. 2 vols.

Year: 1847
Place: London
Publisher: M. A. Nattali
Edition: unknown
Language: English
Figures: v.1: 4 engraved portrait plates, including engraved frontispiece; v.2: 3 engraved portrait plates, including engraved frontispiece
Binding: original cloth boards
Pagination: v.1: pp. iii–viii, 420; v.2: pp. iv, 404, 4, 16
Collation: v.1: A^{3}(-A4)B–2N^{6}; v.2: A^{2}B^{1}2C^{6}–Y^{1}2Z^{6}2A^{4}γ^{10}
Size: 165x105 mm

Craik was the son of a Scots minister and schoolmaster. He studied at the University of St. Andrews and later ran a local newspaper. In 1826, he moved to London and became a professional author, writing mainly for the Society for the Diffusion of Useful Knowledge.

These two volumes are typical of Victorian books produced mainly for the younger reader. While the individual biographies are meant to inspire, they still provide a wealth of information about the lives of scientists from ancient times to the early Victorian era.

Illustrations available:
Title page


THE

PURSUIT OF KNOWLEDGE

UNDER DIFFICULTIES;

ILLUSTRATED BY ANECDOTES.

By G. L. CRAIK, ESQ.

IN TWO VOLUMES:

Vol. I.

WITH PORTRAITS.

LONDON:
M. A. NATTALI, 23, BEDFORD STREET,
COVENT GARDEN.

MDCCCXLVII.

C 199

C 200

Crank, John (1916–)

The differential analyser

Year: 1947
Place: London
Publisher: Longmans, Green & Co.
Edition: 1st
Language: English
Figures: 4 photographic plates
Binding: original cloth boards; with dust jacket
Pagination: pp. viii, 137, [1]
Collation: π^4A–H^{8}I^5
Size: 185x123 mm

John Crank was a student of **Douglas Hartree** and the man in charge of the Bush Differential Analyzer at the Mathematical Laboratory in Cambridge. His main work was on the solution of partial differential equations.

The first useful differential analyzer, constructed by **Vannevar Bush** at MIT, had been operational in the United States since the early 1930s. In this book, Crank describes both the theory and practical details of the device with illustrations from the British versions constructed at Manchester and Cambridge Universities. Of particular interest is a photograph showing part of the first experimental differential analyzer model built at Manchester University by **Douglas Hartree** and **Arthur Porter** using a *Meccano* (known in the United States as *Erector*) construction set.

A second copy of this volume (without dust jacket) is available in the collection.

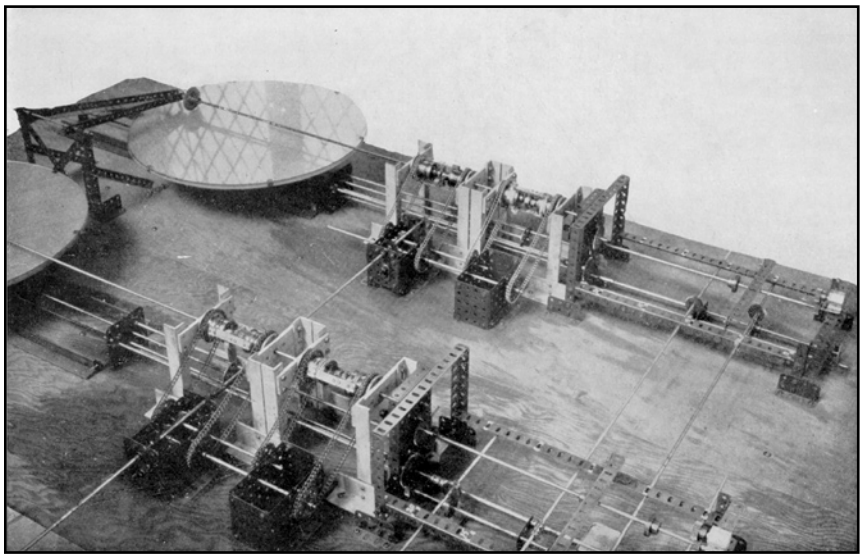
Illustrations available:
Title page
Meccano integrator unit and Torque amplifier

C 201

[**Crelle, August Leopold** (1780–1855)] **- Oskar Seeliger**, editor

Rechentafeln welche alles multiplizieren und dividieren mit Zahlen unter tausend ganz ersparen, bei grösseren Zahlen aber die Rechnung erleichtern und sicherer machen. Neue Ausgabe besorgt von O. Seeliger. Mit Tafeln der Quadrat- und Kubikzahlen von 1-1000.

Year: 1907
Place: Berlin
Publisher: Georg Reimer


Meccano differential analyzer, C 200


THE DIFFERENTIAL ANALYSER

BY

J. CRANK, M.Sc.

Courtaulds Ltd. Research Laboratory, Maidenhead
Formerly at the Mathematical Laboratory, Cambridge

WITH DIAGRAMS AND PHOTOGRAPHS

LONGMANS, GREEN & CO.
LONDON • NEW YORK • TORONTO

C 200

Edition: new
Language: German
Binding: original cloth boards; front cover embossed
Pagination: pp. viii, [504]
Collation: $\pi^4 1–63^4$
Size: 370x248 mm
Reference: DSB III, pp. 466–467; Glais *RCMT*, p. 15

Crelle, a self-taught mathematician, worked as a civil engineer for the Prussian State government for much of his career overseeing the construction of many new roads and a rail line from Berlin to Potsdam. He received his Ph.D. from the University of Heidelberg in 1816 for a thesis he submitted on calculation. He is also known as the founder of the *Journal für die reine und angewandte Mathematik* (better known as *Crelle's Journal*) in 1826 and edited the first fifty-two volumes. In 1828, he moved to the Ministry of Education and became an advisor to the government on the teaching of mathematics.

This is a very large multiplication table that eventually became a worldwide standard and was reprinted many times, the last time in 1954. It gives the products of all integers up to one thousand and can be used for multiplying and dividing much larger numbers. Two additional tables give the squares and cubes of the integers

Illustrations available:
Title page
Sample table column


Dr. A. L. CRELLE's
RECHENTAFELN
WELCHE
ALLES MULTIPLIZIEREN UND DIVIDIEREN MIT ZAHLEN UNTER TAUSEND GANZ ERSPAREN, BEI GRÖSSEREN ZAHLEN ABER DIE RECHNUNG ERLEICHTERN UND SICHERER MACHEN
NEUE AUSGABE
BERLIN
DRUCK UND VERLAG VON GEORG REIMER

C 201

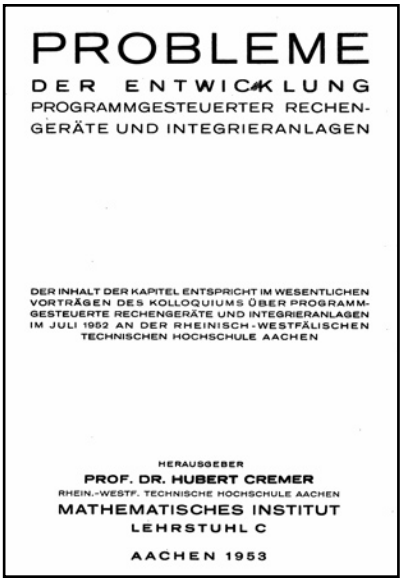
C 202
Cremer, Hubert, editor

Probleme der Entwicklung programmgesteuerter Rechengerate und Integrieranlagen

Year: 1953
Place: Aachen
Publisher: Rhein-Westf. Technische Hochschule
Edition: 1st
Language: German
Binding: cloth boards over original paper wrappers bound in
Pagination: pp. [2], XIV, 75, [1], 10
Size: 207x145 mm

This is a record of four papers presented at a meeting in Aachen in July, 1952. In the first, **H. Bückner** describes a differential analyzer known as the *Integremat*. The second, by **F. J. Weyl**, describes the electronic computers and the problems for which they were being used in the United States. In the third, **L. Biermann** describes the computer built by the Max Planck Institute of Physics (a 32-bit, magnetic drum memory machine with paper tape input). The last talk was given by **Konrad Zuse** and details his postwar difficulties before his Z4 machine was installed in the Eidgenössische Technische Hochschule (E.T.H.) in Zurich in 1950. The brief discussion following the presentations is recorded in the last few pages.

Illustrations available:
Title page


PROBLEME
DER ENTWICKLUNG
PROGRAMMGESTEUERTER RECHEN-GERÄTE UND INTEGRIERANLAGEN
DER INHALT DER KAPITEL ENTSPRICHT IM WESENTLICHEN VORTRÄGEN DES KOLLOQUIUMS ÜBER PROGRAMM-GESTEUERTE RECHENGERÄTE UND INTEGRIERANLAGEN IM JULI 1952 AN DER RHEINISCH-WESTFÄLISCHEN TECHNISCHEN HOCHSCHULE AACHEN
HERAUSGEBER
PROF. DR. HUBERT CREMER
RHEIN.-WESTF. TECHNISCHE HOCHSCHULE AACHEN
MATHEMATISCHES INSTITUT
LEHRSTUHL C
AACHEN 1953

C 202

C 203
Crescentio, Bartolomeo

Proteo militare di Bartolomeo Romano, diviso in tre Libri. Nel primo si descrive la fabrica di detto proteo, & in esso nuovo istrumento, tutti gli altri istrumenti, di matematica che imaginar si possano. Nel secondo, e terzo si tratta dell' uso di detto istrumento, nelquale si formano tutte le figure di geometria, e diversi istrumenti di prospettiva, pittura, scoltura, & architettura. S'insegna ancora l'arte del navigare, e quella del guerreggiare con nuovo, e facilissimo modo, come piu distintamente nella tavola si potra vedere.

Year: 1595
Place: Naples
Publisher: Gio. Iacomo Carlino & Antonio Pace
Edition: 1st
Language: Italian
Figures: 1 engraved folding plate and figures in text
Binding: modern leather
Pagination: pp. [16], 192
Collation: §^{4}§§^{4}A–2A^4
Size: 216x152 mm
Reference: Ben *GW*, p. 29

Some authorities attribute this work to Bartolomeo Romano and indicate that it is dedicated to Emilio Pucci (aka Bartlomeo Crescenzio of Rome).

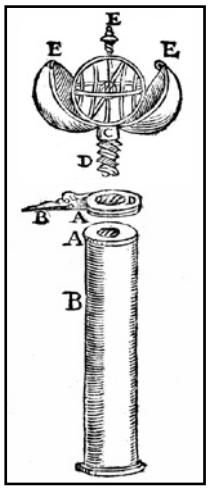
Of all the designs for multi-purpose surveying and artillery instruments, the *proteo militare* is the most interesting. It consists of a number of different sword-like blades that can be mounted in a special hilt (which itself consists of a cylindrical sundial with an armillary sphere at the end). The uses of the instrument are given in situations ranging from a drawing frame, through simple surveying, to its use as a gunner's quadrant. Included in this work are short accounts of other instruments such as a surveyor's quadrant and astrolabe and a set of astronomical rings. The inclusion of these other instruments gives the impression that they were described only to show that the proteo militare could accomplish the same tasks.

The instrument could be used to determine latitude by sighting the pole star or the meridian altitude of the sun. To aid in the later task, he includes a table of the suns declination for four years.

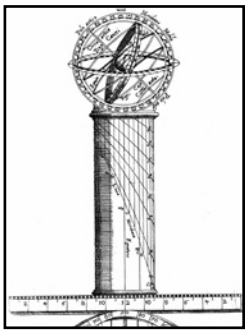
Illustrations available:
- Title page
- Proteo militare instrument
- Construction of the hilt
- Use as a gunner's quadrant
- Use in elementary surveying
- Sun declination table
- Hilt sundial

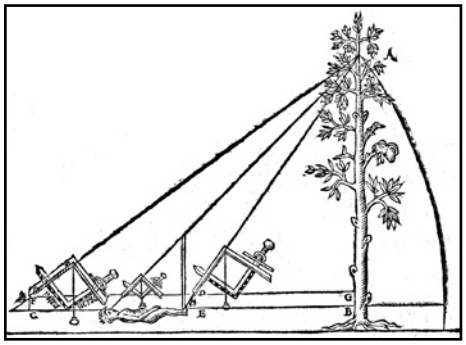

PROTEO MILITARE
DI
BARTOLOMEO
ROMANO
Diuiſo in tre Libri.
NEL PRIMO SI DESCRIVE LA FABRICA di detto Proteo, & in eſſo nuouo Iſtrumento, tutti gli altri Iſtrumenti, di Matematica che imaginar ſi poſſano.
NEL SECONDO, E TERZO SI TRATTA DELL' vſo di detto Iſtrumento, nelquale ſi formano tutte le figure di Geometria, e diuerſi Iſtrumenti di Proſpettiua, Pittura, Scoltura, & Architettura.
S'INSEGNA ANCORA L'ARTE DEL NAVIGARE, e quella del guerreggiare con nuouo, e facilißimo modo, come più diſtintamente nella Tauola ſi potrà vedere.
In Napoli, Appreſſo Gio. Iacomo Carlino, & Antonio Pace.
M D X C V.

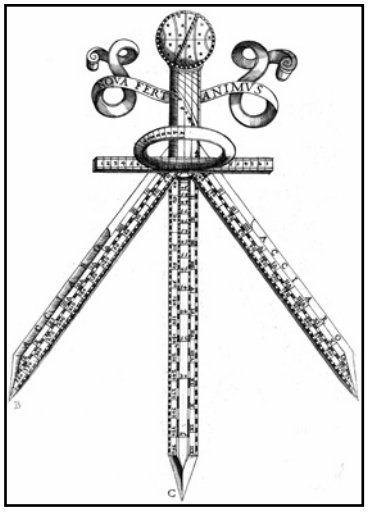
C 203

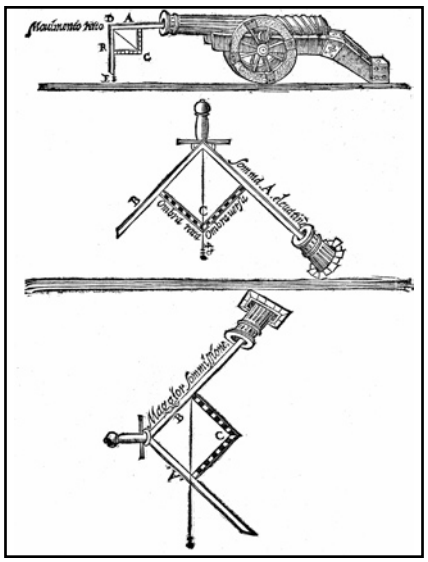


Hilt construction, C 203


Hilt sundial, C 203


Survey usage, C 203


Protheo militare, C 203



C 203

C 204
Cristiani, Girolamo Francesco (1731–1811)

Delle misure d'ogni genere antiche, e moderne con note letterarie, e fisico—matematiche, a giovamento di qualunque architetto.

Year: 1760
Place: Brescia
Publisher: Giambatista Bossini
Edition: 1st
Language: Italian
Figures: engraved frontispiece, 2 engraved folding plates
Binding: original flexible paper boards; untrimmed
Pagination: pp. [10], xiii–xxiv, 208,
Collation: π^3b–C^{4}A–2C^4
Size: 285x212 mm
Reference: Not in Rcdi *BMI*

Cristiani was a mathematician from Brescia. He published at least six works on measurement, mathematics and architecture.

This is a history of measurement—mainly as used by mathematicians and architects. Cristiani discusses measurement of length, surface and weight in ancient and modern units with many references to the work of **Newton**, **Napier**, Riccioli, Snell, Castelli, **Galileo**, etc. He provides a table of his authorities at the end of the work. The allegorical frontispiece, illustrating measurement, was engraved by G. Giampiccoli after Francesco Monti.

Illustrations available:
Title page
Frontispiece

Cros, Georges (1884–1956)
See **Dantzig, Tobias**; Le nombre. Langage de la science

Crosman, Loring P. (1892–)
See **Buchholz, Werner**; *The Remington Rand Type 409-2 Electronic Computer* In *Proceedings of the I. R. E., Vol. 41 No. 10, October 1953*

C 205
Cullimore, Allan Reginald (1884–1956)

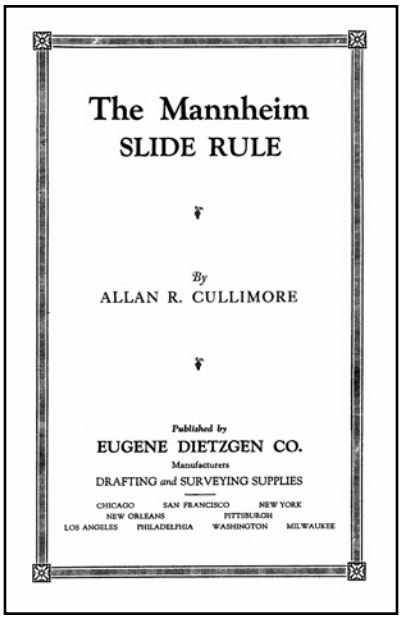
The Mannheim slide rule

Year: 1925
Place: Chicago
Publisher: Eugene Dietzgen
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 80
Size: 201x130 mm

Allan Cullimore, who received his B.S. degree from MIT in 1907, had an active career in professional education for engineers at a number of universities. He was the Director of the Newark Technical Institute in Newark, New Jersey, at the time this booklet was written.

The publication of this manual was sponsored by the Eugene Dietzgen Co., manufacturers of slide rules and other drafting and surveying equipment.

Illustrations available:
Cover



C 205

C 206
Cullimore, Allan Reginald (1884–1956)

The Phillips slide rule. A self-teaching practical manual with numerous illustrations and problems.

Year: 1925
Place: Chicago
Publisher: Eugene Dietzgen
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 80
Size: 201x130 mm

This is a minor variation on Cullimore's work on the Mannheim slide rule.

Illustrations available:
Title page

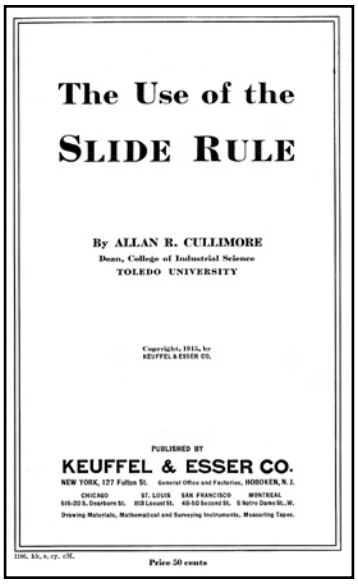
C 207
Cullimore, Allan Reginald (1884–1956)

The use of the slide rule

Year: 1915
Place: Hoboken
Publisher: Keuffel & Esser
Edition: 1st
Language: English
Binding: original cloth boards
Pagination: pp. 36, [4]
Size: 222x142 mm

Allan Cullimore was dean of the College of Industrial Science at Toledo University at the time this work was written. Produced from the class notes he provided his students, this book was published as part of the series of publications produced by the firm of Keuffel & Esser, a manufacturer of slide rules and similar equipment.

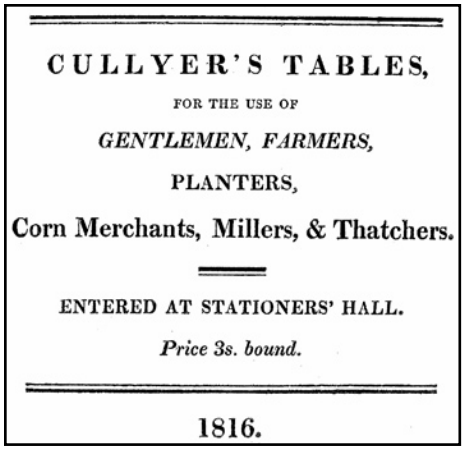
Although very similar to the **William Cox** books, also published by **Keuffel & Esser**, it was obviously not considered as a replacement for them as they were both available until at least the 1920s.


The Use of the
SLIDE RULE
By ALLAN R. CULLIMORE
Dean, College of Industrial Science
TOLEDO UNIVERSITY
Copyright, 1915, by KEUFFEL & ESSER CO.
PUBLISHED BY
KEUFFEL & ESSER CO.
NEW YORK, 127 Fulton St. General Office and Factories, HOBOKEN, N. J.
CHICAGO ST. LOUIS SAN FRANCISCO MONTREAL
Drawing Materials, Mathematical and Surveying Instruments, Measuring Tapes.
Price 50 cents

C 207

This is a presentation copy signed by the author, but without any indication of the recipient.

Illustrations available:
Title page


CULLYER'S TABLES,
FOR THE USE OF
GENTLEMEN, FARMERS,
PLANTERS,
Corn Merchants, Millers, & Thatchers.
ENTERED AT STATIONERS' HALL.
Price 3s. bound.
1816.

C 208

C 208
Cullyer, John (1770–a.1797)

The gentlemen's & farmer's assistant; containing, first, tables, for finding the content of any piece of land, from dimensions taken in yards. Second, tables, shewing the width required for an acre in any square piece of land, from one to five hundred yards in length. Third, tables, shewing the number of loads that will manure an acre of land, by knowing the distance of the heaps. Fourth, a table for measuring thatcher's work, from 1 to 64 feet long, and from 1 to 25 feet high.

Year: 1816
Place: London
Publisher: Stevenson, Matchett, & Stevenson et al.
Edition: 8th
Language: English
Binding: contemporary leather
Pagination: pp. 150, [6]
Collation: A–N^6
Size: 135x116 mm

This ready reckoner was first published in the late 1700s (2nd edition in 1798) and went through at least twelve editions before 1848. It begins with a short description of how any irregularly shaped piece of land may be subdivided into regular figures in order to determine the area. The largest table gives the area of any rectangular piece of land from the measurements of the sides (from 1 to 500 yards).

Illustrations available:
Title page
First page of table for finding area.

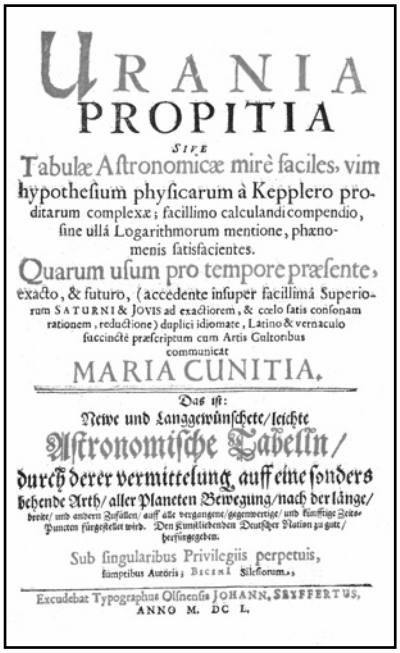
C 209

Cunitz, Maria (1610–1664)

Urania propitia sive tabulae astronomicæ mirè faciles, vim hypothesium physicarum à Kepplero proditarum complexæ; facillimo calculandi compendio, sine ullâ logarithmorum mentione, phænomenis satisfacientes. Quarum usum pro tempore præsente, exacto, & futuro, (accedente insuper facillima superiorum Saturni & Jovis ad exactiorem, & coelo satis consonam rationem, reductione) duplici idiomate, Latino & vernaculo succincte præscriptum cum artis cultoribus communicat …

Year: 1650
Place: Oelsnitz
Publisher: Cunitz
Edition: 1st
Language: Latin & German
Figures: 12 plates; 3 folding tables (two double-page); title in red and black
Binding: contemporary vellum over boards
Pagination: pp. [24], 145, 144–266, 288
Collation:):(⁶):():(⁶A–M⁶N²A–K⁶A–V⁴W⁴X–Z⁶
Size: 313x191 mm
Reference: Cas, 91

Maria Cunitz was the daughter of a wealthy Silesian family. Unlike most of her female contemporaries, she was given a fine education in languages, medicine, mathematics and astronomy. During the Thirty Years' War, the family was forced to take refuge in Poland, and she used that opportunity to prepare these tables, evidently her only publication.


URANIA
PROPITIA
SIVE
Tabulæ Aſtronomicæ mirè faciles, vim hypotheſium phyſicarum à Kepplero proditarum complexæ; facillimo calculandi compendio, ſine ullâ Logarithmorum mentione, phænomenis ſatisfacientes.
Quarum uſum pro tempore præſente, exacto, & futuro, (accedente inſuper facillimâ Superiorum SATURNI & JOVIS ad exactiorem, & coelo satis conſonam rationem, reductione) duplici idiomate, Latino & vernaculo ſuccinctè præſcriptum cum Artis Cultoribus communicat
MARIA CUNITIA.
Das iſt:
Newe und Langgewünſchete/leichte
Aſtronomiſche Tabellen/
durch derer vermittelung, auff eine ſonders
behende Arth/ aller Planeten Bewegung/nach der länge/
breite/ und andern Zufällen/ auff alle vergangene/gegenwertige/ und künfftige Zeitpunkten fürgeſtellet wird. Den Kunſtliebenden Deutſcher Nation zu gute/
herfürgegeben.
Sub ſingularibus Privilegiis perpetuis,
ſumptibus Autoris; Bicini Silesiorum.
Excudebat Typographus Olſnenſis JOHANN. SEYFFERTUS,
ANNO M. DC L.

C 209

Cunitz's tables, based on **Kepler**'s *Tabulae Rudolphinæ*, were designed to be both easier to use and more accurate (although it must be said that the typesetting in **Kepler**'s work is superior). In addition to the tables themselves, she also presents the theory upon which her revisions were based (essentially that of Copernicus). The first part contains a sexagesimal multiplication table resembling the first sheet of a similar table from **Jacob Christmann**'s *Theoria lunæ* published in 1611. This table, even without her other contributions, was an obviously useful addition.

Illustrations available:
Title page (color)
Sample table page

C 210

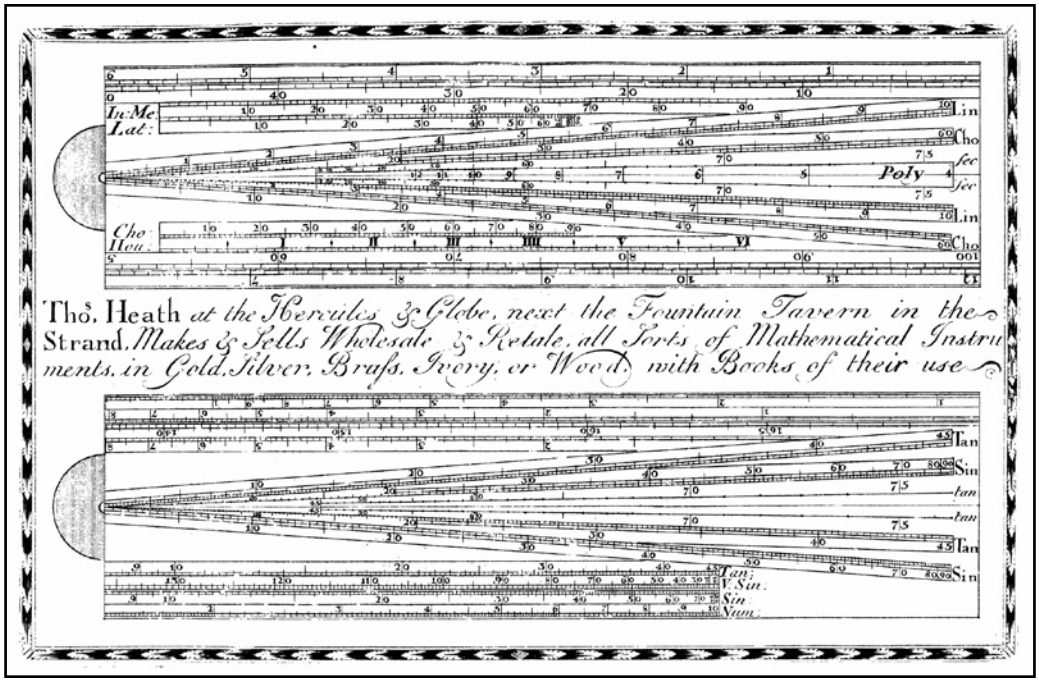
Cunn, Samuel (1685–a.1729)

A new treatise of the construction and use of the sector. Containing, the solutions of the principal problems by that admirable Instrument in the chief branches of mathematicks, viz. arithmetick, mensuration, plain trigonometry, spherick geometry, projection of the sphere, geography, astronomy, dialling, &c. Illustrated with a variety of necessary observations, and pleasant conclusions: containing several applications intirely new … Now carefully revised by Edmund Stone

Year: 1729
Place: London
Publisher: John Wilcox and Thomas Heath
Edition: 1st
Language: English
Figures: 2 engraved folding plates
Binding: contemporary paneled leather; embossed covers
Pagination: pp. [8], 216
Collation: A⁴B–O⁸P⁴
Size: 196x115 mm
Reference: Tay *MP II*, #32, p. 115

Samuel Cunn had originally produced this work as a series of essays to accompany his lectures. **Edmund Stone**, the well-known mathematician and translator of works on instruments, put them together into this volume. Stone remarks in the introduction that Cunn considered that most of the sectors available had *egregious faults*, and thus he and Thomas Heath, a well-known instrument maker, produced the twelve-inch sector used in this book. While it was certainly true that some of the sectors available contained older forms of the scales, good instruments were available, and this remark seems to be a marketing plan rather than an indication of the state of the art.

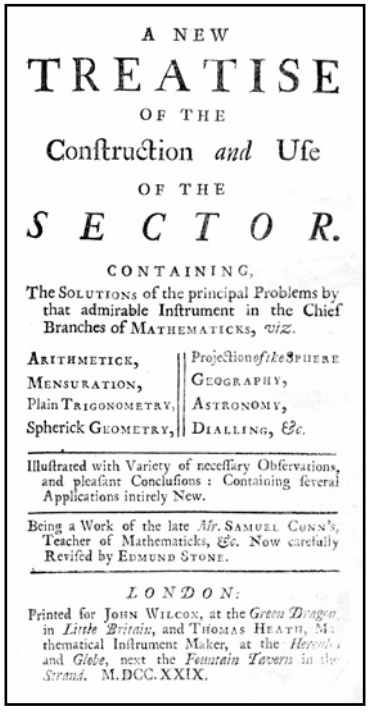
The first half of the text is a typical description of the use of the sector for arithmetical operations. The second



Cunn's sector, C 210

half concentrates on uses of the trigonometric scales, the production of sundials, spherical trigonometry and spherical geometry, these latter two subjects being applicable to navigation and astronomy.

Illustrations available:
Title page
Sector



A NEW
TREATISE
OF THE
Conſtruction *and* Uſe
OF THE
S E C T O R.

CONTAINING,
The SOLUTIONS of the principal Problems by that admirable Inſtrument in the Chief Branches of MATHEMATICKS, *viz.*

ARITHMETICK, | Projection of the SPHERE
MENSURATION, | GEOGRAPHY,
Plain TRIGONOMETRY, | ASTRONOMY,
Spherick GEOMETRY, | DIALLING, *&c.*

Illuſtrated with Variety of neceſſary Obſervations, and pleaſant Concluſions: Containing ſeveral Applications intirely New.

Being a Work of the late *Mr.* SAMUEL CUNN's, Teacher of Mathematicks, *&c.* Now carefully Reviſed by EDMUND STONE.

LONDON:
Printed for JOHN WILCOX, at the *Green Dragon* in *Little Britain*, and THOMAS HEATH, Mathematical Inſtrument Maker, at the *Hercules* and *Globe*, next the *Fountain Tavern* in the *Strand*. M.DCC.XXIX.

C 210

Cunn, Samuel (1685–a.1729), translator

See **Keill, John**; *The elements of plain and spherical trigonometry. Also a short treatise of the nature and arithmetick of logarithms*.

See **Newton, Isaac**; *Universal arithmetick: or, a treatise of arithmetical composition and resolution. To which is added, Dr. Halley's method of finding the roots of æquations arithmetically. Translated from the Latin by the late Mr. Raphson, and revised and corrected by Mr. Cunn.*

C 211

Cunnington, Susan

The story of arithmetic. A short history of its origin and development

Year: 1904
Place: London
Publisher: Swan Sonnenschein
Edition: 1st
Language: English
Binding: original cloth boards
Pagination: pp. xvi, 240
Collation: π^8A–P^8
Size: 182x120 mm
Reference: Cre *CL*, p. 114

Cunnington was a teacher or, as she is described on the title page, *Assistant Mistress, Brighton and Hove High School*.

This history of arithmetic is taken entirely from secondary sources (e.g., **W. W. R. Ball**, **F. Cajori**, **A. DeMorgan**, etc.), all of which are cited at the beginning of the text. While the material is usually correct, at least by the standards of the time, in places it suffers from too many things being taken from too many secondary sources with too little discrimination.

Illustrations available:
Title page


The Story of Arithmetic

A Short History of its Origin and Development

BY

SUSAN CUNNINGTON

(Late of Newnham College, Cambridge), Assistant Mistress, Brighton and Hove High School; Editor of Emerson's "Essay on Beauty," and Shelley's "Adonais."

WITH A PREFACE BY

PROFESSOR W. H. H. HUDSON, M.A.

Formerly Fellow and Lecturer of St. John's College, Cambridge

WITH SEVEN DIAGRAMS

LONDON

SWAN SONNENSCHEIN & CO., LIM.

PATERNOSTER SQUARE

1904

C 211

C 212

Curel Dubervois, Claude

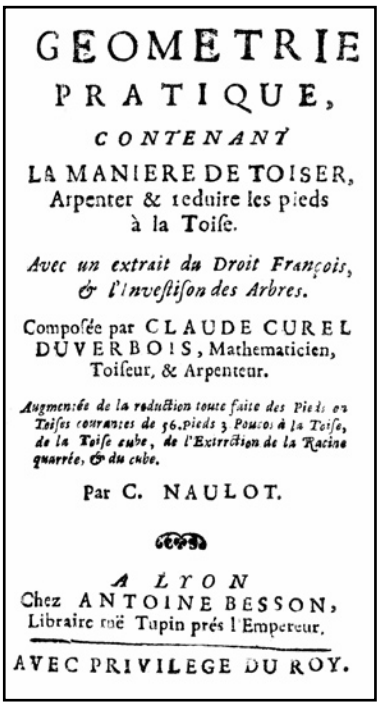
Geometrie pratique, contenant la maniere de toiser, arpenter & reduire les pieds à la toise. Avec un extrait du Droit Francois, & l'investison des arbes… Augementée de la reduction toute faite des pieds en toises courantes de 56. pieds 3 poucos à la toise, de la toise cube, de l'extrrction de la racine quarrée, & du cube par C. Naulot.

Year: [1683]
Place: Lyon
Publisher: Antoine Besson
Edition: 1st
Language: French
Figures: 1 engraved folding plate
Binding: contemporary leather; raised bands on spine
Pagination: pp. [10], 84 (lacks half title)
Collation: $a^5A–G^6$
Size: 147x80 mm

Nothing appears to be known about either Claude Curel Dubervois or the printer of this work. Even the date of publication is uncertain, 1683 being the date of the privilege.

This small volume is devoted mainly to the conversion, by arithmetic and geometric means, between various types of French measurements used in surveying and construction. The major French measure, the *toise*, was about two meters (six feet) in length but varied from city to city. Additional conversions of shorter lengths (equivalent to about a foot) are also considered, and the work contains small tables equating various measures. There is a figure of a protractor and a plane scale, by Claude Naulot (1681–1700), a Lyon merchant and author of a number of works on tariffs and measurement.

Illustrations available:
Title page
Diagram of protractor and plans scale.


GEOMETRIE PRATIQUE,

CONTENANT

LA MANIERE DE TOISER, Arpenter & reduire les pieds à la Toiſe.

Avec un extrait du Droit François, & l'Inveſtiſon des Arbres.

Compoſée par CLAUDE CUREL DUVERBOIS, Mathematicien, Toiſeur, & Arpenteur.

Augmentée de la reduction toute faite des Pieds en Toiſes courantes de 56. pieds 3 Poucos à la Toiſe, de la Toiſe cube, de l'Extrrction de la Racine quarrée, & du cube.

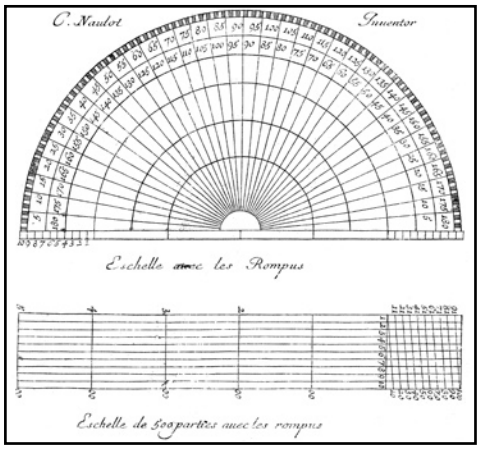
Par C. NAULOT.

A LYON

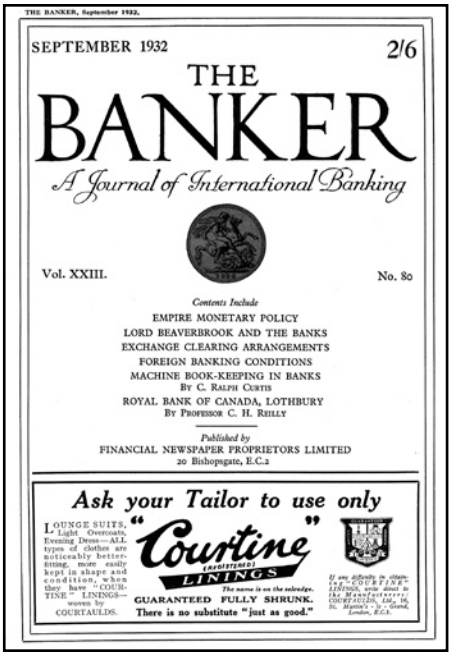
Chez ANTOINE BESSON, Libraire rue Tupin prés l'Empereur.

AVEC PRIVILEGE DU ROY.

C 212



Protractor and plane scale, C 212


THE BANKER, September 1932.

SEPTEMBER 1932 2/6

THE BANKER

A Journal of International Banking

Vol. XXIII. No. 80

Contents Include

EMPIRE MONETARY POLICY
LORD BEAVERBROOK AND THE BANKS
EXCHANGE CLEARING ARRANGEMENTS
FOREIGN BANKING CONDITIONS
MACHINE BOOK-KEEPING IN BANKS
By C. Ralph Curtis
ROYAL BANK OF CANADA, LOTHBURY
By Professor C. H. Reilly

Published by
FINANCIAL NEWSPAPER PROPRIETORS LIMITED
20 Bishopsgate, E.C.2

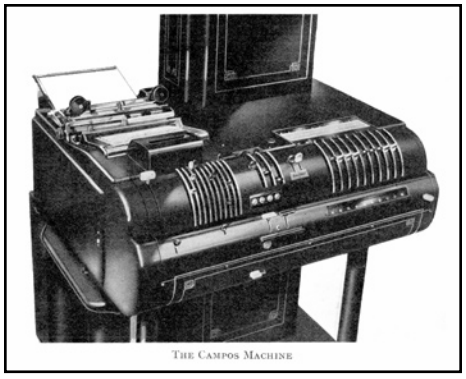
C 213

C 213
Curtis, Charles Ralph (1899–)

Machine book-keeping in banks. In *The Banker, Vol. XXIII, #80, Sept 1932*

Year: 1932
Place: London
Publisher: Financial Newspaper Proprietors
Edition: 1st
Language: English
Binding: original paper wrappers
Pagination: pp. 277–233
Size: 241x165 mm

See the entry for **Curtis, Charles Ralph**; *Mechanized accountancy*, 1932, in which one of the machines mentioned was a *ten thousand register machine*. Here that machine is the sole subject of the paper and is identified as:


The Campos Machine

Campos machine, C 213

… the only one of its kind in existence and is called the 'Campos,' after the Spanish banker of that name who invented it.

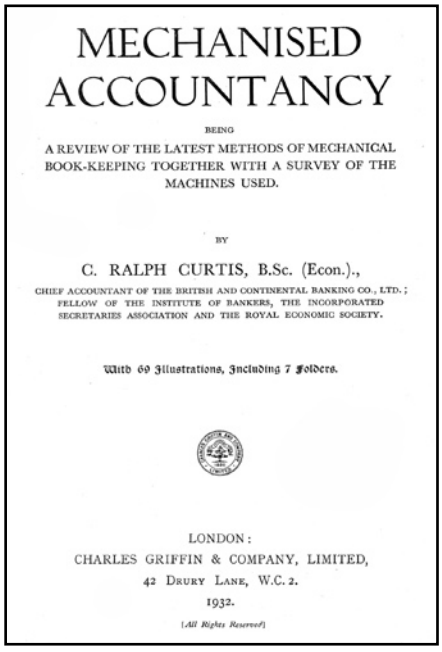
Illustrations available:
The Campos machine
Journal cover

C 214
Curtis, Charles Ralph (1899–)

Mechanised accountancy. Being a review of the latest methods of mechanical book-keeping together with a survey of the machines used.

Year: 1932
Place: London
Publisher: Charles Griffin
Edition: 1st
Language: English
Figures: 69 illustrations, including 7 folding plates
Binding: buckram boards; spine gilt
Pagination: pp. viii, 143, [3]
Collation: $\pi^4 1–9^8 \chi^1$
Size: 267x184 mm

In this description of the types of machines used to perform standard accounting jobs, Curtis considers everything from typewriter attachments for keeping balances to punched card machines and a *ten thousand register machine* capable of storing between 400 and 10,000 accounts. This large machine, named *Campos* after the Spanish banker and inventor of the device, was the only one of its kind.


MECHANISED ACCOUNTANCY

BEING
A REVIEW OF THE LATEST METHODS OF MECHANICAL BOOK-KEEPING TOGETHER WITH A SURVEY OF THE MACHINES USED.

BY

C. RALPH CURTIS, B.Sc. (Econ.),
CHIEF ACCOUNTANT OF THE BRITISH AND CONTINENTAL BANKING CO., LTD.; FELLOW OF THE INSTITUTE OF BANKERS, THE INCORPORATED SECRETARIES ASSOCIATION AND THE ROYAL ECONOMIC SOCIETY.

With 69 Illustrations, Including 7 Folders.

LONDON:
CHARLES GRIFFIN & COMPANY, LIMITED,
42 Drury Lane, W.C. 2.
1932.

[All Rights Reserved]

C 214

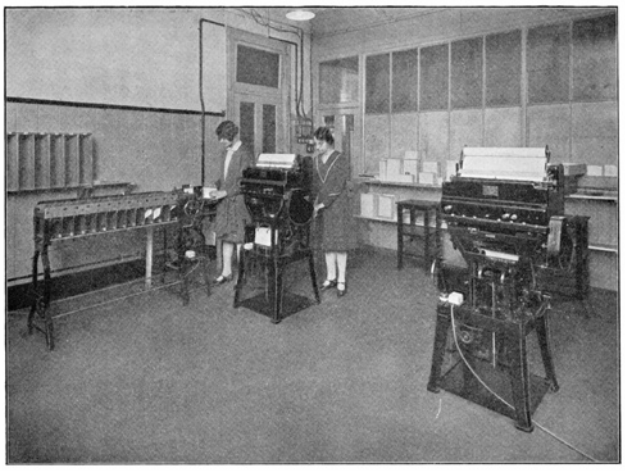


Fig. 46.—The Powers Samas Accounting Machine (Tabulator and Sorter).

Powers-Samas machines, C 214

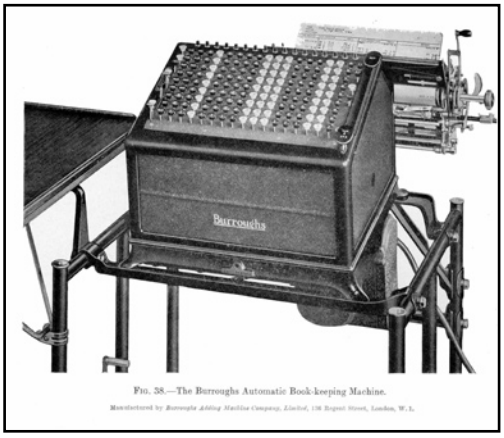


Fig. 58.—The Burroughs Automatic Book-keeping Machine.

Burroughs accounting, C 214

The punched card machines he describes are the ones manufactured and sold by Powers-Samas, which, rather than using the electrical connections pioneered (and patented) by **Hollerith**, rely on a mechanical pin/cable system to transmit the information. The system had the advantage of being readily adapted (in less than one minute) to manage cards of different physical formats. They were, at the time, the only machines capable of dealing with alphabetic information.

Illustrations available:
- Title page
- Ten-thousand register machine
- Powers-Samas accounting machine
- Powers-Samas machines
- Burroughs accounting machine

C 215

Curtis, George

A treatise on Gunter's scale, and the sliding rule: together with a description and use, of the sector, protractor, plain scale, and line of chords …

Year: 1824
Place: Whitehall, NY
Publisher: E. Adams
Edition: 1st
Language: English
Binding: contemporary leather; worn
Pagination: pp. 120
Collation: A–I^{6}
Size: 176x103 mm

This is an early American work on the use of the slide rule in surveying, gauging and the timber trade. Although it does describe both the sector and the slide rule, the only illustrations are those of a plane scale and a diagonal scale. It would require an experienced user to demonstrate the actual use of the sector and logarithmic scales to a reader. The majority of the work is composed of commercial tables of various kinds, a short table of logarithms of the numbers from 1 to 100 and a small traverse table for navigation.

Illustrations available:
- Title page

A

TREATISE

ON

GUNTER'S SCALE, AND THE SLIDING RULE:

TOGETHER WITH A

DESCRIPTION AND USE,

OF THE

SECTOR, PROTRACTOR, PLAIN SCALE, AND LINE OF CHORDS;

OR

AN EASY METHOD OF FINDING THE AREA OF SUPERFICES; AND OF MEASURING BOARDS; AND OF FINDING THE SOLID CONTENTS OF BODIES, ESPECIALLY THAT OF TIMBER, BY THE SLIDING RULE; AND ALSO OF GUAGING CASKS, AND ROUND TIMBER.

TO THESE ARE ADDED SEVERAL USEFUL LOGARITHMICK TABLES, TABLES OF LATITUDE AND DEPARTURE, AND A TABLE OF NATURAL RADII, NOT KNOWN TO HAVE BEEN HERETOFORE PUBLISHED: ALSO A TABLE OF ROUND, AND SQUARE TIMBER.

BY GEORGE CURTIS, MATH.

WHITEHALL, N. Y.
PRINTED AND PUBLISHED BY E. ADAMS.
1824.

C 215