STRÖMSTAD AKADEMIS FRIA SKRIFTSERIE

Alfred Holl

The earliest printed arithmetic and geometry books in each of the pre-1900 European languages of instruction

No. XXIII, AUGUSTUS MMXXVI

ISBN: 978-91-89331-37-2

Strömstad Academy's board decided on 24 July 2013 to establish Strömstad Academy's Free Writing Series with the following guidelines: Members of Strömstad Academy have the right to have manuscripts published electronically in Strömstad Academy's free writing series without review. The only thing that applies is that the author is responsible for the content and that it does not contravene Swedish law or contain copyrighted material. Manuscripts are sent directly to the webmaster.

Alfred Holl

The earliest printed arithmetic and geometry books in each of the pre-1900 European languages of instruction

– supplemented with all vernacular arithmetic incunabula and post-incunabula until 1520 –

with an appendix of the earliest printed arithmetic book in each of 45 selected languages worldwide in less detail

Corrected and extended edition August 2026

ISBN: 978-91-89331-37-2

Strömstad Akademi

2026

Preface

Since I started around 2005 to research into the history of mathematics, my interest – as a linguist (oriented towards scientific languages) – in early printed math (text-)books has been constantly growing. There is a considerable amount of secondary literature dealing with aspects of the history of mathematics in different cultural regions. What I was missing, however, was a systematic catalog of printed arithmetic / geometry books in various languages, especially focusing on the earliest ones in every language.

My primary motivation was to know these math books in more detail and to answer issues such as: When did mathematics education start in which cultural region? Which word problems were used in different cultural regions? Furthermore, I wanted to provide an inventory and an overview for other researchers.

In this context, my academic interest is in pre-1900 books as they are more unique and fascinating than the interculturally standardized ones after 1900.

The plans to compile this catalog already date some years back. I finally started working on it in late spring 2020 when I was professor for information systems at Technische Hochschule Nürnberg in Germany. In the end of 2021, I finished and published the basic version on arithmetic books. Meanwhile, I added:

All the vernacular arithmetic incunabula (that is books from the 15th century) and post-incunabula until 1520, a section on the categorization of the common mathematical problems in early arithmetic books and a second part on the earliest geometry book in each of the pre-1900 European languages of instruction.

This catalog can be considered as (rather) complete for European languages. As I am not an expert for non-European languages, however, I have to leave the corresponding part (appendix) in the state of a prototype that needs additions and completions in future editions by other researchers specialized in these languages.

My sincere thanks go to friendly, helpful and competent colleagues in libraries and at universities mentioned in the language sections. Above all, I am indebted to a great many of libraries that provide digital copies of early books for free.

July 2026 Alfred Holl

Table of contents: Arithmetic books – Languages inside Europe

(Language name in purple: earliest printed arithmetic book after 1900 or no arithmetic book at all)

Preface 0.5

Table of contents 0.6

0 Introduction 0.9

0.1 Overview 0.9
0.2 Motivation of the research focus 0.11
0.3 Temporal and regional focuses 0.12
0.4 Research methods 0.14
0.5 Structure of the catalog entries 0.16
0.6 Future research 0.24
0.7 Particularities of arithmetic books 0.25
0.8 Optimized problem categories in arithmetic books 0.36
0.9 Glossary for arithmetic books 0.46
0.10 Particularities of geometry books 0.47

Indo-European languages in Europe 1.1

1 Italic-Romance 1.2
Latin 1.2
Portuguese 1.14
Galician 1.18
Spanish 1.19
Catalan 1.33
Occitan 1.38
French 1.43
Romansh 1.72
Ladin 1.78
Italian 1.79
Sardinian 1.135
Romanian 1.136
2 Germanic 1.144
2.1 West Germanic 1.144
German 1.144
Yiddish 1.177
Low German 1.194
Frisian 1.200
Dutch 1.201
Afrikaans 1.207
English 1.211
2.2 North Germanic 1.224
Swedish 1.224
Danish 1.228
Norwegian 1.233
Icelandic 1.237
3 Slavic 1.240
3.1 West Slavic 1.240
Czech 1.240
Slovak 1.246
Polish 1.251
3.2 East Slavic 1.255
Russian 1.255
Ukrainian 1.261
3.3 South Slavic 1.266
Slovene 1.266
Croatian 1.270
Bosnian 1.276
Serbian 1.280
Montenegrin 1.286
Bulgarian 1.287
3.4 Other Slavic lang. 1.294
4 Baltic 1.295
Latvian 1.295
Lithuanian 1.299
5 Celtic 1.304
Scottish Gaelic 1.304
Irish 1.305
Welsh 1.309
Breton 1.314
6 Hellenic 1.315
Modern Greek 1.315
7 Albanic 1.322
Albanian 1.322

Non-Indo-European languages in Europe 1.326

8 Finno-Ugric 1.326
Finnish 1.326
Estonian 1.331
Hungarian 1.335
9 Language isolate 1.339
Basque 1.339

Table of contents: Arithmetic books – Appendix – Languages outside Europe

(Language name in purple: earliest printed arithmetic book after 1900; in turquoise: only coarse description)

Indo-European languages outside Europe 1.340

10 Armenic 1.340
Armenian 1.340
11 Iranic 1.344
Kurdish 1.344
Persian 1.345
12 Indo-Aryan 1.347
Urdu 1.347
Sindhi 1.350
Hindi 1.351
Panjabi 1.352
Gujarati 1.354
Marathi 1.358
Sinhalese 1.359
Nepali 1.360
Bengali 1.361
Assamese 1.365

Non-Indo-European languages outside Europe 1.366

13 Kartvelian 1.366
Georgian 1.366
14 Afro-Asiatic 1.371
Arabic 1.371
Hebrew 1.377
Amharic 1.391
Tigrinya
Somali
Hausa
15 Niger-Congo 1.392
Sesotho 1.392
Swahili 1.393
Tswana 1.394
Zulu 1.395
Chichewa 1.396
Kongo
(Kinya-)Rwanda
Swazi
Xhosa
Igbo
Yoruba

16 Turkic 1.397
Turkish (Ottoman) 1.397
Azerbaijani 1.402
Kazakh
Kirghiz
Tatar
Uighur
17 Mongolic 1.403
Mongolian
18 Dravidian 1.407
Kannada/Kanarese 1.407
Malayalam 1.411
Tamil 1.412
Telugu 1.413
19 Kra-Dai 1.414
Thai 1.414
Lao 1.415
20 Austroasiatic 1.418
Khmer 1.418
Vietnamese

21 Austronesian 1.419
Malagasy 1.419
Malay 1.420
Indonesian 1.421
Sundanese 1.422
Javanese 1.423
Batak 1.424
Tagalog (Filipino) 1.428
Marshallese 1.433
Gilbertese/Kiribati 1.435
Fijian 1.436
Samoan 1.437
Tongan 1.438
Tahitian 1.439
Marquesan 1.441
Hawaiian 1.442
Maori 1.443
22 Sino-Tibetan 1.444
Burmese 1.444
Chinese 1.448
23 Japonic 1.451
Japanese 1.451
24 Koreanic 1.455
Korean 1.455

Table of contents: Geometry books – Languages inside and outside Europe

(Purple: earliest printed geometry book after 1900 or no geometry book at all; turquoise: only coarse description)

Indo-European languages in Europe 2.1

1 Italic-Romance 2,2
Latin 2.2
Portuguese 2.3
Spanish 2.7
French 2.11
Other West Rom. lg. 2.17
Italian 2.18
Romanian 2.19
2 Germanic 2.26
2.1 West Germanic 2.26
German 2.26
Dutch 2.32
English 2.40
2.2 North Germanic 2.45
Swedish 2.45
Danish 2.49
Norwegian 2.54
Icelandic 2.58
2.3 Other Germ. lang. 2.62
3 Slavic 2.63
3.1 West Slavic 2.63
Czech 2.63
Polish 2.68
3.2 East Slavic 2.72
Russian 2.72
3.3 South Slavic 2.80
Slovene 2.80
Croatian 2.84
Bosnian 2.88
Serbian 2.92
Montenegrin 2.100
Bulgarian 2.105
3.4 Other Slavic lang. 2.110
4 Baltic 2.111
Latvian 2.111
Lithuanian 2.115
5 Celtic languages 2.118
6 Hellenic 2.119
Modern Greek 2.119
7 Albanic 2.124
Albanian 2.124

Non-Indo-European languages in Europe 2.125

8 Finno-Ugric 2.125
Finnish 2.125
Estonian 2.129
Hungarian 2.133

Indo-European lang. outside Europe 2.137

10 Armenic 2.139
Armenian 2.139

Non-Indo-European languages outside Europe 2.123

13 Kartvelian 2.142
Georgian 2.142
14 Afro-Asiatic 2.143
Arabic 2.143
Hebrew 2.147
16 Turkic 2.152
Turkish (Ottoman) 2.152

0 Introduction

0.1 Overview

The main objective of this catalog is to present the earliest printed arithmetic and geometry book in each of the European and West Asian languages of instruction. If a book was printed before 1900, it is described briefly (author, title facsimile, title transcription, title translation and content overview). For the remaining European languages, the earliest arithmetic / geometry book was either published after 1900 or there is no such book at all (purple color in the table of contents).

Similar descriptions of all vernacular arithmetic incunabula and post-incunabula until 1520 are added; there are no such geometry books.

This core focus is extended with descriptions of the earliest printed arithmetic book in each of selected languages worldwide, also only if it was printed before 1900. The selection is done pragmatically. It depends on the 'readability' (from a European point of view) of the script used and the general accessibility of books via library catalogs (e.g. WorldCat, national catalogs), via digital copies and via the entire Internet.

With regard to that, the descriptions will differ in their degree of detail, from the high level achieved for European languages to only rough and coarse descriptions (turquoise color in the table of contents).

For European languages, the catalog can therefore be considered as (rather) complete, for non-European languages, it is a first rough view into their history of mathematics.

The languages are arranged in four categories, from Indo-European and non-Indo-European languages in Europe to – in the appendix – Indo-European and non-Indo-European languages outside Europe. Within the categories, the languages are grouped according to 24 traditional language families and within the families according to the geographic location.

The catalog shall open the access to the history of mathematics in various ethnic and linguistic groups for researchers of different disciplines from cultural studies to the history of mathematics education and motivate in-depth comparative analyses.

Before 1900, arithmetic books were available in 43 European and West Asian languages, while geometry books only in 32 (apart from Latin); see table.

Family	Language	Arithmetic	Geometry
West Germanic	German	1475	1539
	Dutch	1508	1513
	English	1526	1551
	Low German	1527	
	Yiddish	1699	
	Afrikaans	1882	
Romance	Italian	1478	1494
	Catalan	1482	
	Latin	1483	1503
	Spanish	1486	1573
	Occitan	1492	
	French	1496	1511
	Portuguese	1519	1728
	Romanian	1777	1837
	Romansh	1808	
	Galician	1979	
West Slavic	Czech	1530	1734
	Polish	1538	1556
	Slovak	1775	
	Sorbian	1951	
Afro-Asiatic	Hebrew	1533	1796
	Arabic	1812	1843
North Germanic	Danish	1552	1704
	Swedish	1614	1721
	Norwegian	1645	1827
	Icelandic	1746	1889

Family	Language	Arithmetic	Geometry
Hellenic	Greek	1569	1798
Finno-Ugric	Hungarian	1577	1784
	Estonian	1806	1878
	Finnish	1835	1847
Armenic	Armenian	1675	1794
East Slavic	Russian	1699	1708
	Ukrainian	1863	
	Belarusian	1916	
South Slavic	Croatian	1758	1869
	Serbian	1767	1841
	Slovene	1781	1872
	Bosnian	1827	1892
	Bulgarian	1833	1867
	Montenegrin	1900	1900
Celtic	Welsh	1768	
	Irish	1900	
	Breton	1943	
	Scottish Gaelic	2006	
Baltic	Latvian	1806	1862
	Lithuanian	1885	1900
Turkic	Turkish	1831	1797
Kartvelian	Georgian	1861	1891
Albanic	Albanian	1886	
Basque	Basque	1913	

Publication years of the earliest arithmetic and geometry books in European and West Asian languages arranged by language families sorted by the publication year of the earliest arithmetic book (publication years after 1900 are only approximately correct)

0.2 Motivation of the research focus

The reasons why this catalog concentrates on always the earliest printed arithmetic / geometry book in various vernacular languages are:

1 Arithmetic / Geometry: Arithmetic is the gateway to other branches of mathematics, such as algebra, astronomy, geometry etc. Merchants and traders in the early modern times needed arithmetic for all sorts of commercial calculations. On the other hand, geometry opens the way to land surveying, architecture, painting, military science etc.

2 Vernacular[1] languages: Using classical Latin as *lingua franca* of science, restricted knowledge to people who understood Latin. This language was taught (and used as teaching language for advanced pupils) in monastery schools, cathedral schools and high schools (at that time called gymnasium) as preparation for university studies. Mathematics only played a subordinate role in that school system; students learnt it as part of the quadrivium at universities during introductory studies in the seven liberal arts. The upcoming demands of merchants for alphabetization and fundamentals of mathematics in the 15th century, however, lead to the foundation of municipal schools where vernaculars were used as teaching languages (mathematics was taught by so-called abacus masters (Italian *abacisti*) or master arithmeticians (German *Rechenmeister*). That allowed knowledge to leave the former Latin-based educational system and made it available for larger parts of the population (nevertheless I include selected Latin math books in this catalog).

3 Printed books: In contrast to exhaustingly copying manuscripts, the invention of printing with moveable types could quickly produce big quantities of the same text. Thus, it was easier to spread knowledge to more and more people. Even autodidactic studying independent of any human teacher and any school became possible.

4 The earliest printed books: One gains information about the beginning of textbook-based teaching in various languages.

[1] Whether a language is vernacular, can depend on the region: e.g. English was not a vernacular in colonial India, but is a vernacular in the United Kingdom.

One understands how a certain discipline was taught in class and which parts of it were considered as important and profitable for pupils from the very beginning. The earliest years of publication for each language show the temporal process of spreading a discipline throughout the world. As a side effect, the earliest years of publication also show the 'national awakening', the development of nation states and national awareness in the 19th century, and the recognition of minority languages in the 20th century. In addition, one often finds attractive bibliophile rarities.

0.3 The temporal and regional focuses

1 The temporal focus

My research focuses exclusively on pre-1900 math books as they contain the traditional commercial mathematics and are more unique and fascinating than later ones. After 1900, math books are often interculturally standardized. They have another quality as they are designed for primary schools and address pupils at an earlier age. Therefore, if the earliest printed arithmetic / geometry book in a certain language was published before 1900, it is described with author, title facsimile, title transcription, title translation and content overview according to the structure in 0.5. Otherwise, it is only briefly mentioned.

2 The regional focus

Within this catalog, a complete investigation of all of the languages where arithmetic books might have been printed before 1900 is impossible. I focus on Europe and reduce completeness, exactness and details, the farther I move away from Europe.

Regarding geometry books, I limit the scope of the descriptions to European and West Asian languages.

The earliest printed math books in all European languages are examined, including minor languages that were established as school languages before 1900.

If a still existing language had no arithmetic / geometry book before 1900, this information (partly including data about its earliest math book after 1900) is mentioned on an extra page (e.g. Basque, Belarusian, Galician etc.)

European languages which were not standardized and codified before 1900 are excluded. This applies especially to language varieties in dialect continua, such as Macedonian in the South Slavic dialect continuum. Therefore, the catalog only presents fairly prominent varieties from dialect continua.

A dialect continuum is defined as a regionally continuous group of language varieties. Neighboring varieties are mutually well understandable, but the larger the distances, the less understandable the varieties get. Examples: Romance from Portuguese to Italian, North Germanic from Icelandic to Danish, West Germanic from English to German, South Slavic from Slovene to Bulgarian, West Slavic from Czech to Polish.

Regarding languages outside Europe (in the appendix), completeness of the presented languages cannot be achieved, nor completeness of the descriptions of individual arithmetic books. Europe's neighboring languages in the Middle East (e.g. Arabic, Armenian, Hebrew, Turkish) are covered as far as possible. Regarding languages in Africa, South Asia (including the Eastern Indo-European languages), East Asia, Oceania, only some highlights can be picked out.

This is due to the following facts:

– 'Readability' (from a European point of view) of the local scripts: Some of those languages use syllabic and ideographic scripts of their own so that even library catalogs are not accessible for a standard European historian of mathematics and it can be difficult to find competent scientists willing to help with search, transcriptions, Romanizations (transliterations) and translations.

– Availability in libraries: The general accessibility of books in a given language via library catalogs (e.g. WorldCat, national catalogs), via digital copies and via the entire Internet can be very restricted.

– Local history of mathematics as research focus: In some of those ethnic groups, the local history of mathematics has not yet been a research focus so that one does not find any corresponding secondary literature, at least not in English.

Remark: It turns out that in only four (!) languages outside Europe the earliest printed arithmetic book was published before 1800: Armenian, Chinese, Hebrew and Japanese. Outside Europe, book printing was not used before 1800 with two exceptions: China and Japan play a special role. There, book printing was introduced earlier than in Europe, but often not with moveable types, but using woodcut printing for entire pages. The reason could be the high expenses for providing several copies of each of the different characters, e.g. the ca. 5,000 of Chinese compared to at the most 100 (including uppercase and lowercase letters, digits, diacritics and punctuation marks) in European languages.

0.4 Research methods

1 Methods to find early math books

Depending on the (expected) year of publication of the earliest arithmetic / geometry book in a given language, one searches the following bibliographic sources:

– *Union Catalog of Incunabula* (Berlin State Library; period 1470–1500)
– *Incunabula Short Title Catalog ISTC* (London British Library; period 1470–1500)
– *Karlsruher Virtueller Katalog*
– *WorldCat*
– *CERL* (Consortium of European Research Libraries) *Thesaurus*
– National library catalogs
– Catalogs of early printed books in certain languages, countries and regions
– *Ars mercatoria* (by Hoock, Jochen; Jeannin, Pierre; Paderborn 1991, 1993; period 1470–1700)
– *arxiv.org* (open-access archive for scholarly articles in the fields of physics, mathematics, etc.)
– Publications on the history of mathematics in certain languages, countries and regions
– The Internet with search engines and AI tools

In addition, one consults librarians in national libraries and foreign researchers.

2 Methods to understand the contents of early math books

Regarding the contents of the math books found in a catalog, you cannot just rely on the keywords mentioned there, but you yourself have to understand title and table of contents (section headings) in order to judge a book. That is, you have to translate them with the help of online and printed dictionaries, grammar books, AI tools, machine translation systems (Google translate – only for today's language states) and even friendly and competent native speakers (librarians and researchers).

This task is challenging as:

– Many vernaculars underwent considerable changes in the period since the print of the earliest arithmetic book.

– At the time of the print of an early math book, a language standard or norm was possibly not yet established and several dialects were competing.

– Mathematical terminology was often not yet established either at the time of the print. Especially in agricultural societies and farming cultures, authors of mathematical treatises had to coin mathematical terms from scratch on their own. Different authors could use different expressions, some of which later completely disappeared and became extinct. They cannot be found in dictionaries. The meaning of such a term has to be reconstructed by investigating the mathematical content of the math book where it occurs and by comparing this book with other books of the same time. In dialect continua, it can help to consult dictionaries of neighboring languages. The figures of geometrical objects and constructions in geometry support easier understanding.

In cases of doubt, my own linguistic and mathematical knowledge had to serve as final instance for the check of syntactic correctness and semantic sense.

0.5 Structure of the catalog entries

A description of a math book in this catalog comprises up to five parts. One part normally corresponds to one page, but can sometimes have more than that, especially in the case of long tables of contents.

Part one, left column

Language

Number of the arithmetic / geometry book in this language following the temporal sequence of the years of publication starting with 1 for the earliest one (if I describe more than one)

Author

Biographic data of the author

Title

Place of publication: printer (publisher) year
(with very early prints: date YYYY-MM-DD)

Brief information about later editions if I consider them as important.

Number of pages

C(atalog): if existing, ID in *Ars mercatoria* (Hoock/Jeannin, abbreviated Hoock);
if existing, ID in *Union Catalog of Incunabula* (UCatInc) and in *Incunabula Short Title Catalog* (ISTC);
if existing, page in Egmond, Warren van: *Practical mathematics in the Italian Renaissance*. Firenze 1980 (abbreviated Egmond);
if necessary, *WorldCat* (with OCLC (Online Computer Library Center) Number) etc.

D(igital): URL for digital copy; serves also as reference for the illustrations

R(eprint): bibliographic data

L(ibrary): (selected) holding libraries

E(dition) or detailed comments

S(econdary literature): bibliographic data [Ries-Kolloquium means Conference Proceedings, edited by Gebhardt, Rainer under various titles, in the series “Schriften des Adam-Ries-Bundes Annaberg-Buchholz”; Symposion means Österreichisches Symposion zur Geschichte der Mathematik, edited by Binder, Christa]

V(erification): reference that it is the earliest arithmetic book (if not mentioned in *Ars mercatoria*) / geometry book

Place names (biographical places, places of publication and places of libraries) are indicated in the local language: e.g. Lyon, not Lyons, München, not Munich, Praha, not Prague, Roma, not Rome.

A library is indicated with the place name in the local language followed by the library name, in standard cases using a few abbreviations:

B Bibliothek, bibliothèque, biblioteca
BSB Bayerische Staatsbibliothek (München)
BL British Library (London)
BN biblioteca nazionale, biblioteca nacional
BNF Bibliothèque Nationale Française (Paris)
HAB Herzog-August-Bibliothek (Wolfenbüttel)
L library
LMU Ludwig-Maximilians-Universität (München)
NL national library
ÖNB Österreichische Nationalbibliothek (Wien)
SB Staatsbibliothek (Berlin), Staatliche Bibliothek (Bamberg)
SSB Staats- und Stadtbibliothek (Augsburg)
SUB Staats- und Universitätsbibliothek (Dresden, Göttingen, Hamburg)
U university (library)
ULB Universitäts- und Landesbibliothek (Darmstadt, Halle/Saale, Jena)
– no library recorded in WorldCat; no digital copy in the internet

Due to the availability of space on this page, information in the left column can be moved to the left column of the following parts, or the information can be arranged in another suitable way.

<u>Part one, right column</u>

Photo of the title page

Photo of the colophon (inscription at the end of a book that can contain facts relative to its author, title, printer, publisher, place of publication, year or date of publication) – if there is any at all.

Part two

Transcription and/or Romanization of the title page (and of the colophon).

Transcription means: conversion to modern letters in the same script.

Romanization (transliteration) means: literal conversion to the Latin script; correct pronunciation requires that the reader is familiar with the original script.

Depending on the original script, there is a transcription or a Romanization or both.

Latin script:

Transcription only

Greek script:

Romanization only. A transcription is not necessary as the original prints are well readable.

Conservative Romanization with *ch* (not *kh*) for χ, *ph* (not *f*) for φ and *th* for θ as those spellings are still well known in English from foreign words.

Cyrillic script:

Romanization only. A transcription is not necessary as the original prints are well readable.

In general, the transliteration is based on ISO 9 that takes its Latin letters from the Czech alphabet. ISO 9 is an extension of the one-to-one corresponding Cyrillic and Latin scripts for varieties of the Serbian language.

ISO 9 represents national Cyrillic alphabets in a single transliteration table.

National differences in the phonetic value of Cyrillic characters are neglected, e.g. и corresponds to the phoneme /i/ in Russian and to /y/ in Ukrainian.

Hebrew script:

Transcription, partly Romanization. A transcription is necessary as most original prints are not well readable.

In general, the Romanization is based on ISO 259 and not on DIN 31636: that is, *w* (not *v̇*) for ו, *ṣ* (not *ts*) for צ, *q* (not *k̇*) for ק and in certain cases *š* (not *sh*) for ש.

The following phonetic distinctions are borrowed from DIN 31636:

b/b̲ (instead of *b/v*) for ב, *k/k̲* (instead of *k/kh*) for כ and *p/f* for פ. *b̲* designates a ב pronounced as *v*, *k̲* a כ pronounced as *kh*, *f* a פ pronounced as *f*.

Trailing ה can be omitted in the Romanization.

ו and י are Romanized as consonants or vowels.

The mere consonant Romanization is completed with the necessary vowels.

As in Latin, the vowel lengths (macrons ¯) are mostly not indicated.

For other scripts (e.g. Arabic, Armenian, Bengali, Thai), there is neither transcription nor Romanization, only a translation.

The following table shows the Romanization principles for Greek, Cyrillic and Hebrew scripts:

Greek	Romanization	Russian Cyrillic	Romanization	Hebrew	Romanization
α	a	а	a	א	–, vowel
β	b	б	b	ב	b, b̲
		в	v		
γ	g	г	g	ג	g
δ	d	д	d	ד	d
		ђ (Serbian)	đ		
ε	e	е, ё	e, ë	ה	h
		є (old)	ê		
ϛ (stigma) [Ϝ (digamma)]	st [w]			ו	w (not v̤), o, u
		ж	ž (not zh)		
ζ	z	з	z	ז	z
η	ē			ח	ḥ
θ	th	ѳ (old)	f̀	ט	ṭ
ι	i	и; й	i; j	י	y, i
		і (old; Ukr.)	i, i̤ (not ì)		
κ	k	к	k	כ	k, k̲
λ	l	л	l	ל	l

Greek	Romanization	Russian Cyrillic	Romanization	Hebrew	Romanization
μ	m	м	m	מ	m
ν	n	н	n	נ	n
ξ	x	ѯ (old)	x	ס	s
ο	o	о	o	ע	ʿ
π	p	п	p	פ	p, f
				צ	ṣ (not ts, tz)
ϟ (koppa)	q			ק	q (not ḳ)
ρ	r	р	r	ר	r
σ	s	с	s	ש	ś; š (not sh)
τ	t	т	t	ת	t
		ћ (Serbian)	ć		
υ	y, u (diphthong)	у oy (old)	u u		
		ѵ (old)	ẏ		
φ	ph (not f)	ф	f		
χ	ch (not kh)	х	ḥ (not h, kh)		
ψ	ps	ѱ (old)	ps		
ω	ō	ѡ (old)	ō		

Greek	Romanization	Russian Cyrillic	Romanization	Hebrew	Romanization
ʿ (spiritus asper)	h				
		ц	c (not ts)		
		ч	č (not ch)		
		ш	š (not sh)		
		щ	ŝ (not shch, šč)		
		ъ	”		
		ы	y		
		ь	’		
		ѣ (old)	ě (not ye)		
		э	è		
		ю	û (not û, ju, yu)		
		я	â (not â, ja, ya)		
		ѫ (old)	ǫ		
		ыѫ (old)	įǫ		
		ѧ (old)	ę		
		ыѧ (old)	įę		

Part three

English translation of the title page (and of the colophon).

Part four

Content overview in English compiled according to the table of contents and/or the section headings and/or information in the title and/or the mathematical text itself. Only brief references to paratexts (prefaces, dedications, greetings, approbations etc.).

For some languages, there is a photo of the table of contents or a part of it.

Page or pdf numbers are added only if finding a section in the original is very complicated.

Interesting vernacular mathematical terminology is added in parentheses in italics (partly reduced to the lexical base, that is, the nominative singular for nouns and the infinitive for verbs).

I translate the old expressions *whole number* and *broken number* and their corresponding expressions in other languages with *integer* and *fraction* although many early arithmetic books only refer to non-negative integers and non-negative fractions.

I use the Latin arithmetic terminology as explained in the glossary (0.7). Therefore, I say *species* instead of *basic arithmetic operation* etc.

The German word *Trapez* (quadrangular with two parallel sides):
I use the British equivalent *trapezium*. The American equivalent *trapezoid* is avoided to prevent confusion, as the British *trapezoid* refers to a quadrilateral with no parallel sides.

Part five – Supplement

Additional brief information about arithmetic books published later than the last numbered one if I consider it as useful.

0.6 Future research

For a future edition, this catalog needs additions and completions regarding non-European languages.

It will be necessary

– to research languages not yet examined

– to refine and complete currently coarse and rough descriptions

– to order or find digital copies of further early math books

– to find earlier math books in languages already examined

This catalog provides basic material for research into the history of mathematics in specific cultures, e.g.

– mathematical terminology

– mathematical notations (arithmetic operators, algebraic equations)

– pure-mathematical techniques (e.g. basic arithmetic operations, rule of three, algebra, false position method)

– mathematical applications in commercial problems (e.g. profit and loss, barter, interest, company, currency exchange, measure conversion, mixture etc.)

– mathematical applications in recreational problems (e.g. find a number, shared work, nesting, motion, temporal part, additive partition, progression and series)

– origin and spreading of individual problems or problem types

– etc.

0.7 Particularities of arithmetic books

In early modern times, arithmetic books were necessary for many merchants. They had to learn how to calculate with numbers represented with Arabic digits and how to solve various business mathematics problems, as explained in the section on problem categories. Their teachers were master arithmeticians (in German *Rechenmeister*). Those who wanted to raise their reputation published their own arithmetic books in an increasing number of languages, often plagiarizing other books. As a result, the number of arithmetic books exploded after 1530 and covered 40 European languages by 1900.

The following maps show the century or half-century in which the earliest arithmetic book was published for each pre-1900 European language of instruction. A first table presents this data by language family and half-century. A second table lists the arithmetic incunabula and post-incunabula.

Remark on algebra:

Around 1500, Algebra was still a 'secret science' only available in manuscripts and Latin books, such as:
Johannes Scheubel, *Algebrae compendiosa facilisque descriptio*, 1551
Girolamo Cardano, *Ars magna*, 1545

At first, business mathematics problems were solved without algebra. Instead, simpler methods were used, such as the rule of three and the false position method. It took the entire 16th century until sections on algebra slowly appeared in arithmetic books. The first algebra books in vernacular languages were:

German: Heinrich Schreyber, *Ein new kunstlich Buech*, 1521
Christoff Rudolff, *Behend und hubsch rechnung*, 1525

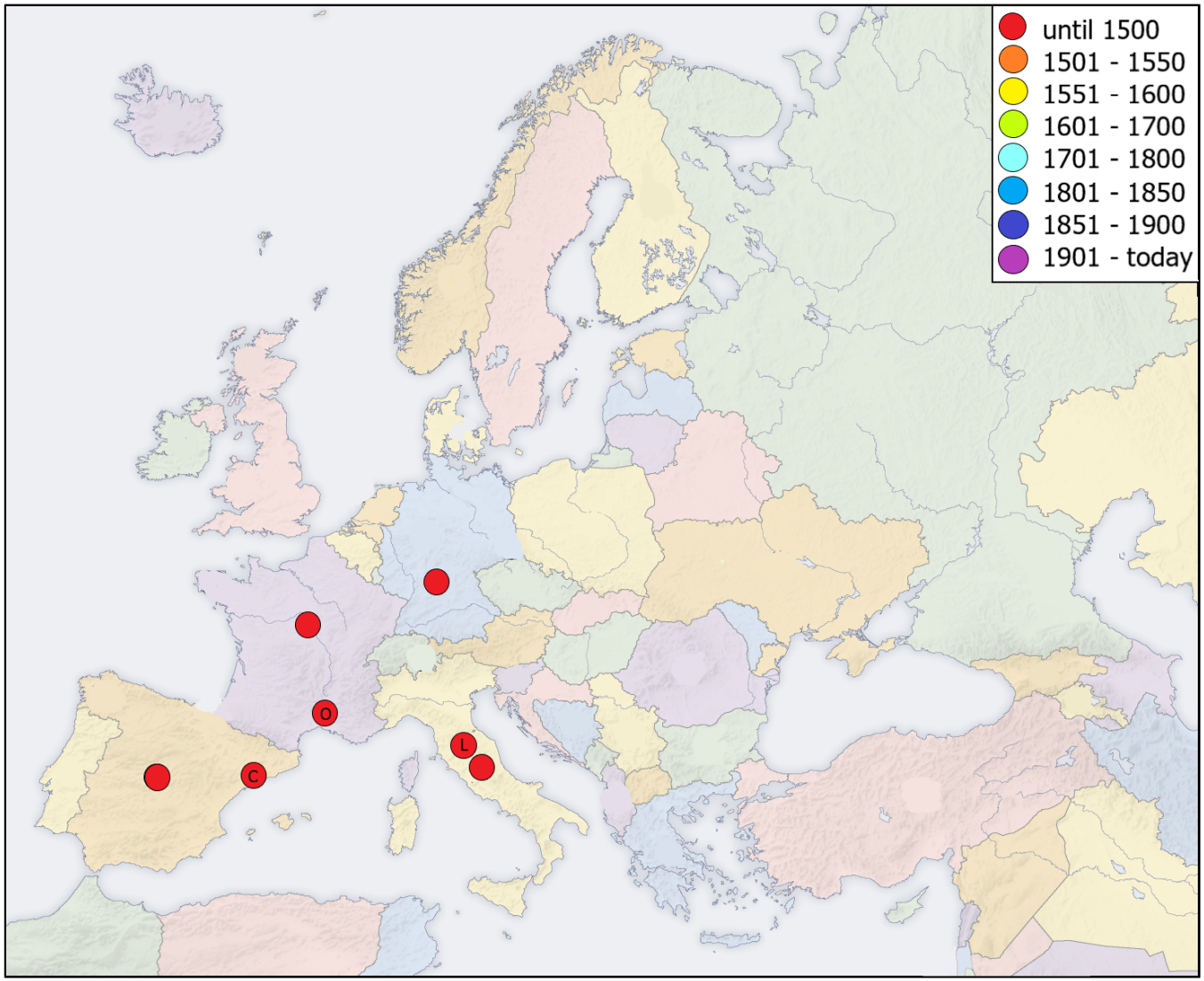
Dutch: Gielis van den Hoecke, *... boeck in dye edel conste Arithmetica ... edel regule Cos, die langhe verborghen heeft gheweest*, 1537

English: Robert Recorde, *The whetstone of witte*, 1557

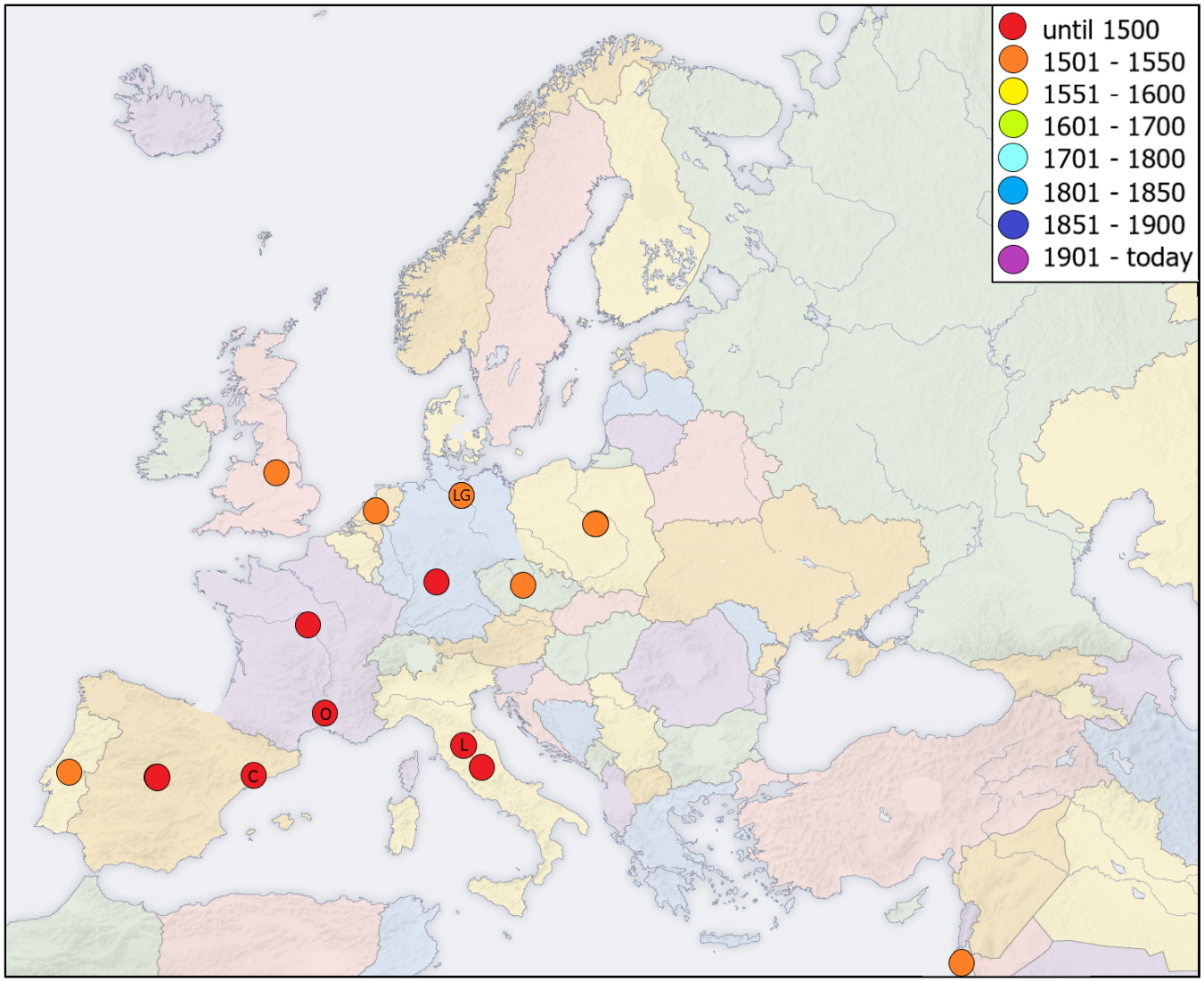
Italian: Luca Pacioli, *Summa*, 1494
Niccolò Tartaglia, *General trattato*, 1556
Raffaele Bombelli, *L'algebra*, 1572

French: Estienne de La Roche, *L'arismétique*, 1520, based upon Nicolas Chuquet, *La triparty*, unpublished manuscript, 1484
Jacques Peletier, *L'Algèbre*, 1554
Simon Stevin, *L'arithmétique*, 1585

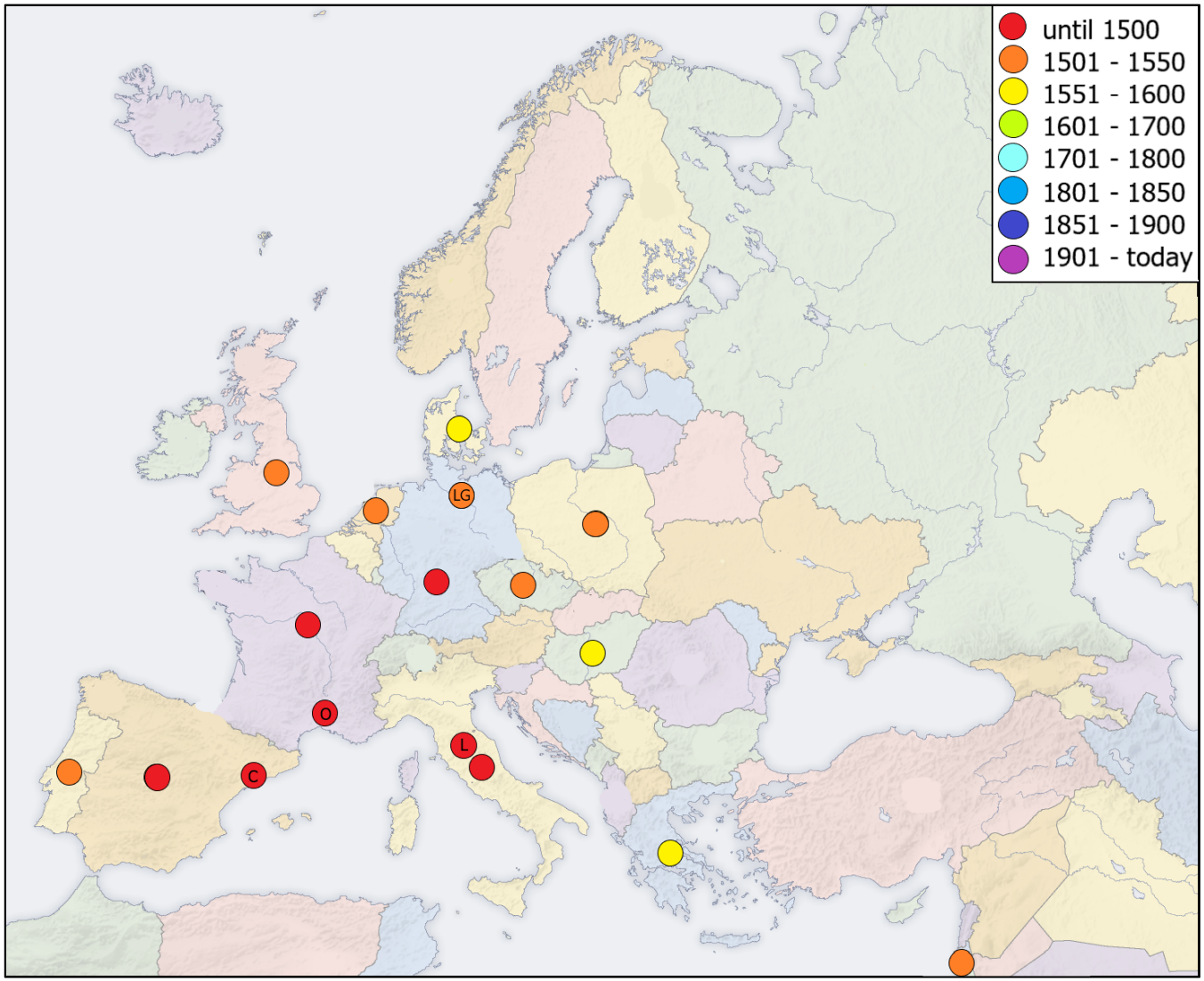
Spanish: Marco Aurel, *Libro primero de Arithmetica Algebratica*, 1552
Pedro Nunes / Núñez, *Libro de Algebra en Arithmetica y Geometria*, 1567



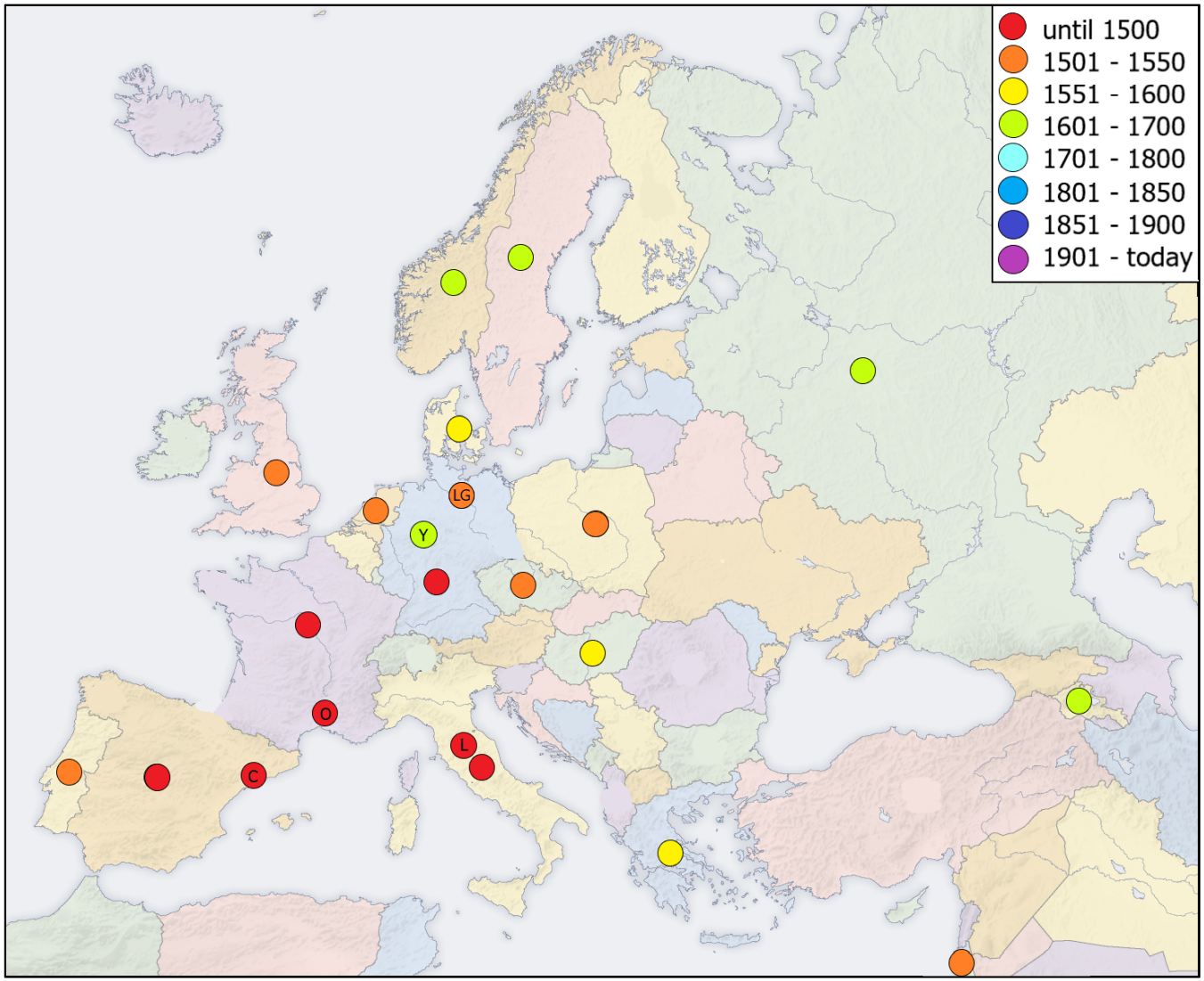
The earliest publications of **arithmetic** books in European and West Asian languages until 1500
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.



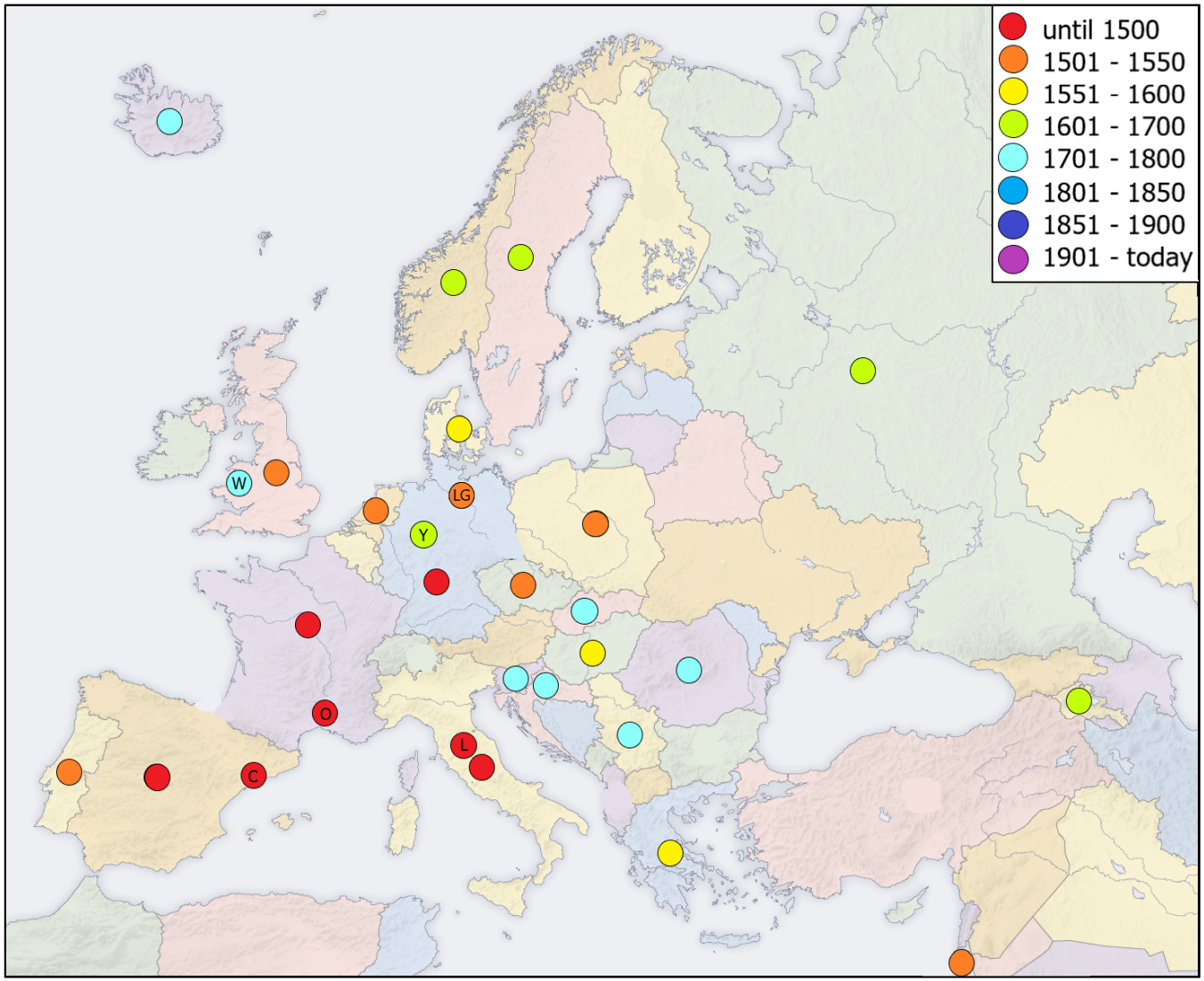
The earliest publications of **arithmetic** books in European and West Asian languages until 1550
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.



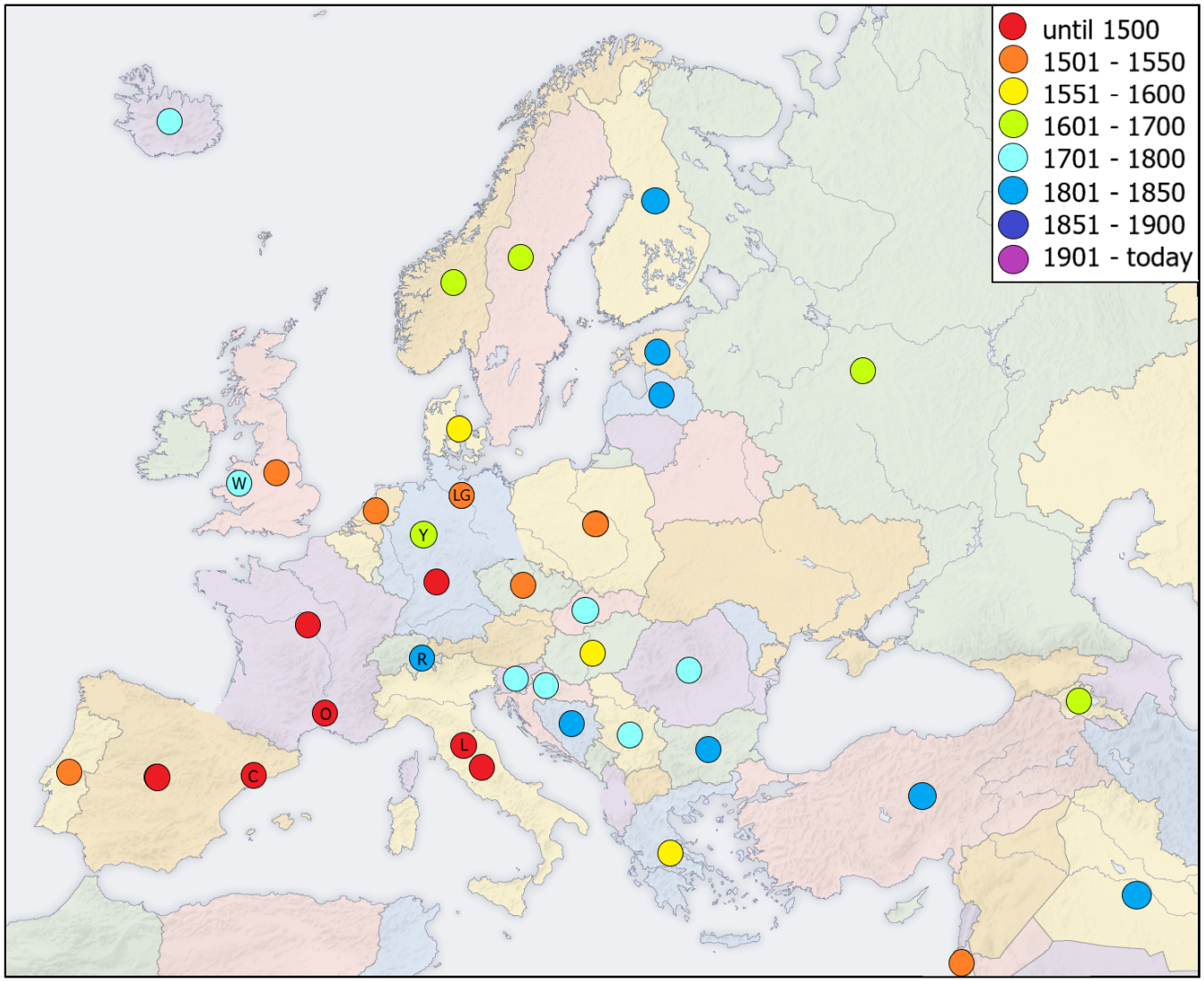
The earliest publications of **arithmetic** books in European and West Asian languages until 1600
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.



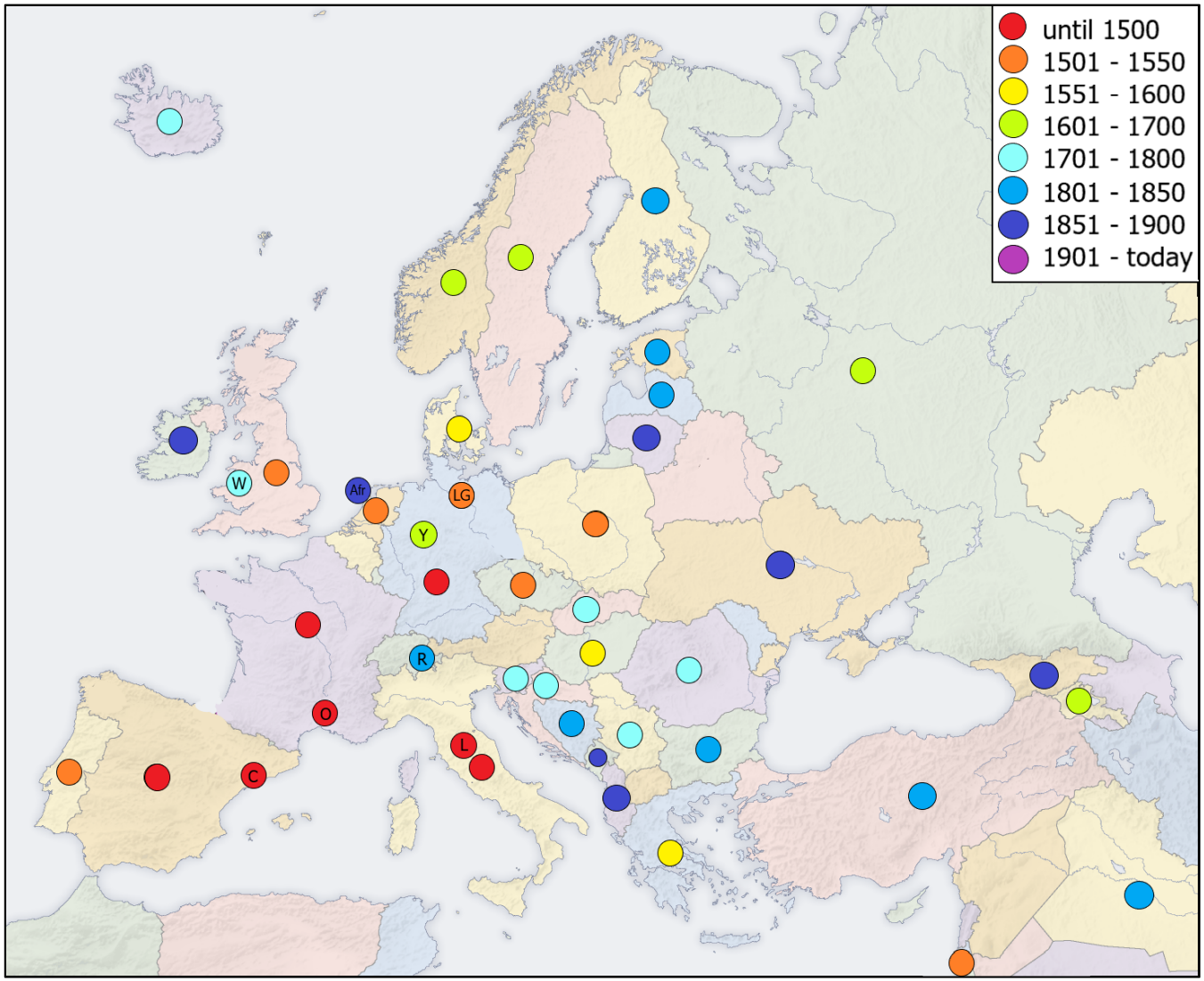
The earliest publications of **arithmetic** books in European and West Asian languages until 1700
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.



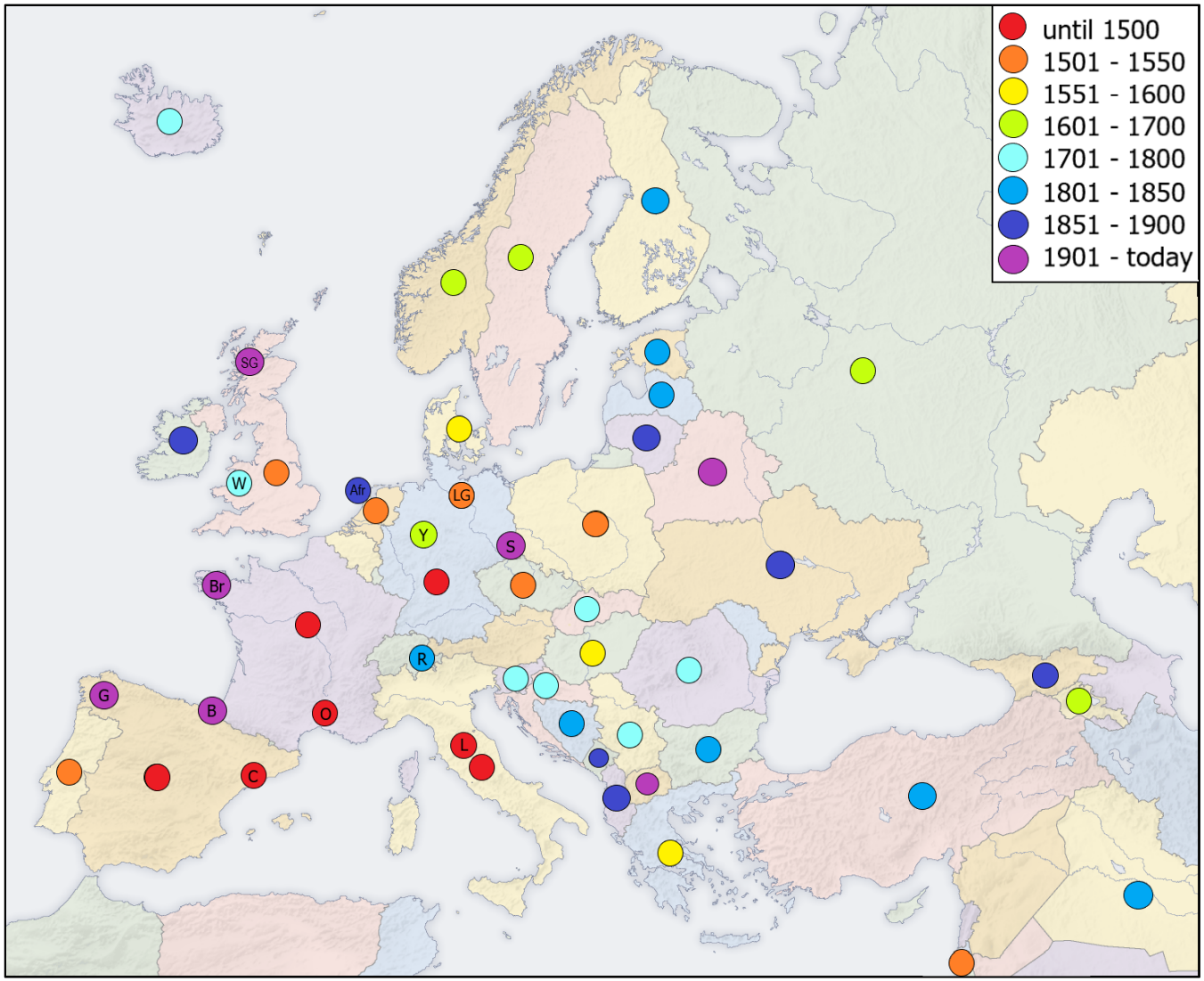
The earliest publications of **arithmetic** books in European and West Asian languages until 1800
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.



The earliest publications of **arithmetic** books in European and West Asian languages until 1850
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.



The earliest publications of **arithmetic** books in European and West Asian languages until 1900
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.



The earliest publications of **arithmetic** books in European and West Asian languages until today
(Afr Afrikaans, B Basque, Br Breton, C Catalan, G Galician, L Latin, LG Low German,
O Occitan, R Romansh, S Sorbian, SG Scottish Gaelic, W Welsh, Y Yiddish).
The temporal intervals are oriented towards entire or half centuries.

Family	1470–	1501–	1551–	1601–	1651–	1701–	1751–	1801–	1851–	1901–
West Germanic	German 1475	Dutch 1508 Eng., LG			Yiddish 1699				Afrikaans 1882	
Romance	Ital. 1478 C, S, O, F	Portuguese 1519					Romanian 1777	Romansh 1808		Galician 1979
West Slavic		Czech 1530 Polish					Slovak 1775			Sorbian 1951
Afro-Asiatic		Hebrew 1533						Arabic 1812		
North Germanic			Danish 1552	Swed. 1614 Norweg.		Icelandic 1746				
Hellenic			Greek 1569							
Finno-Ugric			Hungarian 1577					Eston. 1806 Finnish		
East Slavic					Russian 1699				Ukrainian 1863	Belarusian 1916
South Slavic							Croat. 1758 Serb.,Slov.	Bosn. 1827 Bulgarian	Monten. 1900	
Celtic							Welsh 1768		Irish 1900	Bret. 1943 Scot.Gael.
Baltic								Latvian 1806	Lithuanian 1885	
Albanic									Albanian 1886	
Basque										Basque 1913

The earliest publications of **arithmetic** books in European languages arranged by language families and half centuries

Year	Lang	Author	Title
ca. 1475	Germ 1	German Anonym$_1$	*Trento algorism*
1478	Italian 1	Italian Anonym$_1$	*Treviso arithmetic*
1476/ 80	Italian 2	Italian Anonym$_2$	*Venezia arithmetic Algurisimo*
< 1484	Italian 3	Borghi, Pietro 1	*Libro de abaco* [not found]
1482	Catalan	Sant Climent, Francesc de	*Suma de la art de arismetica*
1482	Germ 2	Wagner, Ulrich	*Rechnung*
1483	Germ 2	Wagner, Ulrich 2	*Rechnung*
1484	Italian 3	Borghi, Pietro 2	*Libro de abaco*
ca. 1486	Span 1	San Clemente, Francisco de	*Arismetica*
1488	Italian 3	Borghi, Pietro 3	*Libro de abaco*
1489	Germ 3	Widmann, Johann 1	*Rechnung*
1491	Italian 3	Borghi, Pietro 4	*Libro de abaco*
1491	Italian 4	Calandri, Filippo	*Trattato*
1492	Occitan	Pellos, Francés	*Compendion*
1494	Italian 5	Pacioli, Luca	*Summa de arithm.*
≤ 1496	French 1	French Anonym$_1$ 1	*L'art et science*
1500	Germ 3	Widmann, Johann 2	*Rechnung*

Arithmetic incunabula (without Latin)

Year	Lang	Author	Title
1501	French 1	French Anonym$_1$ 2	*Livre de chiffres*
1501	Italian 3	Borghi, Pietro 5	*Libro de abaco*
1505	Italian 3	Borghi, Pietro 6	*Libro de abaco* [not found]
1508	Dutch	Dutch Anonym$_1$ 1	*Die maniere*
1508	Germ 3	Widmann, Johann 3	*Rechnung*
1509	Italian 3	Borghi, Pietro 7	*Libro de abaco*
ca. 1510	Dutch	Dutch Anonym$_1$ 2	*Die maniere*
1512/ 15	French 2	French Anonym$_2$ [printer Nyverd]	*Arismétique corr.* [other tradition]
1512/ 19	French 1	French Anonym$_1$ 3 [printer Trepperel]	*L'art et science*
1512	Span 2	Ortega, Juan de	*Conpusición*
1514	Germ 4	Böschenstein, Joh.	*Rechenbüchlein*
1514	Germ 5	Köbel, Jacob 1	*Rechenbüchlein*
1514	Germ 5	Köbel, Jacob 2	*Rechenbüchlein*
1515	Span 3	Andrés, Juan	*Sumario breve*
1515	Italian 6	Ortega, Juan de	*Suma de Arithm.*
1515	French 3	Ortega, Juan de; Platin, Claude	*Oeuvre tressubtile*
1515	Italian 7	Tagliente, Girolamo	*Libro d'abaco*

Arithmetic post-incunabula until 1515 (without Latin)

0.8 Optimized problem categories in arithmetics on the basis of Tropfke 1980, Chapter 4

Already most of the earliest printed arithmetic books categorized their problems with ample book titles, introductions, tables of contents and section headings. The classifications, however, were different in different arithmetics. E.g. the calculation of the price of a textile of a certain length from the known price for a known length could be assigned to purchase/sales, rule of three or fractions. For a systematic historic comparison of arithmetic books, one, therefore, needs a universal categorization that is independent of individual particularities.

The current standard categorization was published as Chapter 4 *Das angewandte Rechnen* [*Applied calculations*] in the completely revised 4th edition (Berlin, New York) 1980 of vol. 1 (*Arithmetik und Algebra*) of the seven volume *Geschichte der Elementarmathematik* by Johannes Tropfke (1866–1939). The chapter was arranged by the Munich mathematics historian Kurt Vogel (1888–1985) together with Karin Reich (b. 1941). Such a categorization can never be complete. Many arithmetics contain surprising unique problems so that specific editions have to introduce new fine categories.

After more than 40 years with new research results in the history of mathematics, the standard categorization needs an update. In the following, I will present my approach for a comprehensive, pragmatic and evolutionary optimization that I use throughout the entire catalog. The category keys are the corresponding section numbers in Tropfke 1980 without the leading 4.

In the beginning, I present possible principles for a categorization:

1 The category is recognizable by the mere wording of the problem without knowing any concrete method to solve it. That applies for example to Tropfke's categorization of the business mathematics problems.

2 The category is recognizable by the algebraic equation that leads to the solution. That applies for example to Tropfke's categories 2.1 *Lineare Probleme mit einer Unbekannten* [*Linear problems with one unknown*] and 2.2 *Lineare Probleme mit mehreren Unbekannten* [*Linear problems with several unknowns*].

3 The category is recognizable by the solution method to be used. This categorization can often be found in early arithmetics if problems are assigned to regula de tri, regula de tri inversa, regula quinque or regula falsi.

Principle 3 is not adequate for a categorization in the history of mathematics as all mathematical problems can always be solved using different methods. E.g. already in the early Modern Times, some authors of arithmetic books considered the regula quinque as too complicated and suggested to replace it by two successive applications of the regula de tri.

Principle 2 requires the knowledge of an algebraic equation. That causes two difficulties:

1 The wording of the problem has to be so well understandable that one is really able to establish an algebraic equation. This is not at all trivial regarding some problems where a contemporary solution is not known.

2 The wording of the problem and mathematical considerations can contradict each other. Example: “Find two numbers. Let their sum be 7 and the sum of their squares be 25.” For the solution, one can construct two algebraic equations with two unknowns x and y. Or one states from the very beginning that the two numbers wanted are x and $7 - x$; then, mathematically spoken, there is only one unknown.

That is why principle 2 should be dropped for a categorization, too. Therefore, I support a consequent categorization according to principle 1.

Furthermore, I consider it a methodological problem to mix two categorization principles as in Tropfke 1980 with categorizations according to principle 1 (business mathematics) and principle 2 (recreational mathematics). Therefore, the second group needs the strongest revision.

In the following, I will successively discuss Tropfke's main categories and introduce clearer definitions, description changes, universal refinements and assignment changes.

Additionally established category keys are marked with pointed brackets < >, and categories with considerably changed category descriptions with brackets [ ]. I introduce comprehensive category descriptions so that the superordinate category is recognizable in the case of categories with three-digit or four-digit category keys.

The distinction between the main categories 1 *Business mathematics* and 2 *Recreational mathematics* turns out to be quite simple. The latter comprises reenactable problems (e.g. 2.1.3.2 *Gatekeepers in the apple garden*) and merely fictive problems (e.g. [2.1.2.2] *Shared work – Animal actors: carnivores*).

In the main category 2 *Recreational mathematics*, I also explicitly include problems from pure mathematics (that is, problems with non-denominate numbers) (<2.1.1.7> *Find a non-denominate number*, <2.2.1.5> *Additive partition – Non-denominate numbers*).

The categories will now be discussed in detail.

1 *Business and commercial mathematics in everyday life*

1.1 *Purchase and sales, commerce (price, quantity, profit and loss)*. Includes problems with regard to the "loaf of penny" that is the bigger, the less the crops cost and the other way round (to be solved with regula de tri inversa). Against the background of the high number of problem types of this kind, neither Tropfke nor I can suggest any universal refinement. I move such problems that contain explicit percentage calculation to 1.4 *Percentage*.

1.2 *Barter (*German *Stich)*:

<1.2.1> *Barter – Cash (no special barter prices)*

<1.2.2> *Barter – Simple*

<1.2.3> *Barter – Complex (with profit part, cash part, due date)*. This category contains various subcategories that can hardly be systematically classified and that partly only have little practical importance, but rather belong to recreational mathematics.

1.3 *Work and service*. Each of the actors involved produces the same performance (partly solved with regula quinque and regula de tri inversa):

<1.3.1> *Work and service – Transports: transport fee*
<1.3.2> *Work and service – Human actors (persons): craftsmen, drunkards*
<1.3.3> *Work and service – Inanimate actors (instruments): mills, money*
<1.3.4> *Work and service – Digging a well (arithmetic series)*

This refinement is probably not complete.

In contrast to 1.3, the actors in 2.1.2 *Shared work* produce different performances.

I move work and service contracts that are interrupted before their intended end to the new category <1.15> *Interrupted contract*.

1.4 *Percentage*. Against the background of the high number of problem types of this kind, neither Tropfke nor I can suggest any universal refinement.

1.5 *Tare and tret (*fusti*)*. Tret means a portion of bad quality in a natural product:
<1.5.1> *Tare and tret – Only tare*
<1.5.2> *Tare and tret – Only tret*
<1.5.3> *Tare and tret – Both*

1.6 *Interest (loans and investments)*:
<1.6.1> *Interest – Simple interest*: Partly similar to <1.3.3>.
<1.6.2> *Interest – Compound interest*
<1.6.3> *Interest – Pension calculation, payment by installments, annuity*

1.7 *Discount*:
<1.7.1> *Discount – Simple discount*
<1.7.2> *Discount – Compound discount*

1.8 *Balance and due date (claim (receivable, credit) and liability (payable, debt))*:
<1.8.1> *Balance and due date – Several debts, different due dates*
<1.8.2> *Balance and due date – Mutual debts (compensation)*
<1.8.3> *Balance and due date – Payment with due date*
<1.8.4> *Balance and due date – Labor leasing*

This refinement is probably not complete.

1.9 *Company (proportional additive partition)*:
<1.9.1> *Company – Equal periods of investment (regula societatis simplex)*
<1.9.2> *Company – Different periods of investment (regula societatis temporum)*
<1.9.3> *Company – Mining companies*
<1.9.4> *Company – Travels*

<1.9.5> *Company – Special case: sum of the parts unequal 1*. Includes special testaments.

This refinement is probably not complete.

I move companies that are interrupted before their intended end to the new category <1.15> *Interrupted contract*.

1.10 *Subcontractor (Latin*: factor*)*: no refinement.

1.11 *Rent and lease*:

<1.11.1> *Rent and lease – Rent*

<1.11.2> *Rent and lease – Pasture lease*

1.12 *Currency exchange and measure conversion*:

<1.12.1> *Exchange and conversion – Only currency exchange*

<1.12.2> *Exchange and conversion – Only measure conversion*

<1.12.3> *Exchange and conversion – Both*

<1.12.4> *Exchange and conversion – Regula inventionis*: Find how many lower units are equal to one higher unit.

1.13 *Gold and silver, coinage*. No refinement. This category deals with weight of fine metal, precious metal proportion (fineness) and prices of precious metals.

1.14 *Mixture*. In contrast to 1.13 *Gold and silver, coinage*, this category comprises mixtures of arbitrary materials with different mass fractions (percentages by weight/mass):

[1.14.1] *Mixture – Alloy, loading the crucible (regula alligationis)*

[1.14.2] *Mixture – Various mixtures*

Tropfke's original category 1.14.1 becomes [1.14.2]; the original 1.14.2 *Das Problem der 100 Vögel* [*The problem of the 100 birds*] belongs to recreational mathematics and is – together with 2.2.6 where it was treated a second time in Tropfke – completely moved to <2.2.1.1> *Additive partition – The 100 birds*.

<1.15> *Interrupted contract (partial payment)*. I introduce this new category in order to unite this subject in one place. Problems of this kind could originally be found in 1.3 *Work and service*, 1.9 *Companies*, 1.11 *Rent and lease*, 2.1.5.3 *Unterbrochenes Dienstverhältnis* [*Interrupted service contract*]. There can either be a simple solution with proportional partition or a complex one, e.g. in the case of interrupted pasture lease.

2 *Recreational mathematics*

[2.1] *Find a number (linear and non-linear problems)*. This category description replaces Tropfke's original *Lineare Probleme mit einer Unbekannten* [*Linear problems with one unknown*] which I consider as inadequate as explained above in my criticism against principle 2. Furthermore, the former description neglected non-linear problems that also occur and that were not included in any other of Tropfke's categories.

[2.1.1] *Find a number (linear and non-linear problems) – Various problems*. This category combines Tropfke's original category 2.1.1 *Hau-Rechnungen* [*Linear problems* with a fraction of the unknown; no exact definition of the type] and parts of the original category 2.1.5 *Diverse Probleme* [*Various problems*]. As the former category requires the knowledge of an algebraic equation, I consider it as inadequate as explained above in my criticism against principle 2.

I introduce the following refinement:

2.1.1.1 *Find a denominate number – Hi all problems*. Find the number of persons one says hello to (*Gott grüß euch*).

2.1.1.2 *Find a denominate number – Find age*

2.1.1.3 *Find a denominate number – Find length or weight (whole from parts)*. Find the total length of an object (spear in the water, tower in the water, a textile) from the lengths of its parts or find the total weight from the weights of its parts (fish sold in pieces).

<2.1.1.4> *Find a denominate number – Regula equalitatis (purchase of equal quantities)*. This is Tropfke's original category 2.1.5.1. Special case: The quantities of the goods or the persons are not equal, but are in a given integer proportion.

<2.1.1.5> *Find a denominate number – Too much and too little*. This is Tropfke's original category 2.1.5.2. Find the number of persons, who shall receive equal numbers of objects, from the rest/lack of objects. Or find the price of a product from different prices per unit and different rests/lacks of money. Or find the quantity of a product from different sales prices and different profits/losses (e.g. batch of pepper). Etc. Tropfke mentioned two unknowns although there is only one main unknown the problem aims at.

<2.1.1.6> *Find a denominate number – Other problems*. This category comprises for example the

calculation of the weight of the future rations in a prolonged siege, of the length of a fuse etc.

<2.1.1.7> *Find a non-denominate number*

2.1.2 *Shared work*. Different actors with different performances do a job together. I introduce a semantic refinement instead of Tropfke's enumeration:

[2.1.2.1] *Shared work – Human actors: masons, drinkers*. This category comprises Tropfke's original categories 2.1.2.2 *Hausbau* [*Building a house*] and 2.1.2.6 *Trinker verschiedener Leistung* [*Drinkers with different performances*].

[2.1.2.2] *Shared work – Animal actors: carnivores*. This is Tropfke's original category 2.1.2.4 *Löwe, Wolf und Hund* [*Lion, wolf and dog*].

[2.1.2.3] *Shared work – Inanimate actors: fountains, sails, mills*. This category comprises Tropfke's original categories 2.1.2.1 *Eigentliche Zisternenaufgaben* [*Genuine cisterne problems*], 2.1.2.3 *Schiff mit mehreren Segeln* [*Ship with several sails*] and 2.1.2.5 *Mühle mit verschiedenen Mahlgängen* [*Several mills*].

In contrast to 2.1.2, the actors in 1.3 *Work and service* produce equal performances.

2.1.3 *Nesting (first from last)*. A certain number of objects or a certain amount of money remains after several nested steps. Find the number or amount in the beginning. Refinement according to Tropfke:

2.1.3.1 *Nesting – Business trips (profit/loss chains)*

2.1.3.2 *Nesting – Gatekeepers in the apple garden*

2.1.3.3 *Nesting – Si quis intrat monasterium (The poor and the sacrifice), Three saints*

2.1.3.4 *Nesting – Other problems* (e.g. *to play dice*)

2.1.3.5 *Nesting – The unknown inheritance / forgotten amount.* An unknown amount has to be distributed to an unknown number *n* of children using the rule "the *n*-th child receives *n* coins plus a certain fix part of the remaining money" or some other similar rule. Finally, each of the children gets the same amount. The problem appears also in the form "Forgotten amount", "Money forgotten with a changer".

2.1.4 *Motion*:

[2.1.4.1] *Motion – Pursuit*

[2.1.4.2] *Motion – Encounter*

[2.1.4.3] *Motion – To and fro*

Tropfke mentioned these types, too, but in the framework of a completely inadequate geographic refinement.

[2.1.5] *Temporal part*:

[2.1.5.1] *Temporal part – The lazy worker ("working and playing")*. This is Tropfke's original category 2.1.5.4. Find the temporal part of the contract duration when the lazy worker was working.

[2.1.5.2] *Temporal part – Find the clock time*. This is Tropfke's original category 2.1.5.5. Find the temporal part of the daylight period that has passed since sunrise.

Tropfke's original category 2.1.5 *Lineare Probleme – Diverse Probleme* [*Linear problems – Diverse problems*] is dropped. 2.1.5.1 *Regula equalitatis* becomes <2.1.1.4>, 2.1.5.2 *Zu viel – zu wenig* [*Too much – too little*] becomes <2.1.1.5>, 2.1.5.3 *Unterbrochenes Dienstverhältnis* [*Interrupted service contract*] belongs to business mathematics and is moved to <1.15> *Interrupted contract*, 2.1.5.4 *Der faule Arbeiter* [*The lazy worker*] aims at a temporal part and becomes [2.1.5.1], 2.1.5.5 *Wieviel Uhr ist es?* [*What time is it?*] also aims at a temporal part and becomes [2.1.5.2].

[2.2] *Find several numbers (linear and non-linear problems)*. This category description replaces Tropfke's original *Lineare Probleme mit mehreren Unbekannten* [*Linear problems with several unknowns*] with an analogous motivation as above in [2.1].

2.2.1 *Additive partition of a number (parts from whole)*:

<2.2.1.1> *Additive partition – The 100 birds*. This category comprises Tropfke's original category 1.14.2 with the same description and parts of the original category 2.2.6 *Das Problem der 100 Vögel und die Zechenaufgaben* [*The problem of the 100 birds and the regula caecis*]. One has to buy 100 birds of different types for a certain amount. Each type costs a specific price. Find the number of each bird type.

<2.2.1.2> *Additive partition – Regula caecis or regula virginum*. This category comprises parts of Tropfke's original category 2.2.6 *Das Problem der 100 Vögel und die Zechenaufgaben*. [*The problem of the 100 birds and the regula caecis*]. A group of people of different types has to pay a certain amount for their meals. Each type pays a specific price. Find the number of each type of persons.

<2.2.1.3> *Additive partition – Twin inheritance*. This is Tropfke's original category 2.7.4 that was inadequately assigned to arrangement problems. A dying man makes a testament for his pregnant wife with special rules for a male or female child.

After his death, the wife gives birth to son daughter twins. Find the partition of the inheritance.

<2.2.1.4> *Additive partition – Denominate numbers, other problems*

<2.2.1.5> *Additive partition – Non-denominate numbers*

In category 2.2.1, I unite all the problem types that carry the common feature of an additive partition in several summands. One has to find parts of a whole. Although the category 2.2.1 already existed in Tropfke's work, it there contained only pure-mathematical problems that I classify under <2.2.1.5> *Additive partition – Non-denominate numbers*. Tropfke did not clearly assign some other types of this kind to categories, but treated them in scattered places.

2.2.2 *Find several numbers – The found purse*. Find the amount of money in the found purse and the amounts in the finders' purses.

2.2.3 *Find several numbers – Joint purchase ("If you give me")*. Find the amounts of money in the purses of several potential buyers. One alone cannot buy; each amount alone is not sufficient for the purchase.

2.2.4 *Find several numbers – Give and take*. Find the amounts of money or quantities of goods belonging to different persons.

2.2.5 *Find several numbers – Two cups and a lid*. Find the weights of the three pieces.

One will probably be able to establish further subcategories of [2.2] *Find several numbers (linear and non-linear problems)*.

2.3 *Geometry*:

2.3.1 *Geometry – Plane – The Pythagorean Theorem*

2.3.2 *Geometry – Plane – Similarity of triangles*

<2.3.3> *Geometry – Plane – Further polygons.* Partly regula de tri inversa for rectangles.

<2.3.4> *Geometry – Plane – Circle (area, circumference)*

<2.3.5> *Geometry – Space – Cube, rectangular cuboid, sphere, cone, cylinder, barrel (volume, surface)*

Tropfke mentioned refinements of 2.3.1 and 2.3.2. The categories 2.3.1 to <2.3.5>, however, contain so many different problem types that I cannot suggest any universal refinements.

2.4 *Progression and series*. Refinement according to Tropfke:

2.4.1 *Progression and series – Arithmetic progression and series, magic square*

2.4.2 *Progression and series – Geometric progression and series*

Tropfke mentioned a refinement of 2.4.2. The categories 2.4.1 and 2.4.2, however, contain so many different problem types that I cannot suggest any universal refinements.

2.5 *Remainder*. Refinement according to Tropfke:

2.5.1 *Remainder – The Regula Ta-yen*

2.5.2 *Remainder – The egg woman*

2.5.3 *Remainder – The three sisters*

This refinement is probably not complete.

2.6 *Number guessing*. Refinement according to Tropfke:

2.6.1 *Number guessing – Backward calculation*

2.6.2 *Number guessing – Guessing with 9*

2.6.3 *Number guessing – Even or odd*

2.6.4 *Number guessing – Guessing game in a circle*

2.6.5 *Number guessing – Where is the ring?*

2.6.6 *Number guessing – The three players*

2.6.7 *Number guessing – Distribution of three objects*

This refinement is probably not complete.

2.7 *Arrangement and other funny problems*:

2.7.1 *Arrangement – Equal proceeds in spite of selling different quantities*. E.g. Three women selling apples on a market.

2.7.2 *Arrangement – Profit with sales for purchase price*

2.7.3 *Arrangement – To throw Saracens in the sea (*German *Josephsspiel)*

[2.7.4] *Arrangement – Wolf, goat and cabbage*

[2.7.5] *Arrangement – Transfer of liquids*

[2.7.6] *Arrangement – Combinatorial problems: linear and cyclic permutations; least common multiple*

This refinement is probably not complete.

I do not consider Tropfke's category 2.7.4 *Zwillingserbschaft* [*Twin inheritance*] an arrangement problem, but an additive partition, so that I move it to <2.2.1.3> *Additive partition – Twin inheritance*.

2.8 *Other problems: Figurate numbers, text encoded with numbers, mistakes of pupils, linear functions*. One needs a last category for rare problem types.

0.9 Glossary for arithmetic books

Algorismus	Guide to calculation using the Indo-Arabic numeral system
Coss	Algebra
Duplatio	Duplication, doubling
Factor	Subcontractor
Involution, evolution	Exponentiation, extraction of roots
Mediatio	Halving
Numeratio	Notation/representation of numbers: digits, number symbols, numerals
Numerus numerans	Simple, pure number
Numerus numeratus	Denominate (compound) number
Reductio (ascendens), elevatio [Germ. *reduzieren*]	Conversion of a numerical value/s given in lower units of a system of currency, measure, weight or time to a value/s in higher units (ascending reduction)
Reductio (descendens), resolutio [Germ. *resolvieren*]	Conversion from higher units to lower units (descending reduction)
Reductio [only regarding a set of fractions]	Identifying a common denominator of a set of fractions
Regula alligationis	Rules for calculating alloys and mixtures
Regula aurea	Regula de tri (2 numbers given; 2 directly proportional quantities)
Regula caecis	Rules for integer problems with several unknowns (drink bill; 100 birds)
Regula commutationis, baratto [Italian]	Rule of bartering [from Italian barattare ‘change, deceive’], goods exchange
Regula de tri ((simplex) directa)	Rule of three (three numbers given; direct proportionality of two quantities)
Regula (de tri simplex) inversa/conversa	Inverse rule of three (inverse proportionality of two quantities)
Regula equalitatis	Rule for equal quantities of different objects
Regula falsi (simplicis positionis, duplicis positionis)	Simple false position method, double false position method
Regula fusti, faecis	Rules for tret, i.e. for natural products containing portions of bad quality
Regula positionum	Regula falsi
Regula quinque (= r. dupla, r. de tri composita)	Double/compound rule of three (5 numbers given; 3 directly proportional quantities)
Regula quinque inversa	Inverse double rule of three (indirect proportionality of three quantities)
Regula societatis simplex, regula societatis temporum	Rules for companies of merchants without or with time; proportional partition
Regula virginum	Regula caecis
Regula vulgaris	Regula de tri with denominate numbers
Species	Basic arithmetic operation, partly including Numeratio, Mediatio, Duplatio

0.10 Particularities of geometry books

In early modern times, the situation of geometry books was quite different from that of arithmetic books.
Arithmetic books contained fundamental everyday knowledge for a large number of merchants. Therefore, the demand for arithmetic books was much greater than for geometry books:

- The earliest printed book on arithmetic in a language was mostly published before the one on geometry in this language (except Turkish where military prevailed business).
- Before 1900, there were arithmetic books in 43 European and West Asian languages, while geometry books in only 32.
- The number of different arithmetic books in a certain language was a lot higher than the number of different geometry books.

Differences between arithmetic and geometry books

Arithmetic books contained – if at all – only one single application area: business mathematics needed by contemporary merchants and partly problems from recreational mathematics.
Regarding geometry, only some results appear.
In the field of geometry of the plane, we find the theorem of Pythagoras, theorems about the similarity of triangles, about areas of rectangles and circles and about polygons etc.
Problems in the field of geometry of space occur more rarely; they deal with volumes and surface areas of cubes, cuboids, spheres, cones, cylinders and barrels (cf. Tropfke 1980, p. 616–625).
Systematic introductions into geometry are only very rarely included in arithmetic books (e.g. Widmann 1489, Calandri 1492 and Pacioli 1494).

Features of geometry books

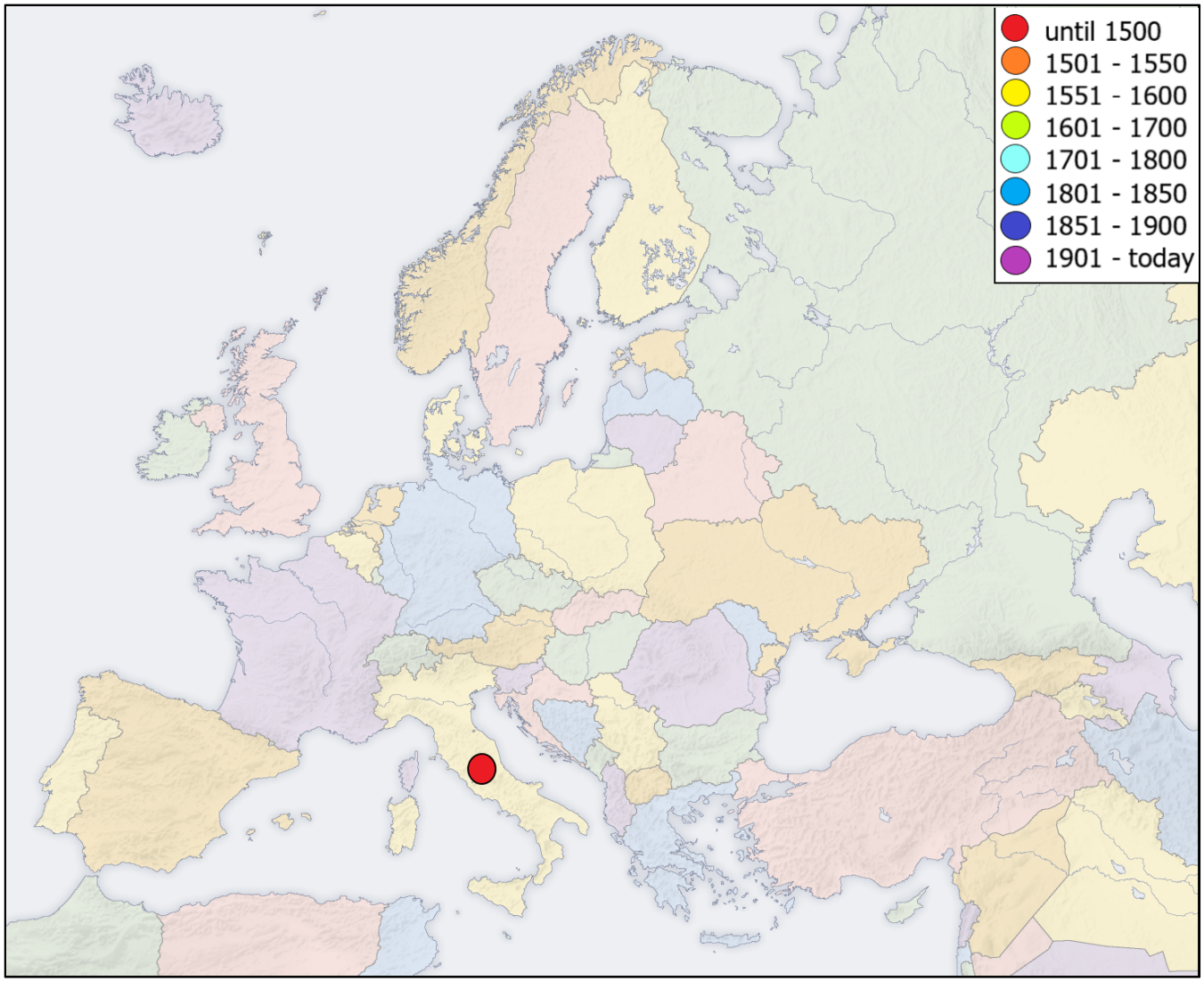
Geometry books are often oriented towards special applications – there are much more than in the case of arithmetic books – namely:

- doliometry (measuring the volumes of barrels with rods; German *visieren*)
- land surveying and cartography (*geodaesia*, Feldmessung)
- mining (*geometria subterranea*, Markscheidewesen)
- painting and perspective
- optics
- military and civil architecture
- warfare, artillery and ballistics
- trigonometry, astronomy, astrology
- diverse technical devices (e.g. coaches) etc.

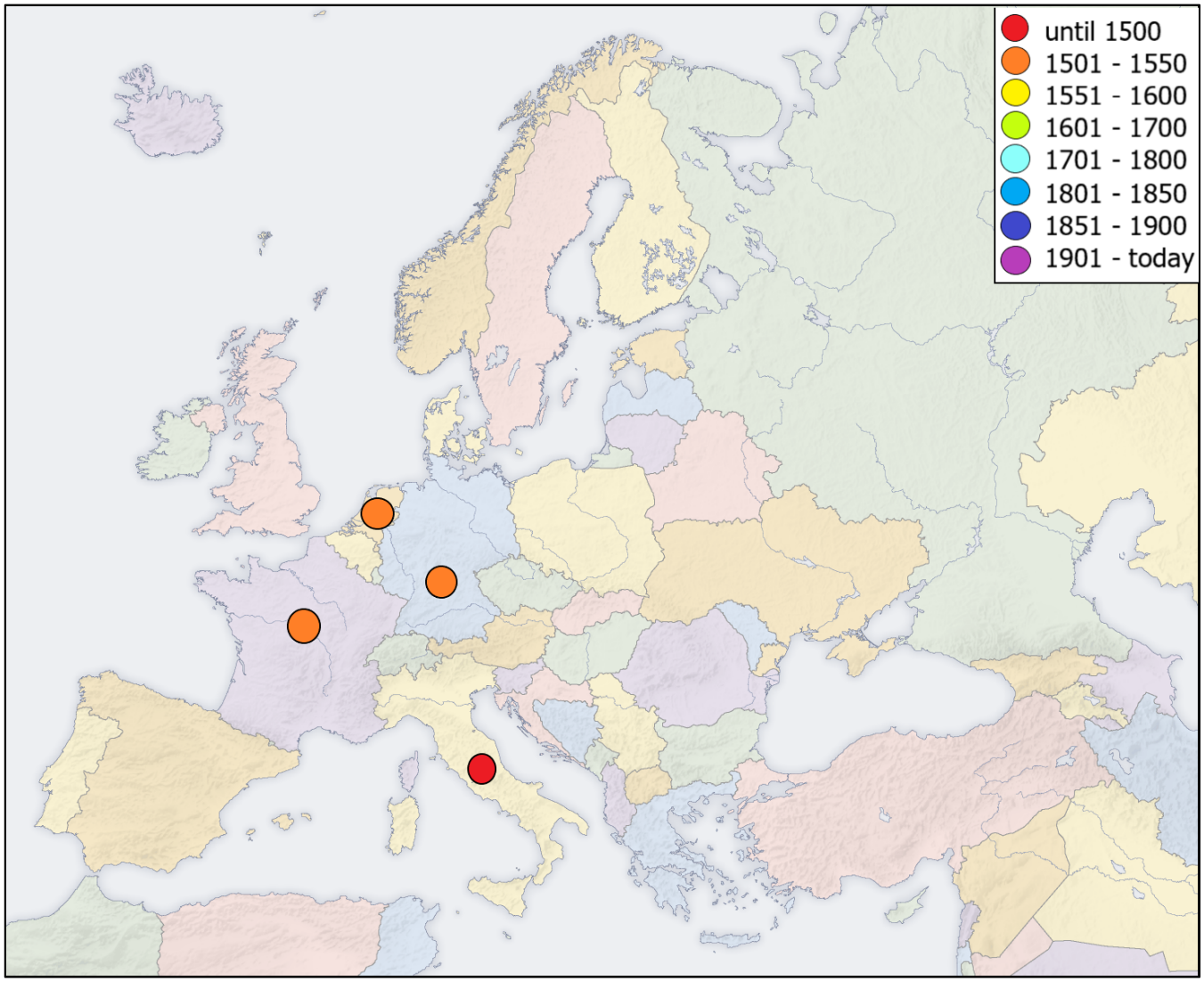
Nowadays, it can be quite difficult to understand early arithmetic books as they partly contain extinct mathematical and business terminology. The situation for geometry books, however, is considerably easier as most of them illustrate at least the basic geometric concepts with figures.

In this catalog, the focus is on the earliest printed general systematic comprehensive elementary geometry book. I exclude mere translations of Euclid's *Elements*, smaller geometry chapters in other books as well as books that only apply geometry to certain applications

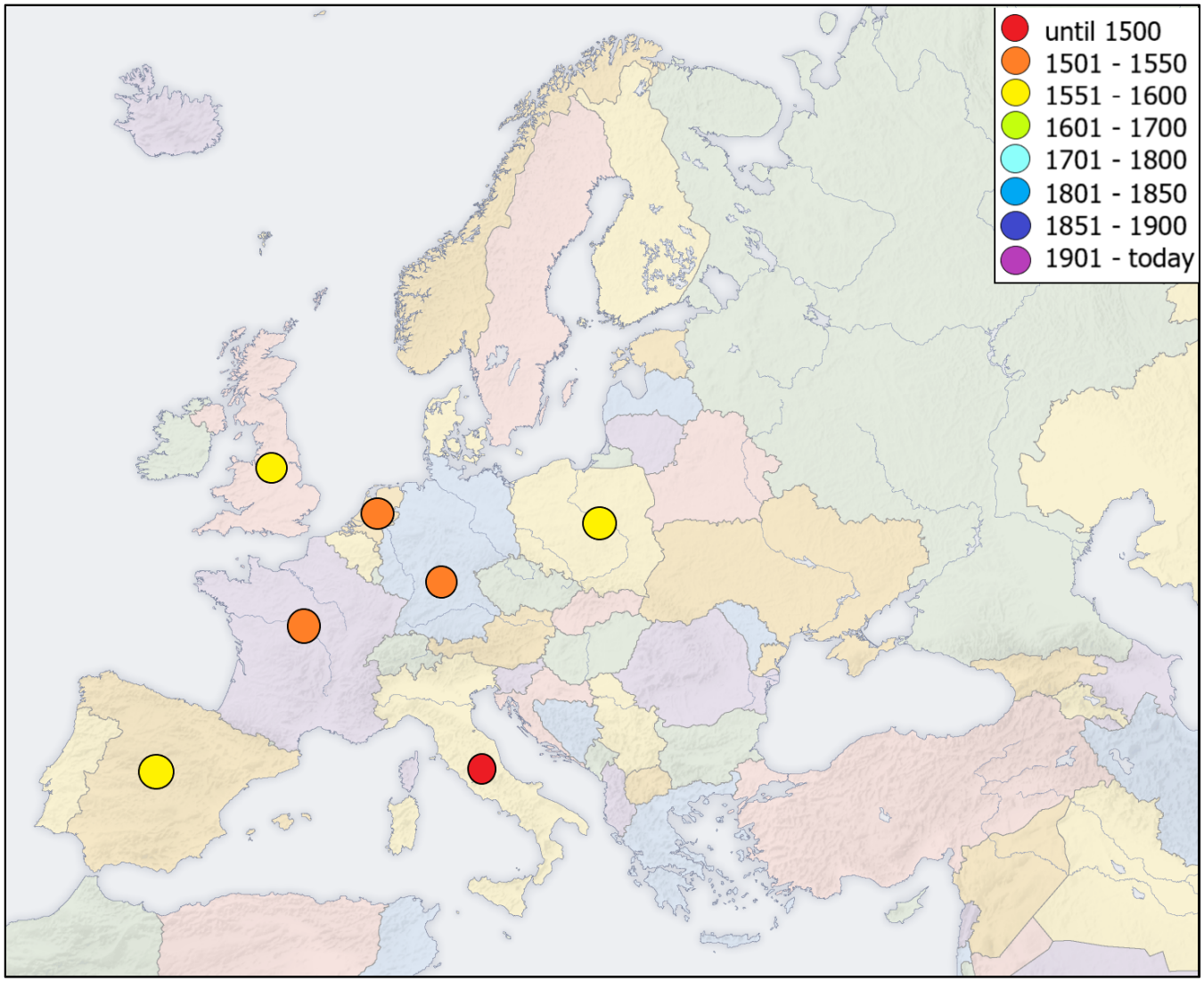
The following maps show the century or half-century in which the earliest arithmetic book was published for each pre-1900 European language of instruction. A table presents this data by language family and half-century.



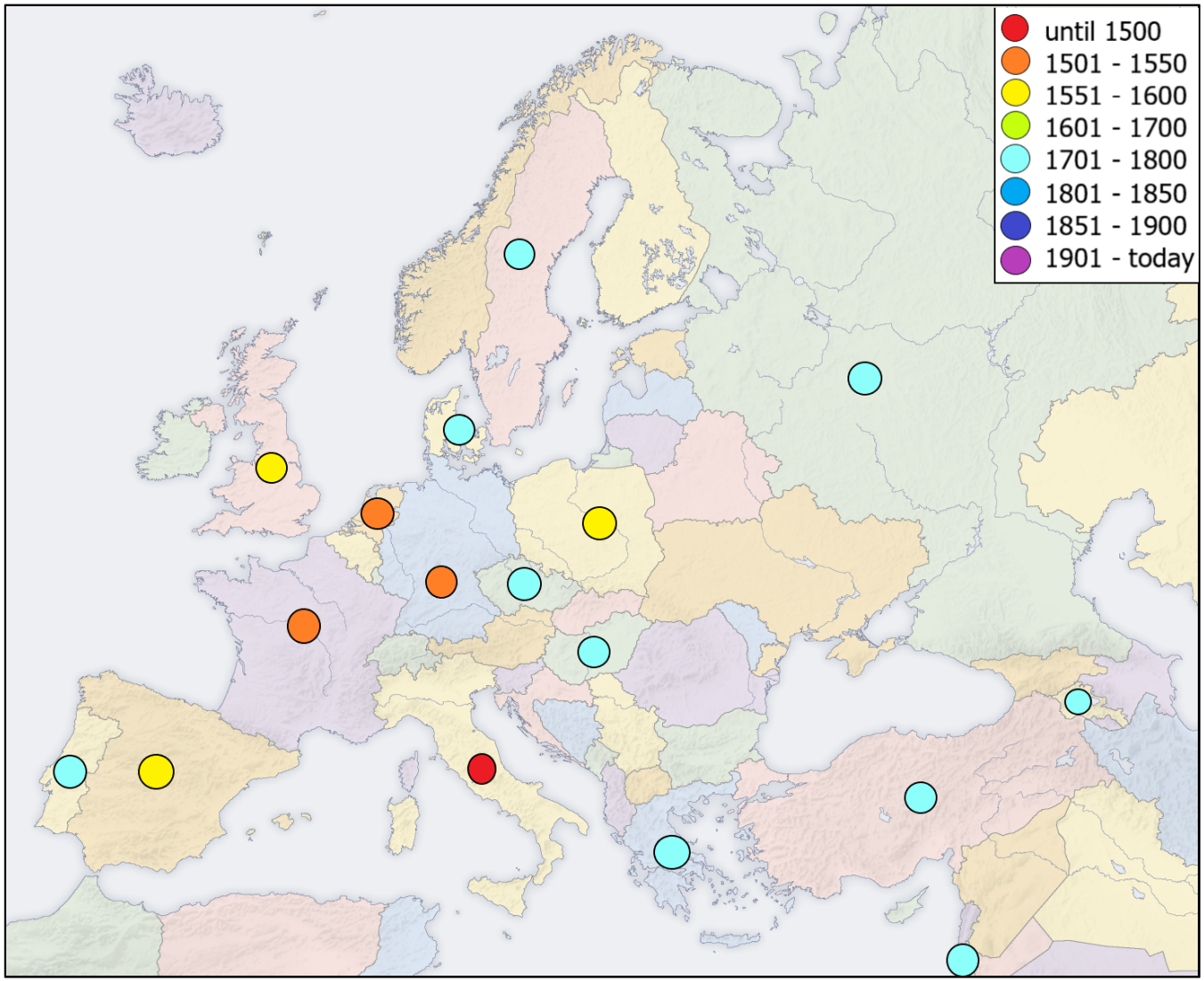
The earliest publications of **geometry** books in European and West Asian languages until 1500.
The temporal intervals are oriented towards entire or half centuries.



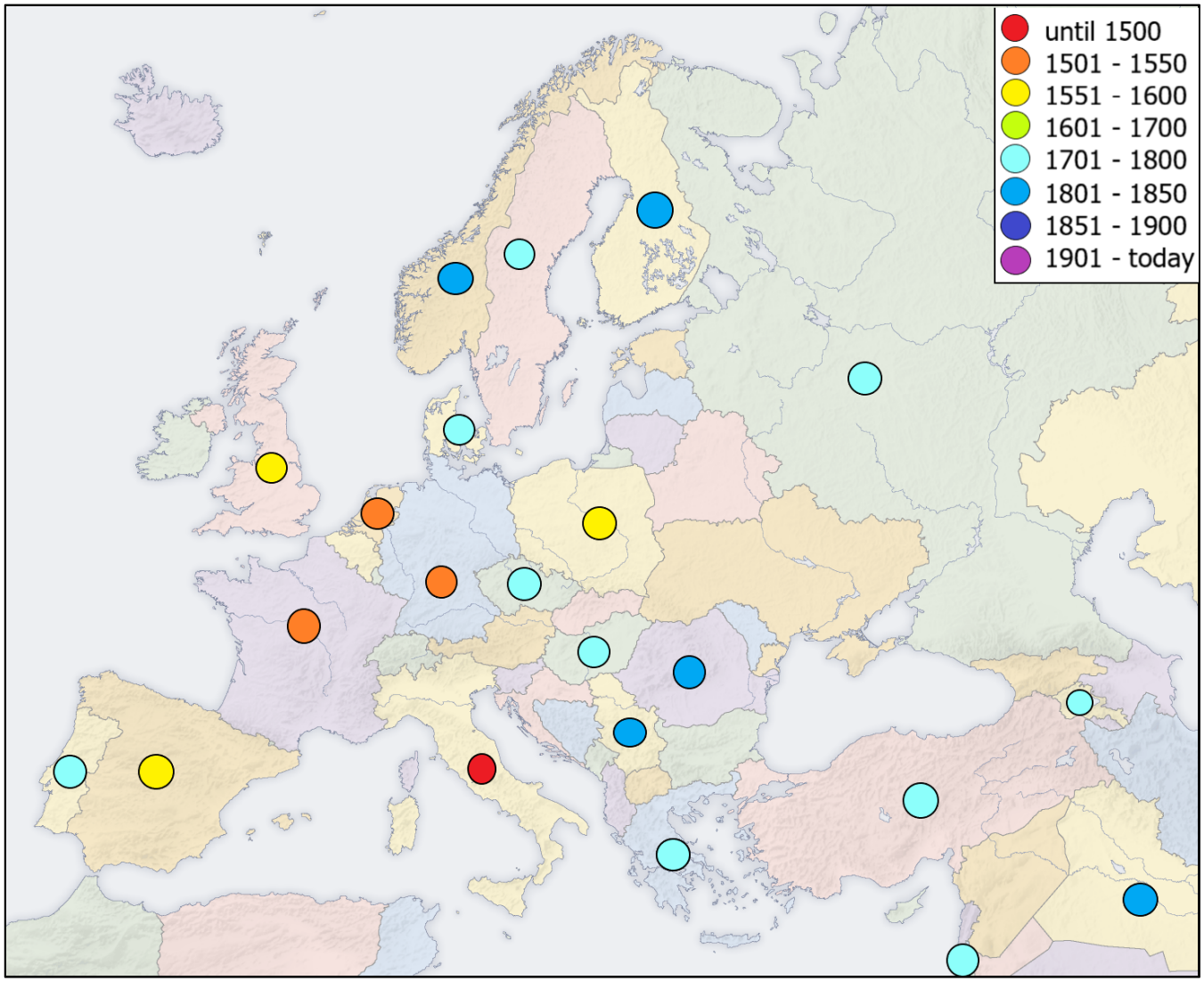
The earliest publications of **geometry** books in European and West Asian languages until 1550.
The temporal intervals are oriented towards entire or half centuries.



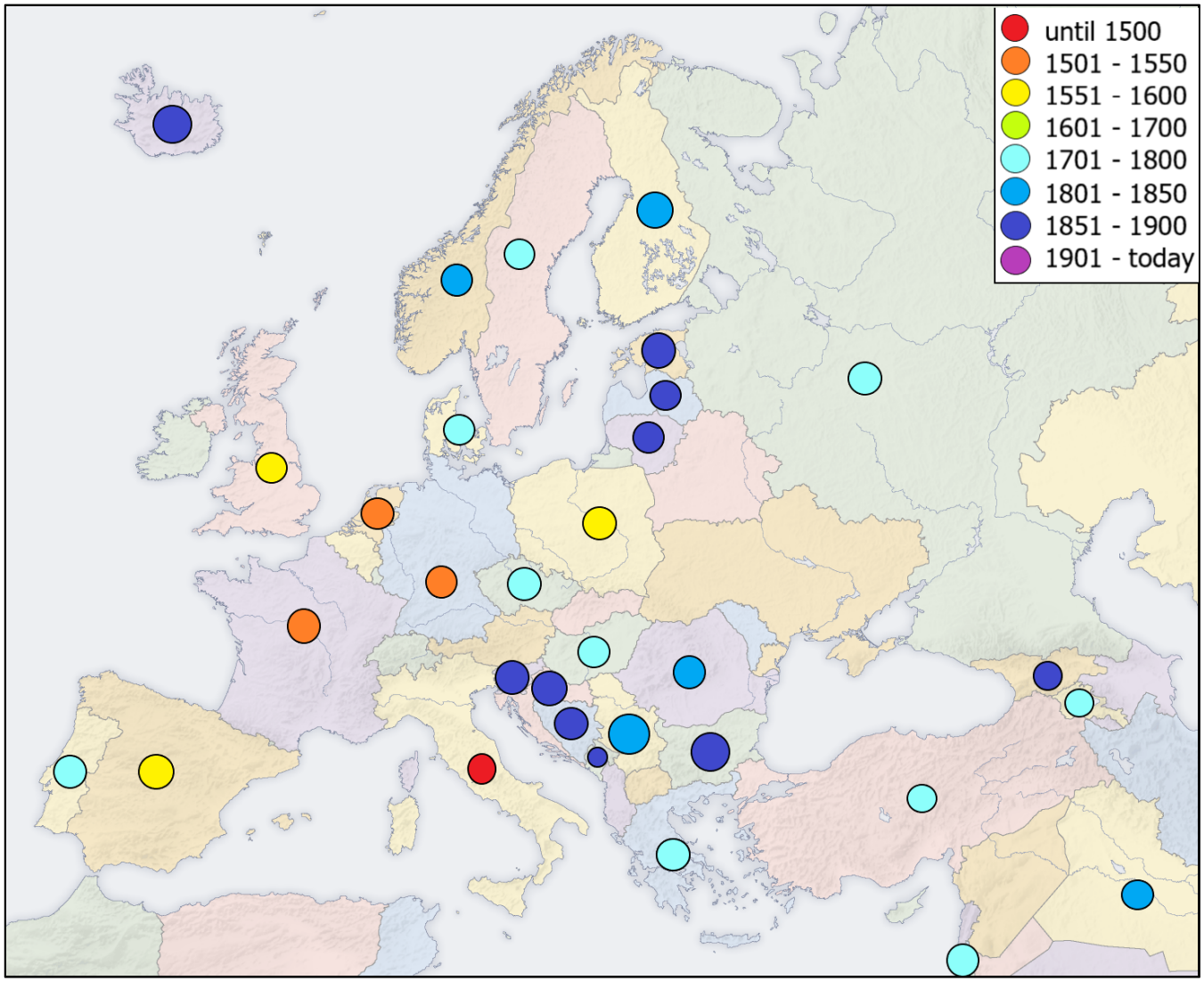
The earliest publications of **geometry** books in European and West Asian languages until 1600.
The temporal intervals are oriented towards entire or half centuries.



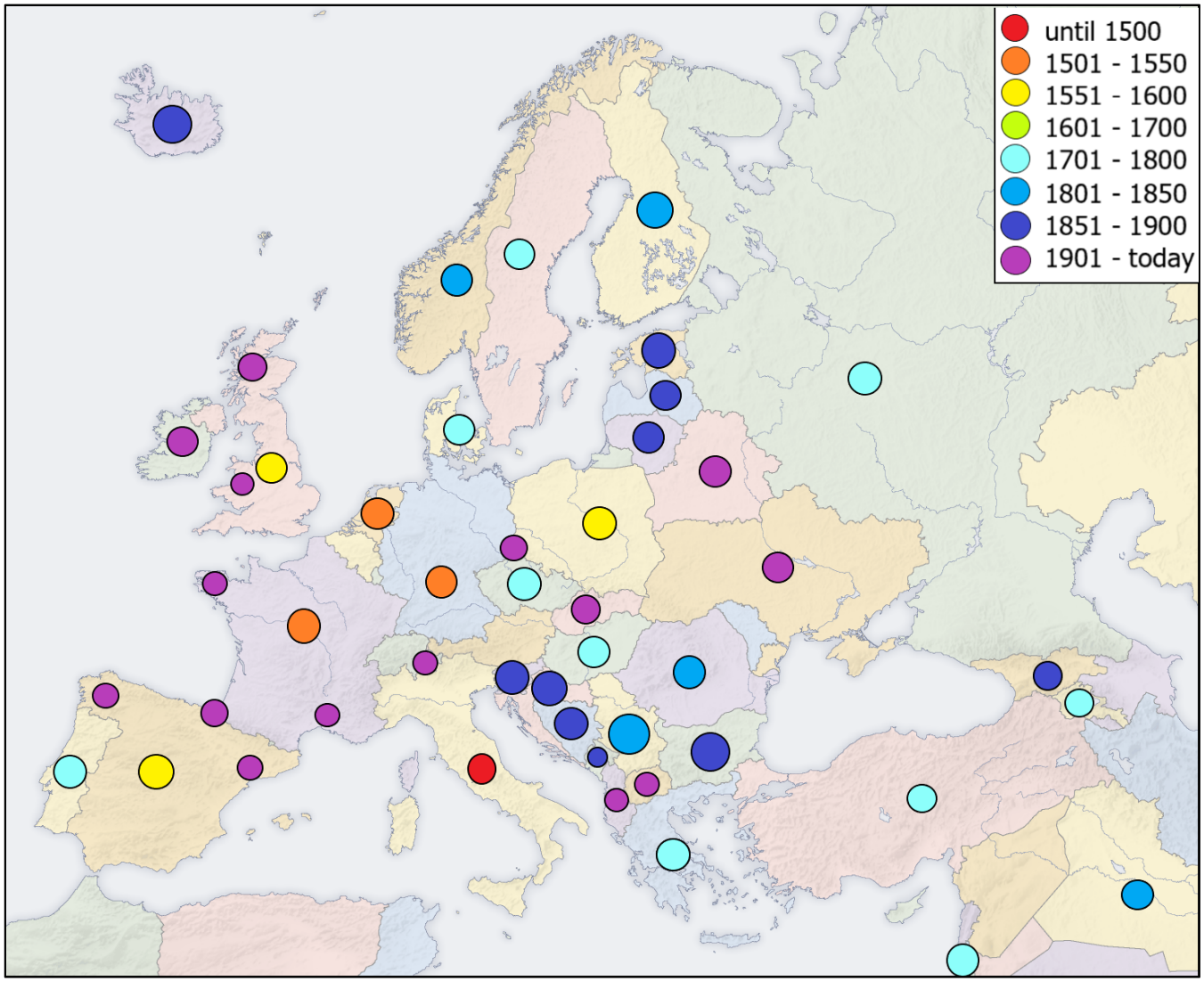
The earliest publications of **geometry** books in European and West Asian languages until 1800.
The temporal intervals are oriented towards entire or half centuries.



The earliest publications of **geometry** books in European and West Asian languages until 1850.
The temporal intervals are oriented towards entire or half centuries.



The earliest publications of **geometry** books in European and West Asian languages until 1900.
The temporal intervals are oriented towards entire or half centuries.



The earliest publications of **geometry** books in European and West Asian languages until today.
The temporal intervals are oriented towards entire or half centuries.

Family	1470–	1501–	1551–	1601–	1651–	1701–	1751–	1801–	1851–	1901–
West Germanic		Dutch 1513 Germ. Engl.								Afrikaans Yiddish
Romance	Italian 1494	French 1511	Spanish 1573			Portuguese 1728		Romanian 1837		Cat. Occ. Gal. Romsh
West Slavic			Polish 1556			Czech 1734				Slovak Sorbian
Afro-Asiatic							Hebrew 1796	Arabic 1843		
North Germanic						Dan. 1704 Swedish		Norwegian 1827	Icelandic 1889	
Hellenic							Greek 1798			
Finno-Ugric							Hungarian 1784	Finnish 1847	Estonian 1878	
East Slavic						Russian 1708				Ukrainian Belarusian
South Slavic								Serbian 1841	Bul Cr Slov Bos. Mont.	Macedon.
Celtic										Ir. Welsh Gael. Bret.
Baltic									Latv. 1862 Lithuanian	
Albanic										Albanian
Basque										Basque

The earliest publications of **geometry** books in European languages arranged by language families and half centuries

Part 1

The earliest printed arithmetic books in European and West Asian languages

Latin 1

Prosdocimus de Beldomandis
Prosdocimo de Beldemandis

Algorismi [*de integris*] *tractatus*
(e.g. manuscript Padova 14⟨60⟩[10]-06-10)

b. ca. 1375/80 Padova
d. 1428 Padova
Mathematician, music theorist; professor for astronomy in Padova
(Dizionario biografico degli Italiani)

Johannes de Lineriis
Jean de Lignères/Linières

De minutiis
(e.g. manuscript dated 1356 in Clm 14684)

b. ? Active in Paris from 1320 on
d. 1350/55 Paris
Astronomer, mathematician in Paris

Padua [Matthaeus Cerdonis] 1483-02-22

36 p. + 18 p. (from fol. 19 on)
C/V: UCatInc 03799; ISTC ib00299000
D: Internet Archive (Yale Medical L)
L: London BL, New York Columbia U Plimpton L, Perugia B Augusta, Wien ÖNB

S: Cantor, Moritz: Geschichte. Leipzig 1900, II 204–207, 126–127
Favaro, Antonio: Intorno alla vita ed alle opera di Prosdocimo de' Beldomandi. In: Bollettino (Boncompagni) di bibliografia e di storia delle scienze matematiche e fisiche (Roma) 12 (1879)
Busard, Hubert L L: Het rekenen met breuken in de middeleeuwen. In: Mededelingen van de Kon. Vlaamse Acad. voor Wetenschappen 30 (1968) Nr. 7

Latin 1

Prosdocimus de Beldomandis

Algorismi tractatus

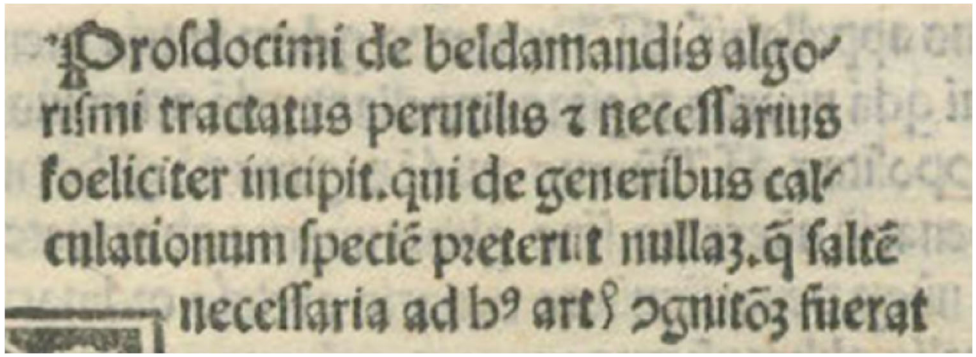
Johannes de Lineriis

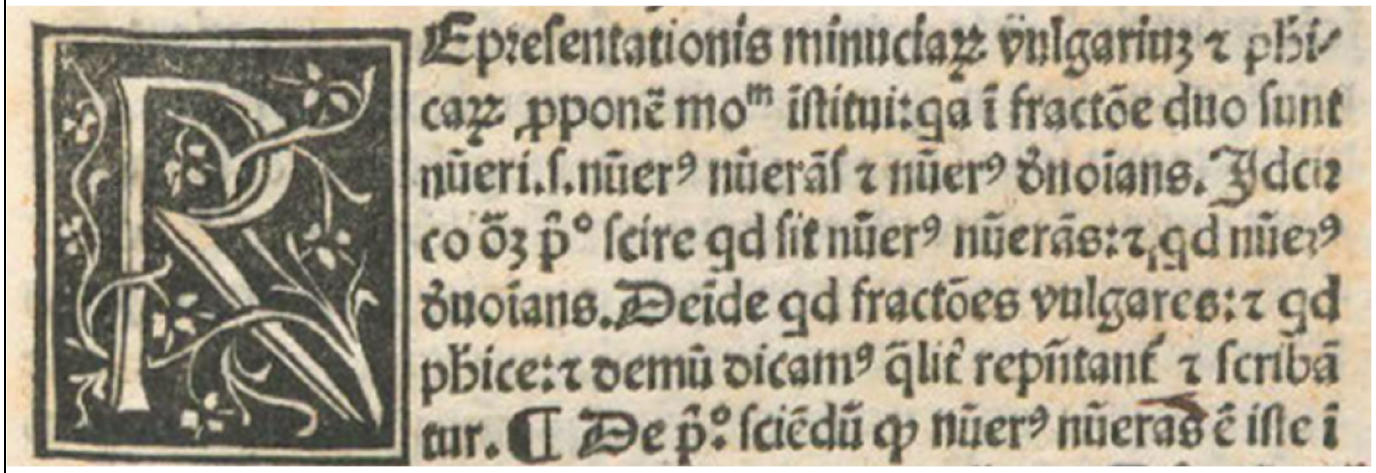
De minutiis

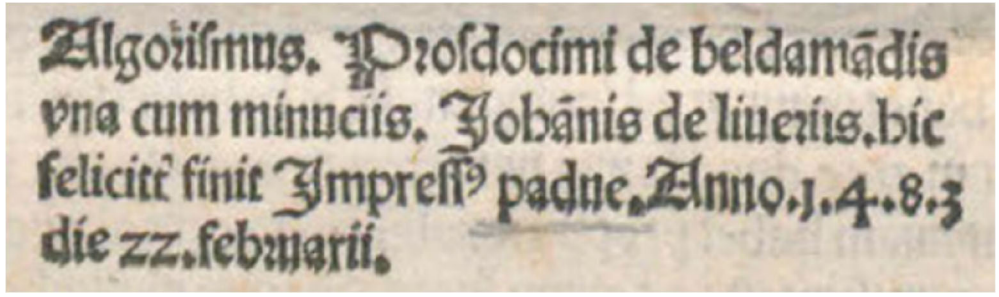
Padua: Cerdonis 1483

Title informations and colophon

2nd ed. by Federico Delfino;
De minutiis ascribed to Johannes de Liveriis [sic!] from Sicily
Venezia: Johannes Antonius de Vulpinis de Castrogiufredo 1540-04-08
84 p. [Beldomandis pdf 7–58; Johannes de Lineriis pdf 58–88]
D: bibdig.museogalileo.it


Prosdocimi de beldamandis algo-
rismi tractatus perutilis ⁊ neceſſarius
foeliciter incipit.qui de generibus cal-
culationum ſpecie preterit nullaz.q ſalte
neceſſaria ad bn art ognitoz fuerat


Epreſentationis minuciaz vulgariz ⁊ pbi-
caz ꝓponē mo ſtituiqa ī fractōe duo ſunt
nūeri.ſ.nūer nūerāſ ⁊ nūer vnoians. Ydcir
co oz p ſcire qd ſit nūer nūerās:⁊ qd nūer
vnoians. Deide qd fractōes vulgares:⁊ qd
pbice:⁊ demū dicam qlit repītant ⁊ ſcribā
tur. ¶ De p ſciēdū ꝙ nūer nūeras ē iſte ī


Algoriſmus. Prosdocimi de beldamādis
vna cum minuciis. Johānis de liueriis.bic
felicit finit Impreſſ padue.Anno.1.4.8.3
die zz.februarii.

Latin 1

Prosdocimus de Beldomandis

Algorismi tractatus

Johannes de Lineriis

De minutiis

Padua: Cerdonis 1483

Transcription of the title informations
and of the colophon

Prosdocimi de beldamandis algo-
rismi tractatus perutilis et necessarius
foeliciter incipit. qui de generibus cal-
culationum speciem preteriit nullam. quae saltem
necessaria ad huius artis cognitionem fuera[*n*]*t*

Representationis minuciarum vulgarium et phisi-
carum proponere modum institui: quia in fractione duo sunt
numeri .s[*cilicet*]*. numerus numerans et numerus denominans. Idcir-*
co oportet primo scire quid sit numerus numerans: et quid numerus
denominans. Deinde quid fractiones vulgares: et quid
physice: et demum dicamus qualiter representantur et scriban-
tur

Algorismus. Prosdocimi de beldamandis
vna cum minuciis. Johannis de lineriis. hic
feliciter finit Impressus padue. Anno .1.4.8.3
die 22. februarii.

Latin 1

Prosdocimus de Beldomandis

Algorismi tractatus

Johannes de Lineriis

De minutiis

Padua: Cerdonis 1483

Translation of the title
informations
and of the colophon

Physical fractions are fractions with denominator 60 and its powers.

Prosdocimi de Beldamandis
useful and necessary treatise on algorism
starts happily. It did not skip any species of the ways of
calculation. At least these had been
necessary for understanding this art

I made it my business to present a way of representing
common and physical fractions: As in a fraction there are two
numbers, that is, the numerator and the denominator,
therefore, it is at first necessary to know
what the numerator is and what the denominator;
then what common fractions [are] *and what physical ones;*
and finally, we want to talk about
how they are represented and written

The Algorism of Prosdocimus de Beldomandis
together with the "Fractions" by Johannes de Lineriis
mercifully terminates here. Printed in Padova in the year 1483
on the 22nd day of February.

Latin 1

Prosdocimus de Beldomandis

Algorismi tractatus

Johannes de Lineriis

De minutiis

Padua: Cerdonis 1483

Content overview
(according to the text)

Integers
1 Numeration
2 Addition
3 Subtraction
4 Halving (*mediatio*)
5 Duplication
6 Multiplication
7 Division
8 Arithmetic progressions
9 Extraction of square and cube roots

Common and physical (denominator 60^n) fractions
1 Numeration
2 Identifying a common denominator (*reduction*)
3 Addition
4 Subtraction
5 Duplication
6 Halving (*mediatio*)
7 Multiplication
8 Division
9 Extraction of square and cube roots
10 Geometric progression (*proportio continua*)
11 Regula de tri (*proportio discontinua*)

Latin 2

Anonym
(Georgius de Hungaria?)

[Same introduction as Georgius de Hungaria 1499, but not the same work]

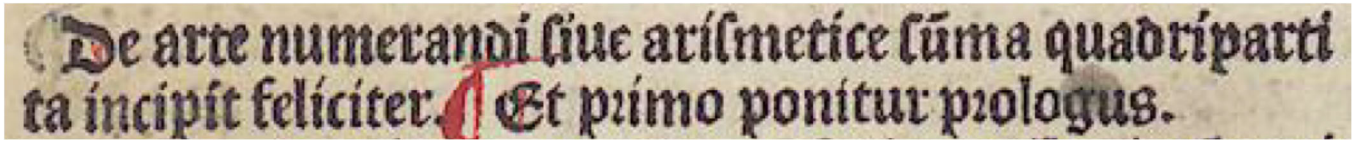
De arte numerandi siue arismetice summa quadripartita

Paris: Antoine Caillot
or Louis Martineau 1485/90

Caillaut active: 1482–1506
(cnp02226310 CERL Thesaurus)
Martineau active 1482–1498
(cnp02244059 CERL Thesaurus)

40 p.
C: UCatInc 0266410N; ISTC ia01136100
D: Freiburg U
L: London BL

Title


De arte numerandi ſiue arîſmetice ſũma quadriparti
ta incipit feliciter. ¶ Et primo ponitur prologus.

De arte numerandi siue arismetice summa quadriparti-ta incipit feliciter. Et primo ponitur prologus.

The textbook about the art of counting or of arithmetic in four parts starts mercifully. And in the beginning, the prolog is placed.

Content overview (according to the prolog pdf 6, pdf 7)

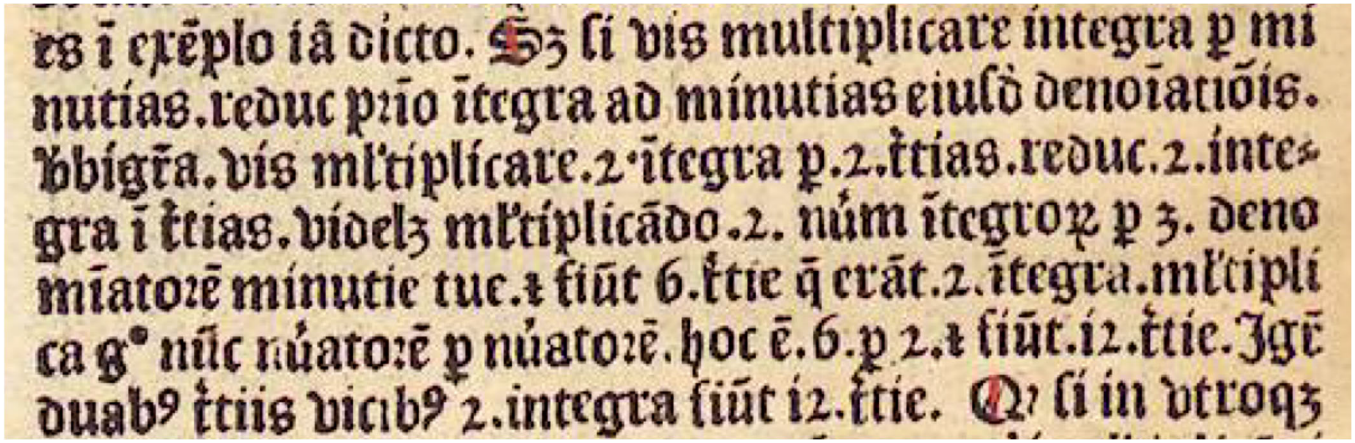
1 Species with the pen for integers
2 Species with the pen for fractions
3 Species with the counters (*proiectiles*)
4 Various rules (among others regula de tri) and questions

Latin 2

Anonym

De arte numerandi siue arismetice summa quadripartita
Paris: Antoine Caillot
or Louis Martineau 1485/90

Mistakes with
the multiplication of fractions
(pdf 26); cf. French 1


es ī exēplo iā dicto. Sz si vis multiplicare integra p mi
nutias.reduc prīo ītegra ad minutias eiusd denoīatiōis.
Vbigra.vis mltiplicare.2 ītegra p.2.ttias.reduc.2.ínte-
gra ī ttias.videlz mltiplicādo.2. núm ītegroꝝ p z. deno
mīatorē minutie tue.t fiūt 6.ttie q erāt.2.ītegra.mltipli
ca g° nūc nūatorē p nūatorē.hoc ē.6.p 2.t fiūt.12.ttie.Igr̄
duabꝫ ttiis vicibꝫ 2.integra fiūt 12.ttie. Q; si in vtroqz

Secundum si vis multiplicare integra per mi-
nutias, reduc primo integra ad minutias eiusdem denominationis.
Verbi gratia vis multiplicare 2 integra per 2 tertias, reduc 2 inte-
gra in tertias, videlicet multiplicando 2 numerum integrorum per 3 deno-
minatorem minutiae tuae et fiunt 6 tertiae, quae erant 2 integra; multipli-
ca ergo nunc numeratorem per numeratorem, hoc est 6 per 2, et fiunt 12 tertiae. Igitur
duabus tertiis vicibus [times] *2 integra fiunt 12 tertiae.*

$$2 \cdot \frac{2}{3} = \frac{6}{3} \cdot \frac{2}{3} = \frac{12}{3}$$

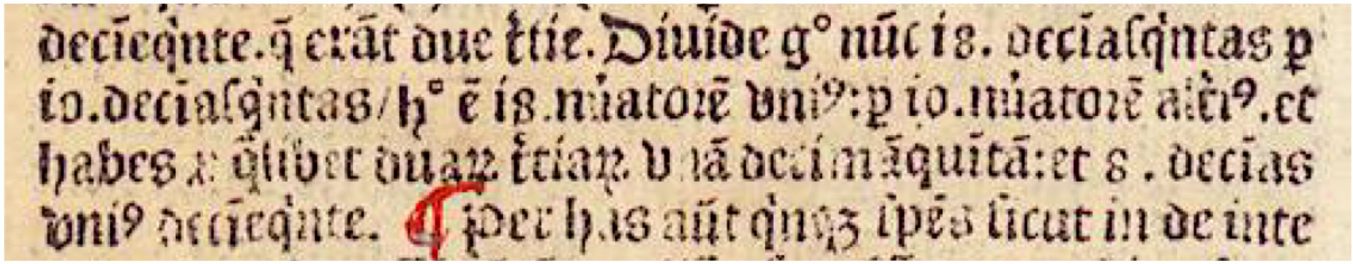
Latin 2

Anonym

De arte numerandi siue arismetice summa quadripartita
Paris: Antoine Caillot
or Louis Martineau 1485/90

Mistakes with
the division of fractions
(pdf 27); cf. French 1

Problem: $\frac{6}{5} : \frac{2}{3}$; at first identify common denominator.


decieqnte.q erāt due ttie. Diuide g° nūc 18. decias qntas p
10.decias qntas/h° ē 18.miatorē vni9:p 10.miatorē alti9.et
habes x: qlibet duar ttiar. v nā deci mequitā:et 8. decias
vni9 decieqnte. q per has aūt qnqz ipēs licut in de inte

Divide ergo nunc 18 decimas quintas per
10 decimas quintas, hoc est 18 numeratorem unius per
10 numeratorem alterius et
habes igitur [?] *quaelibet duarum tertiarum* [how many of two thirds [6/5 are]], *unam decimam quintam et 8 decimas*
unius decimae quintae.

$$\frac{6}{5} : \frac{2}{3} = \frac{18}{15} : \frac{10}{15} = \frac{18/10}{15} = \frac{1}{15} + \frac{8}{10} \cdot \frac{1}{15}$$

Latin 2

Anonym

De arte numerandi siue arismetice summa quadripartita
Paris: Antoine Caillot
or Louis Martineau 1485/90

Fifteen problems of business and recreational mathematics from Part 4

All of the problems except nr 6 can be found in French 1:
2, 4, 6, 8, 14, 16, 17, 21, 23, 24

1 Regula de tri (pdf 32)
2 Regula societatis simplex (pdf 34)
3 Regula societatis temporum (pdf 35)
4 *Lepus*: pursuit with margin (pdf 36)
5 *Agonizans*: twin inheritance (pdf 36)
6 *Ementes*: company (purchase), sum of the parts > 1 (pdf 37)
7 *Canonici et sacerdotes*: company (pdf 38)
8 *Denarii obliti* (unknown inheritance, forgotten amount (n+r/10)): nesting (pdf 39)
9 *Cambium*: regula equalitatis (pdf 40)
10 *Metalla commixta* (fragment): alloy (pdf 41)
11 *Molendinae* (mills): shared work (pdf 42)
12 *Vas* (vessel with three fountains): shared work (pdf 42)
13 *Turris*: find length (pdf 43)
14 *Regula contraria de tri* (loaf of penny): purchase and sales, regula de tri inversa (pdf 43)
15 *Regula aedificandi*: rectangular cuboid, price of a wall (pdf 44)

Latin – Supplement 1

Under the title *Arithmetica*, there are also:
1 Treatises about *arithmetica speculativa* (and *musica*), that is the ancient theory of proportions in the Pythagorean tradition: posthumous editions of earlier manuscripts, e.g. Albertus de Saxonia 1476, Boethius 1488/92, Thomas Bradwardine 1496, Jordanus Nemorarius 1496.
2 Mere *Algorismus linealis* texts (calculation with the counters; German *Linienrechnung*) without calculations with the pen, e.g. Johann Widmann 1490/95, Balthasar Licht 1500.
3 Verbose treatises with very few examples and without commercial applications, e.g. Georg Peurbach 1495.
These three groups are not relevant for this catalog.

Further Latin incunabula on arithmetic (selection)

Anonym
Ars numerandi
Köln: Ulrich Zell ca. 1482
12 p.
C: UCatInc 02663; ISTC ia01136000
D: –; **L**: New York Columbia U, London BL, København Royal L
[only about the declension of numerals]

Latin – Supplement 2

Johannes de Sacro Bosco
Algorithmus [*vulgaris de arte numerandi*]
Firenze: Francesco Bonaccorsi ca. 1490
Leipzig: Konrad Kachelofen ca. 1500
16 p.
C: UCatInc M14567, M1456310
L: London BL, Wien U

Cirvelus / Ciruelo, Petrus / Pedro Sánchez
b. ca. 1470 Daroca/Aragón, d. 1560 Salamanca
Mathematician and philosopher in Alcalá
Tractatus Arithmetice Practice qui dicitur Algorismus
Paris: Guy Marchant 1495-02-22
25 p.
C: UCatInc 07052, 07053;
ISTC ic00699580, ic00699600
D: Internet Archive
L: Paris Bibliothèque Saint Geneviève

Further Latin incunabula on arithmetic (selection)

Anonym
Ars numerandi
Paris: Antoine Caillot ≤ 1490
16 p.
C: UCatInc 02664; ISTC ia01136300
D: –; **L**: Paris B Mazarine, Bourges B Municipale, Troyes B Municipale

Anonym (Widmann, Johann?) (ca. 1460/65 – ca. 1505/15)
Algorismus linealis etc.
Leipzig: Martin Landsberg 1490/95 etc.
26 p.
C: UCatInc 01269–01280; ISTC ia00462000
D/**L**: München BSB, Wolfenbüttel HAB
[incipit: *Ad evitandum multiplices Mercatorum errores*]
S: Gärtner, Barbara 2000

P(e)urbach, Georg (1423–1461)
Algorismus
Wien: Johann Winterburg ca. 1495 etc.
10 p.
C: UCatInc M36629–M36632; ISTC ip01133500 etc.
D/**L**: Berlin SB, München BSB, Wien ÖNB
[concise; few business problems added by the publisher]

Latin – Supplement 3

Georgius de Hungaria
(not the author of *De moribus … Turcorum*)
Arithmetice summa tripartita
Schoonhoven: Fratres apud S. Michaelem in den Hem 1499-04-05
20 p.
C: UCatInc 10652; ISTC ig00150800
D: –; **L**: Gießen U, Wolfenbüttel HAB
E: Smeur, Facsimile of the first arithmetic printed in the NL; Dutch classics on hist. sc. 14

Anonym (Widmann, Johann?)
Algorismus novus de integris, de minutiis vulgaribus et physicalibus
Köln: Kornelius von Zierikzee ca. 1500 etc.
19 p.
C: UCatInc 01276–01278;
ISTC ia00466000 etc.
D/**L**: Darmstadt ULB, München BSB, Wolfenbüttel HAB
[common fractions, hexagesimal fractions (*minutiae physicales*), regula de tri (*regula proportionum*, *regula mercatorum*)]

Latin arithmetic books around 1500

Licht, Balthasar (active 1500–1515)
Algorithmus linealis
Leipzig: Melchior Lotter not before 1500
30 p.
C: UCatInc M18204, M18206; ISTC il00202000
D/**L**: München BSB
S: Gärtner, Barbara: Ries-Kolloquium 1999
[species with the counters (ill.), fractions, regula de tri, regula societatis]

Huswirt(h), Johannes (active around 1500)
Enchiridion novus Algorismi
Köln: Heinrich Quentell 1501 etc.
39 p.
C: VD16 H 6208
D/**L**: München BSB, Wien ÖNB
[very detailed; species with the pen and with the counters (*proiectiles*), common fractions, 28 problems of business and recreational mathematics, based upon *Algorismus Ratisbonensis*]

Anonym, *Enchiridion algorisme*. Deventer: Richard Paffraet 1498/99
C: UCatInc 2 Sp. 11b/11a; **L**: could not be traced in any library

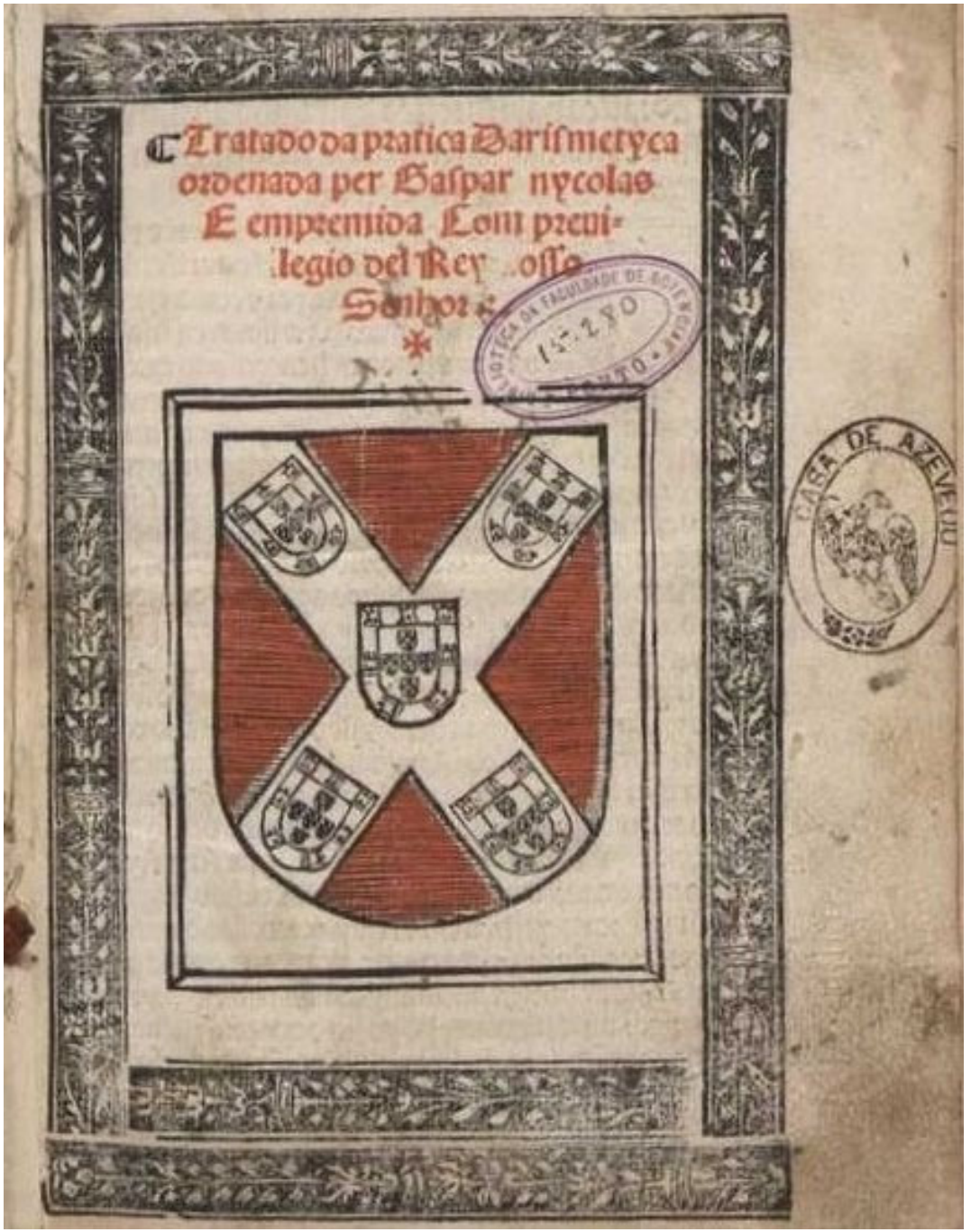
Portuguese

Gaspar Nicolas

b. Guimarães
No other biographical data known (reprint)
Contributed to *Reportório dos Tempos* 1518

Tratado da pratica D arismetyca
Lisboa: Germão Galharde
1519-11-15

242 p.
C/V: Hoock I/N4 (editions until 1716)
D: fc.up.pt/fa/index.php?p=nav&f=books.0223.0
R: Porto 1963 (Mendonça de Albuquerque, L)
L: Porto U, Facultade de Ciências, Fundo Antigo
S: Gropp, Harald: Ries-Kolloquium 2023
Costa Clain, Teresa. In: Revista Brasileira Hist. Mat. 19 (2019) 105–137
Frick, Berta M: The first Portuguese arithmetic. In: Scripta Mathematica 11 (1945) 327–339

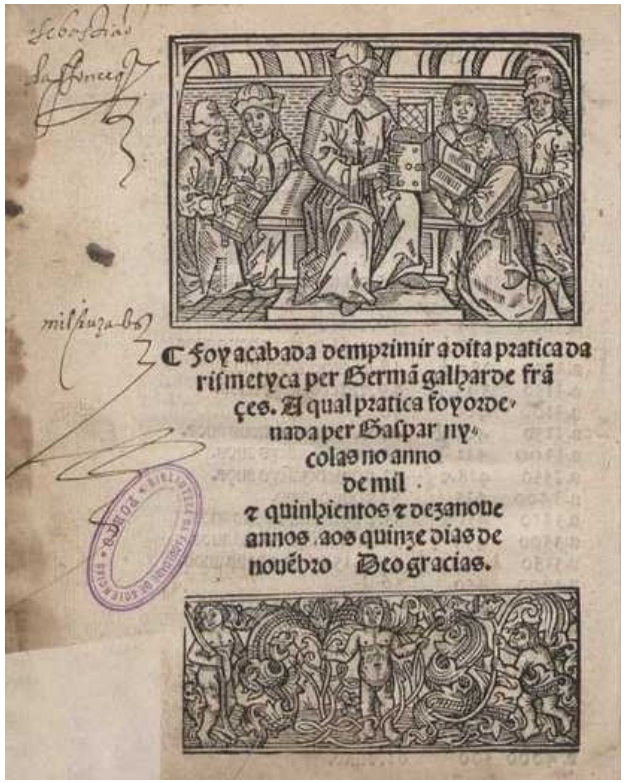


Portuguese

Gaspar Nicolas

Tratado da pratica D arismetyca
Lisboa: Germão Galharde 1519

Transcription of the title page and of the colophon



Tratado da pratica D arismetyca
ordenada per Gaspar nycolas
E empremida Com preui-
legio del Rey nosso
Senhor
[Brasão de armas dos duques do Cadaval]

Foy acabada d emprimir a dita pratica d a-
rismetyca per German galharde fran-
çes. A qual pratica foy orde-
nada per Gaspar ny-
colas no anno
de mil
& quinhientos & dezanoue
annos aos quinze dias de
novembro Deo gracias.

Portuguese

Gaspar Nicolas

Tratado da pratica D arismetyca
Lisboa: Germão Galharde 1519

Translation of the title page
and of the colophon

Privilege by King Manuel I the Fortunate
(b. 1469, reigned 1495–1521)

Treatise on the practice of arithmetic
arranged by Gaspar Nicolas
and printed with the privilege
of the King, our
sovereign
[Coat of arms of the Dukes of Cadaval]

The print of the mentioned [treatise on the] *practice*
of arithmetic was finished
by Germão Galharde from France.
This [treatise on the] *practice was arranged*
by Gaspar Nicolas
in the year 1519 on the 15th day of November.
Thanks be to God.

Portuguese

Gaspar Nicolas

Tratado da pratica D arismetyca
Lisboa: Germão Galharde 1519

Content overview
(according to the section headings)

O quarto e vintena
(a quarter and a twentieth of the rest)
tax rate at the Casa da Índia in Lisboa:

$$\frac{1}{4}+\frac{3}{4}\cdot\frac{1}{20}=\frac{23}{80}$$

(cf. Costa Clain, Teresa. In: Revista Brasileira Hist. Mat. 19 (2018) 83–97)

Units:
1 quintal (hundredweight) = 4 arrobas
1 arroba = 32 arráteis
1 arrátel = 16 onças

Dedication to Don Rodrigo, Conde de Tantuguel
Tables for simple and compound multiplication
(*tavoada pequena*, *tauoada grande*)
Numeration (*numerar*)
Addition with check by seven (*assomar, prova pellos setes*)
Subtraction (*demenuir*)
Multiplication (*multipricar*, *multiplicar*)
Division (*repartir*)
Regula de tri (*regra de tres*)
Regula societatis (*regra de companhias*)
Tax (*tirar o quarto e vintena*)
Species for fractions (*quebrados*)
Regula de tri for fractions
Regula positionum (*regra das oposiçoões* [sic])
Calculation of Flanders (*conta de frandes*) – money exchange
Progressions (*pergressios*)
Barters (*baratos*)
Problems (“Find a number”, *numeros*)
Problems (questions, *preguntas*)
Extract square and cube roots (*tirar raizes*)
Geometry of triangle and circle
Silver alloys

Galician

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

Information:
An early arithmetic book in Galician is not known. The L of the Real Academia Galega holds a copy of the first mathematics school textbook written in Galician:
Coletivo Vacaloura: *Matemáticas I.*
Vigo: Edicións Xerais de Galicia, D. L. 1979.

Reference: L of the Real Academia Galega, La Coruña
Date: December 2020

Spanish 1

Francisco de San-Clemente

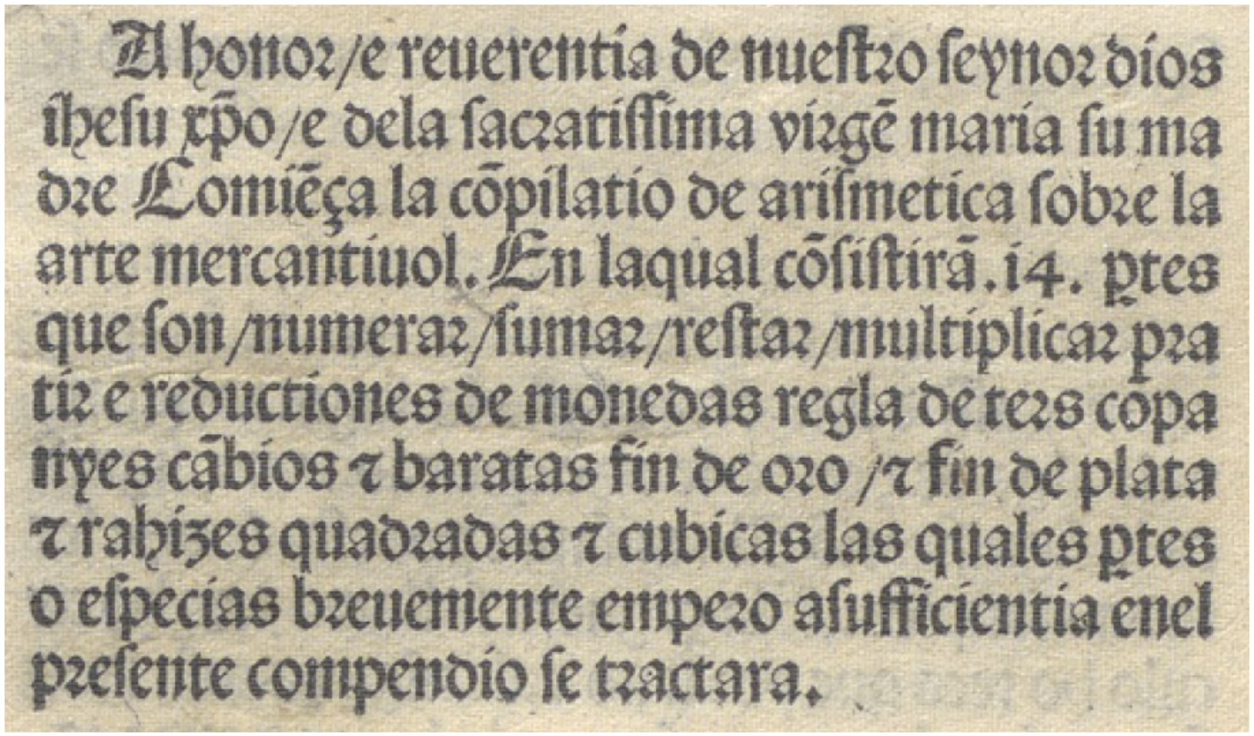
No biographical data known (Wiki català)

Compilatio de arismetica sobre la arte mercantiuol

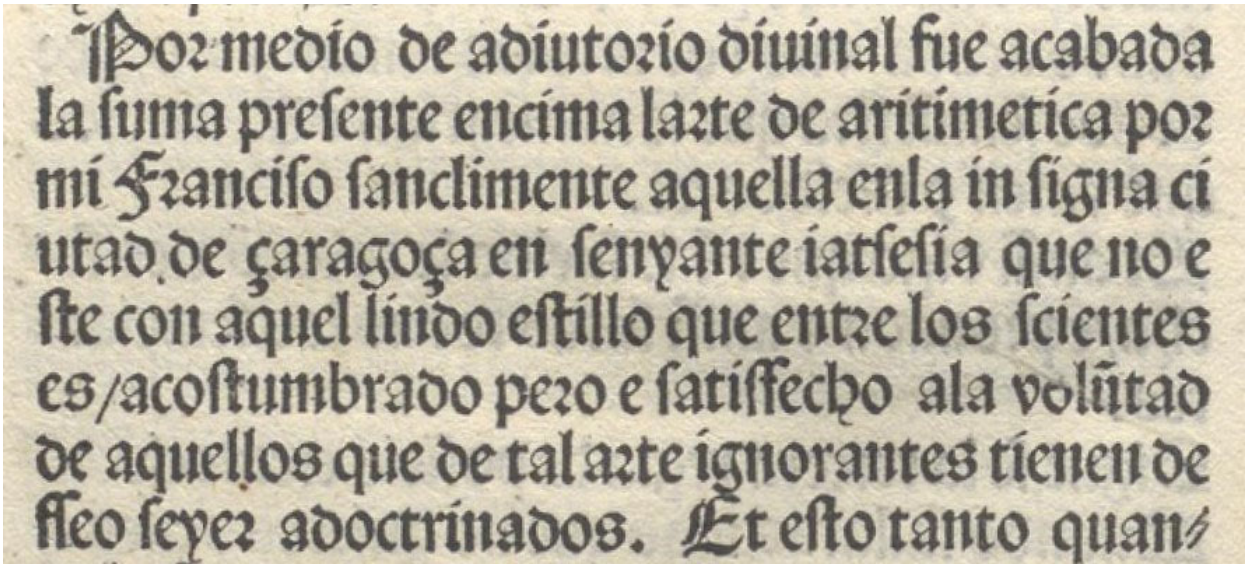
[Zaragoza: Paul (or Hans) Hurus ca. 1486]

Spanish adaptation of the Catalan *Suma de la art de Arismetica* 1482

96 p.
C/V: UCatInc M0087710
D: internetculturale.it
L: Cagliari BU (Inc. 235)
S: Coni, Franco: Un incunabolo spagnolo sinora sconosciuto. In: Pubblicazioni della Sezione Regionale Sarda dell'Associazione Italiana per le Biblioteche. Cagliari 1951, 11 p.



A honor/e reuerentia de nuestro seynor dios ihesu xpo/e dela sacratissima virgē maria su madre Comiēça la cōpilatio de arismetica sobre la arte mercantiuol. En laqual cōsistirā. 14. ptes que son/numerar/sumar/restar/multiplicar practic e reductiones de monedas regla de tres copanyes cābios & baratas fin de oro /& fin de plata & rahizes quadradas & cubicas las quales ptes o especias breuemente empezo asufficientia enel presente compendio se tractara.



Por medio de adiutorio diuinal fue acabada la suma presente encima larte de aritimetica por mi Francisco sanclimente aquella enla in signa ciutad de çaragoça en senyante iatlesia que no este con aquel lindo estillo que entre los scientes es/acostumbrado pezo e satisfecho ala volūtad de aquellos que de tal arte ignorantes tienen de sleo seyer adoctrinados. Et esto tanto quan-

Spanish 1

Francisco de San-Clemente

Arismetica sobre la arte mercantiuol
[Zaragoza: Paul Hurus ca. 1486]

Transcription of the title information (first page) and of the author information (third to the last page)

A honor/ e reuerentia de nuestro seynor dios ihesu christo/ e de la sacratissima virgen maria su madre Comiença la compilatio de arismetica sobre la arte mercantiuol. En la qual consistiran 14 partes [The content overview follows.]

Por medio de adiutorio diuinal fue acabada la suma presente encima l arte de aritimetica por mi Franciso san climente aquella en la insigna ciutad de çaragoça ensenyante iatsesia [*jatsia*, Catal. word from Latin **iam se siat*] *que no este con aquel lindo estillo que entre los scientes es/ acostumbrado pero e satisfecho a la voluntad de aquellos que de tal arte ignorantes tienen desseo seyer adoctrinados.* [etc.]

Spanish 1

Francisco de San-Clemente

Arismetica sobre la arte mercantiuol
[Zaragoza: Paul Hurus ca. 1486]

Translation of the title information (first page) and of the author information (third to the last page)

To the honor and reverence of our lord God, of Jesus Christ and of the holiest virgin Mary, his mother, begins the compilation of arithmetic on the art of commerce, in which there will be 14 parts
[The content overview follows.]

By means of the divine help, the present textbook on the art of arithmetic was finished by me Francisco San-Clemente, who teaches it [sc. arithmetic] *in the outstanding city of Zaragoza, although it is not with this nice style which is customary among the scientists, but adapted to the satisfaction of those who do not know this art and have the wish to be instructed.* [etc.]

Spanish 1

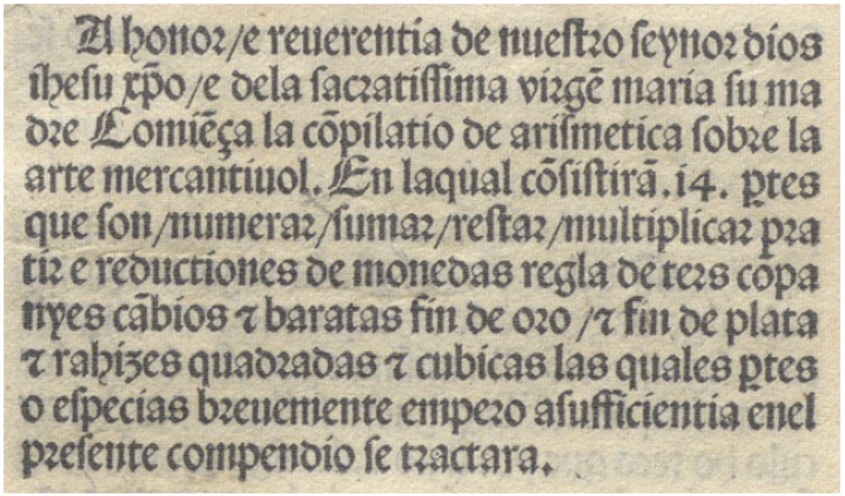
Francisco de San-Clemente

Arismetica sobre la arte mercantiuol

[Zaragoza: Paul Hurus ca. 1486]

Content overview

(according to title and section headings)



Al honor/e reuerentia de nueſtro ſeynor dios
ihеſu xpo/e dela ſacratiſſima virgē maria ſu ma
dre Comiēça la cōpilatio de ariſmetica ſobre la
arte mercantiuol. En laqual cōſiſtirā. 14. ptes
que ſon/numerar/ſumar/reſtar/multiplicar pra
tic e reductiones de monedas regla de ters cōpa
nyes cābios ⁊ baratas fin de oro /⁊ fin de plata
⁊ rahizes quadradas ⁊ cubicas las quales ptes
o eſpecias breuemente empero aſufficientia enel
preſente compendio ſe tractara.

1 Numeration (*numerar*)
2 Addition (*ayustar, sumar*) – check by nine
3 Subtraction (*restar*)
4 Multiplication – check by nine
5 Division (*partir*) – check by nine, by inverse operation
6 Reductio descendens (*reduction*) (pdf 43)
7 Regula de tri (*regla de tres*) for: 1 textile (*draperia*), 2 weight (*peso*), 3 measures (*mesuras*), 4 money (*moneda*), 5 time (interest; *tiempo*)
8 Regula societatis (*companyas*): simplex and temporum
9 Currency exchange (*cambios*): without and with time
10 Barters (*baratas*)
11 Precious metal content of silver and gold (*ley, fin de plata, fin de oro, sou de fi*): mixtures (*fondir*) of alloys (*billons*; cf. French *billon*: ‘silver copper alloy with less than a half of silver’, ‘Scheidemünze’ [German: the legal / nominal value is bigger than the intrinsic / metal value])
13 [12] Arithmetic progressions (*progreciones*)
14 [13] Square and cube roots (*rahizes quadradas e cubicas*)
14 Regula falsi simplicis positionis (*una falsa posicion*), regula falsi duplicis positionis (*dos falsas posiciones*)

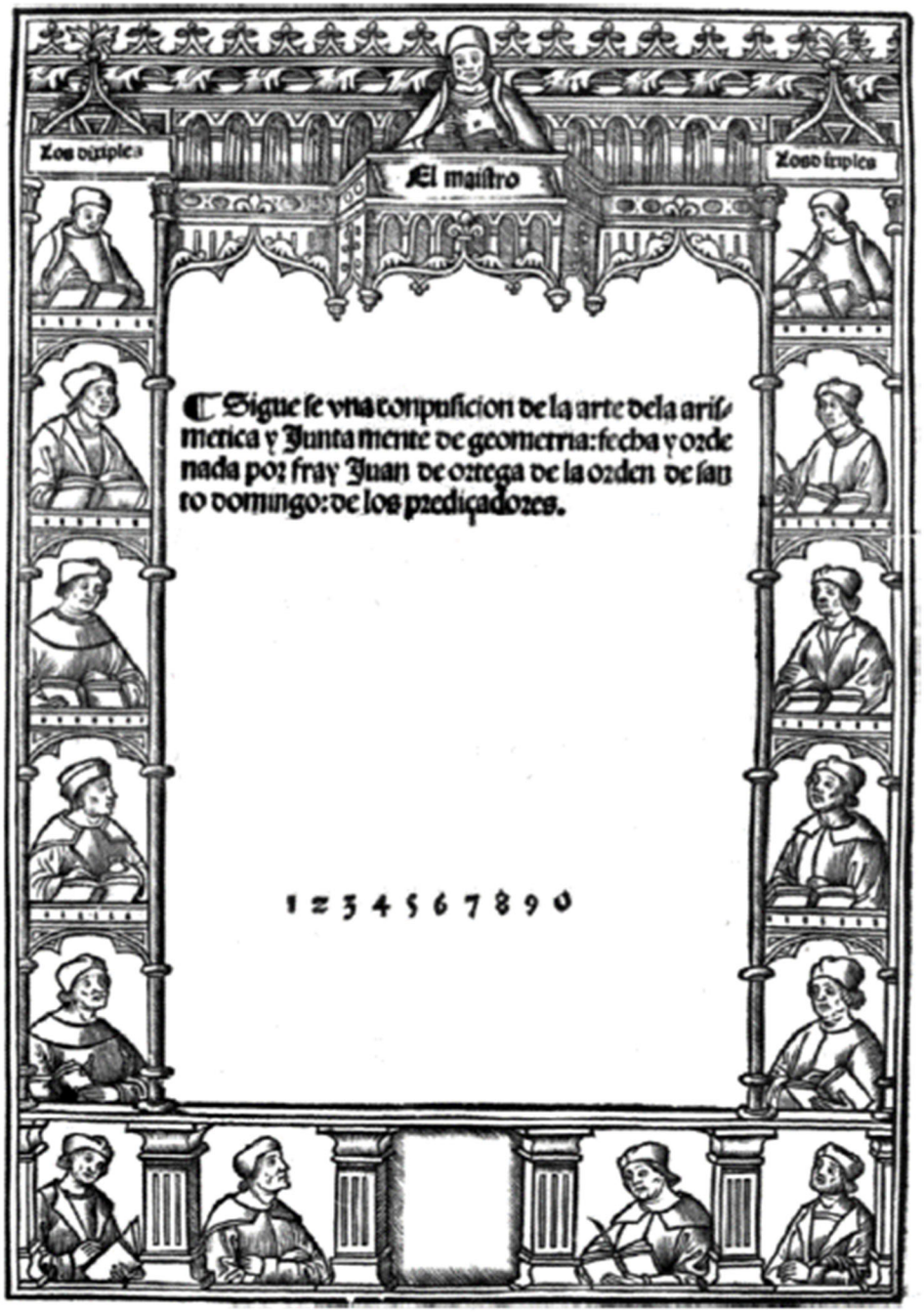
Spanish 2

Juan de Ortega

b. ca. 1480 Palencia (León)
d. 1568
Friar of the Order of Saint Dominic

Conpusicion de la arte de la arismetica
Lyon: Nicolaus de Benedictis / Benedetti (for Joannes Trinxer, Barcelona) 1512-12-30

406 p.
C: Hoock I/O6
D: http://hdl.handle.net/10366/83271; gredos.usual.es/handle (Salamanca U)
L: Madrid BN
S: Labarthe, Marie-Hélène. Toulouse 2004
Docampo Rey, Javier: Reading Luca Pacioli's Summa in Catalonia. In: Historia Mathematica 33 (2006) 43–62



Spanish 2

Juan de Ortega

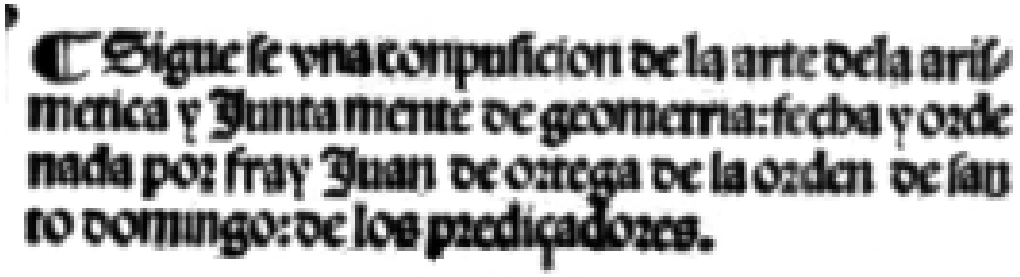
Arte de la arismetica
Lyon: Benedictis/Benedetti 1512

French adaptation: Lyon 1515
Italian adaptation: Roma 1515

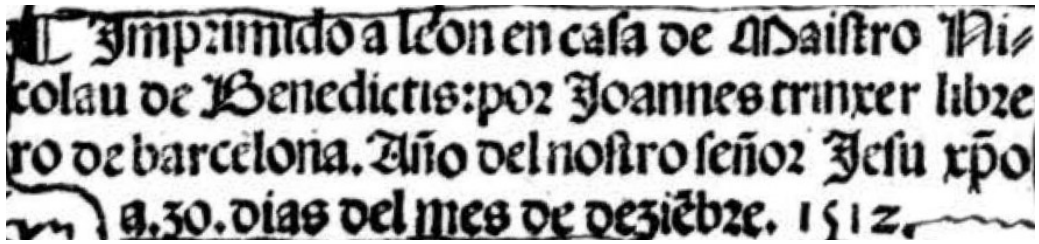
Transcription of the title page and of the colophon

S: Jewers, Caroline A.: Claude Platin. In: Literary Encyclopedia
Kirsop, Joan L.: Claude Platin. In: Austral. Journal of French Studies 17 (1980) 86–120 (liverpooluniversitypress.co.uk)

Los diciples – El maistro – Los diciples


C Sigue se vna conpusicion de la arte dela arif-
metica y Juntamente de geometria: fecha y orde
nada por fray Juan de ortega de la orden de san
to domingo: de los predicadores.

Sigue se vna conpusicion de la arte de la aris-metica y Juntamente de geometria: fecha y orde-nada por fray Juan de ortega de la orden de san-to domingo: de los predicadores


C Imprimido a leon en casa de Maistro Ni-
colau de Benedictis: por Joannes trinxer libre
ro de barcelona. Año del nostro señor Jesu xpo
a .30. dias del mes de deziembre. 1512.

Imprimido a leon en casa de Maistro Ni-colaus de Benedictis: por Joannes trinxer libre-ro de barcelona. Año del nostro señor Jesu Christo a .30. dias del mes de deziembre .1512.

Spanish 2

Juan de Ortega

Arte de la arismetica
Lyon: Benedictis/Benedetti 1512

Translation of the title page and of the colophon

The students – The lecturer – The students

It follows a composition of the art of arithmetic and connected [with it] *one of geometry: made and arranged by friar Juan de Ortega of the Order of Saint Dominic,* [Order] *of Preachers*

Printed in Lyon in the house of master Nicolau de Benedictis for Joannes Trinxer, bookseller in Barcelona.
In the year of our lord Jesus Christ 1512 on the 30th day (of the month) of December.

Spanish 2

Juan de Ortega

Arte de la arismetica
Lyon: Benedictis/Benedetti 1512

Content overview
(table of contents)

Tabla de los capitulos que eſtã enel preſente tratado.

Capitulo.1. de numerar todas ſumas a fojas 2
Capitulo.2. de ſumar todas ſumas por entero a fojas 4
Capitulo.3. de reſtar todas ſumas por entero a fojas 8
Capitulo.4. de multiplicar por entero a fojas 17
Capitulo.5. de partir por entero afojas 19
Capitulo.6. q̃ trata de progreſiones a fojas 23
Capitulo.7. de las raizes quadrada y cubica a fojas 27
Capitulo.8. de prouar qualquiera cuenta a fojas 34
Capitulo.9. de reduzir todo nõbre roto afojas 44
Capitulo.10. de ſumar por nõbre roto a fojas 47
Capitulo.11. de reſtar por nõbre roto a fojas 51
Capitulo.12. de multiplicar por nõbre roto afojas 55
Capitulo.13. de partir por nõbre rot o a fojas 57
Capitulo.14. de ſumar por extraordinario a fojas 60
Capitulo.15. de reſtar por extra ordinario a fojas 65
Capitulo.16. de multiplicar extra ordinario a fojas 67
Capitulo.17. de partir por extra ordinario a fojas 69
Capitulo.18. de los nõbres que tienẽ regla ono a fojas 70
Capitulo.19. de deſminuciones a fojas 73
Capitulo.20. de regla de tres ſin tiempo por entero a fojas 76
Capitulo. 21. de regla de.3. ſin tiẽpo por roto a fojas 79
Capitulo.22. de regla de libras y onzas a fojas 86
Capitulo.23. de regla de tres con tiẽpo. a fojas 88
Capitulo.24. de regla de.3. por roto. a fojas 91
Capitulo.25. de cãbiar por partir y multiplicar a fojas 94
Capitulo.26. de cãbiar por regla de tres. a fojas 97
Capitulo.27. de enpreſtar: y de ganar a fojas 101
Capitulo.28. de regla quadrada a fojas 106
Capitulo.29. de regla de cõpañias a fojas 110
Capitulo.30. de reglas de teſtamentos a fojas 134
Capitulo.31. de regla de baratas a fojas 138
Capitulo.32. de regla de argenteria a fojas 149
Capitulo.33. de regla de viages a fojas 160
Capitulo.34. devna poſicion a fojas 171
Capitulo.35. de dos poſiciones a fojas 184
Capitulo.36. de geometria a fojas 193

Spanish 2

Juan de Ortega

Arte de la arismetica
Lyon: Benedictis/Benedetti 1512

Content overview
(according to the table of contents)

Preface
1 Numeration (*numerar*)
2 Addition (*sumar*) of integers (*enteros*)
3 Subtraction (*restar*) of integers
4 Multiplication of integers
5 Division (*partir*) of integers
6 Progressions (*progresiones*)
7 Square and cube roots (*raízes*)
8 Check by seven and nine for arbitrary calculations (*por sietes*, *nueves*)
9 Identifying a common denominator (*reducir*) of a set of fractions
10 Addition of fractions (*nonbres rotos*)
11 Subtraction of fractions
12 Multiplication of fractions
13 Division of fractions
14 Difficult (*por extraordinario*) additions
15 Difficult subtractions
16 Difficult multiplications
17 Difficult divisions
18 Numbers with integer factors (*que tienen regla*)
19 Reducing fractions (*disminuyciones*)
20 Regula de tri without time (*regla de tres sin tiempo*) for integers
21 Regula de tri with time (interest) for fractions
22 Rule of pounds and ounces (*libras y onzas*)
23 Regula quinque (interest; *regla de tres con tiempo*)
24 Regula quinque for fractions
25 Currency exchange (*cambiar*) with division and multiplication
26 Currency exchange with regula de tri
27 Lending and gaining (*emprestar y ganar*)
28 Capacity, weight and price (*reglas quadradas*)
29 Regula societatis simplex and temporum (*regla de compañías*)
30 Testaments (*testamentos*): twin inheritance, unknown inherit. etc.
31 Barters without/with time (*regla de baratas*)
32 Silver and gold (*regla de argentería, plata y oro*)
33 Business trips (*regla de viajes*): nesting
34 Regula falsi simplicis positionis (*regla de una falsa posición*)
35 Regula falsi duplicis positionis (*regla de dos falsas posiciones*)
36 Geometry

Spanish 3

Juan Andrés

Priest in Zaragoza

Sumario breve
Valencia:
Juan Joffre 1515-08-30

288 p.
C: Hoock I/A6.1
D: Biblioteca Valenciana Digital
bivaldi.gva.es (1–148, 149–297; last page with colophon missing);
U Madrid
L: Madrid BN (R 9124)
R: Valencia 1999

Spanish 3

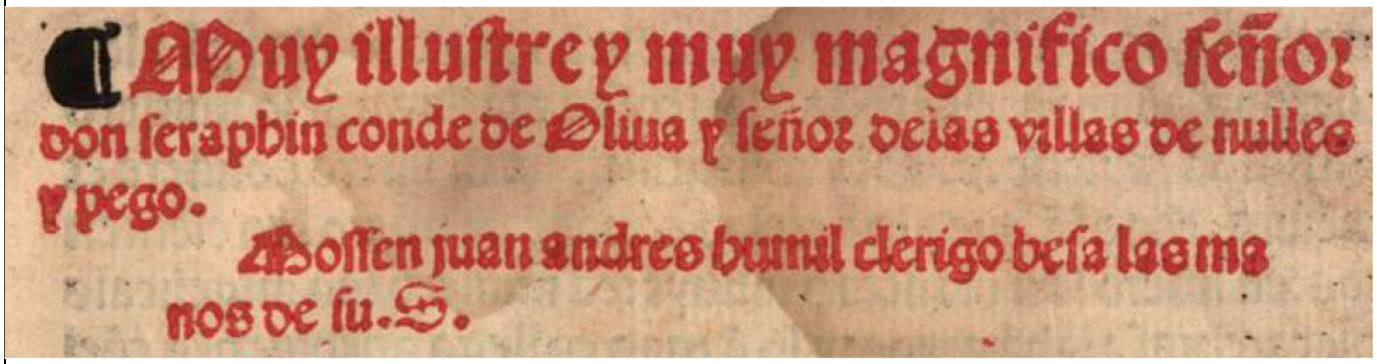
Juan Andrés

Sumario breve
Valencia: Juan Joffre 1515

Transcription of the title page and of the beginning of the dedication

Conte vell baralla noua.

Sumario breve de la
pratica de la arith-
metica de todo el cur-
so de l arte mercantiuol bien
declarado: el qual se llama
maestro de cuento.


Muy illustre y muy magnifico señor
don seraphin conde de Oliua y señor deias villas de nulles
y pego.
Mossen juan andres humil clerigo besa las ma
nos de su. S.

Muy illustre y muy magnífico señor
don seraphín conde de Oliua y señor de las villas de nulles y pego.
Mossén juan andrés humil clérigo besa las ma-
nos de su Señoría.

Spanish 3

Juan Andrés

Sumario breve
Valencia: Juan Joffre 1515

Translation of the title page and of the dedication

Old story new fight [Catalan].

Brief and well explained compendium
of the practice of arithmetic
over the entire course [sc. for all activities]
of the art of commerce:
it is called master of calculation.

Very illustrious and very magnificent lord Don Seraphin [Serafín de Centelles Giménez de Urrea (ca. 1460–1536)] *count of Oliva* [province of Valencia] *and lord of the cities of Nules* [province of Castellón] *and Pego* [province of Alicante].
The priest Juan Andrés, a humble cleric, kisses the hands of your lordship.

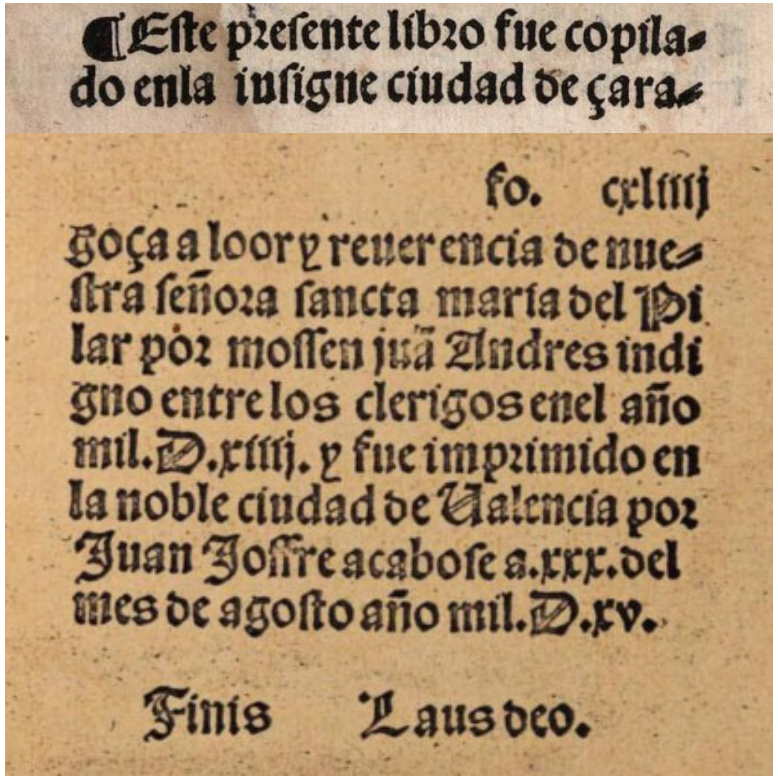
Spanish 3

Juan Andrés

Sumario breve

Valencia: Juan Joffre 1515

Transcription and translation of the colophon


Este presente libro fue copila-
do enla insigne ciudad de çara-

fo. cxliiij

goça a loor y reuerencia de nue-
stra señora sancta maria del Pi
lar por mossen juã Andres indi
gno entre los clerigos enel año
mil.D.xiiij. y fue imprimido en
la noble ciudad de Valencia por
Juan Joffre acabose a.xxx.del
mes de agosto año mil.D.xv.

Finis Laus deo.

Este presente libro fue copila-
do en la insigne ciudad de çara-
goça al oor y reuerencia de nue-
stra señora sancta maria del Pi-
lar por mossen juan Andres indi-
gno entre los clerigos en el año
mil .D.xiiij. y fue imprimido en
la noble ciudad de Valencia por
Juan Joffre acabose a .xxx. del
mes de agosto año mil.D.xv.
Finis. Laus deo.

This present book was compiled
in the outstanding city of Zaragoza
to the honor and reverence
of our holy Lady Saint Mary of the Pillar
[Nuestra Señora del Pilar: miraculous wooden image
in the Cathedral-Basílica Nuestra Señora del Pilar in Zaragoza]
by the priest Juan Andrés,
unworthy among the clerics, in the year 1514.
And it was printed in the noble city of Valencia by Juan Joffre,
finished on the 30th of the month of August in the year 1515.
The end. Praise be to God.

Spanish 3

Juan Andrés

Sumario breve
Valencia: Juan Joffre 1515

Content overview

(according to the table of contents: pdf 11–13, 16–19)

Dedication to Don Seraphin, Conde de Oliva

1 Finger numbers; multiplication table; types of numbers: even (*par*), odd, perfect, imperfect, square, cube

2 Seven species for integers (*enteros*): numeration, addition (*sumar*), subtraction (*restar*), multiplication, division (*partir*), progression, square root (*rayzes quadradas*), cube root; checks by nine and seven

3 Four species for fractions (*quebrados*): addition, subtraction, multiplication, division, common denominator (*reduzir*)

4 Regula de tri, check (*prueua*), five types, without time, with time (interest), for integers and fractions, per thousand (*por mil*), percentage (*por ciento*), profit and loss (*ganar y perder*), reductio a/descendens (*reduzir de mayor a menor* etc.)

5 Regula societatis (*regla de companyas*) simplex (*sin tiempo*), temporum (*con tiempo*), profit and loss

6 Rule of bartering (*regla de baratas*), simple, compound (*compuestas*) and with time

7 Currency exchange (*reduzir* 'convert'): bill of exchange (*cambio real = con letra de cambio*), 'immediate' (foreign currency) cash exchange "to the minute" (*cambio minuto*)

8 Precious metal content of gold and silver (*fin de oro y de plata*)

9 Regula falsi simplicis positionis (*regla de una falsa posicion*), regula falsi duplicis positionis (*de dos falsas posiciones*)

10 Some very important commerce problems (*algunas preguntas muy necessarias en el arte mercantiuol*)

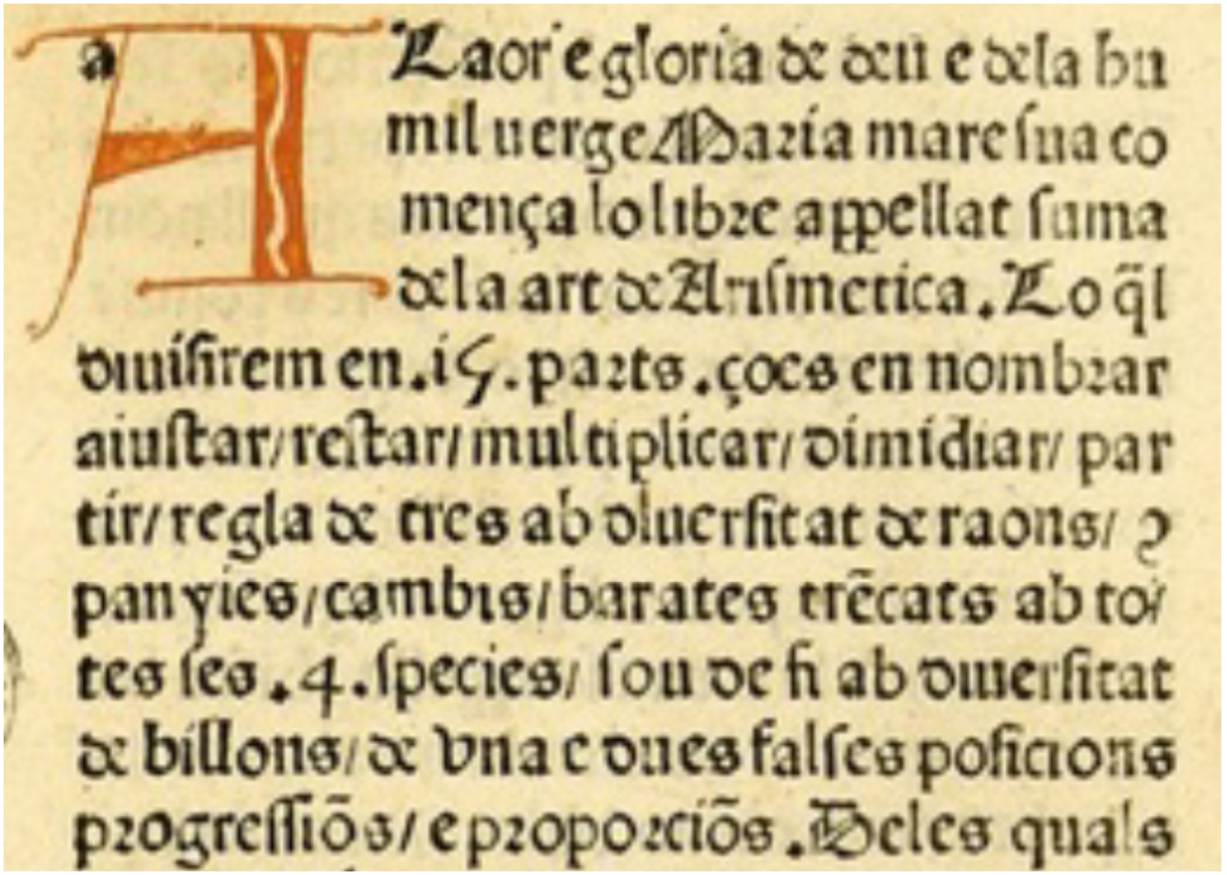
Catalan

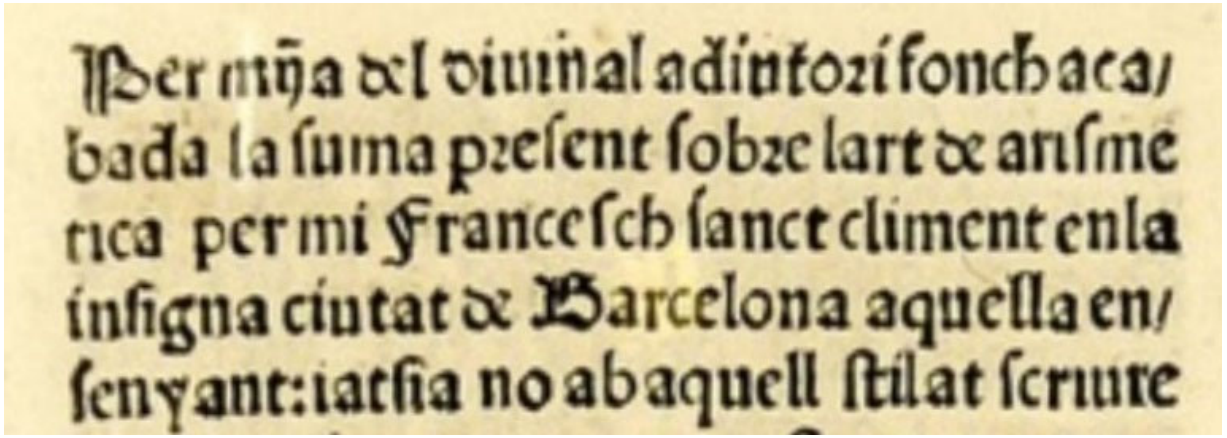
Francesc (de) Santcliment

No biographical data known (Wiki català)

Suma de la art de Arismetica
Barcelona: Pere Posa 1482

272 p.
C/V: Hoock I/S1; UCatInc M00877
D: World Digital L wdl.org
R: Malet, Antoni (ed.). Barcelona: Eumo Editorial 1998 (Textos d'Historia de la Ciencia 1)
L: Barcelona B de Catalunya
E: Escobedo, Joana: Un incunable científic català. 2 vol. Barcelona 2007
Malet, Antoni. Vic 1998
S: Gropp, Harald: Ries-Kolloquium 2023
Pla i Carrera, Josep. In: Butlletí Societat Catal. de Mat. 25 (2010) 43–80, 171–210
Labarthe, Marie-Hélène. Toulouse 2004
Karpinski, L C: The first printed arithmetic of Spain. In: Osiris 1 (1936) 411–420


A Laor e gloria de deu e de la hu
mil uerge Maria mare sua co
mença lo libre appellat suma
de la art de Arismetica. Lo ql
diuisirem en. ij. parts. ços en nombrar
aiustar/restar/multiplicar/dimidiar/par
tir/regla de tres ab diuersitat de raons/ e
panyes/cambis/barates trēcats ab to
tes ses. 4. species/ sou de fi ab diuersitat
de billons/ de una e dues falses posicions
progressiōs/ e proporciōs. Deles quals

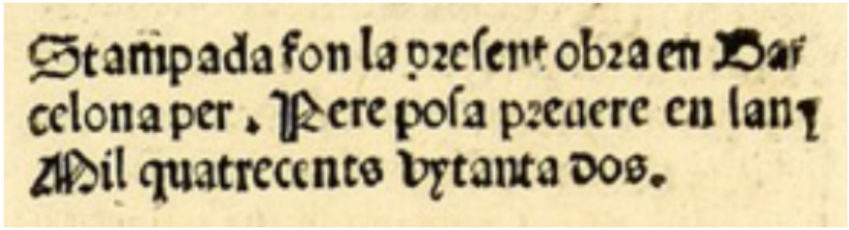

Per mya del diuinal adintori fonchaca/
bada la suma present sobre lart de arisme
tica per mi Francesch sanct climent enla
insigna ciutat de Barcelona aquella en/
senyant: iatsia no ab aquell stilat scriure

Catalan

Francesc de Santcliment

Suma de la art de Arismetica
Barcelona: Pere Posa 1482

Transcription of the title information (first page), of the author information (next to the last page) and of the colophon


Stampada fon la p̃sent obra en Bar
celona per . Pere posa p̃euere en lany
Mil quatrecents vytanta dos.

The Spanish adaptation [Zaragoza: Paul Hurus ca. 1486] is the earliest printed Spanish arithmetic.

AL aor e gloria de deu e de la hu-
mil uerge Maria mare sua co-
mença lo libre appellat suma
de la art de Arismetica. Lo qual
diuisirem en .15. parts.
[The content overview follows.]

Per manya [or *mysericordia*] *del diuinal adiutori fonch aca-*
bada la suma present sobre l art de arisme
tica per mi Francesch sanct climent en la
insigna ciutat de Barcelona aquella en-
senyant [etc.]

Stampada fon la present obra en Bar-
celona per Pere Posa preuere en l any
Mil quatrecents vytanta dos.

Catalan

Francesc de Santcliment

Suma de la art de Arismetica
Barcelona: Pere Posa 1482

Translation of the title information (first page), of the author information (next to the last page) and of the colophon

To the honor and glory of God and of the humble virgin Mary, his mother,
the book, called "Textbook on the art of arithmetic", begins, which
we will divide in 15 parts.
[The content overview follows.]

By means of the divine help,
the present textbook on the art of arithmetic
was finished by me Francesc Santcliment,
who teaches it [sc. arithmetic] *in the outstanding city of Barcelona* [etc.]

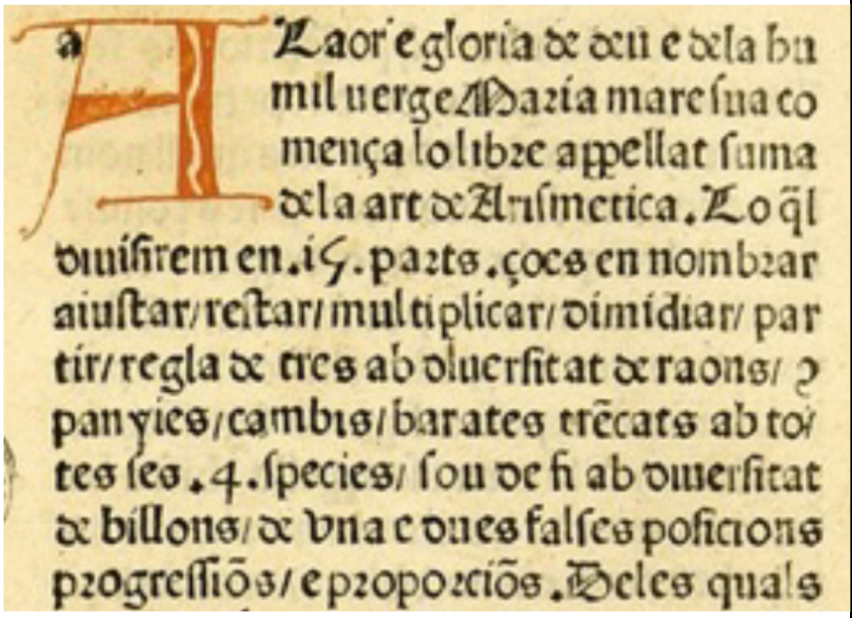
The present work was printed in Barcelona by Pere Posa, priest, in the year 1482

Catalan

Francesc de Santcliment

Suma de la art de Arismetica
Barcelona: Pere Posa 1482

Content overview
(according to title and section headings)


A Laor e gloria de deu e de la hu
mil uerge Maria mare sua co
mença lo libre appellat suma
de la art de Arismetica. Lo ql
diuisirem en. ij. parts. ços en nombrar
aiustar/restar/multiplicar/dimidiar/par
tir/regla de tres ab diuersitat de raons/ ꝯ
panyies/cambis/barates trēcats ab to/
tes les. 4. species/ sou de fi ab diuersitat
de billons/ de una e dues falses posicions
progressiōs/ e proporciōs. Deles quals

The structure of 15 parts and their sequence mentioned in the title does not coincide with the 13 section headings which are partly not numbered

1 Numeration (*nombrar*, *numerar*)
2 Addition (*aiustar*) – check by nine
3 Subtraction (*restar*)
4 Multiplication
5 Division (*partir*)
6 Regula de tri (*regla de tres*) for various occasions
7 Fractions (*trencats*): identify a common denominator (*reduir*), four species (*species*), duplication (*doblar*), halving (*mediar*)
[8] Regula de tri for fractions
9 Regula societatis (*companyies*), currency exchange (*cambis*)
10 Barters (*barates*)
11 Regula falsi simplicis positionis (*una falsa posicion*), regula falsi duplicis positionis (*dues falses posicions*)
[12] Precious metal content of gold and silver (*ley, fin del or, fin del argent, sou de fi*), mixtures (*ligament*, *mescla, fonder*) of alloys (*billons*; cf. French *billon*: ‘silver copper alloy with less than a half of silver’, ‘Scheidemünze’ [German: the legal / nominal value is bigger than the intrinsic / metal value])
13 Arithmetic progressions (*progressions*) and proportions

Catalan – Supplement

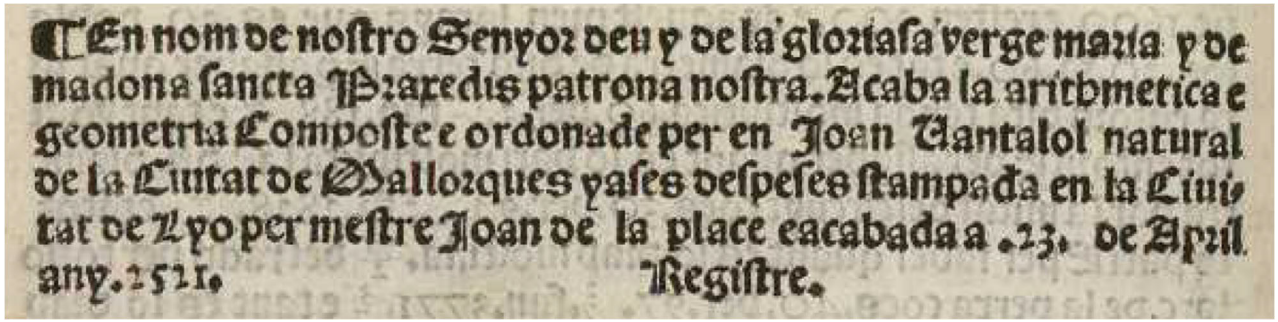
Joan Ventallol

No biographical data known
(Gran Enciclopèdia catalana)

Pratica mercantivol
Lyon: Joan de la Place
1521-04-23

272 p.
C: Hoock I/V9.1
D: Biblioteca del Banco de España
repositorio.bde.es/handle/123456789/2857
R: Pérez Martínez, Ll. Palma de Mallorca:
Assoc. Empresarial d'Arts Gràfiques 1985
L: Barcelona B de Catalunya
S: Labarthe, M-H: Premières arithmétiques
imprimées des Espagne. Toulouse 2004

Translated by Juan Batista Tolra into Spanish: *Arismetica*. Tarragona: Gabriel Roberto 1619; Hoock I/V9.3



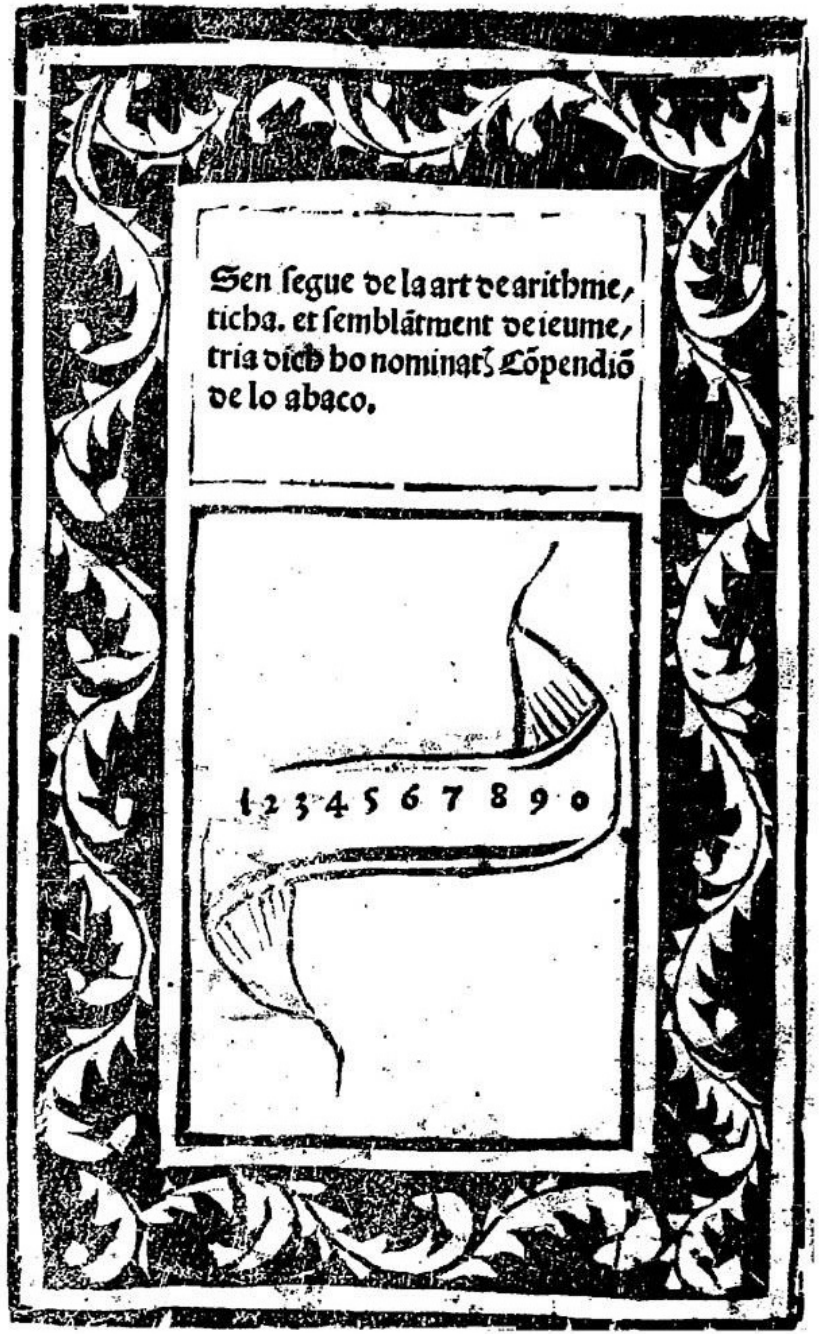
Occitan (Niçois)

Francés Pellos

Nobleman, citizen of Nice
No other biographical data known (edition)

Compendion de lo abaco
Torino: Nicolò Benedetti, Jacobinus Suigus 1492-09-28
[written around 1456/57 (Sesiano 2023)]

160 p.
C/V: Hoock I/P9; UCatInc M30595
Egmond p. 328
D: bibdig.museogalileo.it
L: Paris BNF, Torino B Reale
E: Lafont, Robert; Tournerie, Guy. Montpellier 1967 [text only]
S: Sesiano, J: Ries-Kolloquium 2023
Sesiano, J: Une arithmétique médiévale en lange provençale. Centaurus 27 (1984) 26–75 [mentions a manuscript and books]

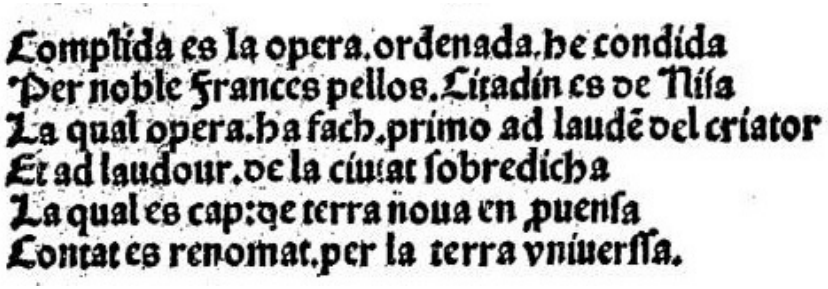


Occitan

Francés Pellos

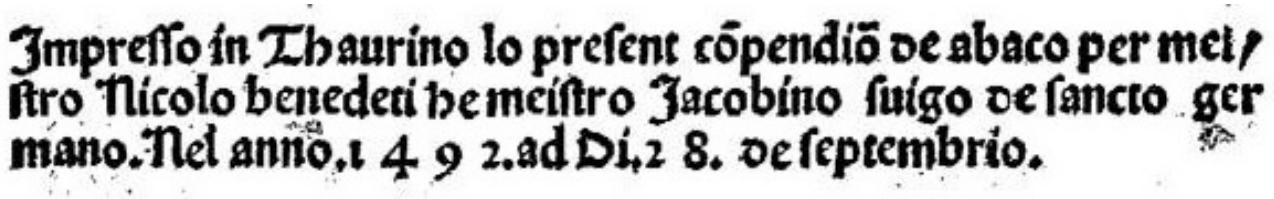
Compendion de lo abaco
Torino: Benedetti, Suigus 1492

Transcription of the title page and of the colophon


Complida es la opera.ordenada.he condida
Per noble Frances pellos.Citadin es de Nisa
La qual opera.ha fach.primo ad laudē del criator
Et ad laudour.de la ciutat sobredicha
La qual es cap:de terra noua en prouensa
Contat es renomat.per la terra vniuerssa.

S ensegue de la art de arithme-
ticha, et semblantment de ieume-
tria dich bon ominatz [or: *bo*[*n*] *nominatz*]
Conpendion de lo abaco

Complida es la opera, ordenada, he condida
Per noble Frances pellos, Citadin es de Nisa
La qual opera, ha fach, primo ad laudem del criator
Et ad l audour, de la ciutat sobredicha
La qual es cap: de terra noua en prouensa
Contat es renomat, per la terra vniuerssa.


Impreſſo in Thaurino lo preſent cōpendiō de abaco per mei/
ſtro Nicolo benedeti he meiſtro Jacobino ſuigo de ſancto ger
mano.Nel anno.1 4 9 2.ad Di.2 8. de ſeptembrio.

Impresso in Thaurino lo present conpendion de abaco per meistro Nicolo benedeti he meistro Iacobino suigo de sancto germano. Nel anno .1492. ad Di .28. de septembrio.

Occitan

Francés Pellos

Compendion de lo abaco
Torino: Benedetti, Suigus 1492

Translation of the title page
and of the colophon

It follows –
on the art of arithmetic
and similarly on [the art of] *geometry –*
the present "Compendium on the abacus"
provided with good wishes
[cf. Latin: bonis ominibus prosecutum]
[alternative: *the present approved "C."*]

The work was finished, composed and arranged
by the noble Francés Pellos, he is citizen of Nice.
He has made this work first to the glory of the creator
and to the reputation of the city mentioned above.
It is the capital of the new land in Provence.
It is cited and praised in the entire world.

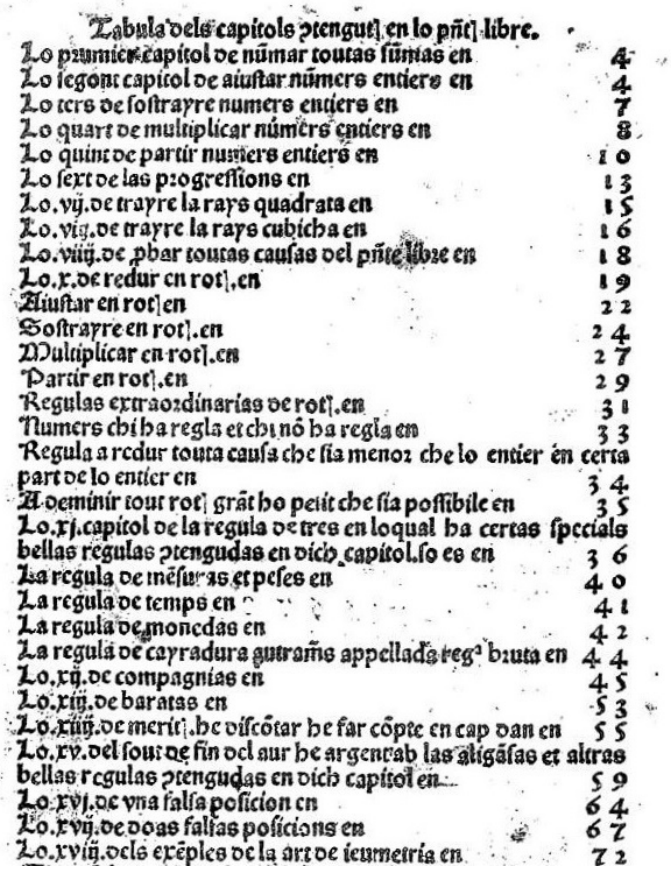
The present compendium on the abacus
[was] *printed in Torino*
by master Nicolò Benedetti and
master Jacobinus Suigus from Saint Germain
in the year 1492 on the 28th day of September

Occitan

Francés Pellos

Compendion de lo abaco
Torino: Benedetti, Suigus 1492

Content overview



Tabula dels capitols ptengut[en lo pñt[libre.

Lo primier capitol de nūmar toutas sūmas en 4
Lo segont capitol de aiustar nūmers entiers en 4
Lo ters de sostrayre numers entiers en 7
Lo quart de multiplicar nūmers entiers en 8
Lo quint de partir numers entiers en 10
Lo sext de las progressions en 13
Lo.vij.de trayre la rays quadrata en 15
Lo.viij.de trayre la rays cubicha en 16
Lo.viij.de pbar toutas causas del pñte libre en 18
Lo.x.de redur en rot[.en 19
Aiustar en rot[en 22
Sostrayre en rot[.en 24
Multiplicar en rot[.en 27
Partir en rot[.en 29
Regulas extraordinarias de rot[.en 31
Numers chi ha regla et chi nō ha regla en 33
Regula a redur touta causa che sia menor che lo entier en certa part de lo entier en 34
A deminir tout rot[grāt ho petit che sia possibile en 35
Lo.xj.capitol de la regula de tres en loqual ha certas speciais bellas regulas ptengudas en dich capitol.so es en 36
La regula de mēsuras et peses en 40
La regula de temps en 41
La regula de moncdas en 42
La regula de cayradura gutranis appellada reg[bruta en 44
Lo.xij.de compagnias en 45
Lo.xiij.de baratas en 53
Lo.xiiij.de merit[.he discōtar he far cōpte en cap dan en 55
Lo.xv.del sour de fin del aur he argentab las aligāsas et altras bellas regulas ptengudas en dich capitol en 59
Lo.xvj.de vna falsa posicion en 64
Lo.xvij.de doas falsas posicions en 67
Lo.xviij.dels exēples de la art de ieumetria en 72

1 Numeration (*nummar*)
2 Addition (*aiustar*) of integers (*nummers entiers*)
3 Subtraction (*sostrayre*) of integers
4 Multiplication of integers
5 Division (*partir*) of integers
6 Arithmetic, geometric progressions (*progressions*)
7 Extraction of the square root (*trayre la rays quadrata*)
8 Extraction of the cube root
9 Calculation checks (check by seven)
10 Fractions (*rot*)
11 Regula de tri (*regula de tres*); regula quinque (interest; time *temps*); regula de tri inversa (weight *pes*; loaf of penny *pan de un patac*)
12 Regula societatis (*compagnias*)
13 Barters (*baratas*)
14 Interest, discount (*merit e discontar*)
15 Precious metal content (*sout de fin*) of gold, silver in alloys (*aligansas*)
16 Regula falsi simplicis positionis (*una falsa posicion*)
17 Regula falsi duplicis pos. (*doas falsas posicions*)
18 Examples regarding geometry

Occitan – Supplement

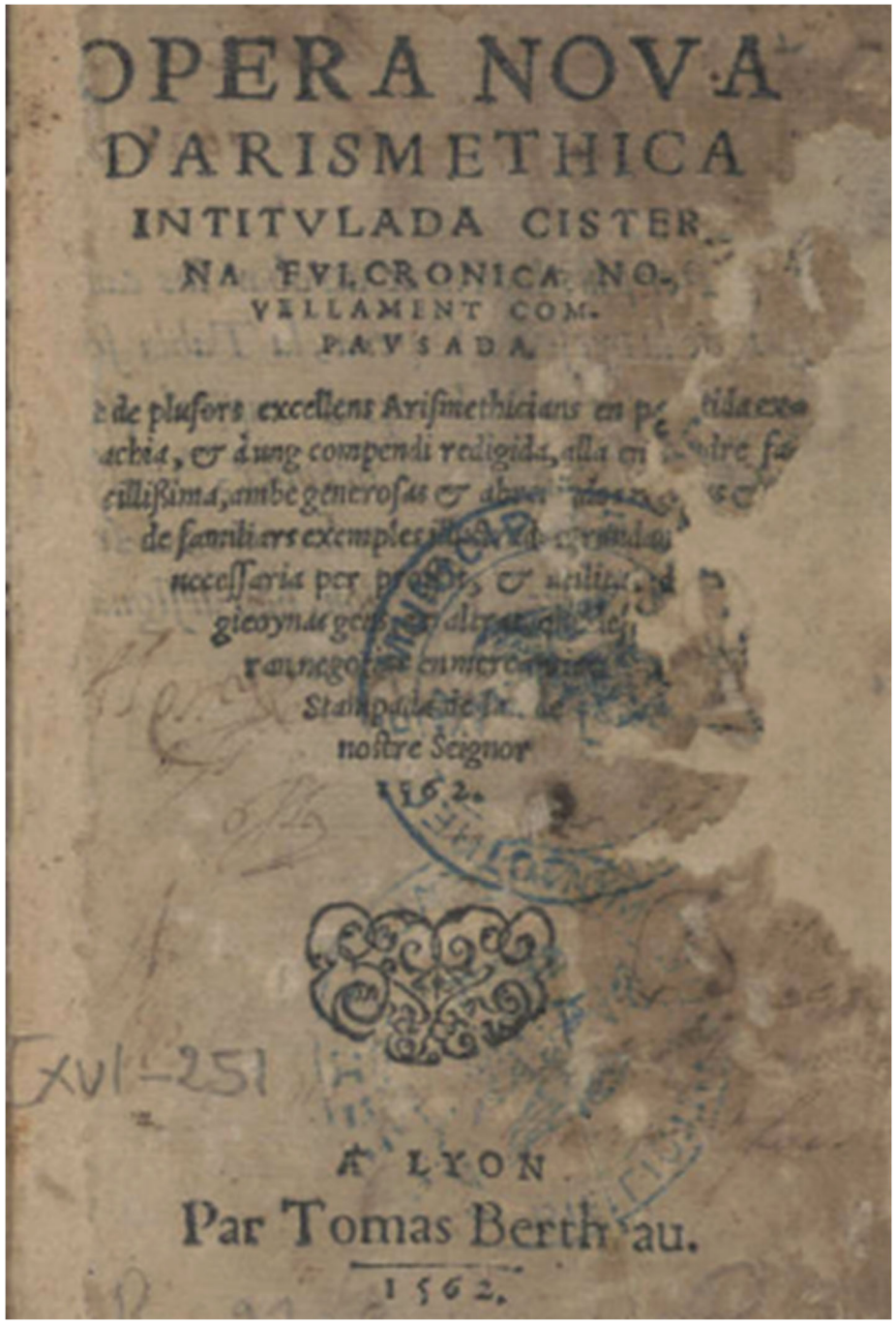
Johan / Jouan Francès Fulconis

b. Isola (occ. Lieusola); inhabitant of Nice

Opera Nova D'Arismethica intitulada Cisterna Fulcronica
Lyon: Thomas Bertheau 1562
[written around 1555 (Sesiano 2023)]

320 p.
C: Hoock I/F17
L: Nice B Municipale, bmvr.nice.fr;
Paris BNF (Rés. p.V. 367)
E: Rocca, Roger. Nizza 1996
S: Sesiano, Jacques: Ries-Kolloquium 2023

Pellos and Fulconis use the local variety of Nice, the Niçois, Nissart or Niçard.
It belongs to the Provençal group which in turn belongs to the Occitan group (erroneously distinguished by Hoock).


OPERA NOVA
D'ARISMETHICA
INTITVLADA CISTER
NA FVLCRONICA NO
VELLAMENT COM
PAVSADA
de plusors excellens Arismethicians en p
achia, & dung compendi redigida, alla ci
cellissima, ambe generosas & dauen
de familiers exemples
necessaria per
giecyna ge
Stampada de
nostre Seignor
1562.
A LYON
Par Tomas Berth au.
1562.

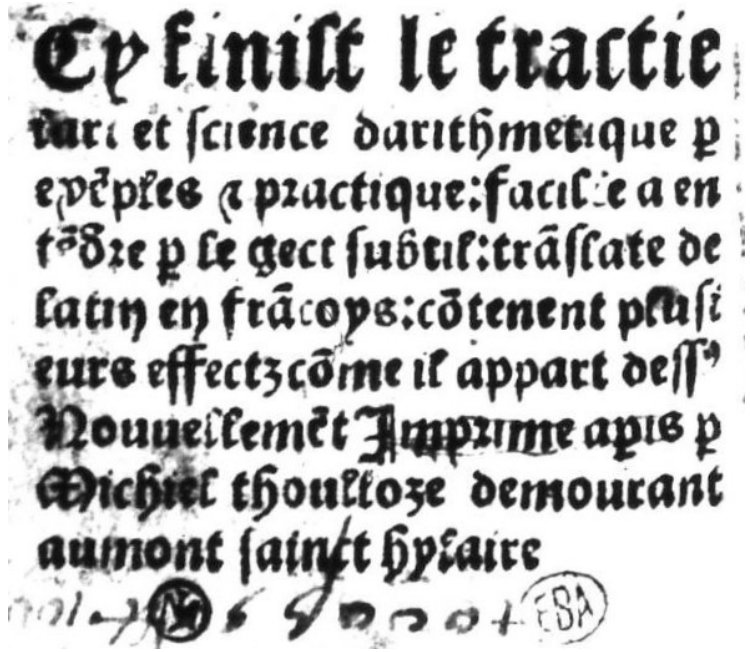
French 1

Anonym

L'art et science d'arithmétique
Paris: Michel Thoulouze
latest 1496
Toulouse active: 1492–1505
(cnp02243351 CERL Thesaurus)
ENSBA: <= 1496 [d'après l'adresse (Coq)]

112 p.
C/V: UCatInc 0267250N;
ISTC ia01140600;
Coq, Dominique: Catalogues régionaux, Vol. XVIII. 2012, p. 45
D: –
L: Paris École nationale supérieure des beaux arts ENSBA (Cote: Masson 0603)
bibliotheque@beauxartsparis.fr
ensba.fr/aloes/opacwebaloes
Cat'zArts-Livres
S: Holl, Alfred: Ries-Kolloquium 2023

Cy lart et ſcience
arithmetique par ep̃
les ⁊ practique. mout
utile ⁊ profitable a tou
s gens et facile a en=
tendre par le gect ſubtil Nouuel
lemẽt translatee de latin en fran
coys et extraicte de pluſieurs ſo
umes La quelle moyenant dng
chaſcũ ſe pourra iſtruire ⁊ exerci
ter par ſoy meſmes.


Cy finist le tractie
lart et ſcience darithmetique p
epẽples ⁊ practique: facile a en
tẽdre p le gect ſubtil: trãſlate de
latin en frãcoys: cõtenent pluſi
eurs effectz cõme il appart deſſ⁹
Nouuellemẽt Imprime apis p
Michiel thoulloze demourant
aumont ſainct hylaire

French 1

Anonym

L'art et science d'arithmétique
Paris: Michel Thoulouze ≤ 1496

Transcription of the first page and of the colophon

C Est l art et science
d arithmetique par exem-
ples et practique mout
vtile et profitable a tou-
tes gens et facile a en-
tendre par le gect subtil Nouuel-
lement translatee de latin en fran-
cois et extraicte de plusieurs Vo-
lumes La quelle moyenant vng
chascun se pourra instruire et exerci-
ter par soy mesmes

Cy finist le tractie
d art et science d arithmetique par
exemples et practique: facille a en-
tendre par le gect subtil: translate de
latin en francoys: continent plusi-
eurs effectz comme il appart dessus
Nouuellement Imprime a paris par
Michiel thoulloze demourant
au mont sainct hylaire

French 1

Anonym

L'art et science d'arithmétique
Paris: Michel Thoulouze ≤ 1496

Translation of the first page
and of the colophon

S: [Waters, E G R only on French arithmetic manuscripts]

This is the art and science
of arithmetic with
examples and practice, very
useful and profitable for all
people and easy to
learn, with the subtle counter, recently
translated from Latin into French
and extracted from several volumes,
by means of which
everyone can teach himself and train
by himself

Here finishes the treatise
on the art and science of arithmetic with
examples and practice, easy to learn,
with the subtle counter, translated from
Latin into French, containing several
results as becomes apparent above,
recently printed in Paris by
Michel Toulouse dwelling
at Mont Saint Hilaire

French 1

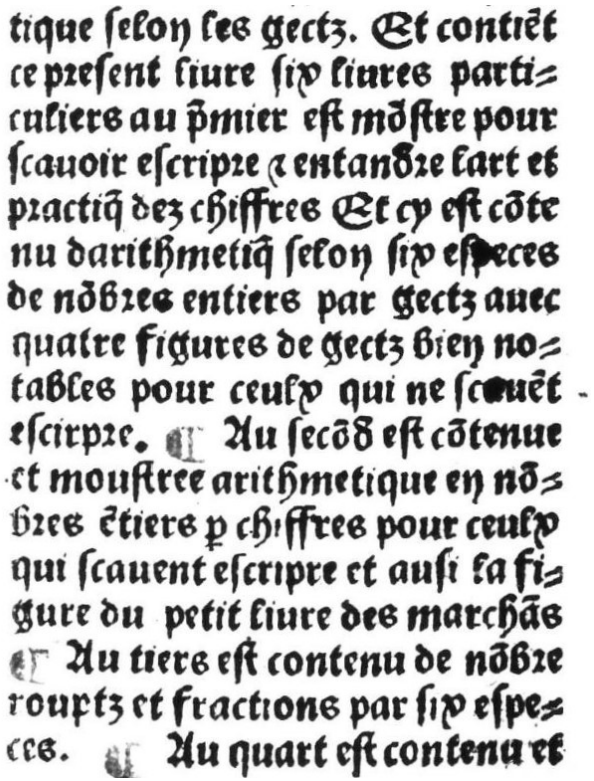
Anonym

L'art et science d'arithmétique

Paris: Michel Thoulouze ≤ 1496

Content overview

(according to preface and text)



tique ſelon les gectz. Et contiēt
ce preſent liure ſix liures parti=
culiers au p̄mier eſt mōſtre pour
ſcauoir eſcripre ⁊ entandre lart et
practiq̄ des chiffres Et cy eſt cōte
nu darithmetiq̄ ſelon ſix eſpeces
de nōbres entiers par gectz auec
quatre figures de gectz bien no=
tables pour ceulx qui ne ſcauēt
eſcripre. ¶ Au ſecōd eſt cōtenue
et mouſtree arithmetique en nō=
bres ētiers p chiffres pour ceulx
qui ſcauent eſcripre et auſi la fi=
gure du petit liure des marchās
¶ Au tiers eſt contenu de nōbre
rouptz et fractions par ſix eſpe=
ces. ¶ Au quart eſt contenu et

Preface (*Les philosophes disent*), contents

1 Digits (*chiffres*), six species (*espèces*) with counters (*gects*) for integers (*nombres entiers*): numeration, addition (*adiouster*), reductio a/desc., subtraction (*sustraction*), multiplication, division

2 Six species with the pen (*par chiffres*) for integers; multiplication table (*petit liure des marchans*)

3 Six species for fractions (*fractions, nombres rouptz*): contains mistakes for multiplication and division, continued until the 1599 edition

4 Regula de tri (*règle de trois*) for integers and fractions, measures (long measures, capacity (wine), loaf of penny), weights

5 Regula societatis (*compaignies sans temps*), regula societatis temporum (*à temps*); companies with subcontractors (*de facteurs*) Rule of bartering (*règle de changes pour éviter fraud, baratte*)

6 Further rules

- 1 Collects and tallage (*talhes*): company
- 2 Three mills (*troys moulins*): shared work
- 3 Shepherd (*bergier*): company, pasture lease
- 4 Vessel (*vaisseau*) with three fountains: shared work
- 5 To throw Sarracens in the sea (*pour les mettre dedans la mer*)
- 6 Testament, son daughter twins: twin inheritance
- 7 Building: place (*lieu*), 8 wall (*murs*), 9 covering (*couuerture*)

10 Gatekeepers in the apple garden (*iardin*): nesting

11 Motion in the same direction (*le larron qui s'enfuit*): pursuit

12 Three saints (*troys saintz*): nesting

13 Three women, apples for the market (*troys fammes*): equal proceeds

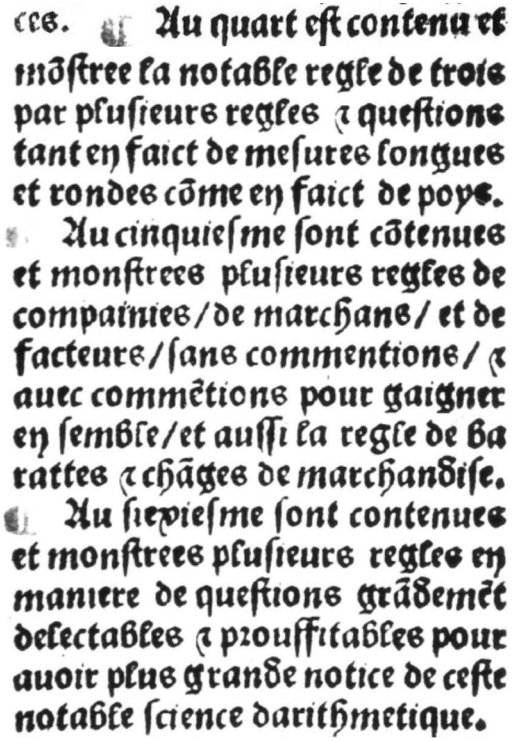
14 Batch of three metals (*tasse de troys methalz*): alloy

French 1

Anonym

L'art et science d'arithmétique
Paris: Michel Thoulouze ≤ 1496

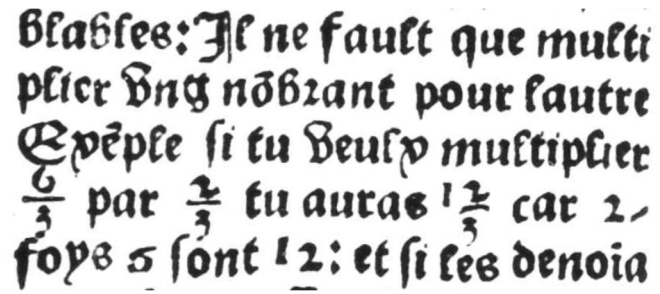
Content overview
(according to preface and text)


ces. Au quart eſt contenu et
mõſtree la notable regle de trois
par pluſieurs regles ⁊ queſtions
tant en faict de meſures longues
et rondes cõme en faict de poys.
Au cinquieſme ſont cõtenues
et monſtrees pluſieurs regles de
compaignies/de marchans/ et de
facteurs/ſans commentions/ ⁊
auec commẽtions pour gaigner
en ſemble/et auſſi la regle de ba
rattes ⁊ chãges de marchandiſe.
Au ſiexieſme ſont contenues
et monſtrees pluſieurs regles en
maniere de queſtions grãdemẽt
delectables ⁊ prouffitables pour
auoir plus grande notice de ceſte
notable ſcience darithmetique.

15 Bell (*cloche*): alloy
16 Motion in the same direction with margin and constant distances per day (*un prêtre va de Paris à Rome*): pursuit
17 Gold coins to silver coins (*changer or en argent*): reg. equalitatis
18 Cloth of divers colours (*drap de diverses couleurs*): find length
19 Spices (*spiceries*): regula equalitatis
20 Egg woman and broken eggs (*oeufz*): remainder
21 Money forgotten with a changer (*oublie au changeur*): nesting
22 Age (*temps*): find the age, sum of fractions
23 Divide a distribution (*une distribution en une eglise*): company
24 Spear in the water (*lance dans l eaue*): find length
25 Motion in opposite directions (*lung contre lautre*): encounter
26 Cat on a tree (*la chat et larbre*): motion to and fro
27 Ship with two sails (*la navire qui a deux voiles*): shared work
28 Scolars and hoste (*les escoliers et leur hoste*): equal add. partition
29 The pilgrims' (*pellerins*) drink (*boyre*) bill: regula caecis
30 The chanter's rent (*chantre et rente*): regula caecis
31 Guess the number of pieces of silver in a purse (*pieces d argent*)
32 Guess a number (*diuiner un nombre*): number guessing
33 Three men find a purse (*une bourse*): the found purse
34 Guess the number of pieces of silver in your fellow's right hand

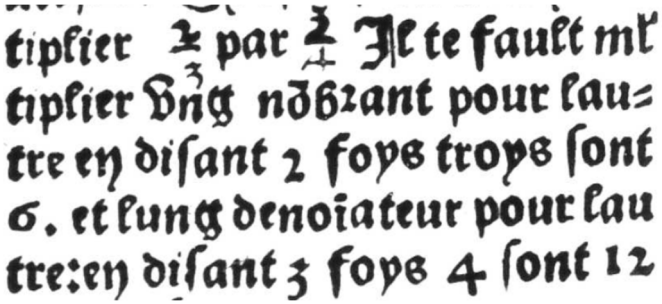
A later edition (*L'art et science*, Trepperel 1512/19) widely coincides with the 1st part (pen) until [4.3] of the earliest English arithmetic books (1526; 1537, 1539).

French 1, Part 3 (pdf 22–29)



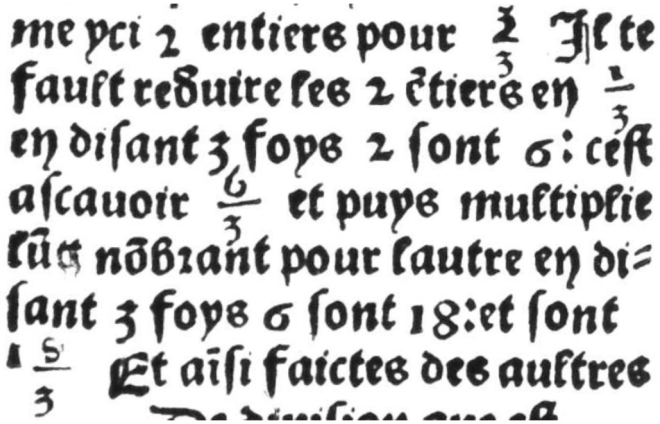
blables: Il ne fault que multi
plier vng nõbrant pour lautre
Exẽple si tu veulx multiplier
$\frac{6}{3}$ par $\frac{2}{3}$ tu auras $1\frac{2}{3}$ car 2
foys 5 sont 12: et si les denoia

1



tiplier $\frac{2}{3}$ par $\frac{2}{3}$ Il te fault mꝛ
tiplier vng nõbrant pour lau=
tre en disant 2 foys troys sont
6. et lung denoiateur pour lau
tre: en disant 3 foys 4 sont 12

2



me yci 2 entieres pour $\frac{2}{3}$ Il te
fault reduire les 2 ẽtieres en $\frac{1}{3}$
en disant 3 foys 2 sont 6: ceſt
ascauoir $\frac{6}{3}$ et puys multiplie
lũg nõbrant pour lautre en di=
sant 3 foys 6 sont 18: et sont
$1\frac{5}{3}$ Et ainsi faictes des aultres

3

Six species for fractions (*fractions, nombres rouptz, minuces*) (cf. Latin 2)

Terminology

numerator (*nombrant*)
denominator (*dénominant*, *dénominateur*)
fraction bar (*virgule*)
common denominator (*dénominateur commun, dénomination commune*)
expand to common divisor (*réduire*)

Cases of multiplication (pdf 26):

1 Denominators equal: multiply numerators

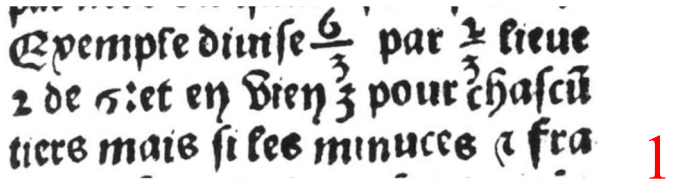
$$\frac{6}{3} \cdot \frac{2}{3} = \frac{12}{3}$$

2 Denominators different: multiply numerators and denominators

3 Integer by fraction: find common denominator, multiply numerators

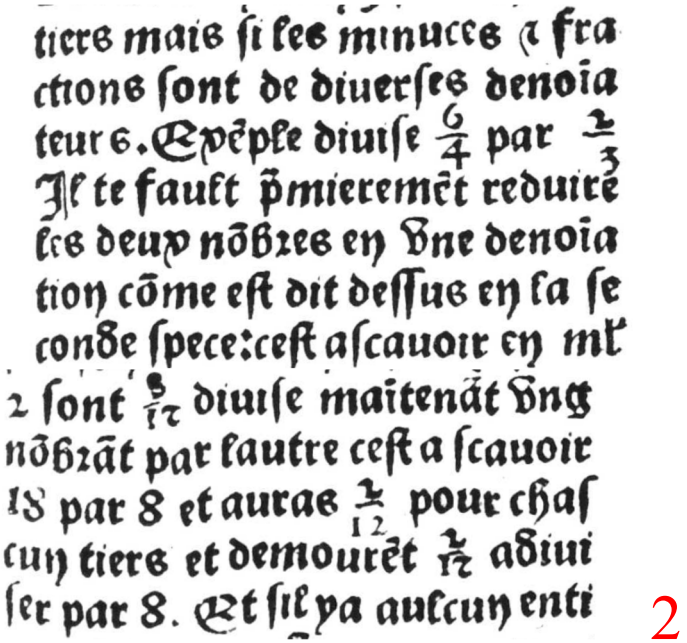
$$2 \cdot \frac{3}{3} = \frac{6}{3} \cdot \frac{3}{3} = \frac{18}{3}$$

French 1, Part 3 (pdf 22–29)



Exemple diuise $\frac{6}{3}$ par $\frac{2}{3}$ lieue
2 de 6: et en vien 3 pour chascũ
tiers mais si les minuces (a fra

1



tiers mais si les minuces (a fra
ctions sont de diuerses denoia
teur 6. Exẽple diuise $\frac{6}{4}$ par $\frac{2}{3}$
Il te fault ꝑmieremẽt reduire
les deux nõbres en vne denoia
tion cõme est dit dessus en la se
conde spece: cest ascauoir en mt
2 sont $\frac{8}{12}$ diuise maitenãt vng
nõbrãt par lautre cest a scauoir
18 par 8 et auras $\frac{2}{12}$ pour chas
cun tiers et demourẽt $\frac{2}{12}$ adiui
ser par 8. Et sil ya aulcun enti

2

ser par 8. Et sil ya aulcun enti
er il le fault reduire en minu=
ces. Exemple si tu veulx diui
13 sont $3\frac{9}{12}$. Et puys diuise 68
par 39 et auras 1 pource chacũ
$\frac{3}{4}$ aura $\frac{1}{12}$: et demorẽt $\frac{29}{39}$ Et

3

Fractions – Cases of division (pdf 26):

1 Denominators equal: divide numerators

$$\frac{6}{3} : \frac{2}{3} = \frac{3}{3} \qquad [\frac{4}{3}\ (1551, 1556)]$$

lève 2 de 6 et en vient 3, pour chacun tiers
[for each third, for every fraction in thirds]

2 Denominators different: find common denominator, divide numerators
(explicit reference to the second species, the subtraction)

$$\frac{6}{4} : \frac{2}{3} = \frac{18}{12} : \frac{8}{12} = \frac{18/8}{12} = \frac{2}{12} + \frac{2/8}{12}$$

auras 2/12, pour chacun tiers [?], *et demourent* [demeurent]
2/12 a diviser par 8

3 Two mixed fractions: transform to common fractions, find common denominator, divide numerators

$$5\frac{2}{3} : 3\frac{1}{4} = \frac{68}{12} : \frac{39}{12} = \frac{1}{12} + \frac{29/39}{12}$$

et auras 1, pour<ce> chacun 3/4 (*3 quarts*) [each in twelfths],
aura(s) 1/12 (*une douzaine*) *et demourent* [demeurent] *29/39*

French 1

Anonym

L'art et science d'arithmétique
Paris: Michel Thoulouze ≤ 1496

Influence of the book

→ Later French arithmetic books
(1501, 1512/19, ca. 1535, ca. 1545, 1548, 1585, 1551 = 1556 = 1566 = 1599)

→ Earliest English arithmetic book
(1526)

→ Later English arithmetic books – 1st part
(1537, 1539)

→ Earliest Dutch arithmetic books
(1508, ca. 1510, 1529 [French])

→ Later English arithmetic books – 2nd part
(1537, 1539)

French 1

Anonym

L'art et science. Paris ≤ 1496

Later editions until 1545

Liure de Chiffres et de getz nouuellement imprime
(L art d arimetisque tant de nombres entiers que de rouptz et fractions avec plusieurs reigles et questions)
Lyon: Pierre Mareschal,
Barnabe Chaussard 1501-02-27
127 p.
C: Hoock missing
D: digitale-sammlungen.de
L: München BSB, München LMU,
Augsburg SSB (Math 531)

L'art et science de arismetique:
moult vtille et proffitable a toutes gens et facille a entrendre
par la plume et par le gect subtil
pour ceulx qui ne scauent lyre ne escripre
nouvellement imprime a Paris
Paris: veuve feu [deceased] Jean Trepperel, Jean Jehannot [Janot] 1512/19
192 p.
L: New York Columbia U Plimpton L
(OCLC 2927 5736)

La vraye manière (colophon: *art et science*)
Lyon: Claude Veycellier ca. 1535
168 p.
C: Hoock I/–20.5
D: Google
L: London BL

Art et science de arismetique
moult vtille et proffitable a toutes gens et facille a entendre
par la plume et par le gect subtil
pour ceulx qui ne scauent lyre ne escripre
nouuellement imprime a Paris
Paris: Pierre Sergent ca. 1545
168 p.
C: Hoock I/–6
L: Paris BNF (Rés. p.V. 337) [key word *arismeticque* (sic!)]

French 1

Anonym

L'art et science. Paris ≤ 1496

Selected editions after 1546

L'arithmétique et manière de apprendre à chiffrer et compter par la plume et par les gectz en nombre entier et rompu
Lyon: Thibault Payen 1548
C: Hoock I/–5.1
D: –

L'arithmétique et manière [...]
Paris: Jehan Ruelle (rue Sainct Jacques, à l'enseigne de la queue de regnard) 1551
D: Google, München BSB
L: München BSB

L'arithmétique et manière [...]
Paris: Jean Ruelle 1556
C: Hoock I/–5.2
D: Kraków Jagiellonian Digital L

Anthoine Cathalan (maistre Anthoine Catalan és Artz et Mathématiques professeur):
L'arithmétique et manière [...]
Lyon: Thibault Payan 1566 [also 1561]
C: Hoock I/–5.3
D: hist-math.fr

L'arithmétique et manière [...]
Paris: Pierre Ménier 1585
C: Hoock I/–5.4
D: –

Anthoine Cathalan:
L'arithmétique et manière [...]
Lyon (en rue mercière, à l'enseigne de la sphère) 1599
D: Google
L: Praha Národní knihovna

French 2

Anonym

Arismétique corrigée et imprimée
Paris: Guillaume Nyverd
ca. 1512/15

127 p.
C: Hoock I/–3.1
D/**L**: Cambridge Harvard U Houghton L
(FC5 A100 515a; OCLC 7914 4721)

Et vo⁹ ſuffiſe quāt a pñt de lart da⁹
rithmetiq tāt deſnōbres ētiers q̄ rouptz
auec pluſ⁹s queſtiōs tāt p leſ getz q̄ p
la plume cōe pouez veoir cy deuāt. Im
prime a paris p Guillaume nyuerd de
mourāt en la rue d̄ la iuyfcie a la Roſe
ou au Palays a la premiere porte.

French 2

Anonym

Arismétique corrigée et imprimée
Paris: Guillaume Nyverd
ca. 1512/15

Transcription of the first page and of the colophon

ARismetique Corrige &
Imprime a Paris.

Et vous suffise quant a point de l art d a-
rithmetique tant des nombres entiers que rouptz
auec plusieurs questions tant par les getz que par
la plume comme pouez veoir cy deuant. Im-
prime a paris par Guillaume nyuerd de-
mourant en la rue de la iuyfcie [Justice] *a la Rose*
ou au Palays [de Justice] *a la premiere porte.*

French 2

Anonym

Arismétique corrigée et imprimée
Paris: Guillaume Nyverd
ca. 1512/15

Translation of the first page
and of the colophon

Arithmetic corrected and
printed in Paris.

That should be sufficient for you
with regard to the art of arithmetic
both for integers and for fractions,
with several questions,
both with the counters and with the pen
as you can see above.
Printed in Paris by Guillaume Nyverd
dwelling in the Street of Justice at the rose
or at the Palace [of Justice] *at the first gate.*

French 2

Anonym

Arismétique corrigée et imprimée
Paris: Guillaume Nyverd
ca. 1512/15

Content overview
(according to headlines and text)

Preface (*Pource que toutes choses consistent en nombres*)
Calculations with the counters (pdf 6)
Species with the counters: 1 numeration, 2 addition, 3 subtraction (*sustraction*), 4 multiplication, 5 division (*partir*)
Regula de tri, quantity-price relations (*raisons communes*) (pdf 13)
Calculations with the pen (pdf 17)
Multiplication table
Species with the pen: 1 numeration, 2 addition, 3 subtraction, 4 halving (*mediation*), 5 duplication (*duplation*), 6 multiplication, 7 division, 8 progression, 9 square and cube root extraction (*extraire la racine*)
Fractions (*nombre roupt*) (pdf 32): identify common denominator (*réduire*), addition (*aiouster*), subtraction, multiplication, division (*partir*)
Regula de tri (pdf 40)
Currency exchange (pdf 42)
Application of the regula de tri to textiles (*mesure de drapperie*) (pdf 44)

French 2

Anonym

Arismétique corrigée et imprimée
Paris: Guillaume Nyverd
ca. 1512/15

Content overview
(according to headlines and text)

Application of reg. de tri to weights (*poids*) (pdf 51)
Regula societatis simplex (*compaignies sans temps*), reg. soc. temporum (*compaignies à temps*) (pdf 55)
Factors (*facteurs*) (pdf 60)
Batch (*mescle*, *tasse*) of three metals: alloy (pdf 61)
Broken bell (*cloche rompue*): alloy (pdf 62)
Three mills (*troys moulins*): shared work (pdf 62)
Company with unknown investments (pdf 63)
Profit, testament: company (sum of the parts > 1) (pdf 63);
Horse (*cheval*) purchase: company (sum of the parts < 1) (pdf 65)
Testament, son daughter twins: twin inheritance (pdf 65)
Textiles (*draps*), profit (*gagner*): problems with several unknowns (pdf 65)
Five men find a purse (*bourse*) (pdf 66)
Purchase and sale of pears (*poirs*): too much – too little (pdf 67)

French 3

Juan de Ortega (author)

Biographic data see Spanish 2

Claude Platin (translator)

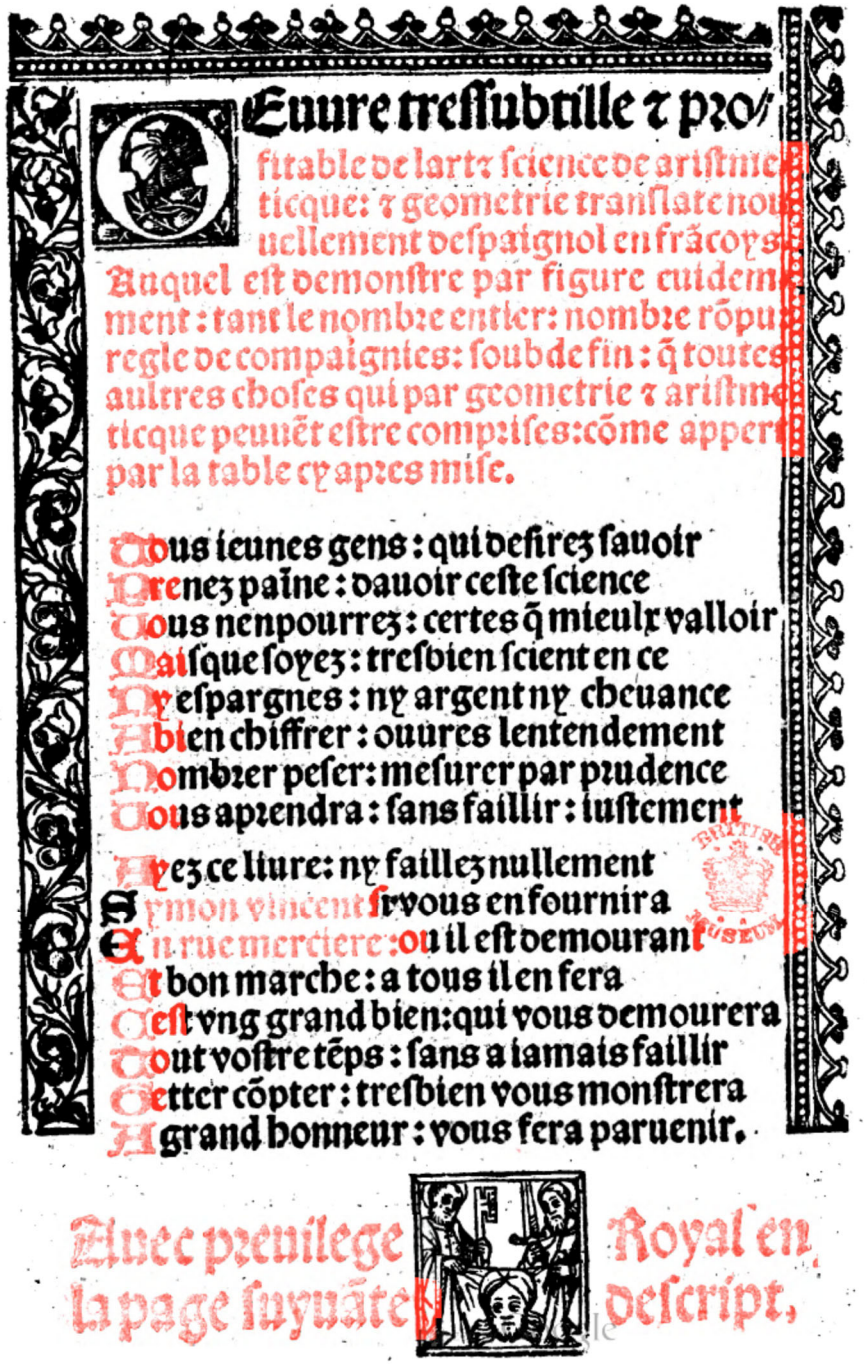
Active ca. 1515 – ca. 1540
Friar of the Order of Saint Antoine
Adaptor, translator:
Le débat de l'homme et de l'argent (1529)
Histoire de Giglan (1530) [*Wigalois*]

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie

Lyon: Étienne Baland (for Simon Vincent) 1515-10-23

French adaptation of Spanish 2
Arte de la arismetica, Lyon 1512

332 p.
C: Hoock I/O6.3



Euure treſſubtille & pro-
fitable de lart & ſcience de ariſtme-
ticque: & geometrie tranſlate nou-
uellement deſpaignol en frãcoys.
Auquel eſt demonſtre par figure euidem-
ment: tant le nombre entier: nombre rõpu
regle de compaignies: ſoubdefin: & toutes
aultres choſes qui par geometrie & ariſtme-
ticque peuuẽt eſtre compriſes: cõme appert
par la table cy apres miſe.

Tous ieunes gens: qui deſirez ſauoir
Prenez paine: dauoir ceſte ſcience
Tous nenpourrez: certes q̃ mieulx valloir
Mais que ſoyez: treſbien ſcient en ce
Ny eſpargnes: ny argent ny cheuance
Abien chiffrer: ouures lentendement
Nombrer peſer: meſurer par prudence
Tous aprendra: ſans faillir: iuſtement

Ayez ce liure: ny faillez nullement
Simon vincent: vous en fournira
En rue merciere: ou il eſt demourant
Et bon marche: a tous il en fera
Ceſt vng grand bien: qui vous demourera
Tout voſtre tẽps: ſans a iamais faillir
Getter cõpter: treſbien vous monſtrera
A grand honneur: vous fera paruenir.

Auec preuilege Royal en
la page ſuyuãte deſcript.

French 3

Juan de Ortega, Claude Platin

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie
Lyon: Étienne Baland 1515

Transcription of the title page with the advertisement of the book-seller

D: London Brit Museum, Google
L: Paris BNF (Rés. p.V. 369; OCLC 10645 24428)
S: see Spanish 2

Oeuure tres subtille & profitable de l art & science de aristmeticque: & geometrie translate nouuellemnt d espaignol en francoys. Auquel est demonstre par figure euidemment: tant le nombre entier: nombre rompu: regle de compaignies: soub de fin: que toutes aultres choses qui par geometrie & aristmeticque peuuent estre comprises: comme appert par la table cy apres mise.

Vous ieunes gens: qui desirez sauoir
Prenez paine: d avoir ceste science
Vous n en pourrez: certes que mieulx valloir
Mais que soyez: tres bien scient en ce
Ny espargnes: ny argent ny cheuance
A bien chiffrer: ouures l entendement
Nombrer peser: mesurer par prudence
Vous aprendra: sans faillir: iustement
Ayez ce liure: ny faillez nullement
Symon Vincent: vous en fournira
En rue merciere: ou il est demourant
Et bon marche: a tous il en fera
C est vng grand bien: qui vous demourera
Tout votre temps: sans a iamais faillir
Getter compter: tres bien vous monstrera
A grand honneur: vous fera paruenir.

Auec preuilege Royal en la page suyuante descript.

French 3

Juan de Ortega, Claude Platin

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie
Lyon: Étienne Baland 1515

Translation of the title page with a part of the advertisement

Privilege for two years by François I
(b. 1494, reigned 1515–1547)
in the first year of his reign
falsely dated 1514-01-11
(predecessor Louis XII died 1515-01-01)

Very subtle and profitable book
on the art and science of arithmetic and geometry
recently translated from Spanish into French.
In this book, it is explained – with digits, of course –
the integer, fraction, rule of companies,
precious metal content
as well as all the other things which can be formulated
and solved with geometry and arithmetic
as results from the table (placed here) below.

[…] *Simon Vincent: he will deliver it* [the book]
in Rue Mercière, where he dwells […]

With royal privilege
described on the following page.

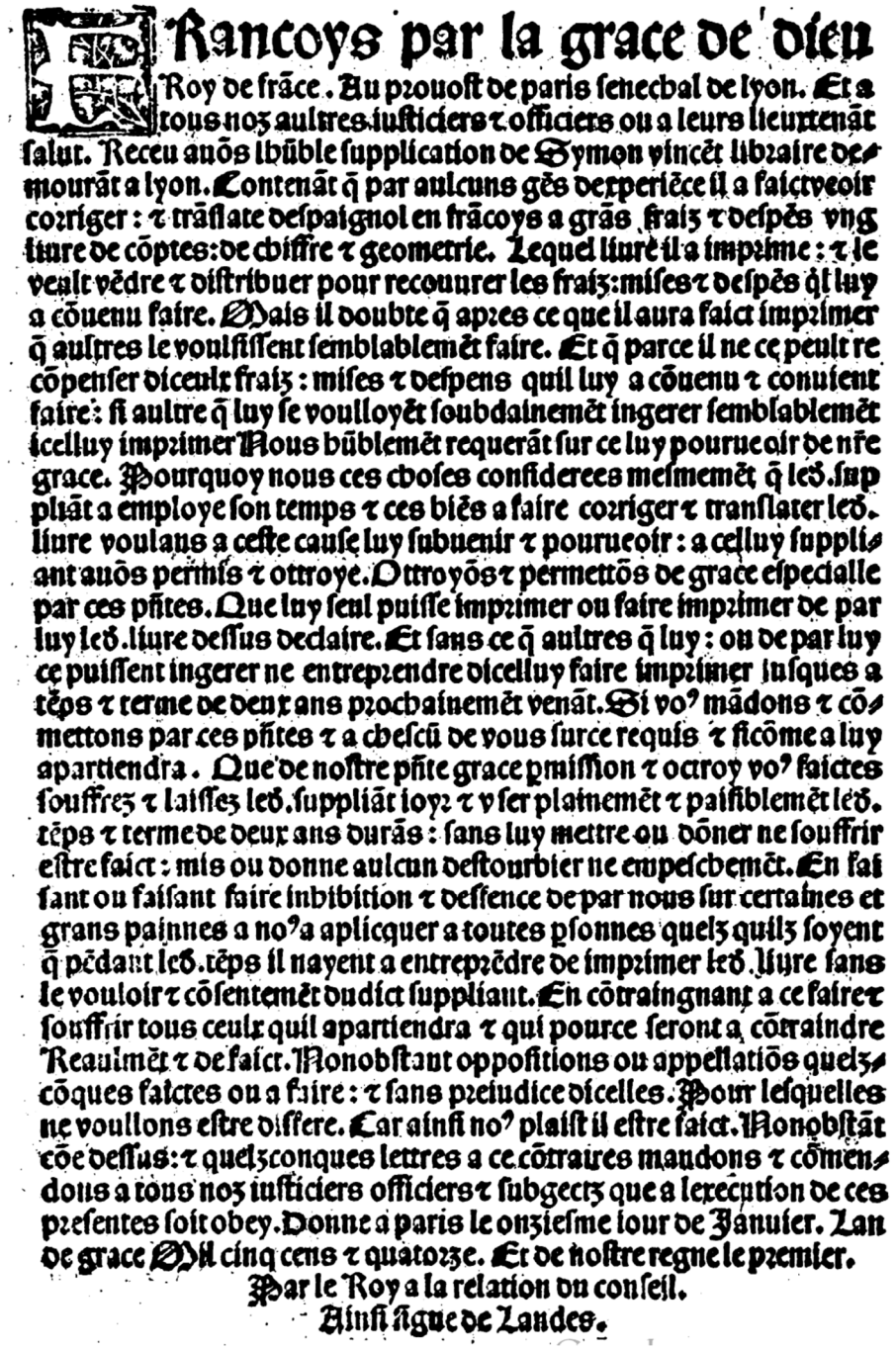
French 3

Juan de Ortega, Claude Platin

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie
Lyon: Étienne Baland 1515

Privilege

for two years by François I
(b. 1494, reigned 1515–1547)
in the first year of his reign
falsely dated 1514-01-11
(predecessor Louis XII died 1515-01-01)



FRancoys par la grace de dieu Roy de frãce. Au prouost de paris senechal de lyon. Et a tous noz aultres iusticiers t officiers ou a leurs lieutenãt salut. Receu auõs ibũble supplication de Symon vincẽt libraire demourãt a lyon. Contenãt q̃ par aulcuns gẽs dexperiẽce il a faict veoir corriger : t trãslate despaignol en frãcoys a grãs frais t despẽs vng liure de cõptes: de chiffre t geometrie. Lequel liure il a imprime : t le veult vẽdre t distribuer pour recouurer les frais: mises t despẽs q̃l luy a cõuenu faire. Mais il doubte q̃ apres ce que il aura faict imprimer q̃ aultres le voulsissent semblablemẽt faire. Et q̃ parce il ne ce peult recõpenser diceulx frais : mises t despens quil luy a cõuenu t conuient faire: si aultre q̃ luy se vouloyẽt soubdainemẽt ingerer semblablemẽt icelluy imprimer Nous bũblemẽt requerãt sur ce luy pourueoir de nre grace. Pourquoy nous ces choses considerees meismemẽt q̃ leõ. supliãt a employe son temps t ces biẽs a faire corriger t translater leõ. liure voulans a ceste cause luy subuenir t pourueoir : a celluy suppliant auõs permis t octroye. Octroyõs t permettõs de grace especialle par ces pñtes. Que luy seul puisse imprimer ou faire imprimer de par luy leõ. liure dessus declaire. Et sans ce q̃ aultres q̃ luy : ou de par luy ce puissent ingerer ne entreprendre dicelluy faire imprimer iusques a tẽps t terme de deux ans prochainemẽt venãt. Si vo⁹ mãdons t cõmettons par ces pñtes t a chescũ de vous sur ce requis t ficõme a luy appartiendra. Que de nostre pñte grace pmission t octroy vo⁹ faictes souffrez t laissez leõ. suppliãt ioyr t vser plainemẽt t paisiblemẽt leõ. tẽps t terme de deux ans durãs : sans luy mettre ou dõner ne souffrir estre faict : mis ou donne aulcun destourbier ne empeschemẽt. En faisant ou faisant faire inhibition t defence de par nous sur certaines et grans paines a no⁹a aplicquer a toutes psonnes quelz quilz soyent q̃ pẽdant leõ. tẽps il nayent a entreprẽdre de imprimer leõ. liure sans le vouloir t cõsentemẽt dudict suppliant. En cõtraignant a ce faire t souffrir tous ceulx quil apartiendra t qui pource seront a cõtraindre Reaulmẽt t de faict. Nonobstant oppositions ou appellatiõs quelzcõques faictes ou a faire : t sans preiudice dicelles. Pour lesquelles ne voullons estre differe. Car ainsi no⁹ plaist il estre faict. Nonobstãt cõe dessus: t quelzconques lettres a ce cõtraires mandons t cõmendons a tous noz iusticiers officiers t subgectz que a lexecution de ces presentes soit obey. Donne a paris le onziesme iour de Ianuier. Lan de grace Mil cinq cens t quatorze. Et de nostre regne le premier.

Par le Roy a la relation du conseil.
Ainsi signe de Landes.

French 3

Juan de Ortega, Claude Platin

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie
Lyon: Étienne Baland 1515

Transcription and translation of parts of the prologs with the names of the translator and the author

Vienne (Southern France, Département Isère)

Prologue du translateur

table de tãt ce doibt il plus cõmunicquer Parquoy moy frere glaude
Platin bũble religieux de lordre de sainct Anthoine en viẽnoys pour

[…] *moy frer glaude*
Platin humble religieux de l ordre de sainct Anthoine en viennoys […]

[…] *me, friar Claude*
Platin, humble cleric of the Order of Saint Antoine en Viennois […]

Prologue de l acteur

Ensuit le prologue de frere Jehan de lortie de lordre de
sainct dominicque acteur de ce liure.

S ensuit le prologue de frere Jehan de l ortie de l ordre de sainct Dominique acteur de ce liure.

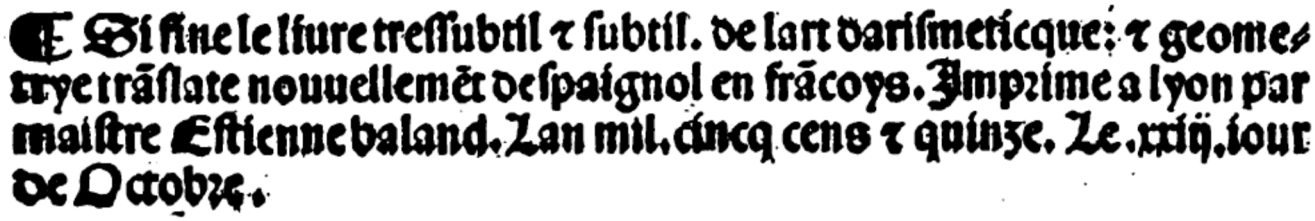
It follows the prolog of friar Juan de Ortega of the Order of Saint Dominic, author of this book.

French 3

Juan de Ortega, Claude Platin

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie
Lyon: Étienne Baland 1515

Transcription and translation of the colophon


Si fine le liure treſſubtil ⁊ ſubtil. de lart variſmeticque: ⁊ geome-
trye trāſlate nouuellemēt deſpaignol en frācoys. Imprime a lyon par
maiſtre Eſtienne baland. Lan mil. cincq cens ⁊ quinze. Le .xxiij. iour
de Octobre.

Si fine le liure tres subtil & subtil de l art d arismeticque: & geome-trye translate nouuellement d espaignol en francoys. Imprime a lyon par maistre Estienne baland. L an mil cincq cens & quinze. Le .xxiij. iour de Octobre.

Here ends the very subtle and subtle book of the art of arithmetic and geometry, recently translated from Spanish into French, Printed in Lyon by master Étienne Baland in the year 1515 on the 23rd day of October.

French 3

Juan de Ortega, Claude Platin

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie
Lyon: Étienne Baland 1515

Content overview
(according to the table of contents)

Le ſixieſme chapitre qui traicte des regles de compaignie ſans temps
& auecques temps qui contient pluſieurs beaulx exẽples . fo.lxxix.
Le ſeptieſme chapitre qui faict mention des teſtamens qui auſſi conti
ent pluſieurs exemples. fo. xcix.
Le huitieſme chapitre qui traicte du faict de trocques & chãge de mar
chandiſe qui contient pluſieurs exemples. fo. cij.
Le neufuieſme chapitre qui declaire pour ſauoir cõgnoyſtre la loy de
loz & de largẽt: & auſſi de liurer billon a la monnoye. fo.ciz.
Le dixieſme chapitre qui traicte des voyages qui ce font en marchan
diſe tant par terre que par mer. fo. cxx.
Le onzieſme chapitre traicte des raiſons qui ce fõt par la regle de vne
fauſſe poſition, fo. cxxix.
Le douſieſme chapitre traicte de la regle de deulx fauſſes poſitiõs qui
contient pluſieurs beaulx exemples. fo. cxl.
Le treſieſme chapitre faict mention des quantites & proportions des
nombres auecques les figures. fo. clj.
Le quatorſieſme chapitre declaire : de aulcuns chapitres touchãt lart
geometrie. folio.clxiij.

La table.

Enſuit la table de ce preſent liure intitule le liure de ariſmeticque
qui contient quatorſe chapitres ainſi q̃ lon pourra veoir cy apres.

Le premier chapitre fait mentiõ des nombres entiers ou
ſont contenus. 7 eſpeſſes folio .j.
De la premiere eſpeſſe du nombre entier qui traicte de nu
meration. folio.j.
De la ſeconde eſpeſſe qui eſt de addicion. folio.iiij.
De la tierce eſpeſſe qui eſt de ſubſtraction. folio.vj.
De la quarte qui fait mention de multiplication. folio.x.
De la quinte eſpeſſe qui eſt diuiſion. folio.xvj.
De la ſixieſme qui eſt dicte progreſſiõ. fo .xviij.
De la ſeptieſme eſpeſſe qui eſt de lextraction des racines quarrees et
cubes folio.xxiij.
Les preuues des eſpeſſes deſſuldictes. folio.xxvij.
Le ſecond chapitre fait mẽtion des nombres routz. Et premieremẽt
de reduyre. folio.xxxiij.
De adiouſter en nõbres routz. folio.xxxv.
De ſoubtraire en nombres routz. folio.xxxix.
De multiplier en nombres routz folio.xlij.
De partir en nombres routz folio.xliij.
Le tiers chapitre qui demõſtre cõment lon doibt aplicquier nombres
entiers & routz par regles extraordinaires. folio.xlvj.
Adiouſter par regle extraordinaire. folio.xlvj.
Subſtraire par regle extraordinaire folio.l.
Multiplier par regle extraordinaire. folio.l.
Partir par regle extraordinaire. folio.lij.
Des nombres qui tiennent regle de ceulx qui ne tiennent point de re
gle. folio.liij.
Le quatrieſme chapitre qui fait mention de la regle de troys par nom
bre entier qui cõtient pluſieurs exemples. folio.liij.
De la regle de troys par nombres routz qui auſſi contient pluſieurs
exemples, fol.lv.
De la regle de troys cõpoſe en nombres entiers qui contiẽt pluſieurs
exemples. folio.lvj.
De la regle de troys compoſee en nombres routz qui ptient pluſieurs
exemples. folio.lvij.
Aultre regle de emprunter en gaing & intereſt. folio.lxxj.
Le cinquieſme chapitre q̃ traicte des regles q̃rees. folio.lxxv.

French 3

Juan de Ortega, Claude Platin

Oeuvre très subtille et profitable de l'art et science de arismeticque et géometrie
Lyon: Étienne Baland 1515

Content overview
(according to the table of contents)

Privilege, Prologue du translateur, Prologue de l acteur, Contents
1 Six species for integers (*nombres entiers*) : numeration, addition, subtraction, multiplication, division, progression, extraction of square and cube roots (*racine*), checks (*preuve*)
2 Four species for fractions (*nombres routz*): addition (*adiouster*), subtraction, multiplication, division (*partir*)
3 Difficult arithmetic operations (*regle extraordinaire*); numbers with integer factors (*qui tiennent regle*)
4 Regula de tri and regula de tri composita for integers and fractions; lending and gaining (*emprunter*) with interest
5 Capacity, weight and price (*regles quarries*)
6 Regula societatis simplex and temporum (*regles de compaignie sans temps et auecques temps*)
7 Testaments: twin testament, unknown inheritance etc.
8 Barters (*troques*, *change de merchandise*)
9 Gold and silver (*loy de l or et de l argent*); *billon*: 'silver copper alloy with less than a half of silver', 'Scheidemünze' [German: the legal / nominal value is bigger than the intrinsic / metal value])
10 Business trips (*voyages en marchandise*): nesting
11 Regula falsi simplicis positionis (*vne faulse position*)
12 Regula falsi duplicis positionis (*deulx faulses positions*)
13 Quantities and proportions
14 Geometry

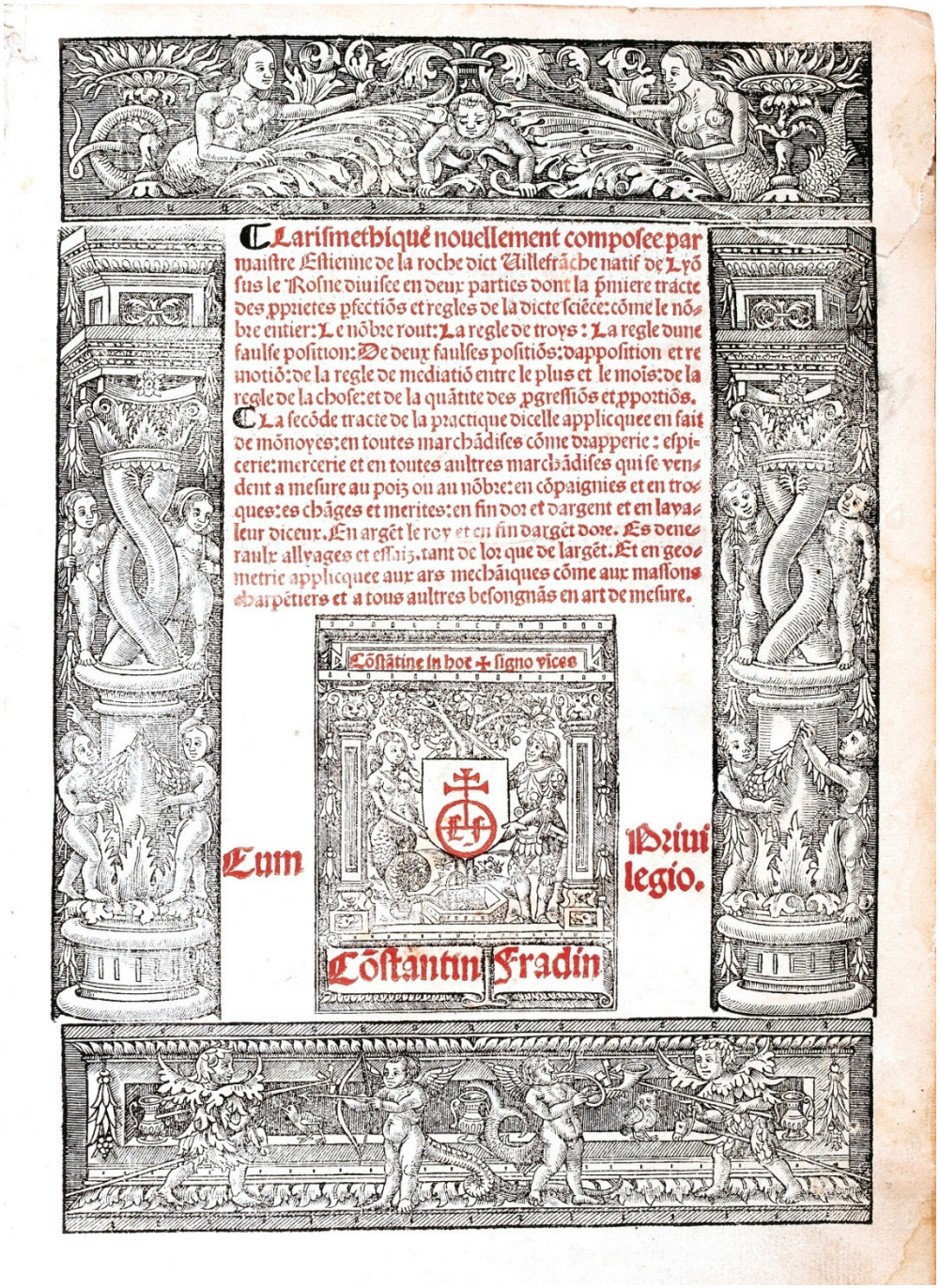
French 4

Estienne de La Roche (Villefranche)

b. 1470 Lyon
d. 1530 Lyon
Étudiant chez Nicolas Chuquet

L'arismétique nouvellement composée ... divisée en deux parties
Lyon: Guillaume Huyon (for Constantin Fradin) [1]1520-06-02
Lyon: Gilles et Jacques Huguetan [2]1538

460 p. (1st edition), 316 p. (2nd edition)
C: Hoock I/L5.1
D: Google (1538)
L: Paris BNF (Rés. V. 899)
S: Ulff-Møller, J: Ries-Kolloquium 2017
Karpinski, L Ch: History Arithmetic 1925



French 4

Estienne de La Roche (Villefranche)

L'arismétique nouvellement composée ... divisée en deux parties
Lyon: Guillaume Huyon 1520

Transcription of the title page

The textbook is based upon the unpublished manuscript *La triparty* by Nicolas Chuquet (b. 1445/55 Paris, d. ca. 1488 Lyon), Lyon 1484, Paris BNF (Fr. 1346); ed. Marre, Aristide. Bullettino di bibliografia e di storia delle scienze matematiche e fisiche [Roma] 13 (1880) 555–659, 693–814); digital gallica.bnf.fr

L arismethique nouellement compose par maistre Estienne de la roche dict Villefranche natif de Lyon sus le Rosne divisee en deux parties dont la premiere tracte des proprieties, perfections et regles de la dicte science: comme le nombre entier; Le nombre rout; La regle de troys; La regle d une faulse position, De deux faulses positions, d apposition et remotion; de la regle de mediation entre le plus et le moins; de la regle de la chose; et de la quantite des progressions et proportions. La seconde tracte de la practique di celle applicquee en fait de monnoyes en toutes marchandises comme drapperie, espicerie, mercerie et en toutes aultres marchandises qui se vendent a mesure, au poiz ou au nombre; en compaignies et en troques, eschanges et merites; en fin d or et d argent et en la valeur di ceux. En argent le roy et en fin d argent dore, Es deneraulx, allyages et essaiz, tant de l or que de l argent. Et en geometrie applicquee aux ars mechaniques comme aux massons, charpentiers et a tous aultres besongnans en art de mesure.

Constantine in hoc + signo vinces

Cum Priuilegio.
Constantin Fradin

French 4

Estienne de La Roche (Villefranche)

L'arismétique nouvellement composée … divisée en deux parties
Lyon: Guillaume Huyon 1520

Translation of the title page

Apposition et remotion: additive partition of a number into three numbers
Médiation: constructing a chain of numbers in between two numbers; used for finding the unknown with nested intervals
La chose et la quantité: algebra; Ital. *cosa* 'unknown'; *quantité* 'second unknown'
Argent le roi: silver alloy with 23/24 (958 ‰) of fine silver for royal coinage
Dénéral: 'test coin'; Latin *denarialis*

The arithmetic recently composed by master Étienne de La Roche, called Villefranche, from Lyon on the Rhône, divided into two parts. The first part treats the properties, perfections and rules of the mentioned science: the integer, the fraction, the rule of three, the simple and double false position methods, the rule of "apposition and remotion", the rule of "mediation" between the most and the least, the rule of "la chose" and "la quantité" [partly] *regarding progressions and proportions.*
The second part treats its practice applied (referring) to money, regarding all merchandise, such as textiles, spices, haberdashery and regarding all other merchandise that is sold according to measure, weight or number; regarding companies and barters, exchange and interest; and finally about gold and silver and their value, regarding "argent le roy" and finally gilded silver; and "deneraux", alloys and assays, both of gold and of silver. And regarding geometry applied to mechanic art(isan)s, such as masons, carpenters and all others that need the art of measure

Constantin, in this + sign, you will win

With privilege.
Constantin Fradin

French 4

Estienne de La Roche (Villefranche)

L'arismétique nouvellement composée … divisée en deux parties
Lyon: Guillaume Huyon 1520

Content overview

(according to the table of contents)
The second part of the table of contents 1538 is an imcomplete extract from the first part.

Part 1: Pure mathematics (*introductive*)
1.1 Number in general (*nombre en général*): Boethian number theory, types of numbers, perfect numbers, progressions, proportions)
1.2 Integer (*nombre entier*): five species
1.3 Fraction (*nombre rout*): four species
1.4 Rule of three and four further rules (simple and double false position methods, "*apposition et remotion*", "*médiation*")
1.5 Root (*racine*)
1.6 Algebra (algebraic notation fol. 29^{v} f.; *règle de la chose et de la quantité*; four *canons*; applications to progressions and proportions)

Part 2: Applied mathematics (*applicative*) fol. 49^{v}
2.1 Money (*monnoye*): three species, reduction, conversion (*avaluer*)
2.2 Price calculation by length (*mesure*): transport, retail (*menu*), profit, loss (*gaing et perte*), tax (*gabelle*), textile (*draperie*), tapestry
2.3 Price calculation by weight (*poys*): spice, saffron, metal, tare, profit and loss, tax, conversion (*réduire*)
2.4 Price calculation by number (*nombre*): haberdashery (*mercerie*), bonnets (*bonnetterie*), hats (*chapellerie*), furs (*pelleterie*), linen (*blancherie*), reseller (*revendeur*), profit and loss
2.5 Price calculation by measures of capacity (*mesure rase et culme*[n]) [*à ras de bord* 'to the brim'; *culmen* 'highest point']: wheat (*blé*), bread (*pain*), wine, oil, liqueur, transport

French 4

Estienne de La Roche (Villefranche)

L'arismétique nouvellement composée … divisée en deux parties
Lyon: Guillaume Huyon 1520

Content overview

(according to the table of contents)
The second part of the table of contents 1538 is an imcomplete extract from the first part.

2.6 Companies: subcontractors (*facteurs*), livestock (*bétail*)
2.7 Barter (*troque*): with cash portion (*argent contant*), with time
2.8 Exchange (*change*): conversions (*changes*)
2.9 Interest, discount (*mérite*, *interest, disconte*): simple and compound (*à chief de terme*), balance (*salder*), aligning deadlines (*réduire à un jour*), pension, house rental (*loyage des maysons*)
2.10 Gold and silver (*or et argent*): production of fine silver and gold, *billons* 'silver copper alloy with less than a half of silver', 'Scheidemünze' [German: the legal / nominal value is bigger than the intrinsic / metal value], conversion (*réduire*, *convertir*, *avaluer*), test coin (*dénéral*), alloy and essay

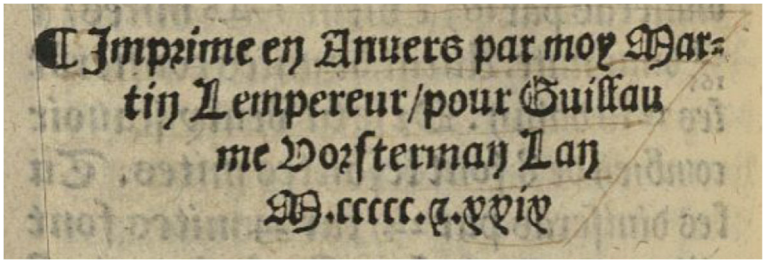
Games (*jeux*) fol. 151^{r}
Geometry fol. 151^{v}–158^{r}

Tables de Gilles Huguetan (not in the 1st edition; pdf 327–441): counters (*gects*; pdf 343–350), arithmetic tables (pdf 351–440)

French – Supplement

Later than 1520

La manière pour apprendre a cyfrer
Antwerpen: Martin Lempereur (De Keyser) (for Guillaume (Willem) Vorsterman) 1529
Col.: Imprime an Anuers par moy Martin Lempereur/ pour Guillaume Vorsterman L an M.ccccc.et.xxix
[French adaptation of the 2nd edition of the Dutch *Die Maniere*, Antwerpen ca. 1510]
ca. 105 p.
C: Hoock I/–20.4
L: Paris BNF (Rés. p.V. 338, defective), Cambridge Harvard U Houghton L (FC5 A100 529m)
[different edition according to Williams 2012, see English]



Romansh (Sursilvan)

Christian Jodocus Steinhauser

1786–1863
Officer from Sagogn (Graubünden) near Ilanz on the Anterior Rhine
(Societad Retorumantscha, Annalas 1974)

Fundamentala instructiun en la Aridmetica
Chur: B. Otto 1808

218 p. in 2 vol.
D: Google
L: Chur Cantonal L
C/V: Sarton, George: Scientific Literature in Romansh. In: Osiris 9 (1950) 602–623 (www.jstor.org/stable/301861)

Fundamentala

Instructiun

en la

Aridmetica.

Dau alla glisch puplica

per

Itel e Comoditad

della Guiventeigna Grischuna.

Dedicau de

C. J. Steinhauser,

Amatur della Aritmetica, de Sagoign.

Emprema Part.

Squitschau à Cuera gl'onn 1808. tras B. Otto

Romansh

Christian Jodocus Steinhauser

Fundamentala instructiun
en la Aridmetica
Chur: B. Otto 1808

Transcription of the title page

Fundamentala
Instructiun
en la
Aridmetica.

Dau alla glisch puplica
per
Itel [cf. etel] *e Comoditad*
della Giuventeigna Grischuna.

Dedicau de
C. J. Steinhauser,
Amatur della Aritmetica, de Sagoign.

Emprema Part.

Squitschau à Cuera gl'onn 1808, tras B. Otto

Romansh

Christian Jodocus Steinhauser

Fundamentala instructiun
en la Aridmetica
Chur: B. Otto 1808

Translation of the title page

Translated using Niev vocabulari sursilvan online (vocabularisursilvan.ch)

Fundamental
instruction
in
arithmetic

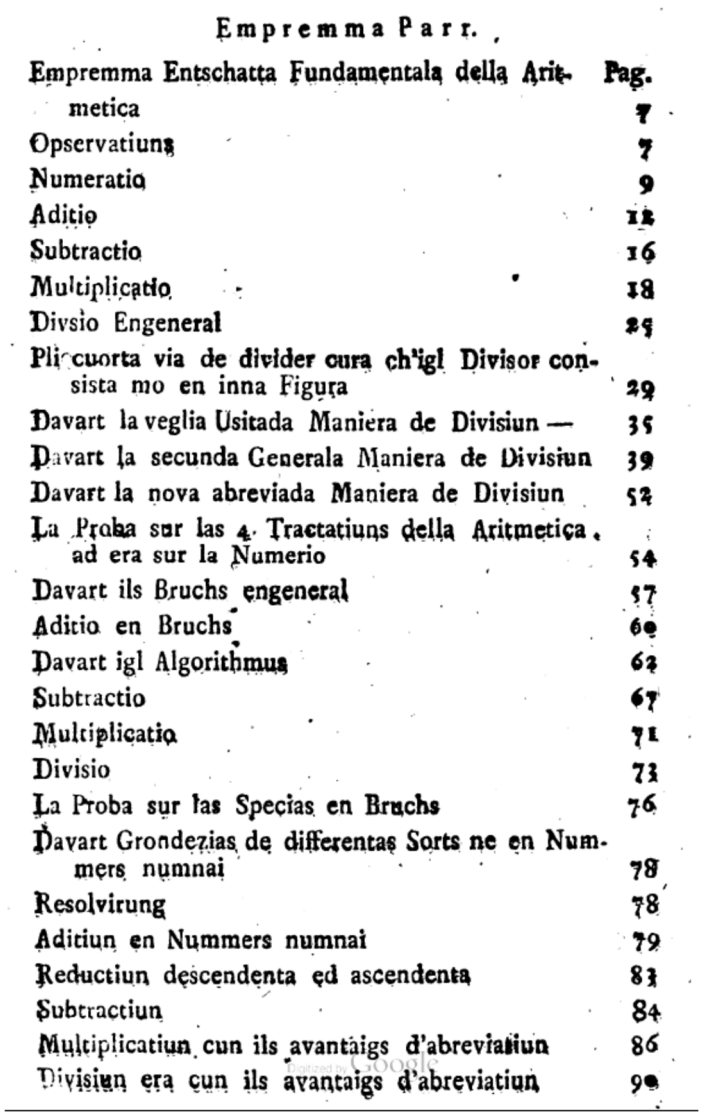
Handed to the light of the public
for
the advantage and convenience
of the Romansh youth

Dedicated by
C[hristian] J[odocus] Steinhauser,
amateur of arithmetic from Sagogn

First part

Printed in Chur in the year 1808 by B. Otto

Romansh
C. J. Steinhauser *Aridmetica* 1808
Content overview 1



Empremma Parr.

Empremma Entschatta Fundamentala della Aritmetica	Pag. 7
Opservatiuns	7
Numeratio	9
Aditio	12
Subtractio	16
Multiplicatio	18
Divsio Engeneral	25
Pli cuorta via de divider cura ch'igl Divisor consista mo en inna Figura	29
Davart la veglia Usitada Maniera de Divisiun —	35
Davart la secunda Generala Maniera de Divisiun	39
Davart la nova abreviada Maniera de Divisiun	52
La Proba sur las 4 Tractatiuns della Aritmetica, ad era sur la Numerio	54
Davart ils Bruchs engeneral	57
Aditio en Bruchs	60
Davart igl Algorithmus	62
Subtractio	67
Multiplicatio	71
Divisio	73
La Proba sur las Specias en Bruchs	76
Davart Grondezias de differentas Sorts ne en Nummers numnai	78
Resolvirung	78
Aditiun en Nummers numnai	79
Reductiun descendenta ed ascendenta	83
Subtractiun	84
Multiplicatiun cun ils avantaigs d'abreviatiun	86
Divisiun era cun ils avantaigs d'abreviatiun	90

Digitized by Google

Preface (*Prefatiun*)
First fundamental start of arithmetic
Remarks to be observed
Numeration
Addition
Subtraction
Multiplication
Division in general
Shorter way to divide if the divisor consists of only one digit (*figura*)
Old usual way of division
Second general way of division
New abbreviated way of division
Check (*proba*) of the four species (*tractatiun*) [by inverse operation]
Fractions (*fractiun, rut, bruch*) in general
Addition of fractions
The algorithm or reductio descendens (*resolutiun*), reductio ascendens (*reductiun*) and the reduction (*reductiun*) of fractions
Subtraction of fractions
Multiplication of fractions
Division of fractions
The check of the species (*specia*) for fractions [by inverse operation]
Numerical values with different units or denominate numbers (*nummer numnao*)
Resolutio (to smaller units of currency, measure, weight, time)
Addition of denominate numbers
Reduction (*reductiun descendenta* and *reductiun ascendenta*)
Subtraction (of denominate numbers)
Multiplication (of denom. numbers) with the advantages of abbreviation

Romansh
C. J. Steinhauser *Aridmetica* 1808
Content overview 2

Secunda Part.

	Pag.
Observatiun	94
Regula Detri	96
Regula Detri en Bruchs	103
La Proba sur la Regla Detri	108
Regula Detri inversa	110
Davart la ensemmen tschentada Regla Detri	112
Regula Quinque	112
Regula Quinque inversa	115
Regula Societatis	118
Dubla Regla Societatis	131
Davart la Regla dil Tscheins	141
Davart la Dubla Regla dil Tscheins ne Tscheins per Tscheins	147
Davart il Quen d'Intereſsurium ne Rabatt	149
Regula Allegationis	156
Regula Cœcis ne Wirginum ad ora Ambulationis	165
Regula Falsi	174
Regula davart il Fein engeneral	183
Davart la Tschuncheisma gronda	186
Davart ils Fiertels	196
Davart la Tschuncheisma pintgia	200
Regula Decimala en fein	204
Davart encurir la tiarza Masira dil fein	210
La Proba sur ils Ouens dil Fein	213
Cuorta mo nizeivla Instructiun davart il miserar e quintar ora Funs	215
Appendix davart la Regla Multiplex	217
Regula davart il Fein	218

Division (of denom. numbers) with the advantages of abbreviation
Remarks to be observed
Regula de tri
Regula de tri for fractions
Check of the regula de tri
Regula de tri inversa
Compound (*ensemmen tschentada*) regula de tri [i.e. regula quinque]
Regula quinque
Regula quinque inversa
Regula societatis
Double regula societatis [including time]
Rule of the interest (*tscheins*)
Double rule of the interest or the rule of the compound interest
Discount (*interessurium*, *rabatt*)
Regula alligationis
Regula caecis or virginum; motion in opposite directions (encounter; *regula ambulationis*)
Regula falsi
Rule of the hay (*fein*) in general
Big cubic fathom [= 27 *bratscha* (cubic cubits); ca. 8 m^3; see p. 183–184]
Quarters [1/4 big cubic fathom; ca. 2 m^3]
Small cubic fathom [= 21 *bratscha*; ca. 6.25 m^3)
Decimal measure units for hay
Determining the third [dimension] measure (*masira*/*mesira*) of hay
Check of the calculations (*quen*) of hay
Short but profitable instruction on measuring and calculating (*quintar*) land
Appendix on multiple applications of the regula de tri
Rule of the hay

Romansh – Supplement

Later than Steinhauser 1808

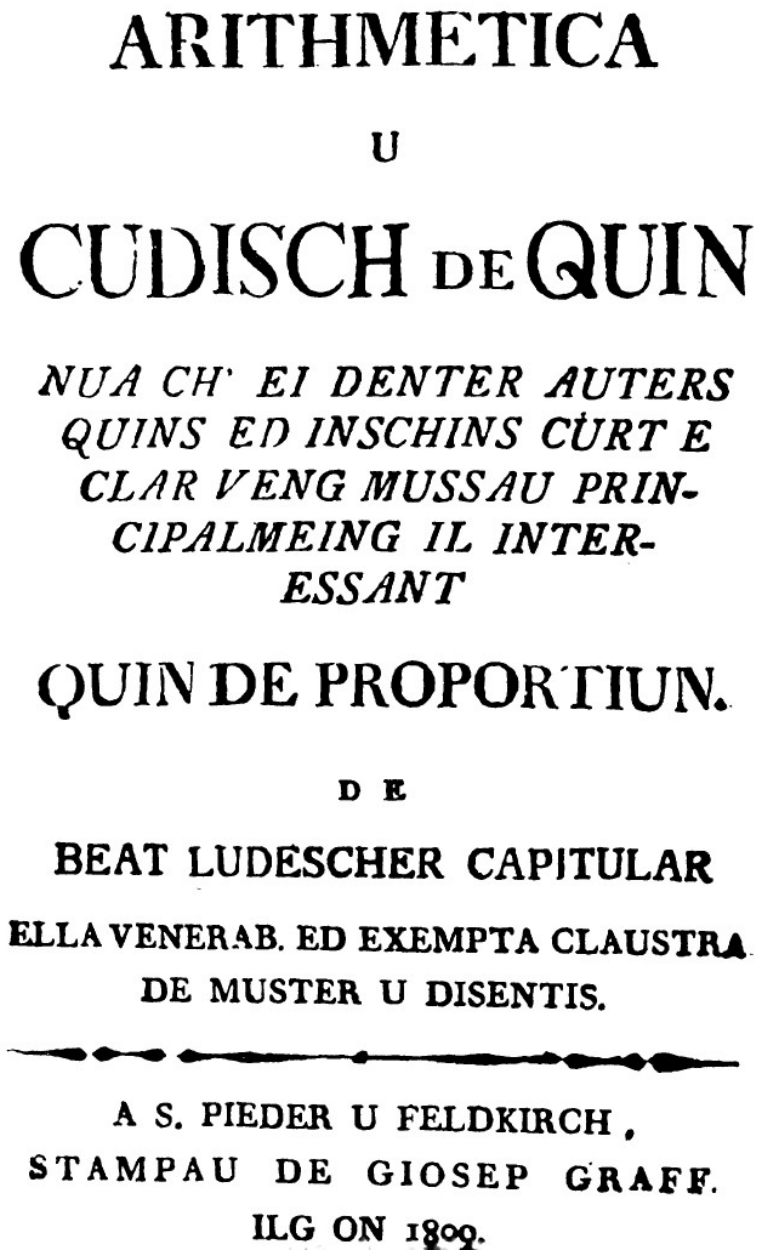
Beat (Franz Josef) Ludescher

b. 1777 Feldkirch (Vorarlberg)
d. 1847 Disentis (Graubünden)
Priest (OSB) and teacher in Disentis
(Österreichisches Biographisches Lexikon)

Arithmetica u Cudisch de Quin

[Book of calculation (*quen*)]
Sankt Peter or Feldkirch:
Giosep Graff 1809

The following secondary literature is not reliable regarding arithmetic books:
Marti, Roland: Probleme europäischer Kleinsprachen. München 1990
Bonorand, Conradin: Die Entwicklung des reformierten Bildungswesens in Graubünden. Diss. Zürich, Thusis 1949



ARITHMETICA

U

CUDISCH DE QUIN

NUA CH' EI DENTER AUTERS QUINS ED INSCHINS CURT E CLAR VENG MUSSAU PRINCIPALMEING IL INTERESSANT

QUIN DE PROPORTIUN.

DE

BEAT LUDESCHER CAPITULAR

ELLA VENERAB. ED EXEMPTA CLAUSTRA DE MUSTER U DISENTIS.

A S. PIEDER U FELDKIRCH,
STAMPAU DE GIOSEP GRAFF.
ILG ON 1809.

Ladin

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

Information: There is no arithmetic book in Ladin as, in Ladin schools, this subject is taught either in Italian or in German.

Reference: University Bolzano, Faculty of Education, Prof. Dr. Paul Videsott
Date: November 2020

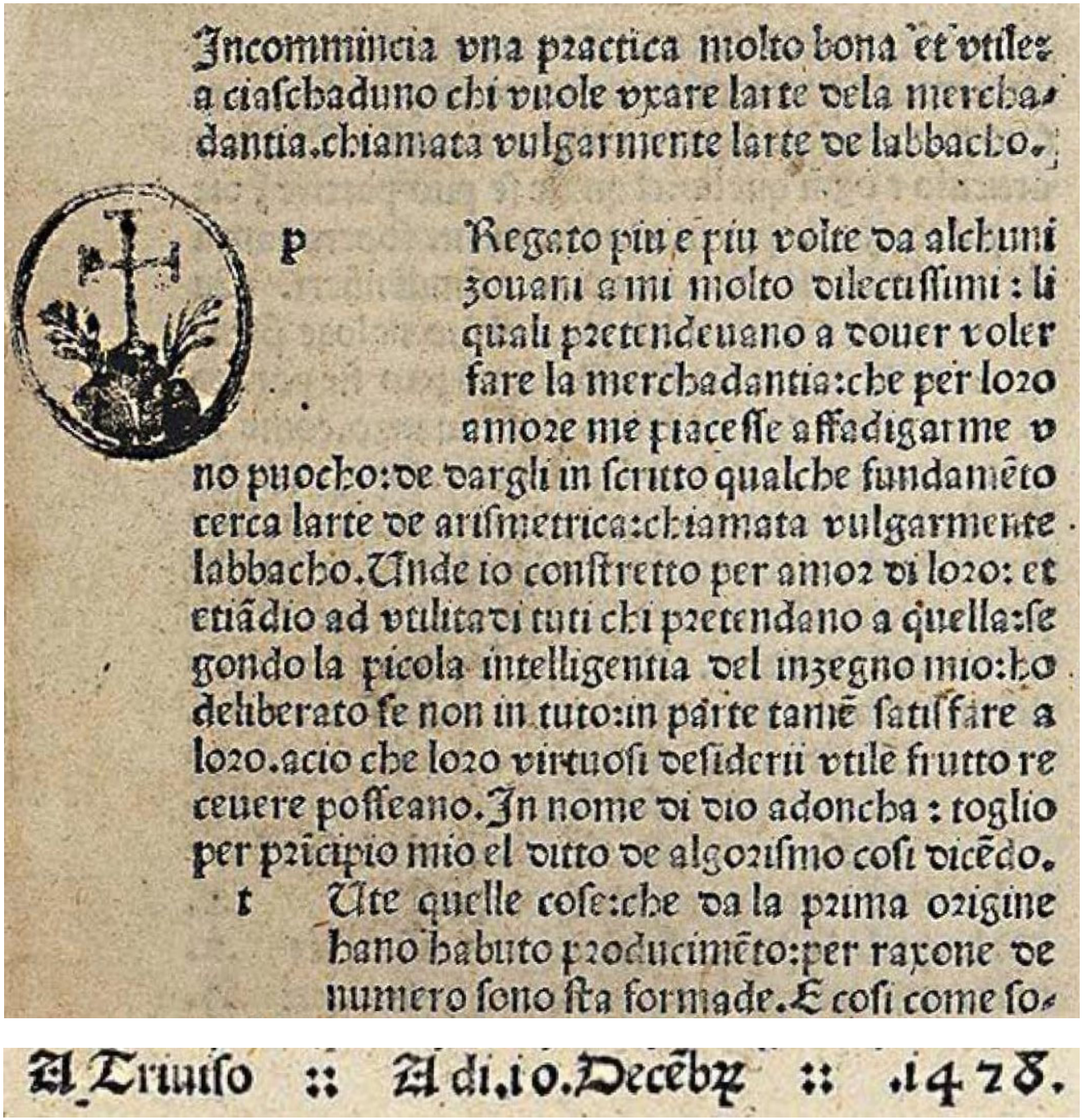
Italian 1 (Venetian)

Anonym

‘Treviso Arithmetic’ – *Arte dell’abbaco*

Treviso: [Gerardo de Lisa]
1478-12-10

124 p.
C/V: Hoock I/–27.1; UCatInc 2674
Egmond p. 291
D: BEIC.it, Internet Archive
R: Cassa di Risparmio 1969
L: Bologna U, Milano BN Braid
E: Boncompagni, Baldassare: Intorno ad un trattato d’aritmetica stampato nel 1478, Rom 1862/66, 741 p. (Göttingen SUB dig.)



Incommincia vna practica molto bona et vtile a ciaſchaduno chi vuole vxare larte dela mercha- dantia.chiamata vulgarmente larte de labbacho.

Pregato piu e piu volte da alchuni zouani a mi molto dilectiſſimi: li quali pretendeuano a douer voler fare la merchadantia:che per lozo amoze me piaceſſe affadigarme v no puocho:de dargli in ſcritto qualche fundamẽto cerca larte de ariſmetrica:chiamata vulgarmente labbacho.Unde io conſtretto per amoz di lozo: et etiãdio ad vtilita di tuti chi pretendano a quella:ſe gondo la picola intelligentia del inzegno mio:ho deliberato ſe non in tuto:in pãrte tamẽ ſatiſfare a lozo.acio che lozo virtuoſi deſiderii vtile frutto re ceuere poſſeano.In nome di dio adoncha: toglio per pricipio mio el ditto de algoriſmo coſi dicẽdo.

Ute quelle coſe:che da la prima origine hano habuto producimẽto:per raxone de numero ſono ſta formade.E coſi come ſo-

A Triuiſo :: A di.10.Decẽbz :: .1478.

Italian 1

Anonym

‘Treviso Arithmetic’ –
Arte dell’abbaco
Treviso: [Gerardo de Lisa] 1478

Transcription of the title information (first page) and of the colophon

Incommincia vna practica molto bona et vtile:
a ciaschaduno chi vuole vxare l arte de la mercha-
dantia chiamata vulgarmente l arte de l abbacho.
… [prefazione]
In nome di dio adoncha: toglio
per principio mio el ditto de algorismo cosi dicendo.
Tutte quelle cose: che da la prima origine
hano habuto producimento: per raxone de
numero sono sta[*te*] *formade.*

A Triuiso – A di .10. Decembris – .1478.

S: Smith, David Eugene. In: Isis 6 (1924) 311–331 [with English translations]
Swetz, F J: Capitalism and arithmetic. Including the full text of the Treviso Arithmetic. Translated by D E Smith. La Salle, Ill.: Open Court 1987

Italian 1

Anonym

‘Treviso Arithmetic’ –
Arte dell’abbaco
Treviso: [Gerardo de Lisa] 1478

Translation of the title information (first page) and of the colophon

A very good and useful practical treatise begins:
for everyone who wants to use
the art of commercial arithmetic
commonly called the art of the abacus.
… [preface]
So in the name of god: As my principle,
I take the dictum on the algorism that runs like this:
All things that have been created
since the beginning of time
are coined by the rule of number.

In Treviso in 1478 on the 10th day of December

Italian 1

Anonym

‘Treviso Arithmetic’ – *Arte dell’abbaco* Treviso: [Gerardo de Lisa] 1478

Content overview
(according to the text)

messetteria:
brokerage tax in the Republic of Venice
(messeto, misseto ‘mediator’)

Preface

[1] Five species (*atti*)
- Numeration, addition (*iongere*) with
  - reduction for the Venetian currency
    (1 lira = 20 soldi = 240 grossi),
- subtraction (*cavare*),
- multiplication (*moltiplicare*), division (*partire*)
- detailed presentation of various methods
- check by 9 or by inverse operation

[2] Regula de tri (*regula de le tre cose*)
- fractions [introduced without species]
- distinction between integers (*cose sane*) and fractions
  (*cose rotte*)
- detailed presentation of various methods using regula de tri

[3] Five other problem types (*cinque altre maniere*)
- 1 Loaf of penny: purchase and sales, regula de tri inversa
- 2 Discount tare and brokerage tax
  (*battere tara e messetteria*)
- 3 Regula societatis (*raxone di compagnia*)
- 4 Barters (*raxone de barati*)
- 5 Regula alligationis for silver (*raxone de liga d arzenti*)

Italian 1

Anonym

‘Treviso Arithmetic’ –
Arte dell’abbaco
Treviso: [Gerardo de Lisa] 1478

Content overview
(according to the text)

Piero della Francesca *Trattato d’abaco* 1475
was not printed
E: Arrighi, G: *Trattato d’abaco* dal Codice Ashburnhamiano 280 (359–291) della Biblioteca Medicea Laurenziana di Firenze (= Testimonianze di storia della scienza 6). Pisa: Domus Galileana 1970

[4] Accomplishments (*alcune gentilezze*)
Motion in opposite directions: encounter
Hare and greyhound: pursuit
The found purse
Carpenters build a house (*regula dupla*): work and service
Golden number calendar [year 1478 mentioned]
Calculation of the new moon [December 1478 mentioned]

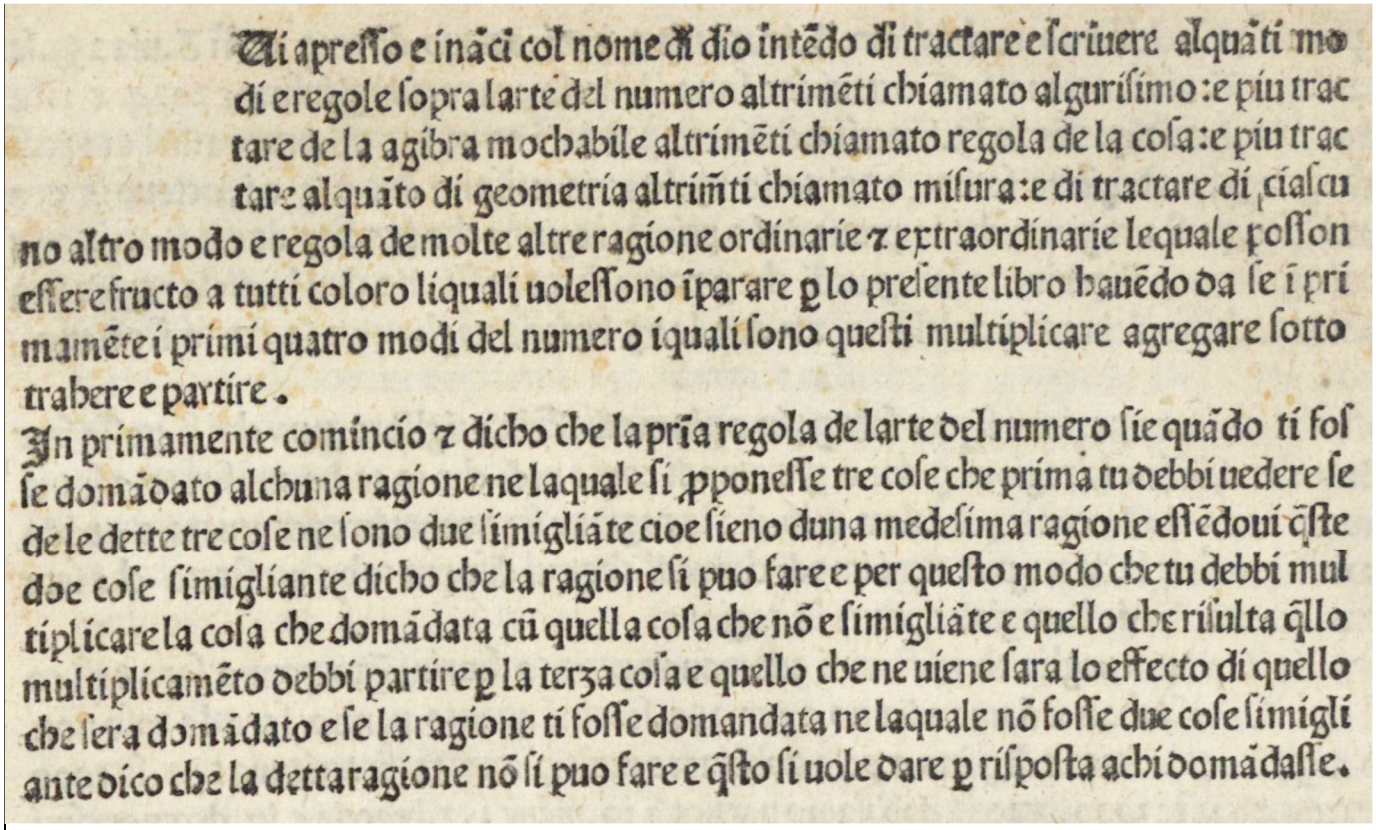
[5] List of conversion rules
Conversion of weights (*conversione de pesi*)
Price-weight relations in integers
Price-weight relations in fractions

Italian 2

Anonym

‘Venezia Arithmetic’ – *Algurisimo* [Venezia: Adamo di Rottweil 1476–1480] or [Reggio d’Emilia: Ugo Rugerius 1478]

70 p. (500 copies printed)
C: Hoock missing; UCatInc 1280
Egmond p. 288
D: BEIC.it
L: Genova U, Wien ÖNB
S: Karpinski, Louis Charles: An early printed Italian arithmetical treatise. In: Archeion 11 (1929) 331–335



Mi apresso e ināci col nome di dio intēdo di tractare e ſcriuere alquāti mo
di e regole ſopra larte del numero altrimēti chiamato alguriſimo: e piu trac
tare de la agibra mochabile altrimēti chiamato regola de la coſa: e piu trac
tare alquāto di geometria altrimēti chiamato miſura: e di tractare di ciaſcu
no altro modo e regola de molte altre ragione ordinarie ꝛ extraordinarie lequale poſſon
eſſere fructo a tutti coloro liquali uoleſſono īparare p lo preſente libro hauēdo da ſe ī pri
mamēte i primi quatro modi del numero iquali ſono queſti multiplicare agregare ſotto
trahere e partire.
In primamente comincio ꝛ dicho che la prīa regola de larte del numero ſie quādo ti foſ
ſe domādato alchuna ragione ne laquale ſi ꝓponeſſe tre coſe che prima tu debbi uedere ſe
de le dette tre coſe ne ſono due ſimigliāte cioe ſieno duna medeſima ragione eſſēdoui q̄ſte
doe coſe ſimigliante dicho che la ragione ſi puo fare e per queſto modo che tu debbi mul
tiplicare la coſa che domādata cū quella coſa che nō e ſimigliāte e quello che riſulta q̄llo
multiplicamēto debbi partire p la terza coſa e quello che ne uiene ſara lo effecto di quello
che ſera domādato e ſe la ragione ti foſſe domandata ne laquale nō foſſe due coſe ſimigli
ante dico che la dettaragione nō ſi puo fare e q̄ſto ſi uole dare p riſpoſta achi domādaſſe.

Italian 2

Anonym

‘Venezia Arithmetic’ – *Algurisimo* [Venezia: Adamo di Rottweil 1476–1480] or [Reggio d’Emilia: Ugo Rugerius 1478]

Transcription of the title information (first paragraph)

QVi appresso e inanci col nome di dio intendo di tractare e scriuvere alquanti modi e regole sopra l arte del numero altrimenti chiamato algurisimo: e piu tractare de la agibra mochabile altrimenti chiamato regola de la cosa: e piu tractare alquanto di geometria altrimenti chiamato misura: e di tractare di ciascuno altro modo e regola de molte altre ragione ordinarie e extraordinarie le quale posson essere fructo a tutti coloro li quali uolessono imparare per lo presente libro hauendo da se in prima mente i primi quatro modi del numero i quali sono questi multiplicare agregare sottotrahere e partire.

Italian 2

Anonym

‘Venezia Arithmetic’ – *Algurisimo* [Venezia: Adamo di Rottweil 1476–1480] or [Reggio d’Emilia: Ugo Rugerius 1478]

Translation of the title information (first paragraph)

Subsequently and above all in the name of god, I intend to treat and to describe some methods and rules about the art of the number, otherwise called algorithm; and to furthermore deal with the algebra, otherwise called rule of the unknown; and to furthermore treat something about geometry, otherwise called measuring; and to deal with every other method and rule of many other ordinary and extra-ordinary problem solutions which can be fruitful for all who want to learn with the present book and already know by heart the first four arithmetic operations which are the following: multiply, add, subtract and divide.

Italian 2

Anonym

‘Venezia Arithmetic’ – *Algurisimo* [Venezia: Adamo di Rottweil 1476–1480] or [Reggio d’Emilia: Ugo Rugerius 1478]

Content overview
(according to the text; cf. Karpinski 1929)

Judged as unusual by Karpinski:
“differs from the known arithmetical works in not giving systematic exposition of the fundamental operations with integers; gives applications of the rule of three and discussion of the fundamental operations with fractions”

Applications of the regula de tri
Pursuit (sum of integers)
Daily and yearly wages
Circles and squares
100 birds (cattle): additive partition
Cat on a tower: motion to and fro
Weight
Multiplication of fractions
(*moltiplicare rotti*, 4 types (*modi*)) (pdf 34)
Division of fractions
(*partire rotti* (7 types)) (pdf 36)
Discussion of the falsity of the check by 7 and by 9
Time
Interest
Payments with different deadlines
(referring to the year 1396)
[No problems solved by algebraic methods]

Italian 3

Piero Borghi / Pietro Borgo

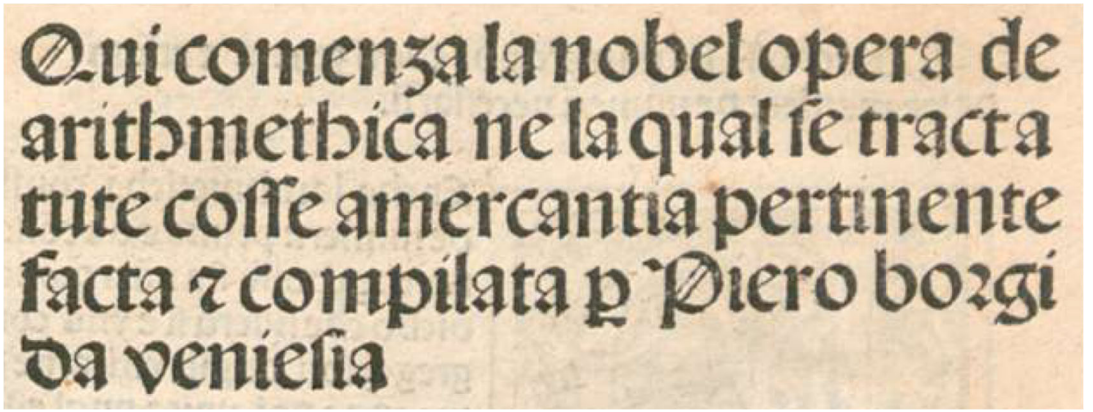
b. ca. 1414 Venezia
d. ca. 1484/91 Venezia (CERL Thesaurus)

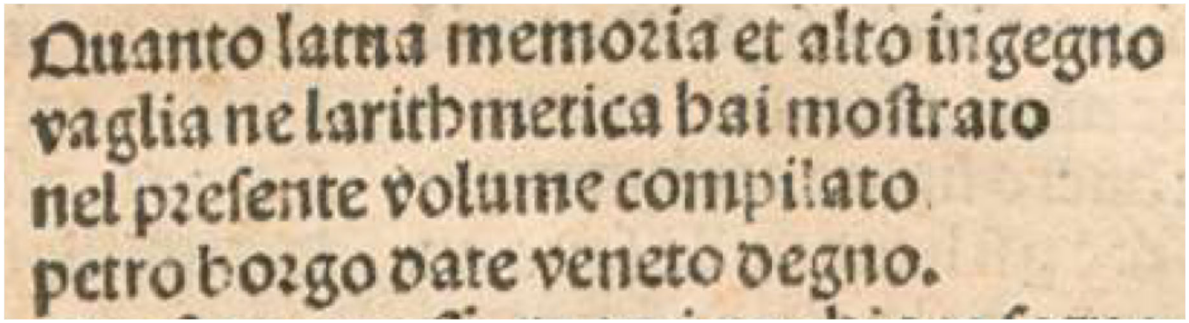
Aritmetica mercantile (Libro de abaco)

Venezia: Erhard Ratdolt 1484-08-02

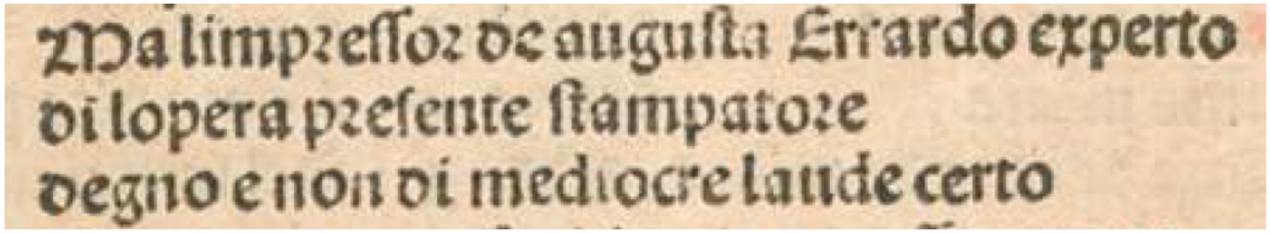
232 p.
C: Hoock I/B18.2; UCatInc 4936
Egmond p. 293–297
D: München BSB
R: Elfering Kurt (ed.). (Deutsches Museum Reihe C, Nr. 2) München: Graphos 1964
L: Paris BNF
S: Smith, David E. In: Isis 8 (1926) 41–49

1st edition < 1484, Venezia: Erhard Ratdolt
C: Hoock I/B18.1; UCatInc 4 Sp. 568a **L**:–

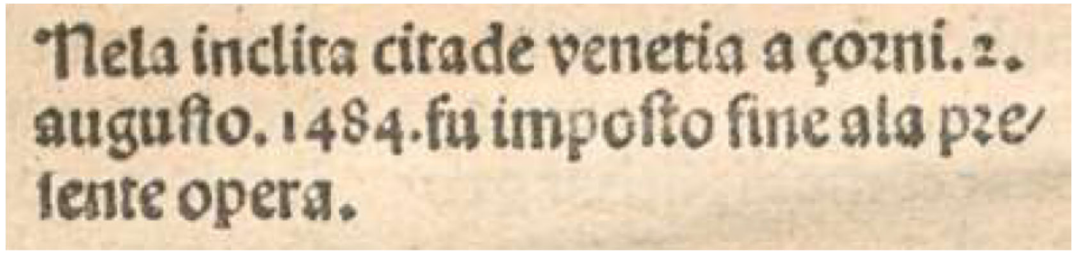

Qui comenza la nobel opera de
arithmethica ne la qual ſe tracta
tute coſſe amercantia pertinente
facta z compilata p Piero borgi
da veneſia


Quanto latua memoria et alto ingegno
vaglia ne larithmetica bai moſtrato
nel preſente volume compilato
petro borgo date veneto degno.

…


Ma limpreſſor de auguſta Errardo experto
di lopera preſente ſtampatore
degno e non di mediocre laude certo

…


Nela inclita citade venetia a çorni. 2.
auguſto. 1484. fu impoſto fine ala pre-
ſente opera.

Italian 3

Piero Borghi / Pietro Borgo

Aritmetica mercantile (*Libro de abaco*) Venezia: Erhard Ratdolt 1484

Transcription of the title information (first page) and of the colophon (poem)

Later incunabulum editions:
Venezia: Zouane de Hall (Johann Leoviller) 1488, 192 p.
C: Hoock I/B18.3: UCatInc 4937
Venezia: Nicolo de li Serrari (Ferrari) 1491, 200 p.
C: Hoock I/B18.4; UCatInc 4938
Later editions Venezia 1501, Venezia 1505, Venezia: Giacomo Penzio 1509 until 1577 (16 editions totally, cf. Hoock I/B18)

Qui comenza la nobel opera de
arithmethica ne la qual se tracta
tute cosse a mercantia pertinente
facta e compilata per Piero borgi
da veniesia

Quanto la tua memoria et alto ingegno
vaglia ne l arithmetica hai mostrato
nel presente volume compilato
petro borgo da te Veneto degno.

...

Ma l impressor de augusta Errardo experto
di l opera presente stampatore
degno e non di mediocre laude certo

...

Ne la inclita cita de venetia a çorni .2.
augusto .1484. fu imposto fine a la pre-
sente opera.

Italian 3

Piero Borghi / Pietro Borgo

Aritmetica mercantile
(*Libro de abaco*)
Venezia: Erhard Ratdolt 1484

Translation of the title information (first page) and of the colophon (poem)

Comment on later editions:
Only “few changes made from edition to edition” (Smith 1926, p. 41)

Here begins the noble treatise on
arithmetic, in which it is dealt with
all things belonging to commerce affairs,
written and compiled by Piero Borghi
from Venezia

How much your memory and high intellect
are worth in arithmetic, you have shown
in the present volume compiled
by you, Petro Borgo, honorable Venetian.

...

The experienced Erhard, typographer from Augsburg,
printer of the present work,
honorable and sure of not mediocre renown

...

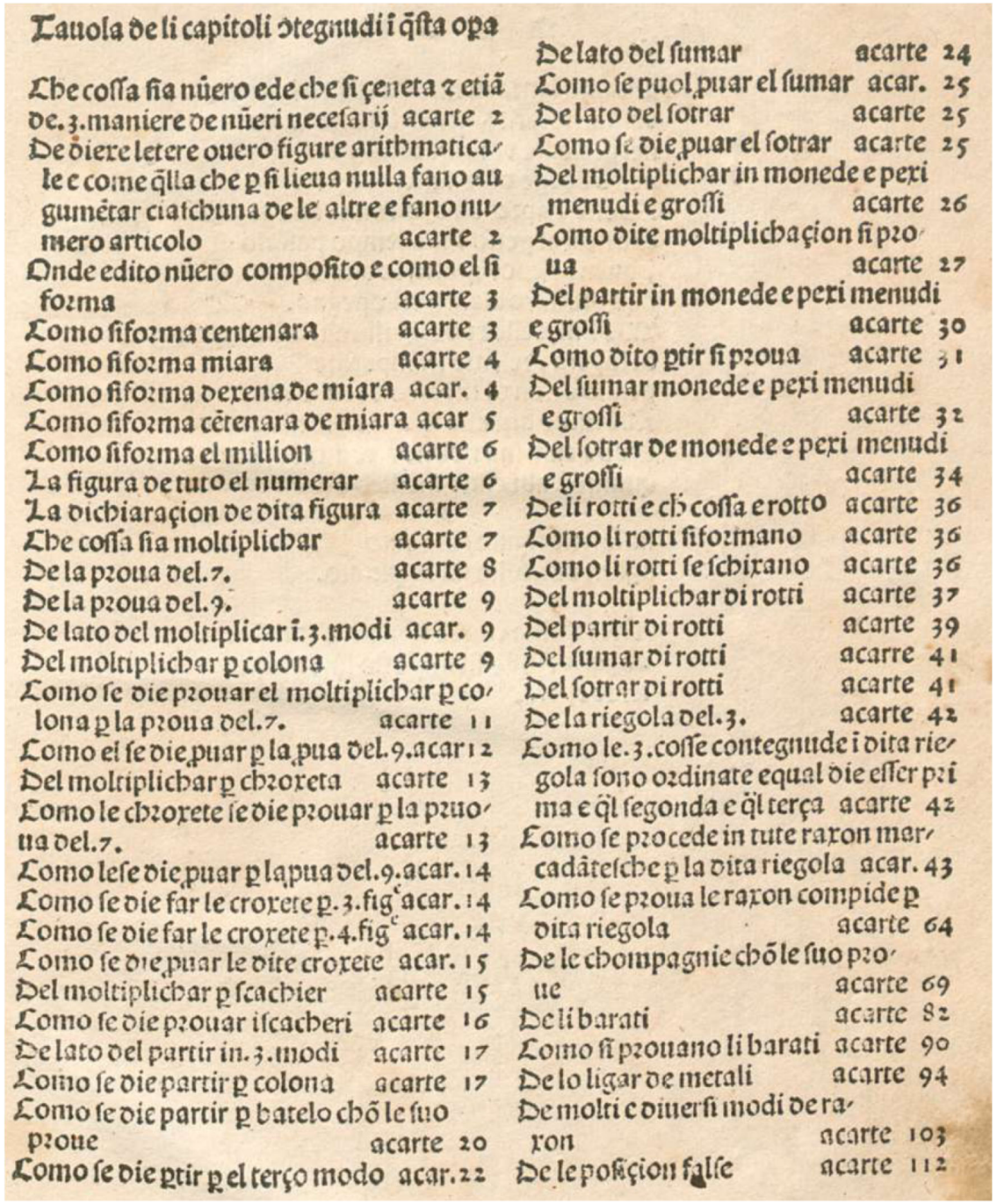
In the outstanding city of Venezia on the 2nd day
of August 1484, the end was set to the
present work.

Italian 3

Piero Borghi / Pietro Borgo

Aritmetica mercantile 1484

Content overview (according to the table of contents; cf. Smith 1926)



Tauola de li capitoli ꝺtegnudi i q̃ſta opa

Che coſſa ſia nũero ede che ſi ç̃eneta ꝛ etiã de.3.maniere de nũeri neceſarij acarte 2
De ꝺiere letere ouero figure arithmatica-le e come q̃lla che p ſi lieua nulla fano augumẽtar ciaſchuna de le altre e fano numero articolo acarte 2
Onde edito nũero compoſito e como el ſi forma acarte 3
Como ſi forma centenara acarte 3
Como ſi forma miara acarte 4
Como ſi forma ꝺexena de miara acar. 4
Como ſi forma cẽtenara de miara acar 5
Como ſi forma el million acarte 6
La figura de tuto el numerar acarte 6
La ꝺichiaraçion de ꝺita figura acarte 7
Che coſſa ſia moltiplichar acarte 7
De la ꝓroua del.7. acarte 8
De la ꝓroua del.9. acarte 9
De lato del moltiplicar i.3.modi acar. 9
Del moltiplichar p colona acarte 9
Como ſe ꝺie ꝓrouar el moltiplichar p colona p la ꝓroua del.7. acarte 11
Como el ſe ꝺie puar p la pua del.9.acar 12
Del moltiplichar p chꝛoxeta acarte 13
Como le chꝛoxete ſe ꝺie ꝓrouar p la ꝓrouua del.7. acarte 13
Como leſe ꝺie puar p la pua del.9.acar. 14
Como ſe ꝺie far le croxete p.3.figc acar. 14
Como ſe ꝺie far le croxete p.4.figc acar. 14
Como ſe ꝺie puar le ꝺite croxete acar. 15
Del moltiplichar p ſcachier acarte 15
Como ſe ꝺie ꝓrouar iſcacheri acarte 16
De lato del partir in.3.modi acarte 17
Como ſe ꝺie partir p colona acarte 17
Como ſe ꝺie partir p batelo chõ le ſuo ꝓroue acarte 20
Como ſe ꝺie ꝑtir p el terço modo acar.22
De lato del ſumar acarte 24
Como ſe puol puar el ſumar acar. 25
De lato del ſotrar acarte 25
Como ſe ꝺie puar el ſotrar acarte 25
Del moltiplichar in monede e peꝛi menudi e groſſi acarte 26
Como ꝺite moltiplichaçion ſi ꝓrouua acarte 27
Del partir in monede e peꝛi menudi e groſſi acarte 30
Como ꝺito ꝑtir ſi ꝓroua acarte 31
Del ſumar monede e peꝛi menudi e groſſi acarte 32
Del ſotrar de monede e peꝛi menudi e groſſi acarte 34
De li rotti e ch̃ coſſa e rotto acarte 36
Como li rotti ſi formano acarte 36
Como li rotti ſe ſchixano acarte 36
Del moltiplichar ꝺi rotti acarte 37
Del partir ꝺi rotti acarte 39
Del ſumar ꝺi rotti acarre 41
Del ſotrar ꝺi rotti acarte 41
De la riegola del.3. acarte 42
Como le.3.coſſe conteg̃nude i ꝺita riegola ſono oꝛdinate equal ꝺie eſſer pꝛima e q̃l ſegonda e q̃l terça acarte 42
Como ſe pꝛocede in tute raxon mercadãteſche p la ꝺita riegola acar. 43
Como ſe ꝓroua le raxon compide p ꝺita riegola acarte 64
De le chompagnie chõ le ſuo ꝓroue acarte 69
De li barati acarte 82
Como ſi ꝓrouano li barati acarte 90
De lo ligar de metali acarte 94
De molti e ꝺiuerſi modi de raxon acarte 103
De le poſiçion falſe acarte 112

Italian 3

Piero Borghi / Pietro Borgo

Aritmetica mercantile 1484

Content overview (according to the table of contents; cf. Smith 1926)

Preface
[1] Five species (*atti*) for integers
  Numeration
  Multiplication with check by 7 and by 9
  Division (*partir*)
  Addition, subtraction (with check *proua*)
  Multiplication, division with money and weight (with check)
[2] Fractions (*rotti*) with four species
[3] Regula de tri (*regola del 3*) (with check)
[4] Companies (*chompagnie*) (with check)
[5] Barters (*barati*) (with check)
[6] Metal alloys (*ligar de metali*)
[7] Many and diverse rules (*modi de raxon*)
  Profit and loss, percentage (101^{v})
  Weight, measure, currency conversions (102^{v})
  Business trips (profit/loss chains): nesting (105^{v})
  Mills, horses: work and service (regula quinque) (107^{r})
  Interest (regula quinque) (107^{r})
  Profit and loss, with loaf of penny (regula de tri inversa) (107^{v})
  Three different mills, sails: shared work (108^{v})
  Motion in opposite directions (ships): encounter (109^{r})
  Motion in the same direction (ships): pursuit (109^{v})
  Two brothers earn and spend money: motion to and fro (110^{r})
  Sparrowhawk on a tower: motion to and fro
    (combined with encounter: dove simultaneously working from the top downward) (110^{r})
  Fish in three parts: find weight (110^{v})
  Two fishes, eggs: profit and loss (111^{r})
  Lazy worker: temporal part (111^{v})
  Earnings of craftsmen: too much – too little (112^{r})
[8] Regula falsi (*posiçion false*):
  Lazy worker: temporal part (112^{r})
  Price of apples: profit and loss (113^{r})
  Amounts of money of different persons: give and take (113^{v})

Italian 4 (Florentine)

Filippo [Maria] Calandri

b. 1468 Firenze [dedication 1492: *in questa mia giouenile eta* (juvenile age)]
d. 1518 Roma
Father Calandro di Piero C. (1419–1468), mathematician, teacher of Benedetto da Firenze (1429–1479), mathem., *Trattato* (Siena B degl'Intronati (Cod. L. IV. 21))
Brother Pier Maria (1457–1508), mathem., miniaturist; *Tractato* (Firenze B Medicea Laurenziana (Cod. Acquisti e doni 154), ed. Arrighi. Pisa: Domus Galilaeana 1974)

De arimethrica opusculum
[Trattato di aritmetica]
Firenze: Lorenzo de Morgiani, Giovanni Thedesco [Johann Petri] da Magonza [Mainz]
1492-01-01

Philippi Calandri ad nobilem et ſtudioſuꝫ Julia
num Laurentii Medicē de arimethrica opuſculū.

Impreſſo nella excelſa cipta di Firenze per
Lorenzo de Morgiani et Giouanni
Thedeſco da Maganza fi
nito a di primo di
Gēnaio 1491

BIBLIOTECA

Italian 4

Filippo [Maria] Calandri

[often spelled Chalandri according to the Tuscan pronunciation (gorgia toscana)]

De arimethrica opusculum

Firenze: Lorenzo de Morgiani, Giovanni Tedesco 1492-01-01

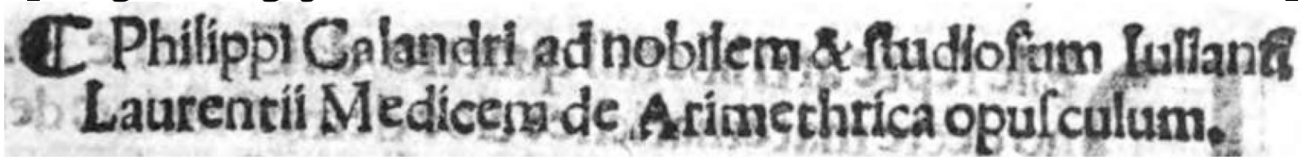
Transcription of the title information (first page) and of the colophon

210 p.
C: Hoock I/C2; UCatInc 05884
Egmond p. 298–299
D: BEIC.it
L: Firenze BN

Pictagoras arithmetrice introductor

Philippi Calandri ad nobilem et studiosum Julianum Laurentii Medicem de arimethrica opusculum.

[Regarding *ʒ*/*m* in *studiosum*, cf. the 2nd edition 1518:]


Philippi Calandri ad nobilem & ſtudioſum Iuliani
Laurentii Medicem de Arimethrica opuſculum.

Impresso nella excelsa cipta di Firenze per Ser Lorenzo de Morgiani et Giouanni Thedesco da Maganza finito a di primo di Gennaio 1491

[According to the *Calculus Florentinus*, the year number did not change on the 1st of January, but on the 25th of March (Feast of the Annunciation). Therefore, 1491-01-01 in Florentine style is 1492-01-01 in standard style.]

Italian 4

Filippo [Maria] Calandri

De arimethrica opusculum
Firenze: Lorenzo de Morgiani, Giovanni Tedesco 1492-01-01

Transcription of the title information (first page) and of the colophon

Nearly identic 2nd ed.:
Firenze: Bernardo Zucchetta 1518-07-20
D/L: München BSB

S: Holl/Stry: Ries-Kolloquium 2025
Ulivi, Elisabetta: Gli abacisti fiorentini. Firenze: Olschki 2013

Pythagoras introducer into arithmetic

A small treatise on arithmetic by Filippo Calandri for the noble and assiduous Guiliano de' Medici, son of Lorenzo de' Medici

Giuliano di Lorenzo de' Medici (Firenze 1479–1516 Fiesole):
son of Lorenzo (di Piero) il Magnifico (Firenze 1449–1492 Firenze) and Clarice Orsini;
brother of Giovanni (Firenze 1475–1521 Roma), later pope Leo X, and Piero;
at first intended dedication addressee of *Il principe* by Niccolò Macchiavelli – finally dedicated to his nephew Lorenzo di Piero

Printed in the outstanding city of Firenze by the gentlemen Lorenzo de Morgiani and Giovanni Tedesco da Maganza [*from Mainz*]
finished on the 1st day of January 1492

Italian 4

Filippo [Maria] Calandri

De arimethrica opusculum
Firenze: Lorenzo de Morgiani, Giovanni Tedesco 1492-01-01

Content overview

(according to the text;
hardly any section headings)

There is a comparable codex with colored illustrations: Firenze B Riccardiana (Codice 2669), ed. Arrighi, G. Firenze: Cassa di Risparmio 1969;
Egmond, W v: Ries-Kolloquium 2005.
Manuscript and incunabulum coincide especially in the geometry part;
as the incunabulum, the codex contains many obvious references to the House of Medici.

Dedication to Giuliano de' Medici, Preface
[1] Species for integers
  Numeration: finger numbers, digits (pdf 13)
  Species (pdf 17): multiplication table, addition (*raccorre*), multiplication, a long row of multiplication tables (including currencies on the basis of 1 lira = 20 soldi = 240 denari), divisions by 100 (pdf 39), multiplication examples, division (*partire*) (pdf 49)
[2] Price calculations (pdf 52) starting from or identifying the price per unit, further calculations with denominate numbers (currency, measure, time) including fractions and the regula de tri without any introduction
[3] Fractions (*rotti*) (pdf 71): multiplication, division (*partire*), addition (*raggiungere*), subtraction (*trarre*); denominate fractions (pdf 80)
[4] Conversions of different units (pdf 84)
[5] Gold and silver (pdf 97)
[6.1] Simple interest (*guadagnare, meritare*) (pdf 105)
[6.2] Compound interest (*a capo d'anno*) (pdf 111)

Italian 4

Filippo [Maria] Calandri

De arimethrica opusculum
Firenze: Lorenzo de Morgiani, Giovanni Tedesco 1492-01-01

Content overview

(according to the text;
hardly any section headings)

Further manuscripts by Filippo Calandri (Egmond p. 96, 111, 159, 193, 358):
Una raccolta di ragioni. Siena B Comunale (Codice L. VI. 45, 61^{v}–111^{v}, 71 problems start on 75^{r}), ed. Santini, D. Siena 1982
Trattato d'abaco nel quale si contiene tutto quello che s'apartiene alla mercantia. 1507, Firenze BN (Cod. Magliabechiano Cl. XI, 82); copied by Luigi di Ghinozzo de Pazzi; no edition

[7.1] Simple discount (*scontare*) (pdf 113)
[7.2] Compound discount (*a capo d'anno*) (pdf 115)
[8] Uniting payments with different deadlines (*recare*), *Calculus florentinus* (pdf 116)
[9] Price calculations with regula de tri (pdf 122)
[10] Profit and loss (pdf 125)
[11] Miscellaneous problems (pdf 128), mixed with price and profit calculations:
Interest (pdf 128, 137)
Compound interest (pdf 133)
Too much – too little (pdf 134)
Subcontractor (pdf 134)
Interrupted contract (pdf 135)
Three persons have a meal: company (pdf 135)
Conversions (pdf 136)
Unknown inheritance: nesting (pdf 138)
Pursuit (pdf 138)
Found purse (pdf 139)
Digging a well: work, arithmetic progression (pdf 139)
Motion to and fro (pdf 140)
Hare and greyhound: pursuit (pdf 140)

Italian 4

Filippo [Maria] Calandri

De arimethrica opusculum
Firenze: Lorenzo de Morgiani, Giovanni Tedesco 1492-01-01

Content overview
(according to the text;
hardly any section headings)

Amounts of money of diff. persons: give and take (pdf 140)
One alone cannot buy: joint purchase (pdf 141)
Nesting (pdf 141, 156)
Regula equalitatis (pdf 142, 156)
Spear in the water: find length (pdf 143–145)
Ship with two/three sails: shared work (pdf 145, 148)
Encounter (pdf 146)
Vessel with two/three fountains: shared work (pdf 146, 148, 151)
Lazy worker: temporal part (pdf 147)
Three carpenters build a house (shared work) (pdf 149)
Cup (*coppa*) consisting of foot, cup and lid (*gamba, nappo, coperchio*) (pdf 150)
Fish in parts: find weight (pdf 150)
Motion to and fro (pdf 151–155)
Wild animals eat a sheep: shared work (pdf 153)
[12] Barters (pdf 157)
[13] Regula societatis (pdf 171)
[14] Alloys, mixtures, coinage (*battere*), gold (pdf 178)
[15] Geometry incl. Pythagoras' theorem (pdf 190)
[16] Guessing numbers (pdf 210)

Italian 5

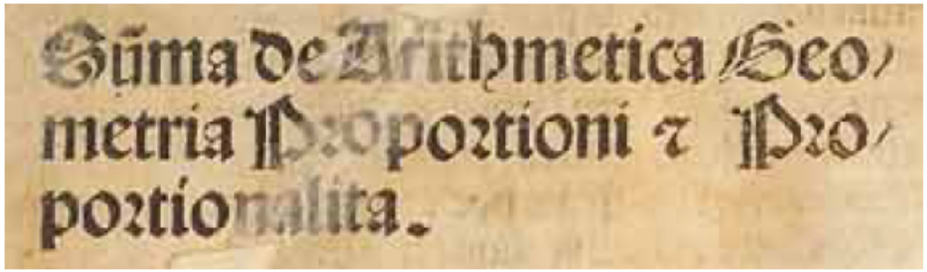
Luca Pacioli = Lucas de Burgo sancti sepulcri [Sansepolcro]

b. ca. 1445 Sansepolcro
d. 1514/17 Roma
Franciscan friar (Order of Friars Minor)
Professor (maths, theol.) at Italian univ.s

Summa de arithmetica, geometria, proportioni e proportionalità

Venezia: Paganino de Paganini (from Brescia) 1494-11-10/20

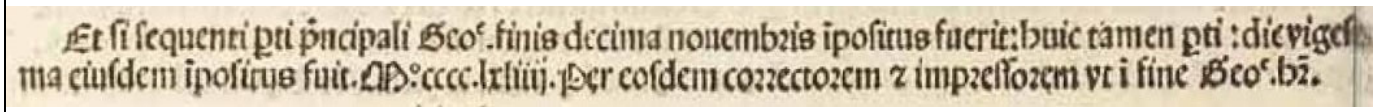
615 p.
C: Hoock I/P1; UCatInc M18913
Egmond p. 325–326
D: Wolfenbüttel HAB
L: London BL
S: Main authors: Cantor, Moritz; Ciocci, Argante; Giusti, Enrico


Sūma de Arithmetica Geo/
metria Proportioni ⁊ Pro/
portionalita.

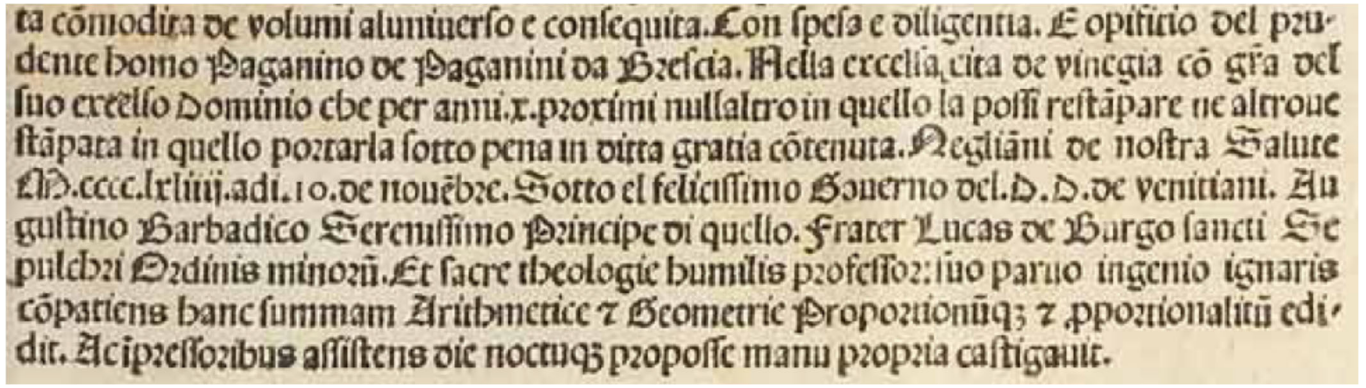
[at the bottom of page 1ᵛ, pdf 6]

M°.cccc°.lxiiij°.xx°. Nouembris. venetijs

[224ᵛ, pdf 468]


Et ſi ſequenti pti pncipali Geo⁽ᵉ⁾. finis decima nouembris ipoſitus fuerit: huic tamen pti: die vigeſ/
ma eiuſdem ipoſitus fuit. M°.cccc.lxiiij. Per eoſdem correctorem ⁊ impreſſorem vt i fine Geo⁽ᵉ⁾. bꝫ.

[76ʳ, pdf 619]


ta cõmodita de volumi aluniuerſo e conſequita. Con ſpeſa e diligentia. E opificio del pru/
dente homo Paganino de Paganini da Breſcia. Nella excellẽtia cita de vinegia cõ gra del
ſuo excelſo Dominio che per anni. x. proximi nullaltro in quello la poſſi reſtãpare ne altroue
ſtãpata in quello portarla ſotto pena in dicta gratia cõtenuta. Negliãni de noſtra Salute
M.cccc.lxiiij. adi. 10. de nouẽbre. Sotto el felicißimo Gouerno del. D. D. de venitiani. Au
guſtino Barbadico Sereniſſimo Principe di quello. Frater Lucas de Burgo ſancti Se
pulchri Ordinis minorũ. Et ſacre theologie humilis profeſſor: ſuo paruo ingenio ignaris
cõpatiens hanc ſummam Arithmetice ⁊ Geometrie Proportionũq; ⁊ ꝓportionalitũ edi/
dit. Ac impreſſoribus aſſiſtens die noctuq; propoſſe manu propria caſtigauit.

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Transcription of the title information (first page) and of the end of the colophon

S: Cantor, Moritz (Geschichte der Mathematik II, 1900) dicusses several details (p. 308–344) following their sequence in the *Summa*.
Penndorf, Balduin (Stuttgart 1933) focuses on Pacioli's accounting.
Haller/Barth (Berlin 2017) discuss two combinatorial problems (43^{v}, 197^{v})

Summa de Arithmetica Geometria Proportioni e Proportionalita.

M°.cccc°.lxliiij°.xx°. Nouembris. Venetijs

Et si sequenti parti principali Geometriae finis decima nouembris impositus fuerit: huic tamen parti: die vigesima eiusdem impositus fuit. M°.cccc.lxliiij.

[…] *consequita* […] *E opificio del prudente homo Paganino de Paganini da Brescia. Nella excelsa cita de vinegia con gratia del suo excelso Dominio che per anni .x. proximi null altro in quello la possi restampare ne altrove stampata in quello portarla sotto pena in ditta gratia contenuta. Negli anni de nostra Salute M.cccc.lxliiij. adi .10. de novembre. Sotto el felicissimo Governo del D. D. de venitiani. Augustino Barbadico Serenissimo Principe di quello. Frater Lucas de Burgo sancti Sepulchri Ordinis minorum. Et sacre theologie humilis professor: suo paruo ingenio ignaris compatiens hanc summam Arithmetice et Geometrie Proportionumque et proportionali*[*ta*]*tum edidit. Ac impressoribus assistens die noctuque proposse* [propositas] *manu propria castigauit.*

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Translation of the title information (first page) and of the end of the colophon
(Penndorf, B 1933, p. 58)

S: Cajori, Florian, Notes on Luca Pacioli's Summa. In: Archivio di Storia della scienza 5 (1924) 125–130
Geijsbeek, John: Ancient double-entry bookkeeping. Denver 1914

Textbook on arithmetic, geometry,
relationships between two positive integers and
sets of such relationships in ordered sets of at least three integers.

1494, 20th of November, in Venezia

And if the following main part on geometry was finished on November 10th,
this [preceding] *part was finished on the 20th day of the same month. 1494*

[…] *finished* […] *in the printing house of the intelligent*
man Paganino de Paganini da Brescia;
in the outstanding city of Venezia – with the privilege of
its excellent government that, in the next ten years,
no one else in this republic is allowed to reprint it [the *Summa*] *and, if*
somewhere else printed, to import it into this republic
on the penalty described in the mentioned privilege. In the year of grace
1494 on November 10th, under
the prosperous government of the doge of the Venetians, Augustino
Barbadico, the most serene sovereign of this republic, friar Lucas from
Borgo Sansepolcro,
of the Order of Friars Minor and humble professor
of the holy theology, with his small mind compassionate
with the ignorant, published this textbook on arithmetic, geometry,
relationships between two positive integers and sets of such relationships
in ordered sets of at least three positive integers,
and, assisting the printers day and night,
he corrected what was shown to him with his own hand.

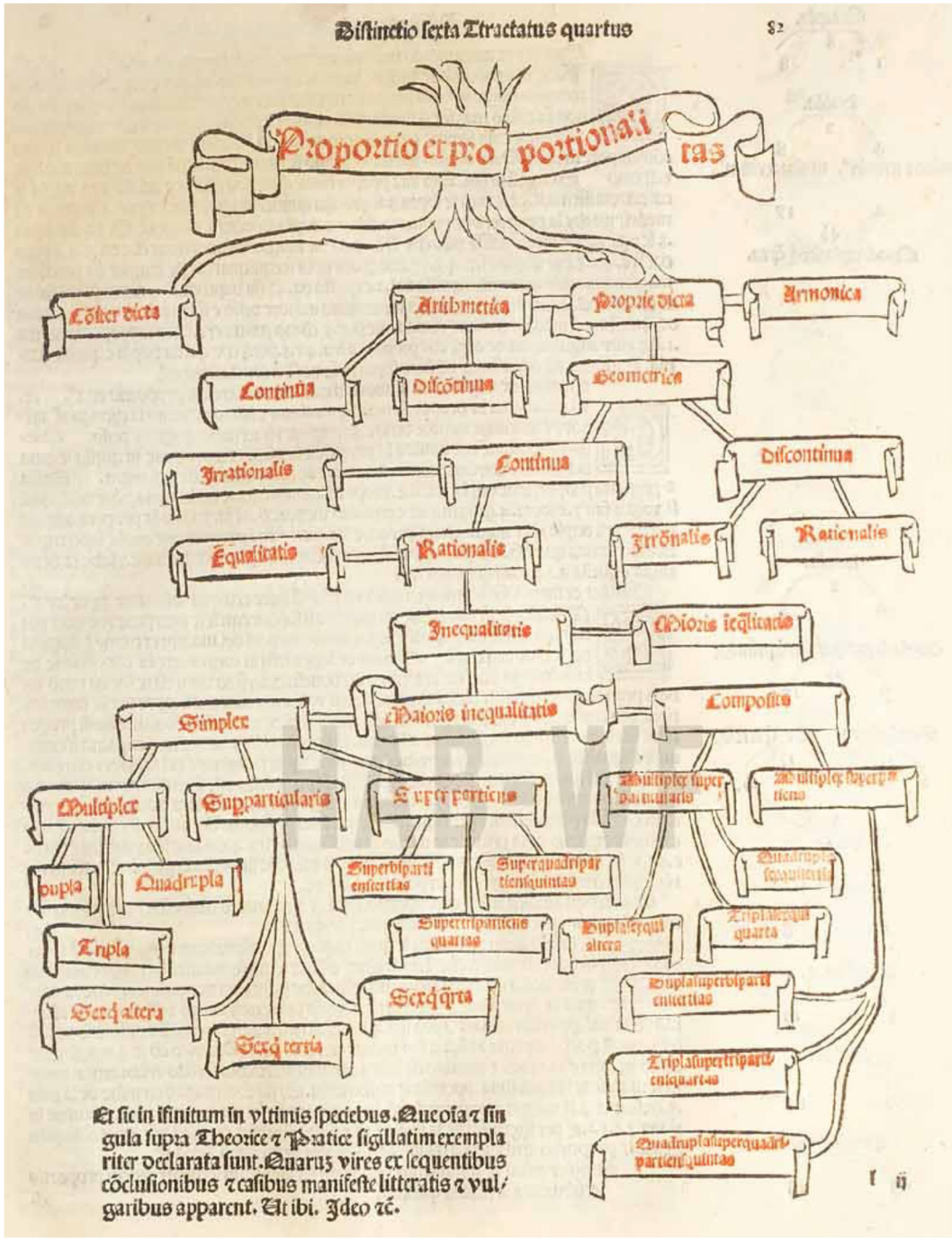
Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Comment on the title

proportioni between two positive integers (or the size of two geometric objects) comprise what we nowadays call proportions (incl. the Pythagorean ones of multiplex, superparticularis and superpartiens), but also "arithmetic proportions" (additive differences!), e.g. 3 in the case of 4 and 7. *proportionalità* deal with sets of *proportioni* (relationships) regarding pairs of positive integers in ordered sets of at least three positive integers.
Readable explanations: 72^{v}–73^{r}
Taxonomic tree: 82^{r} (page on the right ►)



Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Content overview

(according to the table of contents (pdf 14–20), partly in combination with the title page and the summaries of the five main parts (pdf 12–13))

Content overview (*continentia de tutta l opera*) (1^{r}, pdf 5)
Dedication to *Magnifico Patritio veneto Bergomi pretore designato Marco Sanuto* (Latin, 1^{v}, pdf 6)
Pompilii epigramma ad lectorem (Latin, 1^{v}, pdf 6)
Georgii Summarippa Veronensis epigramma ad lectorem (Italian, 1^{v}, pdf 6)
Dedication/epistle to Guidobaldo I da Montefeltro, Duke of Urbino (1472–1508)
(Italian 2^{r}–3^{r}, pdf 7–9, Latin 3^{r}–4^{r}, pdf 9–11)
Summaries (4^{v}–5^{r}, pdf 12–13)
Table of contents (*tauola*) (5^{v}–8^{v}, pdf 14–20)
Brief dedication to Guidobaldo (Latin, ai^{r}, pdf 21)
(cf. Neuer Anzeiger für Bibliographie und Bibliothekwissenschaft, 46. Jahrgang 1885, Heft 1, p. 205 (Internet Archive, Google)).

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Content overview

(according to the table of contents (pdf 14–20), partly in combination with the title page and the summaries of the five main parts (pdf 12–13))

The *Summa* uses three structure levels for the main parts (*parti principali*) 1–4: *distinctioni*, *tractate* and *articoli* [the latter not mentioned in this content overview]. Main part 5 (extra pagination) is considered an independent treatise (*trattato*) structured in *distinctioni* and *capitoli* (pdf 13).

1 Numbers and operations on numbers

1.1 Number types incl. perfect numbers, *numeri congrui* etc.

(1.2) 1.2.1–1.2.4 Species for integers (*sani*): Numeration, add (*sumare*), subtract (*sotrare*), multiplicare, divide (*partire*) with all the checks (*prove*) (by 9, by 7)

1.2.5 Arithm., geom. progressions (plus various topics)

1.2.6 Extraction of square and cube roots (*radici*)

(1.3) 1.3.1 Fractions (*rotti*)

1.3.2 Species for fractions

(1.4) 1.4.1 Discussions about fractions

1.4.2 Applications of fractions

(1.5) 1.5.1 Regula de tri (*regola mercantesca*); profits (*guadagni*), losses (*perdite*), transports, investments (*investite*); abbreviations (67^{rv}); autobiographic remarks (67^{v})

1.6 Relations (*proportioni*) and sets of such relations (*proportionalità*) (Euclid, *Elements*, Book V)

1.6.1 *Proportioni*

1.6.2 *Proportionalità*: six types

1.6.3 Designation and comparison of *proportioni*

1.6.4 Four species for *proportioni*

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Content overview

(according to the table of contents (pdf 14–20), partly in combination with the title page and the summaries of the five main parts (pdf 12–13))

Cantor, Moritz (Geschichte der Mathematik II, 1900) states that the contents of the five main parts is not clearly structured (p. 309).

1.6.5 Conclusions
1.6.6 Particularities (*maraveglie*)
(1.7) 1.7.1 Regula falsi (*de catayn, positione*; 3 special rules)
1.7.2 Geometric demonstration
(1.8) 1.8.1 Rules of algebra (*de la cosa*)
1.8.2 Four species for roots
1.8.3 Six Euclidean binomials (*Elementa*, Book X)
1.8.4 Multiplication of powers of the unknown
1.8.5 *cosa* [x], *census* [x^2], *numerus* [*const*]; equation types
1.8.6 Remarks

2 Application to commerce affairs (150^r)
2.9.1 Regula societatis (*compagnie*)
2.9.2 Tending cattle (*soccida de bestiami*), rent (*fitto*), rent (*pescione* [pigione]), wages (*cottimo*), lease (*livello*), hiring out (*logagione* [locazione]), usufruct (*godimento*)
2.9.3 Barters (*baratti*): simple, compound and with time
2.9.4 Currency exchange (*cambio*)
2.9.5 Simple and compound interest (*merito*), surplus (*resto, avanço*), balance (*saldo*), discount (*sconto*)

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Content overview

(according to the table of contents (pdf 14–20), partly in combination with the title page and the summaries of the five main parts (pdf 12–13))

2.9.6 Gold and silver (*oro, argento*), alloys
2.9.7 Business trips (*viaggi*): nesting
2.9.8 Two persons (*doi homini*): give and take, joint purchase, found purse
2.9.9 Three persons (*tre homini*): the same categories
2.9.10 Various nice cases (*casi belli*)

3 Accounting (197^{v})
3.9.11 Keeping accounts (*conti*), documents (*scripture*) and the account-book (*quaderno*) in Venetia (*vinegia*)

4 Weights, measures, currencies (210^{v}) [until 224^{v}; the main parts 1–4 finished on 1494-11-20 (224^{v}, pdf 468)]
4.9.12 Comparison tables (*tariffa*) for all usual commerce affairs (*usançe e costumi mercanteschi*)

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Content overview

(according to the table of contents (pdf 14–20), partly in combination with the title page and the summaries of the five main parts (pdf 12–13))

5 Practice and theory of geometry
(new pagination, 1^{r}–75^{v}, pdf 469–618,
this main part 5 finished on 1494-11-10 (224^{v}, pdf 468)):
overview (1^{r}, pdf 469), table of contents (75^{rv}, pdf 617–618))

5.1 (capitoli 1–8, 1^{r}): Methods and instruments (incl. *strumento fiorentino*, 6^{v}, pdf 480) for land surveyors (*agrimensor*), reference to Euclid, Books I, II, VI

5.2 (capitoli 1–2, 12^{v}): Lenghts of line segments in triangles

5.3 (capitoli 1–6, 15^{r}): Areas (*area* (*superficiale*)) of various types of quadrilaterals, incl. rectangle (*parallel*), rhombus (*rombo*, Euclid/Arabic *helmuaym*), parallelogram (*romboide*, Euclid/Arabic *helmuaym*), isosceles trapezoid (*capotagliato*, Euclid/Arabic *helmuariphe*), right-angled trapezoid (*mezzo capotagliato*, Euclid/Arabic *helmuariphe*), scalene trapezoid (*capotagliato declinante*), and of polygons

5.4 (capitoli 1–3, 26^{r}): Areas (of parts) of circles (incl. sectors), lengths of line segments (incl. arc (*arco*), chord (*corda*)) (of parts) of circles, reference to Euclid, Book III

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

Content overview

(according to the table of contents (pdf 14–20), partly in combination with the title page and the summaries of the five main parts (pdf 12–13))

5.5 (capitoli 1–4, 35^{v}): Dividing plane figures into any number of parts

5.6 (capitoli 1–4, 43^{v}): Volumes (*area corporale*, *capacità corporale*) of various solids (*corpo*), reference to Euclid, Book XI, incl. cube, rectangular prism (*solido*), trigonal prism (*serratile*, 44^{v}, pdf 556, from Latin *serrare* 'to saw'), cylinder (*colonna tonda*), right prism (*colonna laterata*), pyramids (*pyramide sana* (*tonda*, *laterata*)), frustum (*pyramide scapezza*); surface of the sphere

5.7 (capitoli 1–2, 50^{r}): Measuring instruments and methods for land surveyors

5.8 (capitoli 1–4, 52^{v}): 100 (numbered) particular cases, the five Platonic solids (*corpi regulari*), 57 (numbered) particular cases, surface of a sphere is four times the area of the maximal circle, measuring barrels (*botte*)

Italian 5

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalita

Venezia: Paganini 1494-11-10/20

(Neapel, Museo Nazionale Pinacoteca)

Summa de
Arithmetica geo
metria. Proportioni: et proportionalita:
Nouamente impressa In Toscolano su la riua del Benacense et
unico carpionista Lago: Amenissimo Sito: de li antique et
euidenti ruine di la nobil cita Benaco ditta illustra-
to: Cum numerosita de Impatorij epithaphij
di antique et perfette littere sculpiti de-
tato: et cus finissimi et mirabil co-
lone marmoree: frumeri
fragmenti di alaba-
stro porphidi et serpentini. Cose certo
lector mio dilecto oculata fi-
de miratu digne sot,
terra se ritro
uano.

Continentia de tutta lopera:

De numeri e misure in tutti modi occurrenti.
Proportioni e ꝓportionalita a notitia del 5° de Euclide: e de tutti li altri soi libri.
Chiaui: ouero euidētie numero. 13. per le quantita continue ꝓportionali del 6° e 7° de Euclide extratte.
Tutte le parti de lalgorismo: cioe reduna re partire: multiplicare: sumare: e sotrare: con tutte lue ꝓue in fani e rotti e radici e progressioni.
De la regola mercantesca ditta del. 3. e soi fondamēti cō casi exēplari p c° m° f. G. guadagni: perdite: transportationi: e inuestite.
Partire: multiplicar: sumar: e sotrar de le ꝓportioni: e de tutte sorti radici.
De le tre regole del Catayn ditta positione: e sua origine.
Euidentia generali: ouer conclusioni numero. 66. absoluere ogni caso che per regole ordinarie non si podesse.
Tutte sorte binomij e recisi: e altre linee irrationali del decimo de Euclide.
Tutte regole de Algebra ditte de la cosa e loz fabriche e fondamenti.
Cōpagnie in tutti modi: e loz partire.
Socide de bestiami: e loz partire.
Fitti. pescioni: cottimi: liuelli: logagioni: e godimenti.
Baratti in tutti modi semplici: compositi: e col tempo.
Cambi real: secchi: fittitij: e diminuti: ouer communi. (termini
Meriti semplici e a capo danno: e altri
Resti: saldi: sconti: de tēpo e denaris e de recare a vn di piu partite.
Quargenti: elozo affinare: e caratare.
Molti casi e ragioni straordinarie: varie e diuerse a tutte occurrētie: cōmo nella sequente tauola appare ordinatamente de tutte.
Ordine a saper tener ogni cōto: e scriptura: e del quaderno in uiuegia.
Tariffa de tutte uiande e costumi mercanteschi in tutto el mondo.
Pratica e theorica de geometria: e de li cinq corpi regulari: e altri dependenti
E molte altre cose de grandissimi piaceri: e frutto: commo diffusamente per la sequente tauola appare.

2nd edition Toscolano (Lago di Garda): Paganino de Paganini 1523

Italian 6

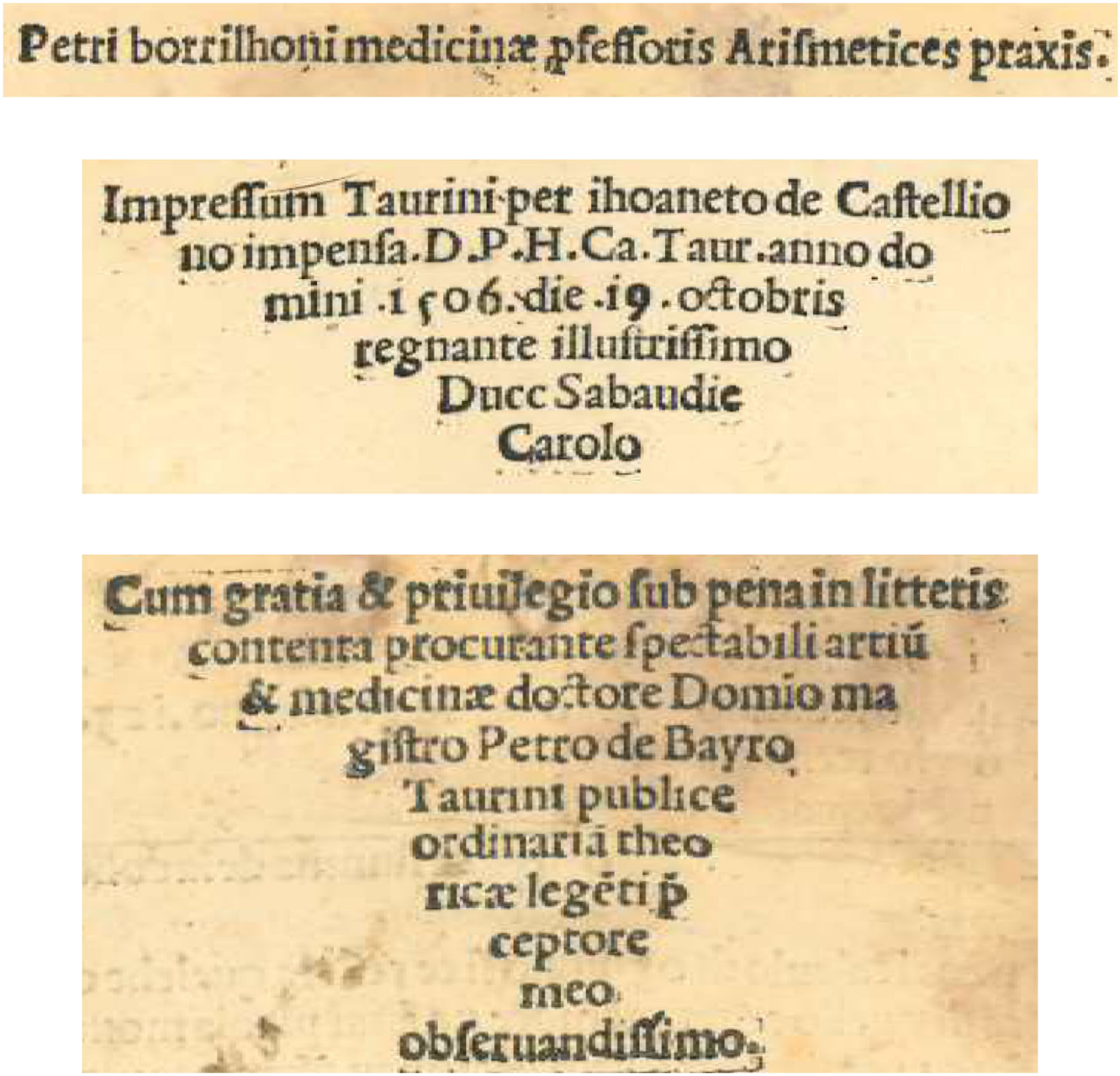
Borriglione/Boriglioni Pietro

Professor of medicine

Arismetices praxis
Torino: Giovannetto de Castelliono 1506-10-19

44 p.
C: Egmond p. 298
L: Torino B Reale, G.25.27

2nd edition
Torino: Pietro Paulo de Porri, 1523-06-06
L: Torino B Naz U (Am14597)


Petri borrilhoni medicinæ pfessoris Arismetices praxis.

Impressum Taurini per ihoaneto de Castellio
no impensa. D.P.H.Ca.Taur. anno do
mini .1506. die .19. octobris
regnante illustrissimo
Duce Sabaudie
Carolo

Cum gratia & priuilegio sub pena in litteris
contenta procurante spectabili artiú
& medicinæ doctore Domio ma
gistro Petro de Bayro
Taurini publice
ordinariã theo
ricæ legẽti p
ceptore
meo
obseruandissimo.

Italian 6

Borriglione/Boriglioni Pietro

Arismetices praxis
Torino: Giovannetto de
Castelliono 1506-10-19

Transcription of the title line,
of the colophon
and of the privilege (last page)

Petri borrilhoni medicinae professoris Arismetices praxis

Impressum Taurini per ihoaneto de Castellio-
no impensa .D.P.<H>[N].*Ca.Taur. anno do-*
[Domini Petri Nitardi Canonici Taurinensis]
mini .1506. die .19. octobris
regnante illustrissimo
Duce Sabaudie
Carolo

Cum gratia & privilegio sub pena in litteris
contenta procurante spectabili artium
et medicinae doctore Domino
magistro Petro de Bayro
Taurini publice
ordinaria theo-
ricae legenti prae-
ceptore
meo
observandissimo

Italian 6

Borriglione/Boriglioni Pietro

Arismetices praxis
Torino: Giovannetto de Castelliono 1506-10-19

Translation of the title line,
of the colophon
and of the privilege (last page)

Charles III of Savoy, Charles the Good (Chazey-sur-Ain 1486–1553 Vercelli, reigned 1504–1553)
Pietro Bairo (Bairo (near Ivrea) 1468–1558 Torino), Italian physician (Italian Wikipedia)

Practice of arithmetic by Petrus Boriglione,
professor of medicine

Printed in Torino by Giovannetto de Castelliono
at the expense of Petrus Nitardus, canon in Torino,
A.D. 1506 on the 10th day of October
under the reign of the illustrious
duke of Savoy
Charles III

With grace and privilege on the penalty contained/described in the text [of the privilege] *under the direction of the illustrious doctor of arts and medicine, the gentleman*
master Petrus de Bairo,
who in Torino publicly
gives lectures
on the basics of philosophical speculation,
my
highly esteemed
teacher

Italian 6

Borriglione/Boriglioni Pietro

Arismetices praxis
Torino: Giovannetto de Castelliono 1506-10-19

Content overview

Latin verses to the buyer (*emptori*)
by some Petrus Nitardus from Nice, canon in Torino,
(*Petrus Nitardus Nicaeus Taurinensis Canonicus*)
to encourage the purchase of the book

Dedication to (the very reverend) Petrus Nitardus (*V*[*estrae*] *D*[*ominationi*] *Petro Nitardo Canonico Taurinensi*) S.D.P. [*salutem dicit plurimam*], dated 1506-10-04 (*quarto nonas octobres 1506*)

Title line

Numeration
Four species (*quatro regule generale*) for the pen
Conversion of units of currency (*specie di moneta*) (Ci^{v})
Conversion of units of weight (*specie di peso*) (Cii^{r})
Measures and prices (Ciii^{v})
Regula de tri (*regula dil 3*) (Civ^{v})
Regula societatis (*compagnia*) (Cvi^{r})

Italian 7

Juan de Ortega

Biographic data see Spanish 2

Summa de arithmetica, geometria pratica
Roma: Stephano Guilleri de Lorena 1515-11-10
Italian adaptation of Spanish 2
Arte de la arismetica, Lyon 1512
2nd Italian edition Messina 1522

232 p.
C: Hoock I/O6.2, 4; Edit16 CNCE 47162
Egmond p. 323–324
D: beic.it
L: Paris BNF
S: see Spanish 2

SVMA
De Arithmetica: Geometria
Pratica vtilissima: ordina
ta per Iohane de Or
tega Spagnolo
Valentino.

Cum Priuilegio

Impresso in Roma per Maestro Stephano Guilleri de Lorena anno del nostro Signore 1515 adi 10 de Nouebre Regnante Leone Papa decimo in suo Anno tertio.

Italian 7

Juan de Ortega

Summa de arithmetica, geometria pratica
Roma: Stephano Guilleri 1515

Transcription of the title page and of the colophon

fol. 97^{v}: *la geometria practica è necessaria & molto vtile*

SVMA
De Arithmetica: Geometria
Pratica vtilissima: ordina-
ta per Johane de Or-
tega Spagnolo
Palentino.

Cum Priuilegio

Impresso in Roma per Mastro Stephano Guilleri de Lorena anno del nostro Signore 1515 adi 10 de Nouembre Regnante Leone Papa decimo in suo Anno tertio.

Italian 7

Juan de Ortega

Summa de arithmetica, geometria pratica
Roma: Stephano Guilleri 1515

Translation of the title page and of the colophon

Pope Leo X, Giovanni di Lorenzo de' Medici (1475–1521), reigned 1513–1521

Textbook
of arithmetic and
practical geometry,
which is very useful,
arranged by Juan de Ortega,
Spaniard from Palencia

With privilege

Printed in Rome by Master Stephano Guilleri from Lorraine in the year of our lord 1515 on the 10 day of November, under the reign of pope Leo X in his third year.

Italian 7

Juan de Ortega

Summa de arithmetica, geometria pratica
Roma: Stephano Guilleri 1515

Content overview
(table of contents)

TABVLA

Tabula de li capituli che ſe conteneno inqueſto libro. 5
Sumare per integro a foglie 5
La proua del ſumare a foglie 9
Subtrahere per integro a foglie 10
La proua de ſubtrahere a foglie 15
La tabula del multiplicare a foglie 17
Multiplicare per integro a foglie 17
Partire per integro a foglie 21
La proua de multiplicare & partire a foglie 25
Como ſe a de diminuire ogni numero a foglie 28
Regula generale per ſapere che vale ogni rocto a fogie 29
Summare del rocto a foglie 30
Subtrahere del rocto a foglie 33
Multiplicare del rocto a foglie 36
Partire del rocto a foglie 39
La proua de lo multiplicare & partire de rocto a foglie 41
Reductione de moneta a foglie 42
Regule de fodrare a foglie 44
Regule de tre per integro a foglie 46
Regule de tre per rocto a foglie 48
Regula generale de tre per rocto a foglie 51
Regule de centenare a foglie 51
Regule de tara a foglie 53
Regule de cambio a foglie 54
Regule de lucro ſimplice & doppio a foglie 55
Regule de quatro parte a foglie 59
Regule de cinque parte a foglie 61
Regule de compagnie ſenza tempo a foglie 69
Regule de compagnie con tempo a foglie 73
Regule de baracto a foglie 79
Regule de la fineza de lo argento & auro a foglie 80
Regule de viagi a foglie 93
Regule de radice quadrata diſcreta o indiſcreta a foglie 97
Regule de geometria e a foglie 100

Italian 7

Juan de Ortega

Summa de arithmetica, geometria pratica
Roma: Stephano Guilleri 1515

Content overview
(according to the table of contents)

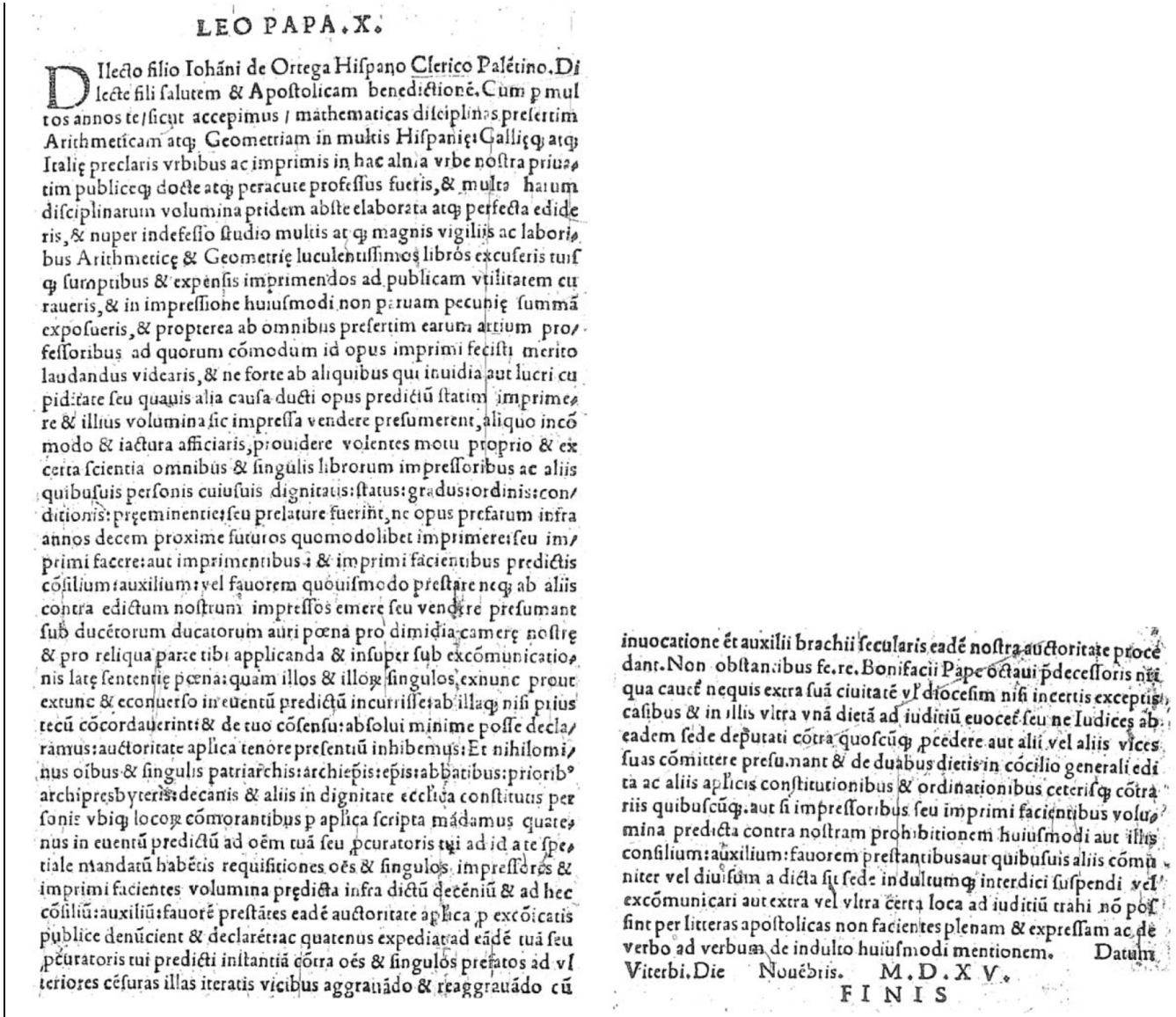
Dedication to Augustino Ghisi
Addition (*sumare*) of integers (*integro*)
Check (*prova*) of addition (by nine/seven)
Subtraction (*subtrahere*) of integers
Check of subtraction
Multiplication table
Multiplication of integers
Division (*partire*) of integers
Check of multiplication and division
Reduction of fractions (*diminutione*)
Comparison of fractions (*rocto*)
Addition of fractions
Subtraction of fractions
Multiplication of fractions
Division of fractions
Check of multiplication and division of fractions
Conversions within one currency system (*reductione de moneta*)
Textile and lining (*inforro*, *foderare*) with the same area
Regula de tri for integers
Regula de tri for fractions
General regula de tri for fractions
Percentage (*regule de centenare*)
Rules of tare (*tara*)
Currency exchange (*cambio*)
Simple and compound interest (*lucro semplice e doppio*)
Regula de tri plus a constant (*regule de quatro parte*),
  partly regula de tri inversa
Regula quinque (*regule de cinque parte*)
Regula societatis simplex (*compagnie senza tempo*)
Regula societatis temporum (*compagnie con tempo*)
Barters (*regule de baracto*)
Silver and gold (*fineza de lo argento e auro*)
Business trips (*regule de viagi*): nesting
Square root of a square number (*radice quadrata discreta*),
  square root of a non-square number (*radice quadrata indiscreta*)
Geometry (100^{r}–114^{v})

Italian 7

Juan de Ortega

Summa de arithmetica, geometria pratica
Roma: Stephano Guilleri 1515

Privilege
by Pope Leo X (= Giovanni di Lorenzo de' Medici, 1475–1521, reigned 1513–1521)



LEO PAPA. X.

Dilecto filio Iohāni de Ortega Hiſpano Clerico Palētino. Di lecte fili ſalutem & Apoſtolicam benedictionē. Cum p mul tos annos te ſicut accepimus / mathematicas diſciplinas preſertim Arithmeticam atq; Geometriam in multis Hiſpanie Gallieq; atq; Italie preclaris vrbibus ac imprimis in hac alma vrbe noſtra priua tim publiceq; docte atq; peracute profeſſus fueris, & multa harum diſciplinarum volumina pridem abſte elaborata atq; perfecta edide ris, & nuper indefeſſo ſtudio multis at q; magnis vigiliis ac labori bus Arithmeticę & Geometrię luculentiſſimos libros excuſeris tuiſ q; ſumptibus & expenſis imprimendos ad publicam vtilitatem cu raueris, & in impreſſione huiuſmodi non paruam pecunię ſummā expoſueris, & propterea ab omnibus preſertim earum artium pro feſſoribus ad quorum cōmodum id opus imprimi feciſti merito laudandus videaris, & ne forte ab aliquibus qui inuidia aut lucri cu piditate ſeu quauis alia cauſa ducti opus predictū ſtatim imprime re & illius volumina ſic impreſſa vendere preſumerent, aliquo incō modo & iactura afficiaris, prouidere volentes motu proprio & ex certa ſcientia omnibus & ſingulis librorum impreſſoribus ac aliis quibuſuis perſonis cuiuſuis dignitatis: ſtatus: gradus: ordinis: con ditionis: preeminentie: ſeu prelature fuerint, ne opus prefatum infra annos decem proxime futuros quomodolibet imprimere: ſeu im primi facere: aut imprimentibus: & imprimi facientibus predictis cōſilium: auxilium: vel fauorem quouiſmodo preſtare neq; ab aliis contra edictum noſtrum impreſſos emere ſeu vendere preſumant ſub ducētorum ducatorum auri pœna pro dimidia camere noſtre & pro reliqua parte tibi applicanda & inſuper ſub excōmunicatio nis late ſententie pœna: quam illos & illorū ſingulos exnunc prout extunc & econuerſo in euentū predictū incurriſſe: ab illaq; niſi prius tecū cōcordauerint & de tuo cōſenſu: abſolui minime poſſe decla ramus: auctoritate aplica tenore preſentiū inhibemus: Et nihilomi nus oībus & ſingulis patriarchis: archiepis: epis: abbatibus: priorib° archipresbyteris: decanis & aliis in dignitate eccliā conſtitutis per ſonis vbiq; locorū cōmorantibus p aplica ſcripta mādamus quate nus in euentū predictū ad oēm tuā ſeu p̄curatoris tui ad id ate ſpe tiale mandatū habētis requiſitiones oēs & ſingulos impreſſores & imprimi facientes volumina p̄dicta infra dictū decēniū & ad hec cōſiliū: auxiliū: fauorē preſtātes eadē auctoritate aplica p excōicatis publice denūcient & declarēt: ac quatenus expediat ad eādē tuā ſeu p̄curatoris tui predicti inſtantiā cōtra oēs & ſingulos prefatos ad vl teriores cēſuras illas iteratis vicibus aggrauādo & reaggrauādo cū inuocatione ēt auxilii brachii ſecularis eadē noſtra auctoritate procē dant. Non obſtantibus fe. re. Bonifacii Pape octaui p̄deceſſoris nīi qua caueē nequis extra ſuā ciuitatē vl̄ diocesim niſi incertis exceptis casibus & in illis vltra vnā dietā ad iuditiū euocet ſeu ne Iudices ab eadem ſede deputati cōtra quoſcūq; p̄cedere aut alii vel aliis vices ſuas cōmittere preſumant & de duabus dietis in cōcilio generali edi ta ac aliis aplicis conſtitutionibus & ordinationibus ceteriſq; cōtra riis quibuſcūq; aut ſi impreſſoribus ſeu imprimi facientibus volu mina predicta contra noſtram prohibitionem huiuſmodi aut illis conſilium: auxilium: fauorem preſtantibus aut quibuſuis aliis cōmū niter vel diuiſim a dicta ſit ſede indultum q; interdici ſuſpendi vel excōmunicari aut extra vel vltra certa loca ad iuditiū trahi nō poſ ſint per litteras apoſtolicas non facientes plenam & expreſſam ac de verbo ad verbum de indulto huiuſmodi mentionem. Datum Viterbi. Die Nouēbris. M. D. X V.

FINIS

Italian 8

Girolamo Tagliente

b. ca. 1490 Venezia
(*mia verde e iuuenil etade* (preface))
Citizen of Venezia (preface)
He was instructed by his relative (uncle?) Giovanni Antonio Tagliente (*consanguineo & preceptore* (preface); ca. 1460 – ca. 1528 (CERL cnp01329244; Treccani Diz Biogr))

Libro d'abaco

Venezia Feb. 1515

2nd edition: Venezia Sep. 1520

158 p.
C: Hoock I/T2.1 (1515) – T2.31 (1586)
Edit16 CNCE 67544, 64644
Egmond p. 334–345
D: [1520] museogalileo.it;
[s. a.] catalog.lindahall.org
L: [1515] Venezia Fondazione Giorgio Cini; [1520] Firenze BN Centrale

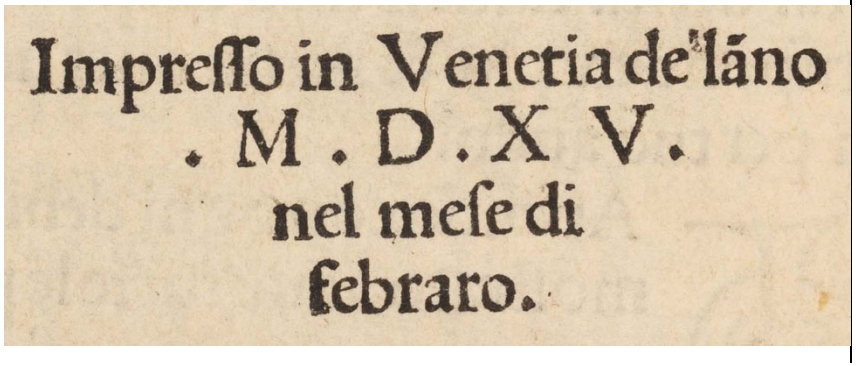
Italian 8

Girolamo Tagliente

Libro d'abaco
Venezia 1515

Transcription of the title page and of the colophon

S: Swetz, Frank J. In: Convergence 2018 maa.org/press/periodicals/convergence
Petrella, Giancarlo. In: «Charta» 2007, 94, 26–31


Impreſſo in Venetia de'lāno
. M . D . X V .
nel meſe di
febraro.

LIBRO
de abaco che insegnia a fare ogni raxone mar-cadantile & a pertegare le terre con l arte di la giometria & altre nobilissime raxone straordi-narie con la tarifa come raspondeno li pexi & monete de molte terre del mondo con la incli-ta citta de Venetia. El qual Libro se chiama Texauro vniuersale. Concesso per lo Serenissi-mo Dominio Venetiano per anni diexe.

cum gratia

restampata nouamente del 1520. Et agiontoli altre bellissime & vtile ragione fabricate per lo autor de la presente opra.

Impresso in Venetia de l ano
.M.D.X V.
nel mese di
febraro.

Italian 8

Girolamo Tagliente

Libro d'abaco
Venezia 1515

Translation of the title page and of the colophon

Book
of arithmetic that teaches to handle every commerce calculation and to mesure [*pertica* 'bar', 'rod' (unit of length)] *the lands with the art of geometry and other excellent extraordinary rules with the table how the weights and currencies of many countries of the world correspond to* [those of] *the outstanding city of Venezia. This book is called universal treasure. Approved by the most serene government of Venezia for ten years.*

With privilege

Reprinted in 1520. And added to it other wonderful and useful rules invented by the author of the present work.

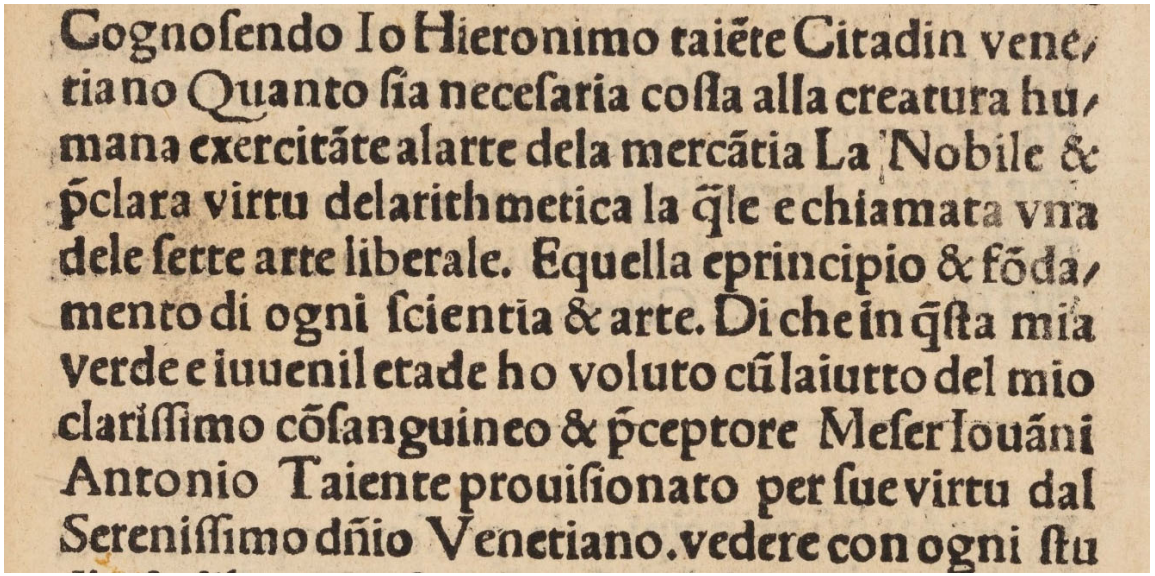
Printed in Venezia in the year 1515 in the month of February.

Italian 8

Girolamo Tagliente

Libro d'abaco
Venezia 1515

Transcription and translation of the beginning of the preface with the names of author and co-author


Cognoſendo Io Hieronimo taiẽte Citadin vene/
tiano Quanto ſia neceſaria coſſa alla creatura hu/
mana exercitãte alarte dela mercãtia La Nobile &
p̃clara virtu delarithmetica la q̃le e chiamata vna
dele ſette arte liberale. Equella eprincipio & fõda/
mento di ogni ſcientia & arte. Di che in q̃ſta mia
verde e iuuenil etade ho voluto cũ laiutto del mio
clariſſimo cõſanguineo & p̃ceptore Meſer Iouãni
Antonio Taiente prouiſionato per ſue virtu dal
Sereniſſimo dñio Venetiano. vedere con ogni ſtu

Cognoscendo Io Hieronimo taiente Citadin vene-
tiano, Quanto sia necessaria cossa […]
Di che [sc. *arithmetica*] *in questa mia*
verde e iuuenil etade ho voluto cum l aiutto del mio
clarissimo consanguineo & preceptore Meser Iouanni
Antonio Taiente prouisionato per sue virtu dal
Serenissimo dominio Venetiano, vedere […]

As I, Girolamo Tagliente, Venetian citizen,
know, how much is a necessary thing […]
About arithmetic, I – in my "green" and juvenile age – wanted to see
with the help of my highly renowned relative and teacher,
Monsieur Giovanni Antonio Tagliente, who is remunerated
for his qualifications by the most serene government of Venezia, [...]

Italian 8

Girolamo Tagliente

Libro d'abaco
Venezia 1515

Content overview
(according to pdf 12, pdf 158 and the text)

Nr. 56: Description of the practice of the Venetian *officio de la messetaria*, in other cities called *officio di la gabella*

Preface
1 Arithmetic
1.1 Numeration (incl. finger numbers)
1.2 Multiplication, multipl. table, check by seven (*proua del sette*)
1.3 Division (*diuisione o partire*)
1.4 Addition (*sumare o ricogliere*)
1.5 Subtraction (*sotrare o tragere*)
2 Various rules (*ragioni*) and affairs (*occurrentie*):
Nr. 36 Regula de tri
Nr. 42 Currency conversions
Nr. 50 Venetian currency (*monede di Venezia*)
Nr. 54 Tare (*abater di tara*)
Nr. 56 Tax, toll (*abater messetaria o gabella*) –
Nr. 78 Gold and silver
Nr. 81 Alloys
Nr. 88 Tret (*fusti*)
Nr. 90 Check of the regula de tri
Nr. 91 Percentage
Nr. 93 Regula societatis simplex (*compagnia*)
Nr. 96 Regula societatis temporum
Nr. 100 Testament, son daughter twins: twin inheritance
Nr. 101 Barters (*barati*)
Nr. 104 Loan and interest
Nr. 105 Ship with oars (*remi*): Regula de tri inversa

Italian 8

Girolamo Tagliente

Libro d'abaco
Venezia 1515

Content overview
(according to pdf 12, pdf 158 and the text)

Nr. 106 Loaf of penny (*pan al soldo*): Sales, regula de tri inversa
Nr. 108 Tree (*alboro*): find length
Nr. 110 Digging a well (*cavar uno pozo*): work, arithmetic progr.
Nr. 111 Couriers (*curieri*): encounter
Nr. 112 Debts with different due dates
Nr. 113 Strokes of a clock (*botte di una campana*) per day: arithmetic progression
Nr. 114 Motion in the same direction with constant vs increasing distances per day: pursuit
Nr. 115 Three women and eggs (*houe*): equal proceeds
Nr. 116 Woman and broken eggs: remainder
Nr. 117 Ship (*naue*) with two sails (*velle*): shared work
Nr. 118 Ships: encounter
Nr. 119 Vessel with two fountains (*botte a doi canelle*): shared w.
Nr. 120 Fish in parts (*pesce*): find weight
Nr. 121 Cat (*gatta*) and mouse (*sorze*) on a tree: motion to and fro
Nr. 122 Dog and roebuck (*cane e cauriolo*): pursuit
Nr. 123–137 Problems without solutions
Nr. 138–142 Guessing numbers (ring, money, pips on a die etc.)
2 Geometry (pdf 133)
3 Conversion tables (pdf 142)
4 Quantity-price tables (pdf 150)
5 The shape of various goods of good quality (pdf 158)

Italian 9

Piermaria Bonini

b. 1492 Firenze
d. 1527?
He perhaps took over the Calandri school
Author of *Acutissime observationes* 1520 [theory of music]

Lucidario d'arithmetica
Firenze: Gianstephano di Carlo da Pavia 1518-01-07

32 p.
C: Hoock I/B16.1
Egmond p. 292
D: Wolfenbüttel HAB
L: Columbia U
S: Ulivi, E: https://php.math.unifi.it/convegnostoria/materiali/ulivi.pdf

Piermaria Bonini almagnifico Philip
po di Philippo Strozi
Salute.

¶ Impreſſo nella excelſa cipta di Firenze per
Gianſtephano di Carlo da Pauia
adi 7 di Gennaio
1517.

Italian 9

Piermaria Bonini

Lucidario d'arithmetica
Firenze: Gianstephano di Carlo da Pavia 1518-01-07

Transcription of the title page, of the heading of the dedication and of the colophon

Lucidario d arithmetica.

[In the corners of the woodcut
the crescent moons of the House of Strozzi]

Piermaria Bonini al magnifico Philip-
po di Philippo Strozi
Salute.

Impresso nella excelsa cipta di Firenze per
Gianstephano di Carlo da Pauia
adi 7 di Gennaio
1517

Italian 9

Piermaria Bonini

Lucidario d'arithmetica
Firenze: Gianstephano di Carlo da Pavia 1518-01-07

Translation of the title page, of the heading of the dedication and of the colophon

Dedication to Philippo di Philippo Strozzi: Filippo nato Giovan Battista (1489–1538), father Filippo il Vecchio (1428–1491).

Elucidation [clarifying explanation] *of arithmetic*

[In the corners of the woodcut the crescent moons of the House of Strozzi]

Piermaria Bonini [wishes] *the great Philippo di Philippo Strozi*
[good] *health.*

Printed in the outstanding city of Firenze by Gianstephano da Pavia, son of Carlo da Pavia, on January 7,
1518

[According to the *Calculus Florentinus*, the year number did not change on the 1st of January, but on the 25th of March (Feast of the Annunciation). Therefore, 1517-01-07 in Florentine style is 1518-01-07 in standard style.]

Italian 9

Piermaria Bonini

Lucidario d'arithmetica
Firenze: Gianstephano di Carlo da Pavia 1518-01-07

Content overview
(according to the headings)

Privilege (pdf 10)
Dedication to Philippo di Philippo Strozzi:
Filippo nato Giovan Battista (1489–1538), father Filippo il Vecchio (1428–1491) (pdf 11)

1 Rules of commerce (*ragioni mercantili*) (pdf 12)
Currency conversions within Firenze (pdf 12)
Fee/tax (*retentione*, *paga*) (pdf 20)
Toll (*gabella in doana*) (pdf 21)
Currency conversions between Firenze and Roma (pdf 22)
Currency conversions between Firenze and Napoli (pdf 26)
Currency conversions between Firenze and Palermo (pdf 28)
Currency conversions between Firenze and Lyon (pdf 29)
Bills of exchange (*lettere di cambio*) (pdf 30)

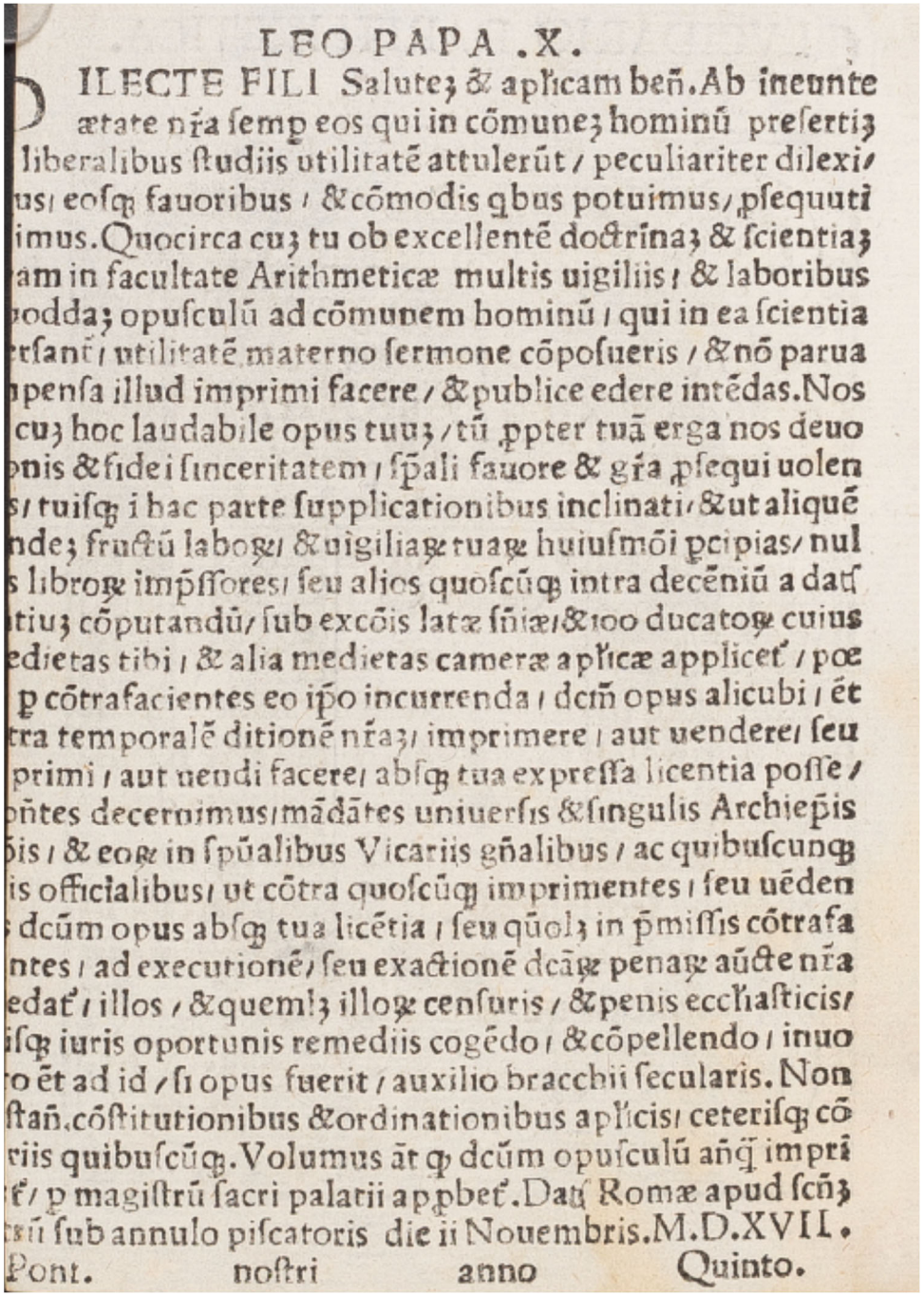
2 Rules of geometry (*speculationi geometriche*) (pdf 31)
Area (*quadratura*) of a triangle (pdf 31)
Height (*catecto*) from the side (*faccia*) in an equilateral triangle (*equilatero*) and vice versa (pdf 32)
Circumcircle radius of an equilateral triangle (pdf 34)
Volume of a pyramid; center of a circle from three points (pdf 35)
Area of a circle (*tondo*) $d^2\ \pi/4 = 11/14\ d^2$ (pdf 36)
Diameter from the circumference of a circle and vice versa (pdf 37)
Volume of a sphere $= 4/3\ r^3\ \pi = 4/3\ (d/2)^3\ \pi = 1/6\ d^3\ \pi = 11/21\ d^3$ (pdf 38)

Italian 9

Piermaria Bonini

Lucidario d'arithmetica
Firenze: Gianstephano di Carlo da Pavia 1518-01-07

Privilege
for ten years by pope Leo X (= Giovanni di Lorenzo de' Medici, 1475–1521, reigned 1513–1521) 1517-11-02



LEO PAPA .X.

DILECTE FILI Salutez & apl'icam beñ. Ab ineunte ætate nr̃a ſemp eos qui in cõmunez hominũ preſertiz liberalibus ſtudiis utilitatẽ attulerũt / peculiariter dilexi/ us/ eoſq; fauoribus / & cõmodis q̃bus potuimus/ pſequuti imus. Quocirca cuz tu ob excellentẽ doctrinaz & ſcientiaz am in facultate Arithmeticæ multis uigiliis / & laboribus odda; opuſculũ ad cõmunem hominũ / qui in ea ſcientia rſanť / utilitatẽ materno ſermone cõpoſueris / & nõ parua penſa illud imprimi facere / & publice edere intẽdas. Nos cuz hoc laudabile opus tuuz / tũ ꝓpter tuã erga nos deuo nis & fidei ſinceritatem / ſp̃ali fauore & gr̃a ꝓſequi uolen s/ tuiſq; i hac parte ſupplicationibus inclinati/ & ut aliquẽ ndez fructũ laborꝫ/ & uigiliaꝫ tuaꝫ huiuſmõi ꝓcipias/ nul s librorꝫ imp̃ſſores/ ſeu alios quoſcũq; intra decẽniũ a dať tiuz cõputandũ/ ſub excõis latæ ſñiæ/ & 100 ducatorꝫ cuius edictas tibi / & alia medietas cameræ apl'icæ applicet / pœ ꝑ cõtrafacientes eo ipſo incurrenda / dcm̃ opus alicubi / ét tra temporalẽ ditionẽ nr̃az/ imprimere / aut uendere/ ſeu primi / aut uendi facere/ abſq; tua expreſſa licentia poſſe / ñtes decernimus/ mãdãtes uniuerſis & ſingulis Archiep̃is ̃is / & eoꝫ in ſp̃ualibus Vicariis gñalibus / ac quibuſcunq; is officialibus/ ut cõtra quoſcũq; imprimentes / ſeu uẽden dcũm opus abſq; tua licẽtia / ſeu qũolz in p̃miſſis cõtrafa ntes / ad executionẽ/ ſeu exactionẽ dcãꝫ penaꝫ aũcte nr̃a edať / illos / & quemlz illoꝫ cenſuris / & penis eccl'iaſticis/ iſq; iuris oportunis remediis cogẽdo / & cõpellendo / inuo o ẽt ad id / ſi opus fuerit / auxilio bracchii ſecularis. Non ſtañ. cõſtitutionibus & ordinationibus apl'icis/ ceteriſq; cõ riis quibuſcũq;. Volumus ãt q; dcũm opuſculũ añq̃ impri ť / ꝑ magiſtrũ ſacri palatii ap̃bet. Dať Romæ apud ſcñz ñ ſub annulo piſcatoris die ii Nouembris. M.D.XVII. Pont. noſtri anno Quinto.

Italian 10

Francesco Feliciano De Scolari da Lazise

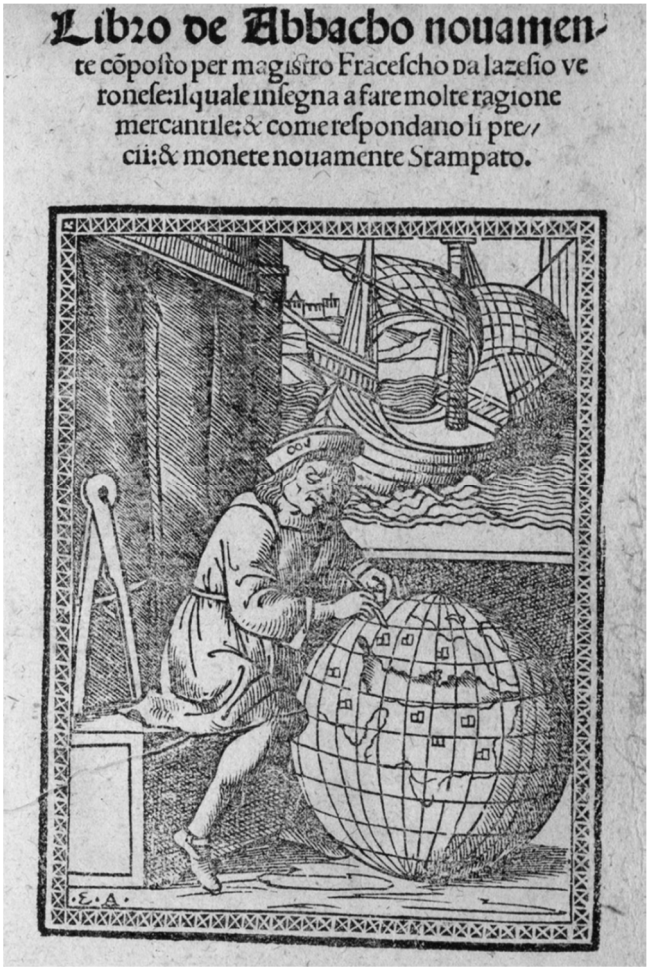
b. ca. 1470 Lazise (Lago di Garda)
d. 1542 Verona
Mathem., teacher of Niccolò Tartaglia
Libro di arithmetica e geometria 1527
[Italian Wikipedia; Treccani Diz. Biogr.]

Libro de Abaco

Venezia: Nicolo and Vincentio Zopino [1]1517-07-18

Venezia: Francesco Bindoni and Maffeo Pasini [2]1524-12

40 p.
C: Hoock I/F3
Egmond p. 309–315
D ([2]1524): Bibliothèques Virtuelles Humanistes bvh.univ-tours.fr
L: Cambridge U (CCD. 13. 17)


Libro de Abbacho nouamen-
te cõposto per magistro Fracescho da lazesio ve
ronese: il quale insegna a fare molte ragione
mercantile: & come respondano li pre-
cii: & monete nouamente Stampato.

¶ Franciscus Felicianus. q. Domini de Schola-
ribus de Lazesio Gardesane Arithmeticus ac
Geometricus composuit hunc Libellũ
Die decimo octauo Iulii. 1517.

¶ Stampato nella inclita citta di Vineggia
per Francesco Bindoni, & Mapheo Pa-
sini compagni, Nel anno. 1524.
Del mese di Decembre.

Italian 10

Francesco Feliciano De Scolari da Lazise

Libro de Abaco
Venezia: Zopino [1]1517-07-18
Venezia: Francesco Bindoni and Maffeo Pasini [2]1524-12

Transcription of the title page and of the colophon [2]1524

Libro de Abbacho novamente composto per magistro Francescho da lazesio veronese: il quale insegna a fare molte ragione mercantile: e come respondano li precii: e monete novamente Stampato.

Franciscus Felicianus .q. Domini de Scholaribus de Lazesio Gardesane Arithmeticus ac Geometricus composuit hunc Libellum Die decimo octavo Iulii .1517.

Stampato nella inclita citta di Vineggia per Francesco Bindoni, e Mapheo Pasini compagni, Nel anno .1524. Del mese di Decembre.

Italian 10

Francesco Feliciano De Scolari da Lazise

Libro de Abaco
Venezia: Zopino [1]1517-07-18
Venezia: Francesco Bindoni and Maffeo Pasini [2]1524-12

Translation of the title page and of the colophon [2]1524

Book of arithmetic recently composed by master Francesco da Lazise, province of Verona, that teaches to use many rules of commerce and how prices and currencies correspond; recently printed

Francesco Feliciano, son of the lord De Scolari from Lazise, Giudicaria Gardense, arithmetician and geometrician, composed this booklet on the 18th day of July 1517

Printed in the outstanding city of Venezia by Francesco Bindoni and Maffeo Pasini Co. in the year 1524 in the month of December

Italian 10

Francesco Feliciano De Scolari da Lazise

Libro de Abaco
Venezia: Zopino [1]1517-07-18
Venezia: Francesco Bindoni and Maffeo Pasini [2]1524-12

Content overview
(according to the text)

Later:
Francesco di Leonardo Galigai (1490-1528)
Summa de arithmetica. Firenze 1521

Numeration (pdf 10)
Multiplication table (pdf 11)
Price-quantity relations (pdf 19)
Interest (pdf 23)
Conversions of units of currency and quantity (pdf 23)
Earnings (*guadagnare*) in different periods (pdf 28)
Currency conversions (pdf 31)
Number guessing (pdf 32), ring (*anello*) (pdf 36)
Players (*zugatori*, that is *giocatori*) (pdf 38)
Moon age, epact (*pata*) (pdf 39)
Golden number, dominical letter (pdf 40)
Indiction number (*inditione delli nodari*)(pdf 41)
Number guessing (*borsa* 'purse') (pdf 42)
Sunday wheel with dominical letter and week day number (Monday 1) of New Year's Eve; calculation of Easter date (*Pascha*) (pdf 43)
Number guessing (pdf 45)
Area of a rectangle (pdf 46)
Square multiplication (*per modo de quadrato*):
$55555 \cdot 55555 = 3086358025$ (false orientation)
$934 \cdot 314 = 293276$ (correct orientation) (pdf 47)

Sardinian

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

Information: Sardinia in the Savoy period represented an example of an "underdeveloped" region in which mathematical knowledge was spread with great difficulty. The low level of scientific knowledge inherited from the Spanish domination, the geographical isolation of an island in the middle of the Mediterranean and at that time several days' navigation from the mainland, Savoy policies built on absolutism and not geared to the needs of the island, all contributed in creating this "underdeveloped" status of the region.

Reference: Scoth, Roberto (University Cagliari): Higher education, dissemination and spread of the mathematical sciences in Sardinia (1720–1848). In: Historia Mathematica 43 (2016) 172–193; p. 173 (https://doi.org/10.1016/j.hm.2015.11.001)

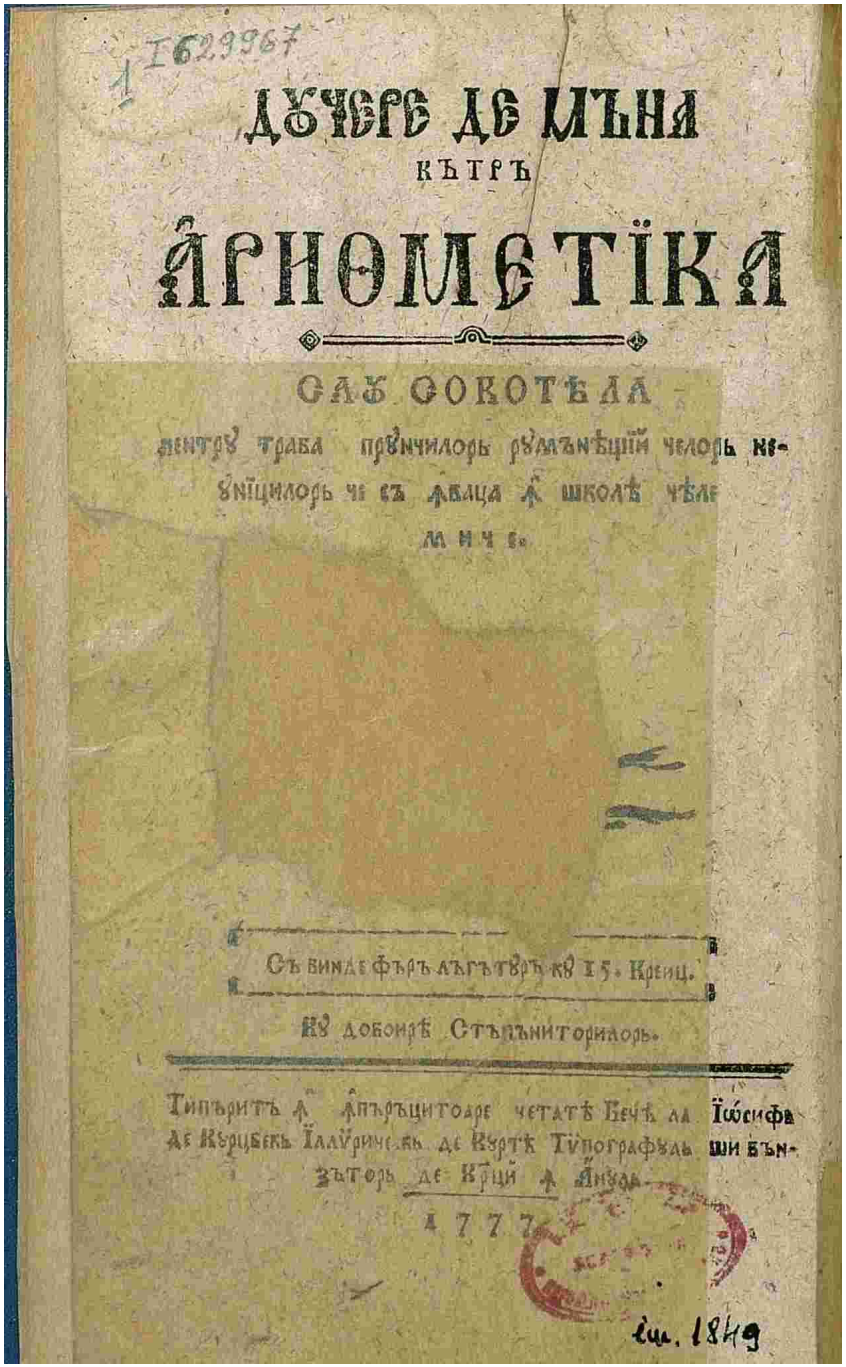
Romanian

Anonym

Ducere de mâna cătră
Arithmetica sau socoteala –
Anleitung zur Rechenkunst
Vienna: Joseph Kurzböck 1777
Vienna: Joseph Kurzböck 1782, 1785, 1788
Sibiu: Petru Bart 1789
Romanian German bilingual

151 p.
D/L/V: Biblioteca Academiei Române (Romanian Academy L) biblacad.ro
C: Bibliografia Românească Veche (1508–1830)
C/S/V: on separate page

Published three years after the introduction of compulsory schooling by empress Maria Theresia in 1774



Romanian

Anonym

Ducere de mâna cătră
Arithmetica
Vienna: Kurzböck 1777

Transcription
of the Romanian title page

Joseph Ritter von Kurzböck (1736–1792), court typographer in Vienna especially for Illyrian and Oriental scripts, university bookstore Vienna
(Wurzbach, Constantin von: Biograph. Lexikon des Kaiserthums Oesterreich)

Ducere de mâna
cătră
Arithmetïca
sau socoteala

Pentru traba pruncilor rumâneştiĭ celor ne-
uniţilor ce să învaţa în şcole cele
mice.

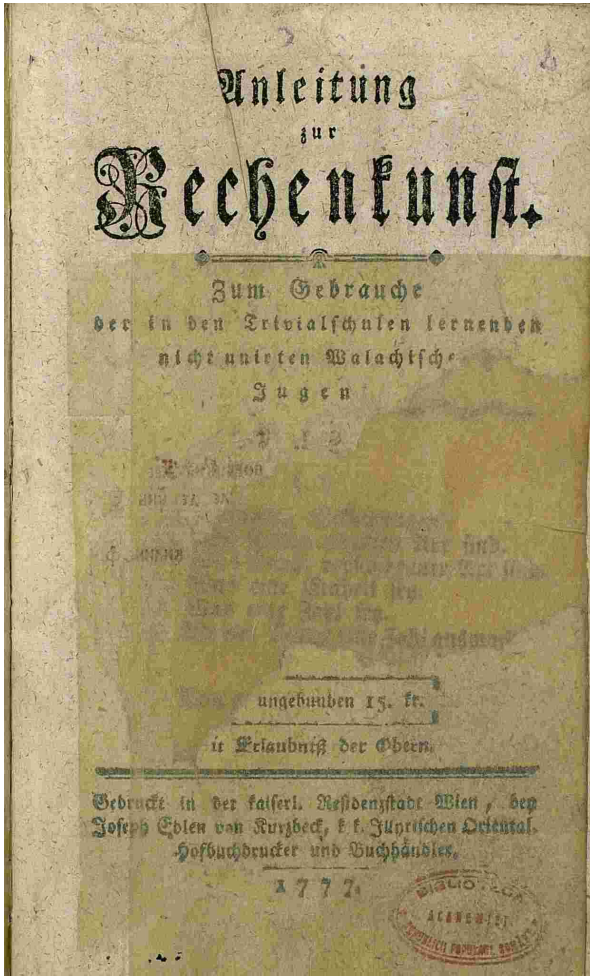
Să vinde fără lăgătură cu 15. Creiţ.
Cu dovoire Stăpănitorilor.

Tipărită în înpărăţitoare cetate Bece la Ïosifa
de Curţbek Ïllÿricesc de Curte Tÿpograful şi văn-
zător de Cărţi în Anul
1777

Romanian

Ducere de mâna cătră
Arithmetica. Vienna 1777

Transcription of the German title page



Anleitung
zur
Rechenkunst.

Zum Gebrauche
der in den Trivialschulen lernenden
nicht unirten Walachischen
Jugend

ungebunden 15. kr.
it Erlaubniß der Obern.

Gedruckt in der kaiserl. Residenzstadt Wien, bey
Joseph Edlen von Kurzbeck, k. k. Illyrischen Oriental.
Hofbuchdrucker und Buchhändler.
1777.

BIBLIOTECA ACADEMIEI

Anleitung
zur
Rechenkunst.

Zum Gebrauche
der in den Trivialschulen lernenden
nicht unirten Walachischen
Jugend

[*Wird verkauft*] *ungebunden 15. kr.*
Mit Erlaubniß der Obern.

Gedruckt in der kaiserl. Residenzstadt Wien, bey
Joseph Edlen von Kurzbeck, k. k. Illyrischen Oriental.
Hofbuchdrucker und Buchhändler.
1777.

Romanian

Anonym

Ducere de mâna cătră
Arithmetica
Vienna: Kurzböck 1777

Translation of the Romanian and German title pages

Guide
to
the art of arithmetic.
For the use
of the non-Uniate Walachian youth
who learn in elementary schools

[*Sold*] *in sheets for 15 kreutzer.*
With the permission of the authorities.

Printed in the imperial residence city of Vienna,
by Joseph Edler von Kurzbeck,
imperial and royal court typographer
for Illyrian and Oriental scripts and bookseller
in the year 1777.

Romanian

Anonym

Ducere de mâna cătră Arithmetica
Vienna: Kurzböck 1777

Editions and references

Ducere de mâna cătră Arithmetica sau socoteala (Romanian/Germ.).
Beci (Vienna): Joseph Kurzböck 1777 (Roman, Eliza 2008, p. 134)
Ducere de mîna cătră aritmetică (Romanian/Germ.).Vienna 1782
Ducere … (Roman./Germ.). Vienna: Joseph Kurzböck 1785, 302 p.
Şincai, Gheorghe: *Îndreptare către Aritmetică. Întâia parte.*
Blaj/Blasendorf: Tipariul Seminariului 1785/86, 6+162 p.
(Cyrillic; digital: Biblioteca Centrală Universitară "Lucian Blaga" Cluj-Napoca (OCLC 7761 08695); Roman, Eliza 2008, p. 134)
Ducere … Vienna: Joseph Kurzböck 1788, 302 p.
Ducere … (Roman./Germ.?). Sibiu: Petru Bart 1789, 304 p.
Hotiniul, Amfilohie: *Elemente aritmetice arătate fireşti* … Iaşi 1795
Hotiniul, Amfilohie: *Elemente matematiceşti fireşti*. Iaşi 1798
(Roman, Eliza 2008, p. 134)
Povăţuire cătră aritmetică sau învăţătura numerelor …
Buda 1806, 1822 (Cyrillic; digital: biblacad.ro)
(editions above available via www.tipariturivechi.ro or biblacad.ro)

C/S/V: Philippide, Alexandru: Introducere in istoria limbei şi literaturei romîne. Iaşi 1888, p. 149
Mureşianu, Ion B: Tiparniţele [typography] şi bucoavnele [Cyrillic books] de Viena şi Buda. In: Foaia Diecezană, Caransebeş (Banat) February 1942, p. 6
Roman, Eliza: Arina în ţara numerelor. Bucureşti 2008, p. 134
Roman, E: Bibliografia matematicii româneşti. Ed. Academiei 1972

Romanian

Anonym

Ducere de mâna cătră Arithmetica
Vienna: Kurzböck 1777

Content overview
(according to the Romanian and German tables of contents)

Introduction: Numeration

1 Four species (*şpeţïes arïthmetïki*) for integers (*numerile întreţ*)
1.1 Addition
1.2 Subtraction
1.3 Multiplication
1.4 Division
1.5 Checks (*probe*) by inverse operation

2 Denominate numbers (*numerile numite*)
2.1 Coins (*monete*), measures (*măsuri*), weights (*măsuri*)
2.2 Reductio descendens (*rezolvire*)
2.3 Reductio ascendens (*reducţïe*)
2.4 Addition
2.5 Subtraction
2.6 Multiplication
2.7 Division

3 Symbols (*sămnele*) and regula de tri
3.1 Signs (arithmetic operators)
3.2 Regula de tri directa
3.3 Regula de tri inversa

Romanian – Supplement 1

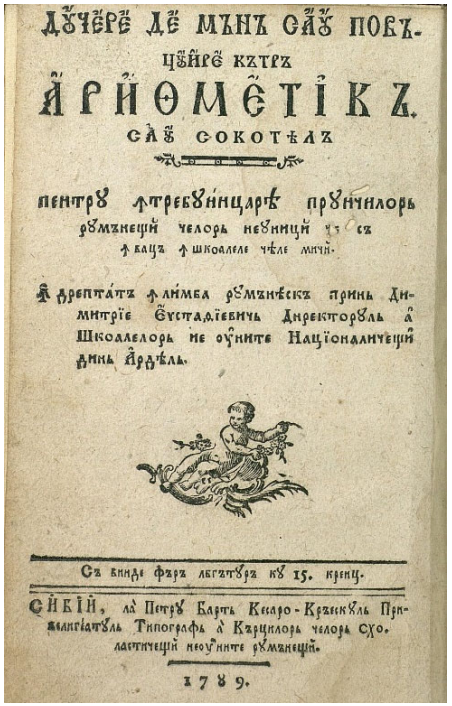
Dimitrie Eustatievici

(First name Eustathios with Slavic patronymic suffix)

Ducere de mână sau povăţuire către aritmethică sau socoteală

Sibiu: Petru Bart 1789

Transcription and translation of parts of the title page (the rest coincides with 1777)


ДѢЧѢРЕ ДЕ МѢНѢ САѢ ПОВѢ-
ЦѢЙРЕ КѢТРѢ
АРЙѲМЕ̑ТІКѢ.
САѢ СОКОТЕАѢ
пентрѫ требѫинцаръ прѫвнилорь
рѫмънещй челорь неѫнцй
ѧ кацъ ѧ школеле чѣле мичй.
Ѧ дрептатѣ ѧ лимба рѫмънѣскѣ прінь Дѫ-
мітріе Еустадіевичь Директорѫль ѧ
Школелорь не оѫните Націонелнчещй
дінь Ардѣль.
Съ вінде фарѣ легатѫрѫ къ 15. кр.
СИБІЙ, ла Петрѫ Барть Кесаро-Крайнкѫль Пр-
вилегіатѫль Типографь ѧ Кърцилорь челорь Схо.
ластичещй неоѫните рѫмънещй.
1789.

Ducere de mână sau povăţuire
către Arithmetică sau socoteală

Îndreptată în limba rumânească
prin Dimitrie Eustathievici Direktorul a
Şcoalelor ne unite Naţionaliceşti din Ardeal.

Sibii, la Petru Bart Chezaro-Crăiescul
Priveligiatul Tipograf a Cărţilor
celor scolasticeşti ne unite rumâneşti.

Guide or instructions
to arithmetic or to calculation

Arranged for the Romanian language
by Dimitri Eustatievici, director
of the non-Uniate national schools in Transylvania.

In Sibiu, with Peter Bart,
imperial and royal privileged typographer
for non-Uniate-Romanian school books

(**D**: Catalogul tipăriturilor româneşti vechi: www.tipariturivechi.ro)

Romanian – Supplement 2

Earliest arithmetic book in Latin script

Dimitrie Pavel

1795–1883 (biblacad.ro)

Aritmeticâ elementarâ
Bucureşti: Tipografia Collegiului Natzionalu [2]1858
1st edition perhaps
Elemente de aritmetică raţională
Bucureşti 1855

86 p.
D/L/V: Bibiloteca Naţională a României (NL of Romania) bibnat.ro

ARITMETICÂ ELEMENTARÂ

lucratâ a doâ oarâ

DE

D. P.

BUCUREŞTĬ.

Tipografia Collegiuluĭ Natzionalŭ.

1858.

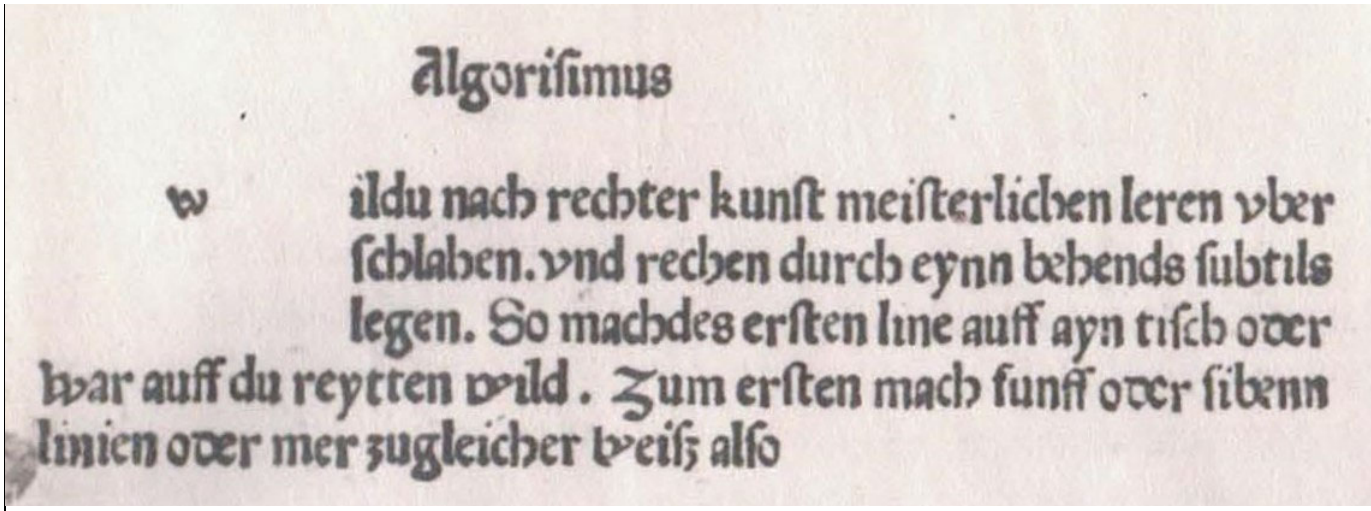
German 1

Anonym

‘Trento *Algorism*’
[Trento: Albrecht Kunne
ca. 1475]

12 p.
C/V: Hoock I/–2; UCatInc 1279
D: –
L: Dessau LandesB

Transcription and translation of the beginning of the first page



Algoriſimus

w ildu nach rechter kunſt meiſterlichen leren vber ſchlaben. vnd rechen durch eynn behends ſubtils legen. So machdes erſten line auff ayn tiſch oder war auff du reytten wild. Zum erſten mach funff oder ſibenn linien oder mer zugleicher weiſz alſo

Algorisimus
w ildu nach rechter kunst meisterlichen leren vber schlahen. vnd rechen durch eynn behends subtils legen. So mach des ersten line auff eyn tisch oder war auff du reytten wild [etc.]

The text starts with instructions for how to prepare for calculations with the counters:
If you want to perfectly learn to convert and to calculate according to the correct art by smartly and subtly laying [counters], *at first draw lines on a table or where you want to calculate* [etc.]

German 1

Anonym

‘Trento *Algorism*’
[Trento: Kunne ca. 1475]

Content overview
(according to the section headings and the text)

E: Vogel, Kurt. In: Nova Acta Leopoldina, 167 = N. F. 27 (1963) 183–200 (= Beiträge zur Geschichte der Medizin und der Naturwissenschaften, Festschrift Rudolf Zaunick)
S: Saemann, Willi. In: Mathematik in der Schule 10 (1972) 626–635; 11 (1973) 15–22, 265–268

Calculation with the counters (‘Linienalgorismus’): addition, subtraction, halving (*mediatio*), duplication, multiplication, division, progression

1 Regula de tri (calculation of prices)
2 Regula societatis simplex
3 Regula societatis temporum
4 Testament, son daughter twins: twin inheritance
5 Arithmetic progressions
6 Motion in opposite directions (from and to Rome): encounter
7 Partition of an amount for several people according to a given proportion: company
8 Hare and greyhound: pursuit
9 Tower (soil, water, air): find length
10, 11 Partition of an amount for several people according to a given proportion: company

German – Supplement

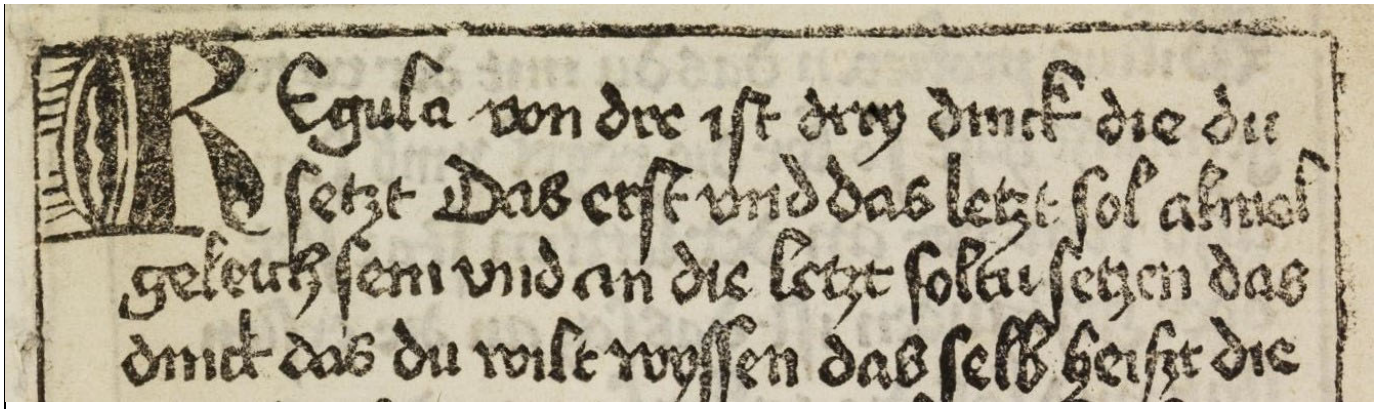
Anonym

Bamberg block book
ca. 1470–1482

28 p.
D/**L**: Bamberg SB (Inc. typ. Ic. I.44)
E: Vogel, Kurt. München 1980

252 p. handwritten appendix: a great deal copied from Algorismus Ratisbonensis

The book is only described briefly as it is not printed with moveable types.
It is not an incunabulum, but a xylograph (woodblock printing).



REgula von dre ist drey dinck die du setzt Das erst vnd das letzt sol almol geleich sein vnd an die letzt soltu setzen das dinck das du wilt wyssen [etc.]

The text starts with instructions for the regula de tri:
Regula de tri means three things you place. The first and the last [third] *one shall always be equal* [regarding the unit], *and at the last* [fourth] *position you shall place the thing you want to know* [etc.]

Content overview: quantity-price relations with regula de tri, tare, regula fusti, gold, conversions, reductio a/descendens tables, regula societatis

German 2

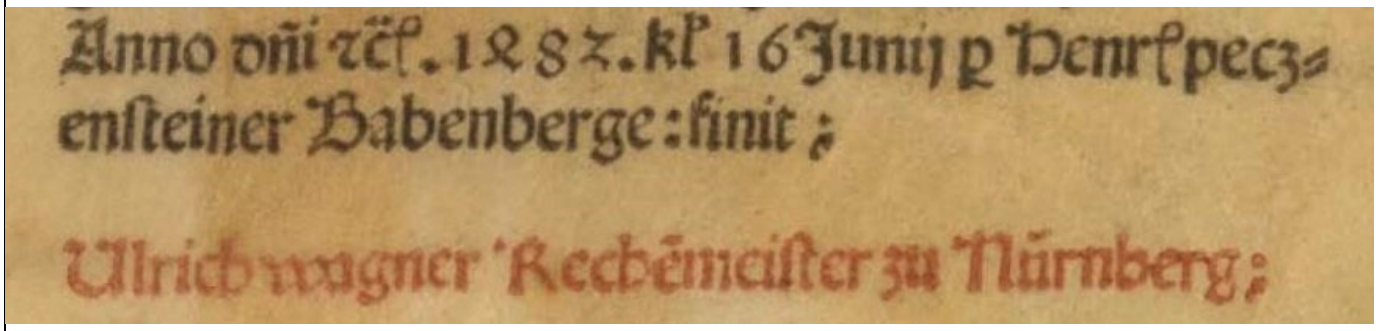
Ulrich Wagner

b. ca. 1450
d. ca. 1490
1468 University Leipzig, 1472-09-16 BA
Master arithmetician in Nürnberg

Rechnung in mancherley weys –
'Bamberg arithmetic book'
('Bamberger Rechenbuch')
Bamberg: Heinrich
Petzensteiner [1]1482-05-17

Fragments: 9 p. and snippets
C/V: Hoock I/W2.1; UCatInc M3720810
D/L: Bamberg SB (Inc. typ. H.IV.31)
S: Rüdiger, Bernd: Ries-Kolloquium 2020
Vogel, Kurt. In: Gymnasium und Wissenschaft. München 1949, 231–277
Brunner, Heinrich. MVGN 35 (1937) 1–16

Title page and table of contents are not extant, only the colophon with printer and author:


Anno dñi ꝛcc̄. 1 & 8 2. kl 16 Junij p Henr̄ pecz=
ensteiner Babenberge: finit;

Ulrich wagner Rechēmeister zu Nürnberg;

Anno domini etc̄ .1482. kl 16 Junij per Henr̄ pecz-ensteiner Babenberge[*nsem*] *finit*[*um*]

Ulrich wagner Rechenmeister zu Nürnberg;

In the year of our lord etc. 1482
on the 16th day before the calends of June [1482-05-17]
finished by Heinrich Petzensteiner in Bamberg

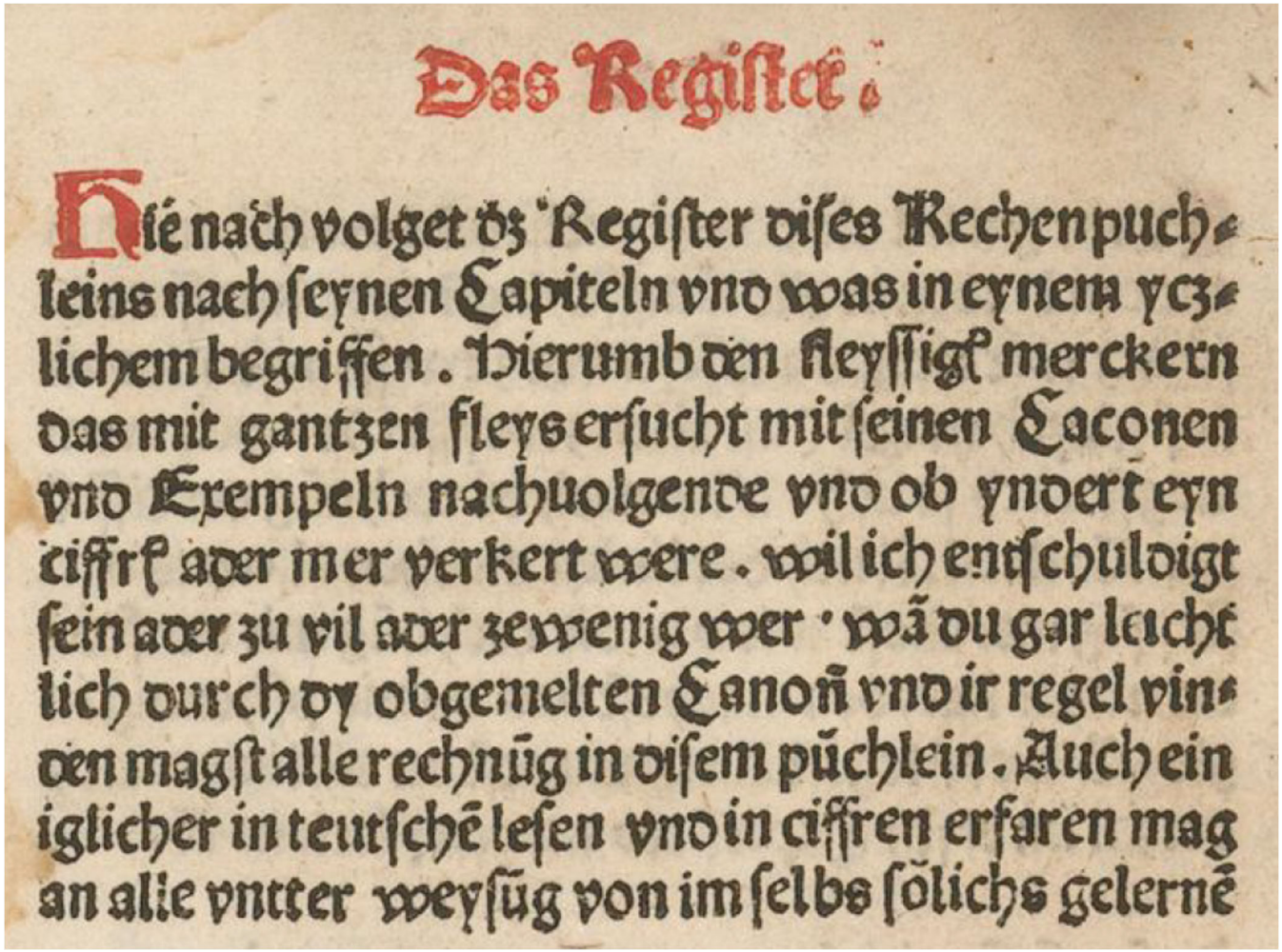
Ulrich Wagner, master arithmetician in Nürnberg

German 2

Ulrich Wagner

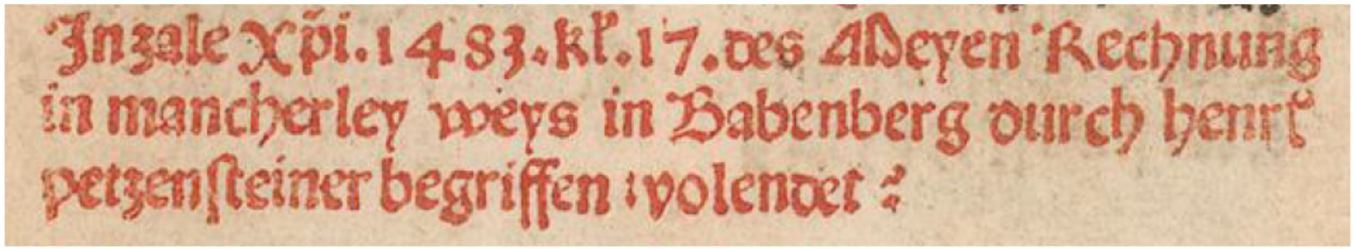
Rechnung in mancherley weys – ‘Bamberg arithmetic book’ (‘Bamberger Rechenbuch’) Bamberg: Heinrich Petzensteiner [2]1483-04-15

154 p.
C/V: Hoock I/W2.2; UCatInc M37209
D: Zürich ZentralB
R: Zürich 1966
München 1966 (Burckhardt, J J)
L: Zürich ZentralB, Zwickau RatsschulB
E: Schröder, Eberhard. Weinheim 1988
S: Rüdiger, Bernd: Ries-Kolloquium 2020
Günther, Wolfram. In: Sächsische Heimatblätter 1960, 355–364
Unger, Friedrich: Das älteste deutsche Rechenbuch. In: Zeitschr. für Mathematik und Physik 33 (1888) 125–145



Das Register.

Hie nach volget dz Register dises Rechenpuch-
leins nach seynen Capiteln vnd was in eynem yc-
lichem begriffen. Derumb den fleyssigē merckern
das mit gantzen fleys ersucht mit seinen Caconen
vnd Exempeln nachuolgende vnd ob yndert eyn
ciffr ader mer verkert were. wil ich entschuldigt
sein ader zu vil ader zewenig wer. wā du gar leicht
lich durch dy obgemelten Canoñ vnd ir regel vin-
den magst alle rechnūg in disem pūchlein. Auch ein
iglicher in teutschē lesen vnd in ciffren erfaren mag
an alle vntter weysūg von im selbs sōlichs gelernē



Inzale Xpi. 1483. kl. 17. des Adeyen Rechnung
in mancherley weys in Babenberg durch henr
petzensteiner begriffen volendet.

German 2

Ulrich Wagner

Rechnung in mancherley weys –
'Bamberg arithmetic book'
Bamberg: Petzensteiner [2]1483

Transcription of the first page and of the colophon

S: Jaeger, Adolf: Der Nürnberger Rechenmeister Ulrich Wagner. In: Mitteilungen zur Geschichte der Medizin und der Naturwissenschaften 26 (1927) 1–5

Heinrich Petzensteiner himself had basic university studies (1462 University Leipzig; his supposed father Johannes 1441 University Wien) so that he could have co-authored the arithmetic book.

Das Register.
Hie nach volget dz Register dises Rechenpuchleins nach seynen Capiteln vnd was in eynem yczlichem begriffen. Hier umb den fleyssigſ merckern das mit gantzen fleys ersucht mit seinen Ca⟨c⟩[n]onen vnd Exempeln nachuolgende vnd ob yndert eyn ciffrſ ader mer verkert were. wil ich entschuldigt sein ader zu vil ader zewenig wer. wan du gar leicht lich durch dy obgemelten Canonen vnd ir regel vinden magst alle rechnung in disem puchlein. Auch ein iglicher in teutschen lesen vnd in ciffren erfaren mag an alle vnter weysung von im selbs solichs gelernen

In ⟨zale⟩ [jare] *Christi .1483. kl .17. des Meyen Rechnung in mancherley weys in Babenberg durch henrſ petzensteiner begriffen volendet.*

German 2

Ulrich Wagner

Rechnung in mancherley weys –
'Bamberg arithmetic book'
Bamberg: Petzensteiner [2]1483

Translation of the first page and of the colophon

The Register

Hereafter follows the register of this arithmetic booklet according to its chapters and their contents: With that deals what was compiled here for the diligent learners with all care and what follows with its principles and examples.
And if 1 digit each or more were wrong, I want to be excused, or if there were too much or too little;
as you – with the principles and rules above –
can very easily find all the calculations in this booklet.
Also every one who is experienced in reading German and in digits can learn that autodidactically without any instruction.

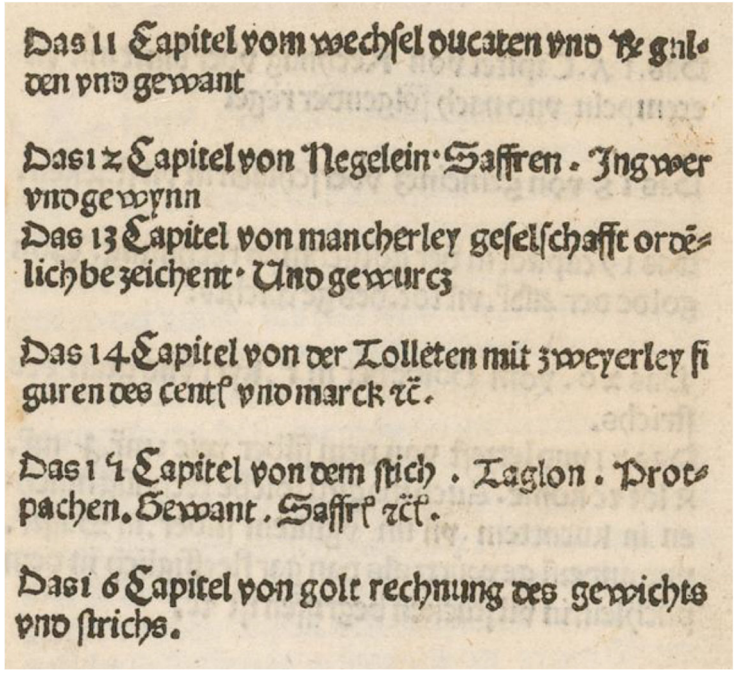
In the year of Christ 1483 on the 17th day before the calends of May [1483-04-15], *this "Calculation in several ways" was started and finished in Bamberg by Heinrich Petzensteiner.*
[Free translation: *This "Calculation in several ways" was printed in Bamberg from the beginning to the end by Heinrich Petzensteiner and finished on 1483-04-15.*]

German 2

Ulrich Wagner

Rechnung in mancherley weys –
‘Bamberg arithmetic book’
Bamberg: Petzensteiner ^{2}1483

Content overview
(according to the *Register*)


Das 11 Capitel vom wechsel ducaten vnd &c gul-
den vnd gewant

Das 12 Capitel von Negelein · Saffren . Ingwer
vnd gewynn
Das 13 Capitel von mancherley geſelſchafft ordē-
lich bezeichent · Und gewurcz

Das 14 Capitel von der Tolleten mit zweyerley fi
guren des centſ vnd marck ꝛc̄.

Das 15 Capitel von dem ſtich . Taglon . Prot-
pachen. Gewant . Saffrſ ꝛc̄.

Das 16 Capitel von golt rechnung des gewichts
vnd ſtrichs.

1 Numeration (*zal*)
2 Addition with check by seven [also for other species]
3 Subtraction (*abziehen*) with check (*prob*)
4 Multiplication
5 Division (*partiren*, *teylen*); arithm., geom. progressions
6 Multiplication of fractions (*gebrochen*)
7 Addition of fractions
8 Subtraction and halving of fractions (*minucien*)
9 Division of fractions
10 Regula de tri (*gulden regel*) with check; pepper, cloves
11 Currency exchange (*wechsel*); clothing
12 Regula fusti (cloves), saffron, ginger; profit (*gewinn*);
regula quinque (interest)
13 Regula societatis (*geselschafft*); regula equalitatis (spices)
14 Calculations with compound denominate numbers (*tollet*)
15 Barters (*stich, borati*); lazy worker (temporal part),
loaf of penny, areas (sales/geometry, regula de tri inversa)
16 Gold calculation; tower in water (find length), motion, vessel
(shared work)
17 International commerce (*vber lantt*)
18 Reductio a/descendens (*vberschlagen*)
19 Gold: purity-weight-value tables
20 Gold: purity-weight-value tables
21 Silver: weight-value tables

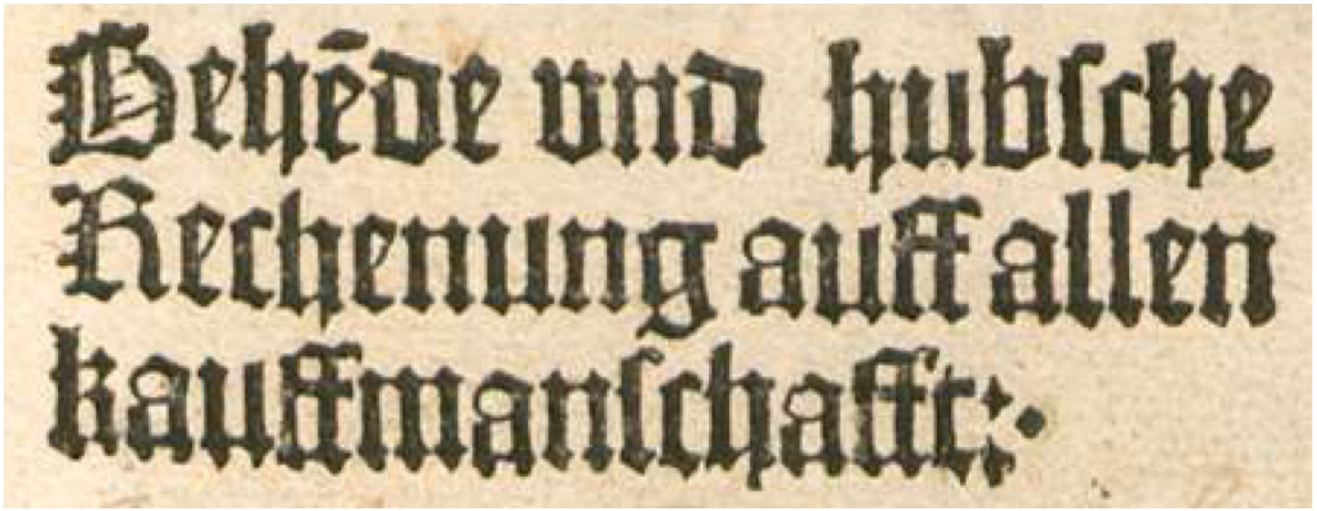
German 3

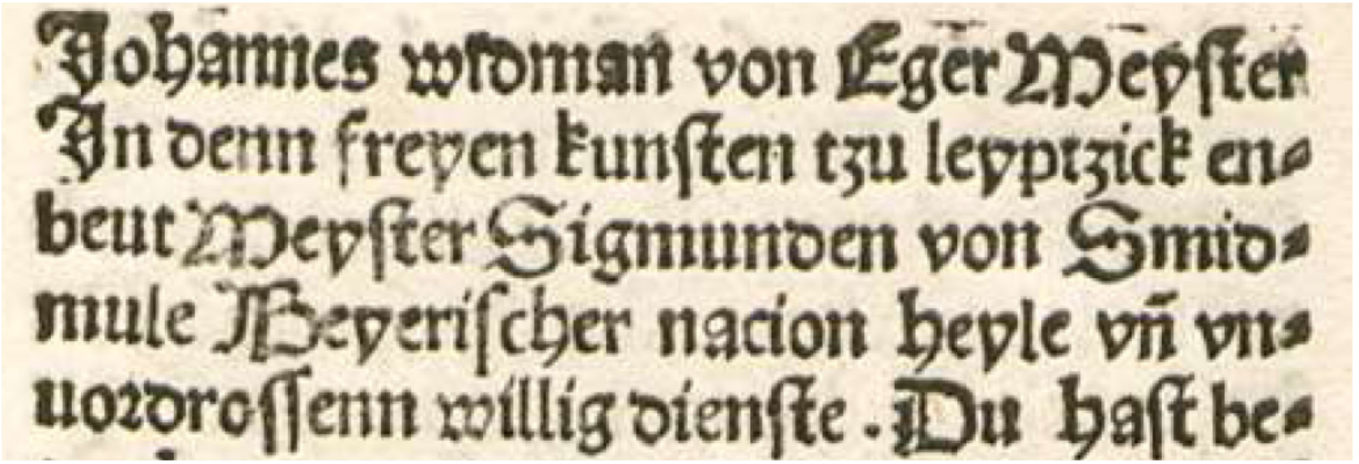
Johannes Widmann

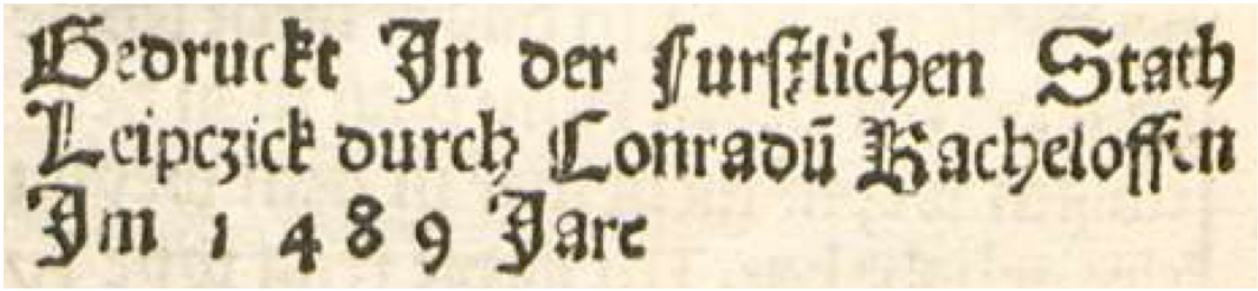
b. ca. 1460/65 Eger/Cheb
d. between 1505 and 1515 Annaberg
1480/81 Univ. Leipzig, 1485 MA
1486 Lecture on algebra
ca. 1490 Six anonymous Latin treatises (Gärtner 2000, p. 37–45)
ca. 1500 Moved to Annaberg

Behende und hübsche Rechnung auf allen Kaufmannschaft
Leipzig: Konrad Kachelofen
1489
[Dedication New Year 1489]

472 p.
C: Hoock I/W7; UCatInc M51536, 38, 39
D/L: München BSB, Nürnberg GNM, Stuttgart LB
E: Gärtner, Barbara. Tübingen 2000


Behēde vnd hubſche
Rechenung auff allen
kauffmanſchafft:


Johannes widman von Eger Meyſter
In denn freyen kunſten tzu leyptzick en-
beut Meyſter Sigmunden von Smid-
mule Beyeriſcher nacion heyle vñ vn-
uordroſſenn willig dienſte . Du haſt be-


Gedruckt In der furſtlichen Stath
Leipczick durch Conradū Kacheloffen
Im 1489 Jare

German 3

Johannes Widmann

Behende und hübsche Rechnung auf allen Kaufmannschaft
Leipzig: Kachelofen 1489

Transcription of the title,
of the beginning of the dedication
and of the colophon

S: Rüdiger, B. In: Jahrbuch Adam-Ries-Bund 2017

Later editions:
Pforzheim: Thomas Anshelm 1500, 1508
Hagenau: Thomas Anshelm 1519
Augsburg: Heinrich Steiner 1526
C: VD16 W 2478, 2479, 2480

Behende vnd hubsche
Rechenung auff allen
kauffmanschafft

Johannes widman von Eger Meyster
In denn freyen kunsten tzu leyptzick en-
beut Meyster Sigmunden von Smid-
mule Beyerischer nacion heyle vnd vn-
uordrossen willig dienste.

Gedruckt In der Furstlichen Stath
Leipczick durch Conradum Kacheloffen
Im 1489 Jare

German 3

Johannes Widmann

Behende und hübsche Rechnung auf allen Kaufmannschaft
Leipzig: Kachelofen 1489

Translation of the title,
of the beginning of the dedication
and of the colophon

Sigmund Altmann von Schmidmühlen [near Amberg], since 1480 student at University Leipzig, then university career in Leizig, perhaps professor (Gärtner 2000, p. 4)

Easily usable and smart
calculation for all
commerce affairs

Johannes Widman from Eger, master
in the liberal arts at Leipzig,
assures Master Sigmund von Schmidmühlen,
[member] *of the Bavarian* [university] *nation,*
of [his wish for] *welfare and*
his permanent friendly benevolence.

Printed in the princely city
of Leipzig by Conrad Kacheloffen
In the year 1489

German 3

Johannes Widmann

Behende und hübsche Rechnung auf allen Kaufmannschaft
Leipzig: Kachelofen 1489

Content overview

(according to the *Register*, pdf 10–17;
cf. Gärtner 2000, p. 128–138, 578–579)

Dedication to Sigmund Altmann von Schmidmühlen

1 Numbers (*zal*)
1.1 Calculations with integers (*gancze zall*)
1.1.1 Increasing (*Mehrung*): 1 Addition, 2 Duplication, 3 Multiplication
1.1.2 Decreasing (*Minderung*): 1 Subtraction, 2 Halving (*Medieren*), 3 Division
1.1.3 Intermediate (*Mittelmaß*): 1 Numeration (*zelen*), 2 Progression, 3 Root extraction (*wurczel außzihen*)
1.1.n.m.1: 1 Rules, 2 Exceptions, 3 Checks (*prob*)
1.1.n.m.2: An example for each of the three checks
1.1.n.m.3: Three checks (general, by nine, by seven)

1.2 Calculations with fractions (*gebrochen zal*)
1.2.1 General rules
1.2.2 Parts of fractions
1.2.3 Parts and integers

1.3 Calculations with compound denominate numbers (*tollet*)
1.3.1 Designation of the lines: multiples of the quantity units
1.3.2 Assignment of prices (*werde*) to the lines
1.3.3 Notation of the sold quantity in multiples of the quantity units; multiplication with the corresponding price

German 3

Johannes Widmann

Behende und hübsche Rechnung auf allen Kaufmannschaft
Leipzig: Kachelofen 1489

Content overview

(according to the *Register*, pdf 10–17;
cf. Gärtner 2000, p. 128–138, 578–579)

2 Order (*ordenung*) of the numbers
2.1 Problems regarding the species mentioned above
2.2 Proportions
2.2.1 Types of proportions: multiplex, superparticularis, superpartiens, compound proportions
2.2.2 Value, addition and subtraction of proportions
2.2.3 Problems regarding rules (*anweysung*) for proportions
2.3 Calculations for commerce affairs (*kauffmannschafft*), according to number, weight and measure
2.3.1 Simple commerce affairs (*schlecht kauffschlahunge*)
2.3.1.1 Regula de tri (*gulden regel*); conversions
2.3.1.2 *Regula inventionis*
2.3.1.3 *Regula fusti*
2.3.1.4 *Regula pulchra*
2.3.1.5 *Regula de tri conversa*
2.3.1.6 *Regula transversa*
2.3.1.7 Regula alligationis (*Regula ligar*)
2.3.1.8 *Regula positionis*
2.3.1.9 *Regula pulchra*
2.3.1.10 *Regula equalitatis*
2.3.1.11 *Regula legis*
2.3.1.12 *Regula augmenti*
2.3.1.13 *Regula augmenti et decrementi*

German 3

Johannes Widmann

Behende und hübsche Rechnung auf allen Kaufmannschaft
Leipzig: Kachelofen 1489

Content overview

(according to the *Register*, pdf 10–17;
cf. Gärtner 2000, p. 128–138, 578–579)

2.3.1.14 *Regula plurima*
2.3.1.15 *Regula pulchra*
2.3.1.16 *Regula sententiarum*
(**S**: Deschauer, S: Ries-Kolloquium 2023)
2.3.1.17 *Regula suppositionis* [linear functions]
(**S**: Deschauer, S. In: Jahrbuch Adam-Ries-Bund 2023)
2.3.1.18 *Regula residui*
2.3.1.19 *Regula excessus*
2.3.1.20 *Regula collectionis*
2.3.1.21, 22 *Regula pulchra*
2.3.1.23 *Regula quadrata*
2.3.1.24 *Regula cubica*
2.3.1.25 *Regula reciprocationis*
2.3.1.26 *Regula bona*
2.3.1.27 *Regula lucri* [profit and loss]
2.3.1.28 *Regula pagamenti* [payment]
2.3.1.29 *Regula alligationis*
2.3.2 Barters (*stich*)
2.3.3 Regula societatis (*geselschafften*); regula falsi

3 Geometry (*art deß messen*)
3.1 Basics: point, line, angle, surface, solid
3.2 Areas and volumes
3.3 Special calculations from recreational maths

German 4

Johannes Böschenstein

b. 1472 Esslingen/Neckar
d. 1540 Nördlingen
Augsburg, Ingolstadt, Nürnberg,
Wittenberg, Zürich, Heidelberg,
Antwerpen, Nördlingen
Prot. pastor, Hebrew language teacher

Ain new geordnet
Rechenbiechlin mit den zyffern
Augsburg: Erhart Oeglin 1514

47 p.
C: Hoock I/B13.1 (lists later editions);
VD16 B 6379, 6380, 6381
D/L: München BSB
R: Meretz, W (Berlin 1983) with comm.
S: Martin, Paul C: Ries-Kolloquium 2002

Ain Newgeordnet Rech
enbiechlin mit den zyffern
den angenden schülern zů nutz In
haltēt die Siben species Algorith=
mi mit sampt der Regel de Try/vnd sechs regeln d
prüch/vñ der regel Fusti mit vil andern güten fra=
gen den kindern zum anfang nützbarlich durch
Joann Böschensteyn von Esslingen priester
neülych auß gangen vnd geordnet.
Getruckt in der Kayserlichen stat Augspurg durch
Erhart ōglin Anno 1514 Jar.

German 4

Johannes Böschenstein

Ain new geordnet
Rechenbiechlin mit den zyffern
Augsburg: Erhart Oeglin 1514

Transcription of the title page and of the colophon

Ain New geordnet Rech-
enbiechlin mit den zyffern
den ange[e]*nden schülern zů nutz In-*
haltent die Siben species Algorith-
mi mit sampt der Regel der Try/ vnd sechs regeln der
prüch/ vnd der regel Fusti mit vil andern gůten fra-
gen den kündern zum anfang nůtzbarlich durch
Joann Böschensteyn von Esslingen priester
neulych auß gangen vnd geordnet.

Getruckt in der Kayserlichen stat Augspurg durch
Erhart öglin Anno 1514 Jar.

German 4

Johannes Böschenstein

Ain new geordnet
Rechenbiechlin mit den zyffern
Augsburg: Erhart Oeglin 1514

Translation of the title page and of the colophon

A new systematic[*ally arranged*] *arithmetic booklet*
with the digits [calculation with the pen]
for the benefit of the novice pupils
comprising the seven species of algorithm
together with the regula de tri and six rules for
fractions
and the rule of tret with many other good questions
useful for the children for the basics [of arithmetic]
by Johann Böschenstein from Esslingen, pastor,
recently published and arranged.

Printed in the imperial city of Augsburg by
Erhart Oeglin in the year 1514.

German 4

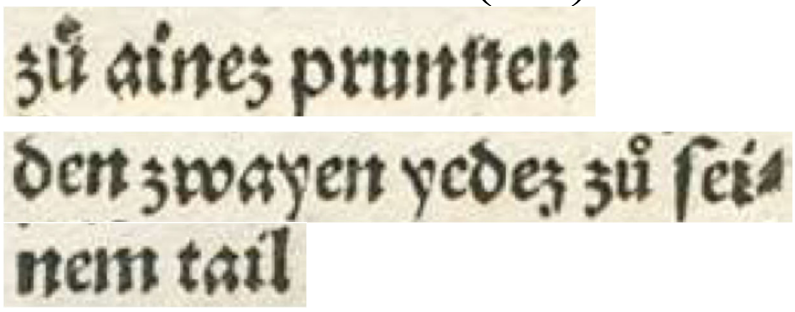
Johannes Böschenstein

Ain new geordnet Rechenbiechlin mit den zyffern
Augsburg: Erhart Oeglin 1514

Content overview
(according to the section headings)

Seven species (*figuren*) with the pen for integers: numeration (*zelung*), addition (*summirung*), subtraction (*abtzyehung*), duplication (*duplatio*, *zwyspilung*), halving (*mediatio*, *halbyrung*), multiplication (*merung*), division (*taylung*)
Four species for fractions (*gebrochen*, *zerbrochen*): addition, subtraction, multiplication, division
Regula de tri for integers with check (*prob*): anterior number (*forder*), middle number (*mittel*), posterior number (*hinden*) incl. regula quinque (work), regula de tri inversa (work)
Regula societatis simplex (*regel der geselschafften*); check
Regula fusti
Regula de tri for fractions (*prüche*)
First type (*erste regel*): anterior number is a fraction;
Second type (*ander*): middle number is a fraction;
Third type (*trit*): anterior and middle number are fractions;
Fourth type (*vierd*): all of the three numbers are fractions;
Fifth type (*fünfft*): middle and posterior number are fractions;
Sixth type (*sechst*): posterior number is a fraction
Miscellaneous problems: broken bell (alloy), fox and dog (pursuit), business trip (nesting), common meal (company), testament (company (sum of the parts > 1)), soldiers, toll (regula equalitatis, special), loaf of penny (sales, regula de tri inversa), coins (regula equalitatis), different quantities (give and take)
Conversions: currency, weight, capacity, time

Vertical *m* occurs (Ei^{v})



German 5

Jacob Köbel

b. 1462 Heidelberg
d. 1533-01-31 Oppenheim
Univ. Heidelberg and Krakau
1494 “Stadtschreiber” of Oppenheim
Publisher with printing house of his own

Ain New geordnet Rechenbiechlin auf den linien
Augsburg: Erhart Oeglin 1514
Eynn Newe geordent Rechenbuechlein uf den linien
Oppenheim: Jacob Köbel 1514

59 p.
C: Hoock I/K8.1 (lists later editions);
VD16 K 1643, 1644, 1645, 1646, 1647
D/L: München BSB
S: Hergenhahn, R: Ries-Kolloquium 1996;
In: Oppenheimer Hefte 11, 1995; 15, 1997;
In: Schatzkammer. Annaberg 2008

German 5

Jacob Köbel

Ain New geordnet
Rechenbiechlin auf den linien
Augsburg: Erhart Oeglin 1514

Transcription of the title page, of a part of the dedication and of the colophon

Ain New geordnet Rech-
enbiechlin auf den linien
mit Rechenpfeningen: den
Jungen ange[e]*nden* [*rechnern* (fol. XX)] *zu heis-*
lichem gebrauch vnd hend-
eln leychtlich zu lernen
mit figuren vnd exempeln
Volgt hernach klär-
lichen angezaigt.

[…] *ich Jakob Köbel/*
dysser zeit Statschreiber zů Op-
penheim/ […]

Getruckt tzů Augspurg durch Erhart öglin.
Anno M.D.XIIII.

German 5

Jacob Köbel

Ain New geordnet
Rechenbiechlin auf den linien
Augsburg: Erhart Oeglin 1514

Translation of the title page,
of a part of the dedication and
of the colophon

A new systematic[*ally arranged*] *arithmetic*
booklet "on the lines"
[for the calculation] *with the counters,*
for the young novices [*novice arithmeticians*]
for the use at home and for trading,
easy to learn,
with figures and examples,
follows below
in an understandable presentation.

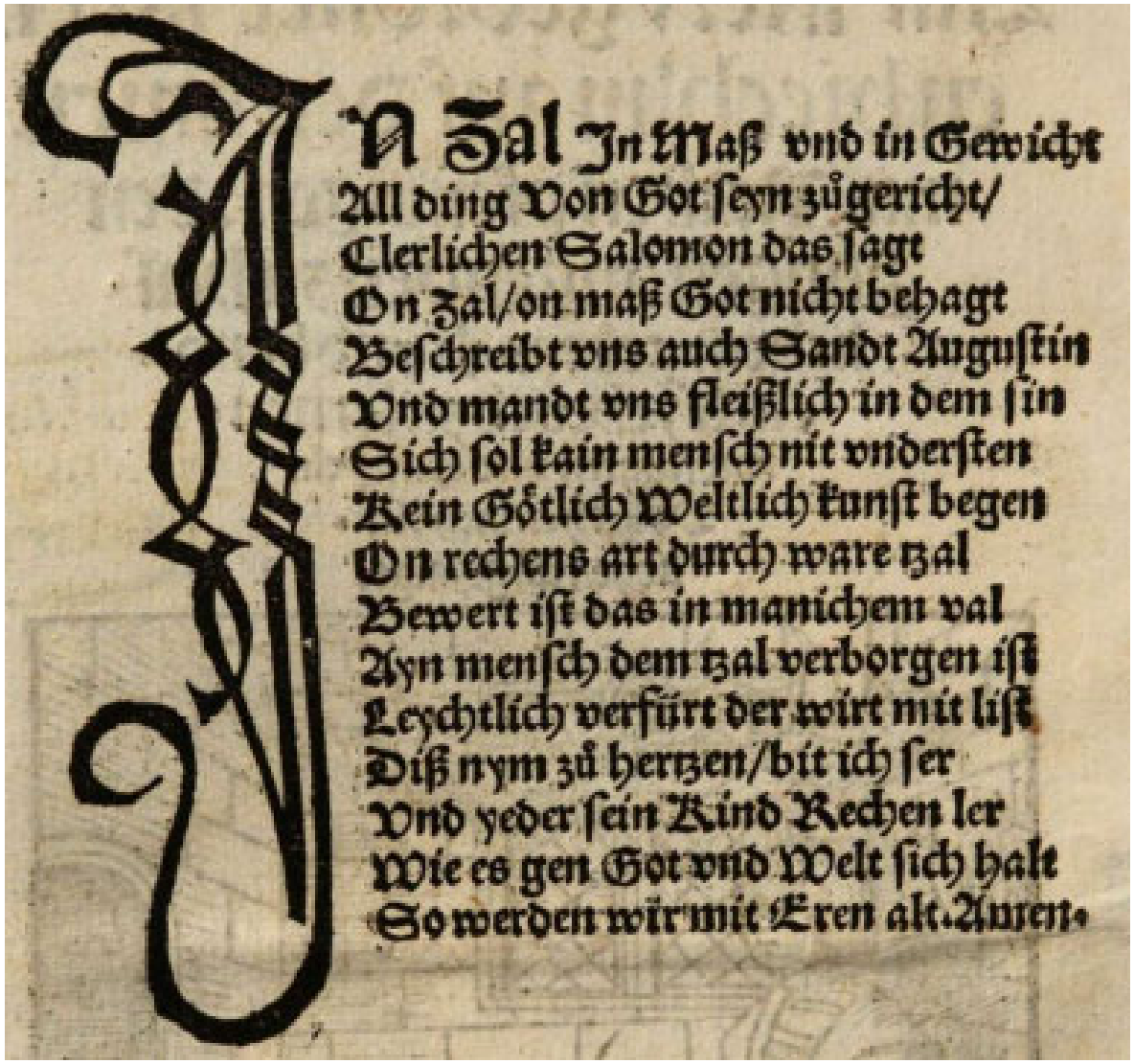
[…] *me, Jakob Köbel,*
at present head of the municipal administration
at Oppenheim/ […]

Printed in Augsburg by Erhart Oeglin.
In the year 1514.

German 5

Jacob Köbel

Ain New geordnet
Rechenbiechlin auf den linien
Augsburg: Erhart Oeglin 1514



Augsburg 1514, Ai^{v}: Justification of arithmetic
Quotation of Solomon from the Book of Wisdom
(Sap. 11,21: „sed omnia mensura et numero et pondere disposuisti“)
Initial letters of the lines refer to Köbel: JACOBVS KOBALDUWS

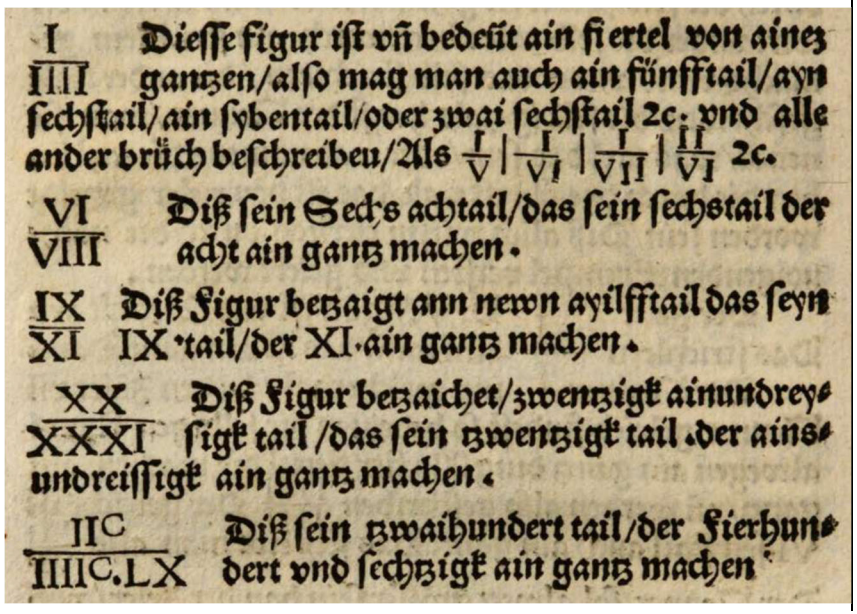
German 5

Jacob Köbel

Ain New geordnet Rechenbiechlin auf den linien
Augsburg: Erhart Oeglin 1514

Content overview

(according to the table of contents (*registerlein*) and the section headings)



I Dieſſe figur iſt vñ bedeüt ain fiertel von ainez
IIII gantzen/alſo mag man auch ain fünfftail/ayn
ſechſtail/ain ſybentail/oder zwai ſechſtail 2c. vnd alle
ander brüch beſchreibeu/Als I/V | I/VI | I/VII | II/VI 2c.

VI Diß ſein Sechs achtail/das ſein ſechstail der
VIII acht ain gantz machen.

IX Diß figur betzaigt ann newn ayilfftail das ſeyn
XI IX tail/der XI ain gantz machen.

XX Diß figur betzaichet/zwentzigk ainundreys
XXXI ſigk tail/das ſein zwentzigk tail der ains
undreiſſigk ain gantz machen.

IIC Diß ſein zwaihundert tail/der Fierhun
IIIIC.LX dert vnd ſechtzigk ain gantz machen

Dedication to Dietrich Kemerer von Worms, called von Dalburg
The entire textbook only uses counters and Roman numbers.

0 Roman numbers (*gemaine zalen*) with seven letters, Indo-Arabic numbers (*zyffer zalen*), comparison table of both types; symbols for coins and weights, coins of the electoral princes on the Rhine, coins of Frankfurt and weights with conversions

1 Calculation board (*rechenbanck*) with currency columns (*banckir*, *cambien*) in eight parts (*vnderschaidt*)

2 Addition (*zusamenlegen*), subtraction (*abtziehenn*), duplication (*duplatio*, *zwyfachmachung*), halving (*mediatio*, *halbierenn*), multiplication (*manigfaltigen*), division (*tailen*), arithmetic progressions (*vil zal auf ain ander für vnd für zelen*)

3 Regula de tri (*gulden regel*), check (*bewerung*, *prob*)

4 Calculations (*rechenschafften*) with fractions (*gebrochne zalen*) with fraction bar and Roman numbers (fol. XVIII^{v}), application to the regula de tri in four types (*regel*): anterior number is a fraction; posterior number is a fraction; middle number is a fraction; anterior and posterior number are fractions

5 Regula societatis (*geselschaften*) simplex and temporum (*mit zulegung der zeit*), partition of an inheritance (*taylung in erbschafften*: company (sum of the parts > 1); testament, twin inheritance), regula equalitatis for coins (*müntz wechseln*) and spices (*würtz kaufen*), remainder problem Ta-yen (number guessing, *wye vil gelts im seckel*; cf. Tropfke 1980, p. 636–640)

German 6

Adam Ries

b. 1492 Staffelstein/Oberfranken
d. 1559 Annaberg
1518 Master arithmetician in Erfurt
1523 Master arithmetician in Annaberg
Author of two German manuscripts about algebra (*Coss*) [ed. Gebhardt, R. 2023]

Rechnung auff der linihen
? [1]1518 [not extant],
Erfurt: Mathes Maler [2]1525
[Ries's first arithmetic, only about counters]

Rechnung auff der linihen
gemacht durch Adam Rieſen vonn Staffelſteyn/ in maſſen man es pflegt tzu lern in allen rechenſchulen gruntlich begriffen anno 1518. vleyſigklich vberleſen/ vnd zum andern mall in trugk vorfertiget.

¶ Getruckt tzu Erffordt tzum Schwartzen Horn. 1525.

¶ Gedruckt tzu Erffordt/ durch Mathes Maler. M. CCCCC. xxv. Jar.

88 p.
C: Hoock I/R7.1, 3 (lists later editions)
D (1525): hathitrust.org 13960
R (1525): Hamburg 1991
L: Hamburg, New York Columbia U
E (1525): Deschauer, S. München 1992
S: see www.adam-ries-museum.de

German 6

Adam Ries

Rechnung auff der linihen
? [1]1518 [not extant],
Erfurt: Mathes Maler [2]1525

Transcription of the title page and of the colophon

Rechnung auff der linihen
gemacht durch Adam Riesen vonn Staffel-
steyn/ in massen man es pflegt tzu lern in allen
rechenschulen gruntlich begriffen anno 1518.
vleyssigklich vberlesen/ vnd zum andern mall
in trugk vorfertiget.

Getruckt zu Erffordt zcum
Schwartzen Horn.
1525.

Gedruckt tzu Erffordt/ durch
Mathes Maler. M.
CCCCC.xxv. Jar.

German 6

Adam Ries

Rechnung auff der linihen
? [1]1518 [not extant],
Erfurt: Mathes Maler [2]1525

Translation of the title page
and of the colophon

Calculation with the counters
made by Adam Ries from Staffelstein
to the extent one usually teaches it in all
arithmetic schools, exhaustively described in 1518,
carefully checked and for the second time
published in print.

Printed in Erfurt
at the Schwarzes Horn [Black Horn]
1525.

Printed in Erfurt
by Mathes Maler
in the year 1525

German 6

Adam Ries

Rechnung auff der linihen
? [1]1518 [not extant],
Erfurt: Mathes Maler [2]1525

Content overview
(according to the section headings)

[1525] Dedication to Urban Osan head of administration (*Amptsvorweser*) in Annaberg

Species for the counters (numeration, addition, subtraction, duplication, halving (*medirn*), division) with check by inverse operation
Arithmetic and geometric progressions
Regula de tri
Fractions (*gebrochen*)
[1525] Examples from the other book (Cviii[r])
[certainly refers to Ries's second arithmetic about counters and pen: *Rechenung auff der linihen vnd federn*. Erfurt: Mathes Maler 1522]
- Regula de tri
- Currency exchange (*wechsell*)
- Clothing (*gewandt*) [contains transport problems]
- Silver and gold
- Regula societatis (*geselschafft*)
- Barter (*stich*)

Conversions (*resoluirung*)

German 7

Heinrich Schreiber/Schreyber (Grammateus)

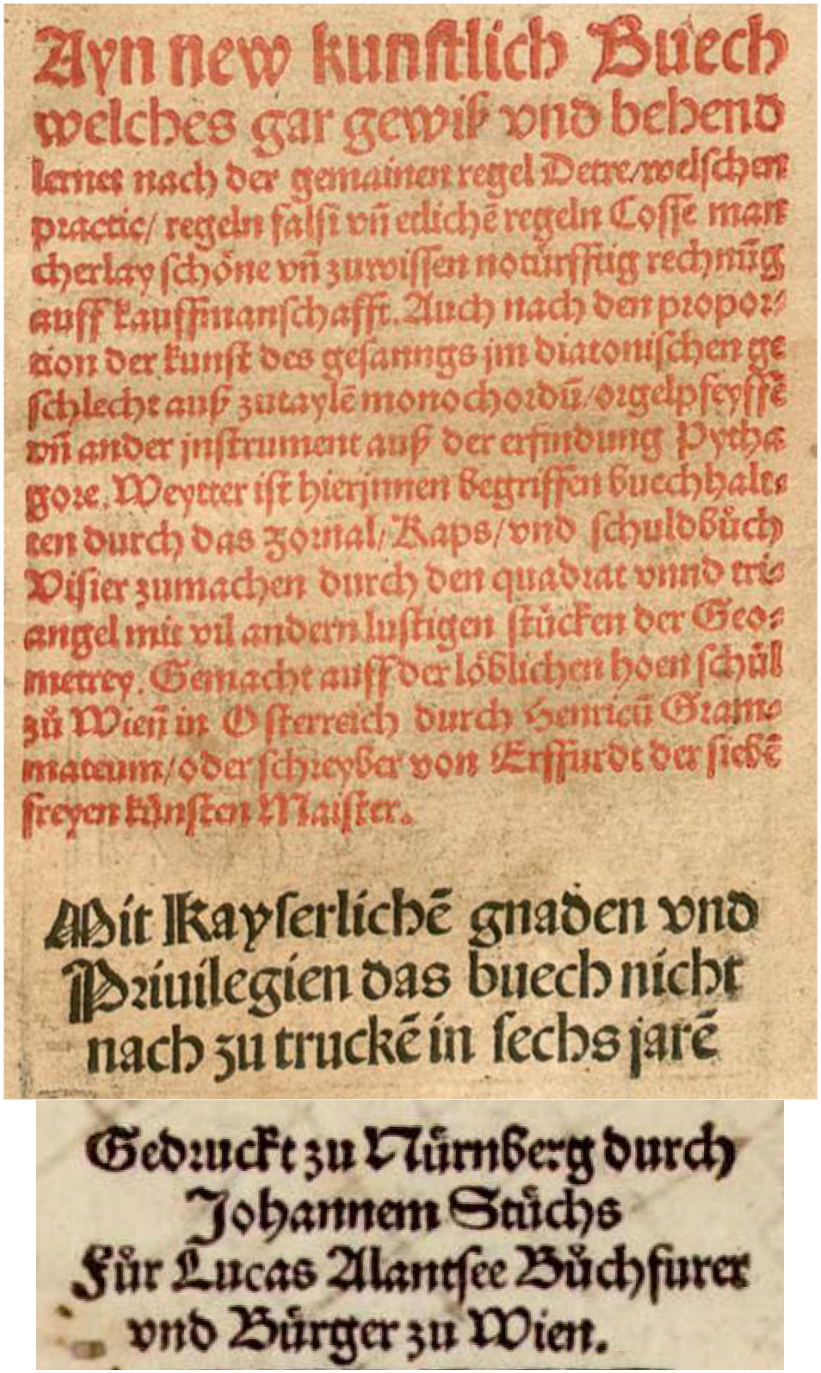
b. before 1480 Erfurt
d. 1525/26 Wien
Master arithmetician, astronomer

Ayn new kunstlich Buech

Nürnberg: Johann Stuchs (for Lucas Atlantsee, Wien) 1518/21

Dedic. 1518, privil. 1518, account. 1521

248 p.
C: Hoock I/S14.1
D/L: München BSB (Res/Math.p.182m)
S: Feistner, E; Holl, A: Erzählen und Rechnen [accounting, music]. 2016
Holl, A; Rausch, S: Buchhalten. 2016
Weidauer, M. München 1996 (contains a list of all works of H. Schreiber)
see www.adam-ries-museum.de


Ayn new kunſtlich Buech
welches gar gewiß vnd behend
lernet nach der gemainen regel Detre/welschen
practic/ regeln falſi vñ etlichē regeln Coſſe man
cherley ſchöne vñ zuwiſſen notürfftig rechnūg
auff kauffmanſchafft. Auch nach den propor-
tion der kunſt des geſangs jm diatoniſchen ge
ſchlecht auß zutaylē monochordū/orgelpfeyffē
vñ ander jnſtrument auß der erfindung Pytha
gore. Weytter iſt hierjnnen begriffen buechhalte
ten durch das Zonal/Raps/vnd ſchuldbüch
Viſier zumachen durch den quadrat vnnd trie
angel mit vil andern luſtigen ſtücken der Geo-
metrey. Gemacht auff der löblichen hoen ſchůl
zů Wieñ in Oſterreich durch Henricū Gramma
teum/oder ſchreyber von Erffurdt der ſiebē
freyen künſten Maiſter.

Mit Kayſerlichē gnaden vnd
Priuilegien das buech nicht
nach zu truckē in ſechs jarē

Gedruckt zu Nürnberg durch
Johannem Stůchs
Für Lucas Alantſee Büchfurer
vnd Bürger zu Wien.

German 7

Heinrich Schreiber/Schreyber (Grammateus)

Ayn new kunstlich Buech
Nürnberg: Johann Stüchs (for Lucas Atlantsee, Wien) 1518/21

Transcription of the title page and of the colophon

Ayn new kunstlich Buech
welches gar gewiß vnd behend
lernet nach der gemainen regel Detre/ welschen
practice/ regeln falsi vnd etlichen regeln cosse man-
cherlay schöne vnd zu wissen notürfftig rechnung
auff kauffmanschafft. Auch nach den propor-
tion der kunst des gesanngs jm diatonischen ge-
schlecht auß zu taylen monochordum/ orgelpfeyffen
vnd ander jnstrument auß der erfindung Pytha-
gore. Weyter ist hierjnnen begriffen buechhalt-
ten durch das ȝornal/ Kaps/ vnd schuldbůch
Visier zu machen durch den quadrat vnnd tri-
angel mit vil andern lustigen stücken der Geo-
metrey. Gemacht auff der löblichen hoen schůl
zů Wienn in Osterreich durch Henricum Gram-
mateum/ oder schreyber von Erffurdt der sieben
freyen künsten Maister.

Mit kayerlichen gnaden vnd
Priuilegien das buech nicht
nach zu trucken in sechs jaren

Gedruckt zu Nürnberg durch
Johannem Stüchs
Für Lucas Alantsee Bůchfurer
vnd Bürger zu Wien.

German 7

Heinrich Schreiber/Schreyber (Grammateus)

Ayn new kunstlich Buech
Nürnberg: Johann Stüchs (for Lucas Atlantsee, Wien) 1518/21

Translation of the title page and of the colophon

A new elaborate book
that most certainly and quickly
teaches – according to the general rule of three, the Italian
practice, the false position methods and several rules of algebra –
various smart and need-to-know calculations
for commerce affairs; also – according to the proportions
of the art of music in the diatonic genus –
to adjust monochords, organ pipes
and other instruments from the invention
of Pythagoras. Furthermore, it includes accounting
through journal, general ledger and accounts receivable ledger,
manufacturing barrel measuring rods through square and triangle
[sc. cube] *with many other pleasant problems of geometry.*
Written at the honorable university
in Wien in Austria by Henricus Grammateus
or Schreyber from Erfurt, master
of the seven liberal arts

With imperial grace and
priveleges not to reprint the book
within six years

Printed in Nürnberg by
Johannes Stüchs
for Lucas Alantsee bookseller
and citizen in Wien

German 7

Heinrich Schreiber/Schreyber (Grammateus)

Ayn new kunstlich Buech
Nürnberg: Johann Stuchs (for Lucas Atlantsee, Wien) 1518/21

Content overview
(according to the section headings)

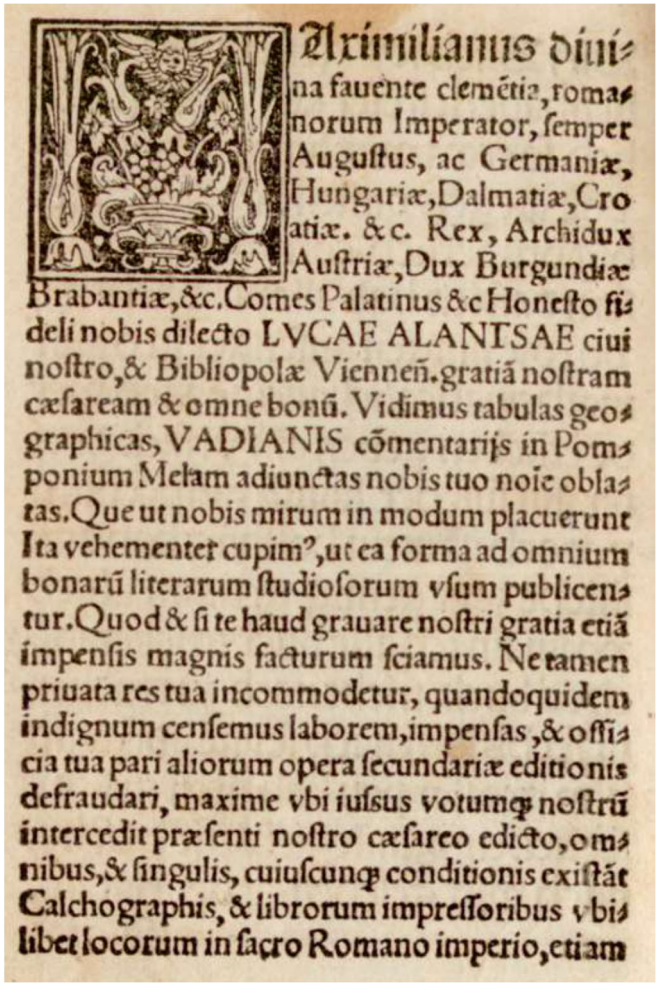
Dedication to Johann Tscherte (architect, d. 1522), Wien 1518
Arithmetic (pdf 11)
Calculation with the pen (Feder) (pdf 11): 5 species, check by 9
Calculation with counters (Linienrechnung) (pdf 27): 5 species, check with inverse operation
Units, resolution, conversion (pdf 38)
Regula de tri for integers (pdf 41)
Fractions (pdf 49)
Regula de tri for fractions (pdf 56)
Change (*wechsel*), transport (*vber landt*), profit (*gewin*), loss (*vor-lust*), tret (*regula fusti*), barter (*stich*), silver, coins, gold (pdf 61)
Italian practice (*Welsch practica*) for compound denominate numbers, including silver and gold (pdf 72)
Regula falsi, [seven] rules of algebra (*regula falsi, regeln cosse*) (pdf 96): calculation with variables, plus sign, minus sign, fractions (pdf 118), regula de tri (pdf 123), radix quadrata (pdf 125), cube roots (pdf 129), algebra (7 rules, summary; pdf 140), typical examples (unknown, alloy, profit, subcontractor, company, height of a tower, clock time, hi all problem, proportions, compound interest, textiles) solved with regula falsi and algebra (pdf 142)
Music (pdf 174)
Accounting (pdf 195), dated year 1521 (pdf 201)
Barrel measuring rods (*visier ruten*) and geometry (pdf 225)

German 7

Heinrich Schreiber/Schreyber (Grammateus)

Ayn new kunstlich Buech
Nürnberg: Johann Stüchs (for Lucas Atlantsee, Wien) 1518/21

Privilege
for 6 years by emperor Maximilian I
(b. 1459, from 1486 King of the Romans, Holy Roman Emperor 1508–1519)
1518-07-20 (pdf 255)



Alximiliamus diui-
na fauente clemẽtia, roma-
norum Imperator, ſemper
Auguſtus, ac Germaniæ,
Hungariæ, Dalmatiæ, Cro
atiæ. &c. Rex, Archidux
Auſtriæ, Dux Burgundiæ
Brabantiæ, &c. Comes Palatinus &c Honeſto fi-
deli nobis dilecto LVCAE ALANTSAE ciui
noſtro, & Bibliopolæ Vienneñ. gratiã noſtram
cæſaream & omne bonũ. Vidimus tabulas geo-
graphicas, VADIANIS cõmentarijs in Pom-
ponium Melam adiunctas nobis tuo noĩe obla-
tas. Que ut nobis mirum in modum placuerunt
Ita vehementer cupim⁹, ut ea forma ad omnium
bonarũ literarum ſtudioſorum vſum publicen-
tur. Quod & ſi te haud grauare noſtri gratia etiã
impenſis magnis facturum ſciamus. Ne tamen
priuata res tua incommodetur, quandoquidem
indignum cenſemus laborem, impenſas, & offi-
cia tua pari aliorum opera ſecundariæ editionis
defraudari, maxime vbi iuſsus votumq; noſtrũ
intercedit præſenti noſtro cæſareo edicto, om-
nibus, & ſingulis, cuiuſcunq; conditionis exiſtãt
Calchographis, & librorum impreſſoribus vbi-
libet locorum in ſacro Romano imperio, etiam

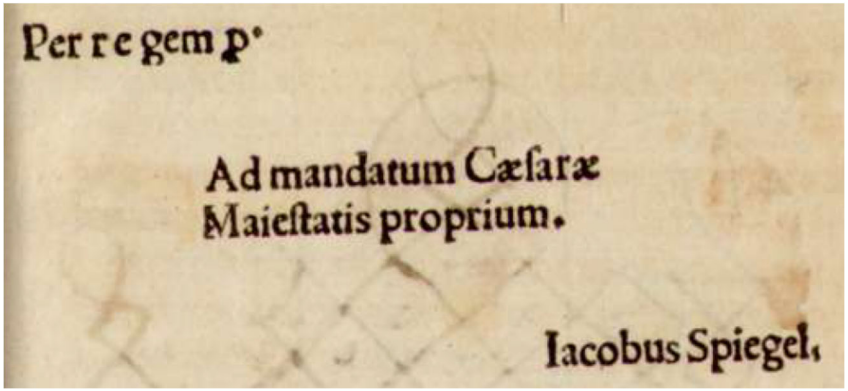
in terris noſtris hæreditarijs conſtitutis, ſub pœ-
na infraſcripta diſtrictius inhibem⁹, ne præfatas
Tabulas, & inſigne etiam PLYNII opus quod
tuis accepimus impenſis, a Thoma Anshelmo
diligẽti admodum Calcographo, in Municipio
noſtro cæſareo Hagenogiñ. ad Hermolai Bar-
bari caſtigationem, vna cũ CAMERTIS noſtri,
vt laborioſiſsima, ita maxime vtili Tabula, in pri-
mis, nec non alia opera, quæ iuxta priuilegium
& gratiam nuper tibi factam poſt præſentiũ da-
tam ſub noĩe, & ſignis tuis edes, per Sexennium
a data editionis cuiuslibet talium Tabularum,
operum, ſeu librorum imprimere, aut alibi im-
preſsa, intra Imperij & ditionũ noſtrarum limi-
tes, & ineorundem locis venundare præſumat
audeat ſeu attentet. Nõ obſtantibus quibuscũq;
in contrariũ emanatis aut conceſsis. Mandantes
omnibus & ſingulis noſtris & ſacri Imperij fide-
libus dilectis, cuiuſcunq; ſtatus, conditõis, & dig-
nitatis etiam ſi Archiepiſcopalis, Pontificalis,
Archiducalis, Ducalis, Marchionalis, Baronalis
Nobilitaris, & alterius cuiuſcunq; præeminẽtiæ
Magiſtratus ſeu officij, ſiue eccleſiaſtici, ſiue ſecu
laris extiterint, ſub pœna indignationis noſtre
& ſacri Imperij grauiſsime, atq; decem Marchar
auri puri, pro vna Fiſco noſtro imperiali, & pro

German 7

Heinrich Schreiber/Schreyber (Grammateus)

Ayn new kunstlich Buech
Nürnberg: Johann Stüchs (for Lucas Atlantsee, Wien) 1518/21

Privilege
for 6 years by emperor Maximilian I
(b. 1459, from 1486 King of the Romans, Holy Roman Emperor 1508–1519)
1518-07-20 (pdf 255)


Per r e gem p'

Ad mandatum Cæſaræ
Maieſtatis proprium.

Iacobus Spiegel.

altera medietatibus tibi LVCAE totiens quotiẽs huic inhibitioni, voluntati, & gratiæ noſtræ cõ⸗ trafactum fuerit, applicandarum vt in præmiſsis tibi oportuno fauore adſiſtãt, ac omnes & ſingu⸗ los contra hanc gratiam, & inhibitionẽ noſtram quicquam facere præſumẽtes huiuſmodi indig⸗ nationis noſtræ & pœnæ ſententiam noſtro no mine incurriſse protinus declarent, & cohibeant ſub artificio impreſſorum non vtendi, amiſsiõis quoque talium librorum ſic (vt præmittitur) cõ⸗ tra hanc noſtram conceſſionem, gratiam & pri⸗ uilegium impreſsorum & adductorum Teq; vbi eos per te vel tuos requiſiueris, tenore præſen⸗ tium, aut harum tranſsumpto autẽtico, cui eam fidem adhiberi volumus. Quæ his noſtris præ⸗ ſentibus adhiberi ſolet & debet, præfata noſtra Gratia & Priuilegio frui & gaudere ſinant, & ab alijs pariter obſeruari faciant, in quantum & ipſi pdictas pœnas euitare maluerint. Harum teſti⸗ monio literarum Sigilli noſtri impreſſione mu⸗ nitarum. Datũ in ciuitate noſtra Imperiali Au⸗ guſta, die viceſima Menſis Iulij, Anno do mini Milleſimo quingenteſimo decimooctauo. Reg⸗ norum noſtrorum Roma. XXXIII. Hungariæ vero. XXXIX.

Yiddish (Judaeo-German) 1

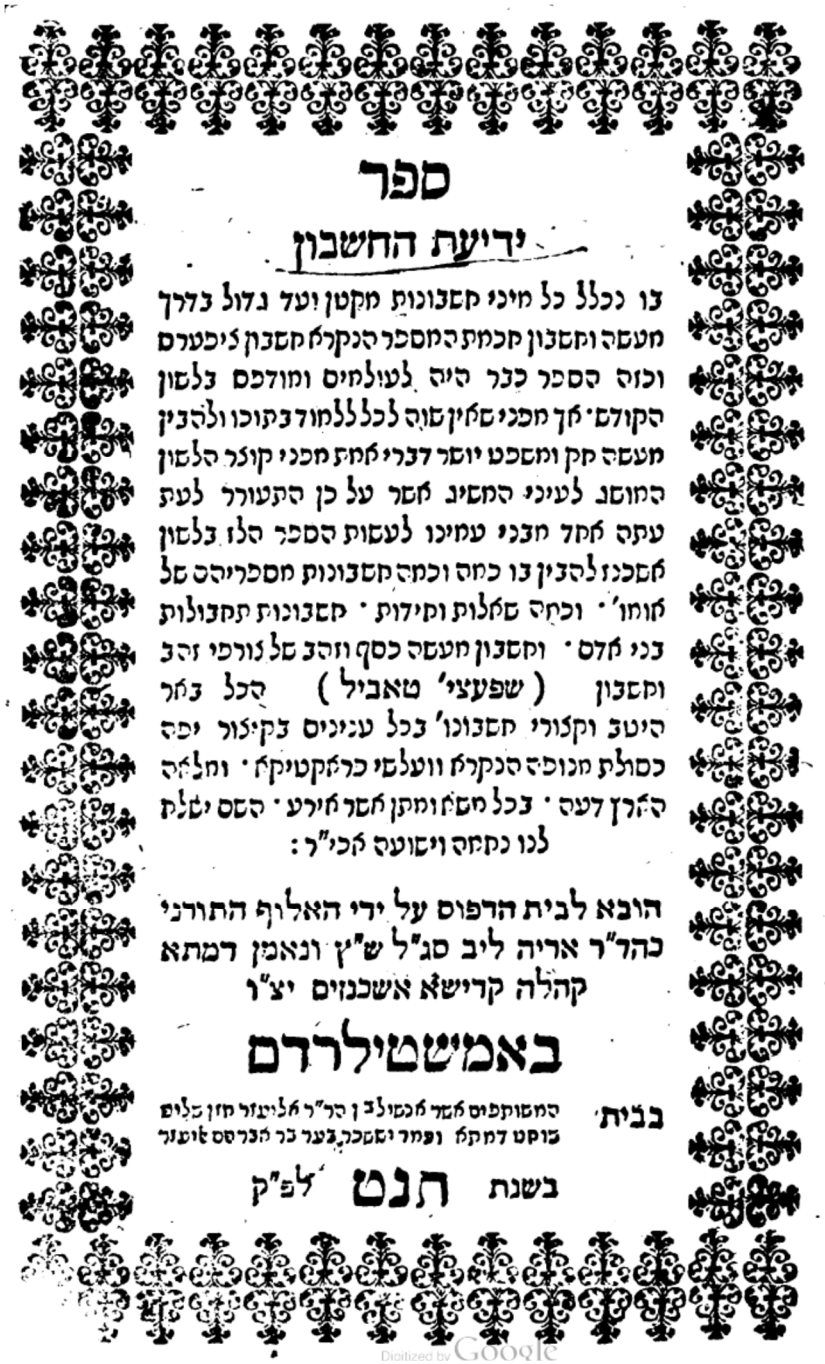
Arieh [‘lion’] Leyb/Layb/Löw Segal Shats/Šaṣ

Arieh Layb Segal ben Zeev Wolf Shatz – publisher 1716 (Ecartico U Amsterdam)

Sēfer Yediʿat ha-ḥešbon

Amsterdam: Ašer Anšel ben Eliʿezer Ḥazan, Yiśaśḵar Baʿer bar Aḇraham Eliʿezer 1699 (Hebrew [5]459)

65 p. arithmetic, 10 p. conversion tables
D: Google
L: Amsterdam Bibl. Rosenthaliana (in U) (OCLC 11546 49346);
Jewish Theological Seminary of America (OCLC 1228 57043), Yale U,
L of Congress (OCLC 6306 2538),
Halle/Saale ULB (OCLC 9983 22159)
S: Holl/Segev: Ries-Kolloquium 2023



ספר

ידיעת החשבון

באמשטילרדם

Digitized by Google

Yiddish 1

Arieh Leyb/Löw

Sēfer Yediʿat ha-ḥešbon
Amsterdam: Anšel, Baʿer 1699

Transcription
of the Hebrew title page

Further biographic data:
Arieh Leyb's son **Shemuel** was active with the publisher Salomon ben Joseph Proops in Amsterdam 1701–1715 (CERL Thes. cnp02160616)
Another son of Arieh Leyb, **Tsevi Hirsch**, was a printer and active with Samuel ben Yiśaśḵar Baʿer Segal, the son of one of the two printers of this book (London BL, record for Yaakov Yosef of Pollonne (Ukraine) (1710–1784): *Ben porat Yosef*. Korez (Ukraine) 1782).

ספר

ידיעת החשבון

בו נכלל כל מיני חשבונות מקטן ועד גדול בדרך
מעשה וחשבון חכמת המספר הנקרא חשבון ציפערס
וכזה הספר כבר היה לעולמים ומודפס בלשון
הקודש• אך מפני שאין שוה לכל ללמוד בתוכו ולהבין
מעשה חק ומשפט יושר דברי אמת מפני קוצר הלשון
המושג לעיני המשיג אשר על כן התעורר לעת
עתה אחד מבני עמינו לעשות הספר הלז בלשון
אשכנז להבין בו כמה וכמה חשבונות מספריהם של
אומו'(ת)• וכמה שאלות וחידות• חשבונות תחבולות
בני אדם• וחשבון מעשה כסף וזהב של צורפי זהב
וחשבון (שפעצי' טאביל) הכל באר

Yiddish 1

Arieh Leyb/Löw

Sēfer Yediʿat ha-ḥešbon
Amsterdam: Anšel, Baʿer 1699

Transcription
of the Hebrew title page

The Hebrew year [5]459
(subtracting 3761/3760)
corresponds to 1698/99 CE.

היטב וקצורי חשבונו'(ת) בכל ענינים בקיצור יפה
כסולת מנופה הנקרא וועלשי פראקטיקא• ומלאה
הארץ דעה• בכל משא ומתן אשר אירע• השם ישלח
לנו נחמה וישועה אכי"ר [אָמֵן כֵּן יְהִי רָצוֹן]:

הובא לבית הדפוס על ידי האלוף התורני
כהר"ר [כְּבוֹד הָרַב רַבִּי] אריה ליב סג"ל [סגן לויה] ש"ץ
[שליח ציבור] ונאמן דמתא
קהלה קדישא אשכנזים יצ"ו [ישמרהו צורו ויחיהו]

באמשטילרדם

בבית חמשותפים אשר אנשיל בן הר"ר אליעזר חזן שליט
[שיהיה לאורך ימים רבים]
שוחט דמתא [העיר] וכמר יששכר בער בר אברהם אליעזר
בשנת **תנט** לפ"ק [לפרט קטן (כי חסרות ספרות בתאריך)]

Yiddish 1

Arieh Leyb/Löw

Sēfer Yediʿat ha-ḥešbon
Amsterdam: Anšel, Baʿer 1699

Translation
of the Hebrew title page

For transcriptions and translations of the Hebrew parts, I am very indebted to Dr. Stela Segev, Herzog College, Jerusalem.

The book of (knowing the) arithmetic
It includes all kinds of calculations from small to large,
how to perform them, and the Calculation Art
which is called Calculation of Numbers
(ציפערס *Zifers* [in Yiddish]).
And such a book has already been printed
in the Holy language (בלשון הקודש *bi-lešon ha-qodeš*
[i.e. in the Hebrew language]).
But because not everyone can learn and understand
the rules and the truths written in the Holy language,
one of our people has just woken up to make this book
in the Ashkenazi language (בלשון אשכנז *bi-lešon aškenaz),*
and to understand through it several calculations
from books of other nations,
and some questions and riddles,
human tricks in calculations
and silver (כסף *kesef*) *and gold* (זהב *zahaḇ*) *calculations*
of goldsmiths (special table)
(*spezie Tabell* טאביל שפעצי' [in Yiddish]).

Yiddish 1

Arieh Leyb/Löw

Sēfer Yediʿat ha-ḥešbon
Amsterdam: Anšel, Baʿer 1699

Translation
of the Hebrew title page

Welsh Practice: techniques to facilitate multiplications, especially with compound amounts consisting of higher and lower units in the context of the rule of three (cf. Ulff-Møller: Ries-Kolloquium 2011)

Ašer Anšel ben Eliʿezer Ḥazan (active 1663–1713) was a printer in Amsterdam. Until 1703, he worked with his partner Yiśaśḵar Baʿer/Bär bar Aḇraham Eliʿezer from Minden
(CERL Thesaurus, cni00043801).

And all is well and shortly explained
as sifted semolina [reduced to the essential parts]
[*using a method*] *which is called Welsh Practice*
(*Welsche Praktika* [in Yiddish] וועלשי פראקטיקא).
And the country was filled with knowledge.
In any negotiation that has occurred,
God will send us comfort and salvation, amen so be it.

Brought to the printing house by the expert in the Torah,
the honored Rabbi Arieh Leib Segal [funeral assistant]
Šaṣ [public messenger], *the city trustee*
of the Ashkenazi Funeral Congregation – his creation
will preserve him and he will live.

In Amsterdam
In the common house of Ašer Anšel son of Rabbi Eliʿezer
Ḥazan – may he live for many days –,
the city butcher [Aramaic word], *and Yiśaśḵar Baʿer,*
Aḇraham Eliʿezer's son
in the year ***t.n.ṭ*** [(5)***459***; 1699 CE]
and some small detail [date not fully written]

Yiddish 1

Arieh Leyb/Löw

Sēfer Yediʿat ha-ḥešbon
Amsterdam: Anšel, Baʿer 1699

Content overview
(according to the section headings)

The Yiddish texts are transcribed in modernized German.
The text often quotes that the terms are Latin.
The pdf numbers of the digital reproduction by Google from the original held by Amsterdam U are used as reading and finding Hebrew page numbers in this book can be complicated.

10 Numeration – called so in Latin
(*Wird genannt auf Latein Nummerieren*)
12 Addition (*Addieren*)
14 Subtraction (*Subtrahieren*)
17 Multiplication (*Multiplizieren*)
21 Division (*Dividieren*)
32 Regula de tri (*Regula de tri*)
41 Italian practice (*Welsche practica*)
44 Silver calculation according to the practice
(*Fein Rechnung in* כסף [kesef Hebrew 'silver']
(von Silber) nach der Practica nach)
47 Numeration of fractions
(*Nummerieren in Gebrochnen*)
51 Addition of fractions (*Addieren in Gebrochnen*)
54 Subtraction of fractions
(*Subtrahieren in Gebrochnen*)
57 Multiplication of fractions
(*Multiplizieren in Gebrochnen*)
59 Division of fractions (*Dividieren in Gebrochnen*)

Yiddish 1

Arieh Leyb/Löw

Sēfer Yediʿat ha-ḥešbon
Amsterdam: Anšel, Baʿer 1699

Content overview
(according to the section headings)

63 Regula de tri for fractions
(*Regula de tri in Gebrochnen*)
65 Regula quinque (*Regula quinque*)
66 Regula quinque for fractions
(*Regula quinque in Gebrochnen*)
67 Information about various currencies and about book-keeping in the most famous cities
(*Ein Nachricht von allerlei Geld, auch wie in den vornehmsten Städten Buch gehalten wird*)
73 Information about weights
(*Nachricht der Gewichte*)

Yiddish 1

Arieh Leyb/Löw

Sēfer Yediʿat ha-ḥešbon
Amsterdam: Anšel, Baʿer 1699

Appendix (pdf 74)
[As the Appendix is not an arithmetic book but a mere collection of currency tables, only the beginning of the title page and the contents is transcribed in modernized German and translated]

Špeṣye buk̲ drinen begrifen
die oyś rek̲enung
fon die fer minderṭe šiling
zu (5) štiberś un' (8) pfening

Spezielles Buch
darinnen inbegriffen die Ausrechnung
von den verminderten Schillingen
zu 5 Stüber und 8 Pfennig
ausgerechnet von fünf und vier Schilling
in einem Worf

Special book
comprising the conversion
of the reduced shillings
worth 5 stivers and 8 pennies
calculated for multiples of five and four shillings

[The printer information is the same as on the title page]

Conversion (Dutch currency):
1 gulden/guilder = 20 stivers = 320 pennies
[stiver: Dutch *stuiver*, German *Stüber*]

Yiddish 2

Moses/Mōše/Moshe Haida/ Hayda ben Yōsēf

Roughly 1670–1750
German mathematician in Hamburg
Grandson of Samuel Haida (1626–1685 Praha) (jewishencyclopedia.com)

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt/Main: Johann Kölner / Kellner (for Šimon Wolf ben Aḇraham from Aachen)
1711 (Hebrew [5]471)

320 p.
D: lbsopac.rz.uni-frankfurt.de
L: Frankfurt U (Jud. Germ. 1189, 907);
London BL (BLL0101 3836814);
NL of Israel (9900 2130 8560 205171);
Harvard U (9900 9520 6350 203941)
S: Holl/Segev: Ries-Kolloquium 2023

ספר
מעשה חורש
וחושב
פקד יפקוד אלהים א
יהאן קעלנר
קרישטיאן פראש

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Transcription
of the Hebrew title page

The Hebrew year [5]471
mentioned in the three approvals
(subtracting 3761/3760)
corresponds to 1710/11 CE:
1710-09-14 – 1711-09-30.
In connexion with the date mentioned on
the title page, 5 Shvat [5471] = 1711-01-25,
the year of publication can be identified
as 1711 CE.

ספר

מעשה חורש

וחושב

מיוסד על אדני חכמת המספר

והתשבורת והיא חבור נחמד אשר

אזן וחקר ותקן הבחור נחמד חריף

ובקי זך ונקי כש"ת [כבוד שם תפארתו]
כה"רר [כבוד הרבי רבי] משה בן

המנוח מוהר"ר [מורנו (ורבנו) הרב רבי]
יוסף היידא זצ"ל [זכר צדיק לברכה]

מהמבורג בהיותו בפראנקפורט

דמיין בשעת שיצאה גזרת השריפה

בע"וה [בעוונותינו הרבים] והמלאכה היתה דיה ונגמרת

ביום א" ה" שבט לסדר ולפרט

פקד יפקוד אלהים א

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Transcription
of the Hebrew title page

After the title page, there are three approvals by:
1 Rabbi Naphtali Catz (Cohen), Frankfurt
2 Moreno (and Rabbeinu) Shmuel Cohen Schotten, President of court and Rabbi of Klause in Frankfurt/Main and of the County of Hessen-Darmstadt
3 Rabbi Aḇraham Naphtali Hirsch Spitz Segal, President of court, community of Worms and its district
and an introduction of the author

תכם נדפס
פה פראנקפורט דמיין
בבית האדון
יהאן קעלניר
ע"י הפועל זעציר
קרישטיאן פראש
מאויגשבורג

נמצאים ונמכרים במקח השוה אצל
האלוף כמוהר"ר [כבוד מורינו ורבנו הרב רבי] שמעון וואלף בן
אברהם מעכן שליט"א [שיזכה לימים טובים וארוכים] בפראנקפורט
דמיין:

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Translation of the Hebrew title page

The title is a game on words as *ḥôšēḇ* means ‘to calculate, to think, to plan’ (cf. Ersch/Gruber, Allg. Enzyklopädie der Wissenschaften. Leipzig 1818–1889).
A similar title was used by Levi ben Gershom (Gersonides; 1288–1344): *Sēfer Maʿaśē ḥôšēḇ* (1321).
This title in turn refers to Exodus 26,1.

The big fire (“Großer Judenbrand”) in Frankfurt on 1711-01-14/15, 24 Tevet 5471, destroyed the entire Jewish ghetto.

5 Shvat [5471] = 1711-01-25

***Book (Work) of plowing* [referring to practice]**
***and thinking (calculation)* [referring to theory]**
or: ***Book on practical and theoretical work***

Based on masters of calculation and
measurements (fractions) is a nice work
which balanced and researched and adjusted
a nice and sharp guy
and skilled pure and clean
– Honor the name of his glory –
Honorable Rebbe Rabbi Moše ben
the deceased Moreno (and Rabbeinu) Rabbi Rabbi
Yosef Hayda
– blessed be the memory of the righteous –
from Hamburg,
when he was in Frankfurt am Main
as the fire decree came out for our many sins,
and the work was enough and
ends on Sunday 5 on Shvat to arrange and to specify

God will command you

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Translation of the Hebrew title page

Johann Kellner/Kölner (1672–1726, active 1698–1726) was a Christian printer in Frankfurt/Main. His printing house was the most important for Hebrew book production in Frankfurt. Kölner is well known for the print of a Babylonian Talmud (CERL Thesaurus, cni00076505; Heuberger, R: Hebräische Drucke. Frankfurt 1994, pdf 4).

For transcriptions and translations of the Hebrew parts, I am very indebted to Dr. Stela Segev, Herzog College, Jerusalem.

Printed
here in Frankfurt am Main
in the house of the gentleman

Johann Kellner/Kölner

by the worker Za'tzir
Christian Frasch
from Augsburg

Are sold for reasonable prices by
the champion our honorable teacher
and Rabbi Shimon Wolf ben
Abraham from Aachen –
may he have good and long days – in Frankfurt
am Main

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Content overview
(according to the section headings and the table of contents (*Register*))

The Yiddish texts are transcribed in modernized German.
The pdf numbers of the digital reproduction by Frankfurt U are used as reading and finding Hebrew page numbers in this book can be complicated, e.g. 115 is not written קיה (100+10+5) but קטו (100+9+6) etc.

312 Numeration of non-denominate integers
(*Nummerieren oder Aussprechung unbenamter ganzer Zahlen*)
315 Numeration of denominate integers
(*Nummerieren benamter ganzer Zahlen*)
316 Addition of non-denominate integers
(*Addieren oder Versammlung unbenamter ganzer Zahlen*)
319 Addition of denominate integers
(*Addieren benamter ganzer Zahlen*)
321 Subtraction of non-denominate integers
(*Subtrahieren oder Abziehung unbenamter ganzer Zahlen*)
324 Subtraction of denominate integers
(*Subtrahieren benamter ganzer Zahlen*)
326 Check (*Probe*): inverse operation; criticism of check by nine
327 Multiplication of non-denominate integers
(*Multiplizieren unbenamter ganzer Zahlen*)
328 Multiplication table (*Das Einmaleins*)
337 Division of non-denominate integers
(*Dividieren oder Teilen unbenamter ganzer Zahlen*)
345 Check (*Probe*): inverse operation
346 Fractions: Numeration of fractions
(*Von Brüchen: Nummerieren in gebrochnen Zahlen*)
347 List of denominate fractions
(*Auflistung benamter gebrochner Zahlen*)
349 Addition of denominate fractions
(*Addieren oder Versammlung benamter gebrochner Zahlen*)

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Content overview

(according to the section headings and the table of contents (*Register*))

357 Subtraction of denominate fractions
(*Subtrahieren oder Abziehung benamter gebrochner Zahlen*)
361 Multiplication of fractions
(*Multiplizieren oder Vielfältigung gebrochner Zahlen*)
367 Division of fractions
(*Dividieren oder Abteilung gebrochner Zahlen*)
375 Regula de tri (*Regula de tri oder Lehrsatz von dreien*):
378 First type (*Erste Art*): anterior number (*vordere Zahl*) = 1;
380 Check or examination of regula de tri
(*Von der Prob oder Untersuchung des Lehrsatzes von dreien*);
390 Second type (*Zweite Art*): posterior number (*hintere Zahl*) = 1;
401 Third type (*Dritte Art*): middle number (*mittlere Zahl*) = 1;
410 Fourth type (*Vierte Art*): all of the three numbers > 1
420 Regula de tri for fractions
(*Regula de tri in gebrochnen Zahlen*):
421 First type (*Erste Art*); 431 Second type (*Zweite Art*);
443 Third type (*Dritte Art*); 449 Fourth type (*Vierte Art*)
466 Regula de tri inversa
(*Regula de tri conversa oder verkehrter Lehrsatz von dreien*)
477 Regula quinque (*Regula quinque oder Lehrsatz von fünfen oder gedoppelter Lehrsatz*)
483 Regula quinque inversa
(*Regula quinque conversa oder verkehrter Lehrsatz von fünfen oder verkehrter gedoppelter Lehrsatz*)

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Content overview
(according to the section headings and the table of contents (*Register*))

489 Time calculation (*Zeitrechnung*)
506 Interest calculation (*Zinsrechnung*);
511 Interest tables (*Zinstabellen*)
524 Discount calculation (*Rabatt oder Abzug-Rechnung*)
530 Tare calculation (*Tara oder Abgang-Rechnung*);
531 General tare (*Gemeine Tara oder Abgang*);
534 Tare on top (*Tara auf*); 536 Tare within (*Tara in*)
538 Tret (portions of bad quality) calculation (*Fusti garbolir* [Old Italian garbellare ‘to garble, sift’] *oder Entscheid-Rechnung*)
541 Currency conversion calculation (*Wechsel-Rechnung*);
548 Conversion tables
562 Regula societatis simplex (*Regula societatis oder Gesellschaftsrechnung*); 564 Check (*Probe*)
570 Regula societatis temporum (*Zweifache Gesellschaftsrechnung*)
571 Barter calculation and balanced barter calculation (*Stich- oder Tausch-Rechnung und gleiche Tausch-Rechnung*)
574 Unbalanced barter calculation (*Ungleiche Stich-Rechnung*)
576 Gold and silver calculation (*Fein Rechnung*)
581 Rules for calculating alloys and mixtures (*Regula alligationis Zusammensetz- oder Vermeng-Rechnung*):
582 First type (*Erste Art*): find alloy
583 Second type (*Zweite Art*): find parts

Yiddish 2

Moses/Moshe Haida/Hayda

Sēfer Maʿaśē ḥôrēš we-ḥôšēḇ
Frankfurt: Johann Kölner 1711

Content overview
(according to the section headings and the table of contents (*Register*))

594 Regula caecis (*Regula caecis oder Blind-Rechnung*)
597 Check or examination of problems of this type (*Von der Probe oder Untersuchung dergleichen Aufgaben*)
607 Regula falsi or "assumed test value" method (*Regula falsi positionum oder Erdichtete-Satz-Rechnung*)
610 Check or examination of this and similar problems (*Von der Probe oder Untersuchung dieser und dergleichen Aufgaben*)
616 Additional problems (*Zugab-Rechnung*): Diophantine equations, division-with-remainder problems, magic squares
628 Conversion or value of the currency, measure, weight, number and time units which occur in this book (*Von Wechsel (Resolvierung) oder Wert der in diesem Buch vorfallenden Münz-, Maß-, Gewicht-, Zahl- und Zeit-Arten*)

Low German

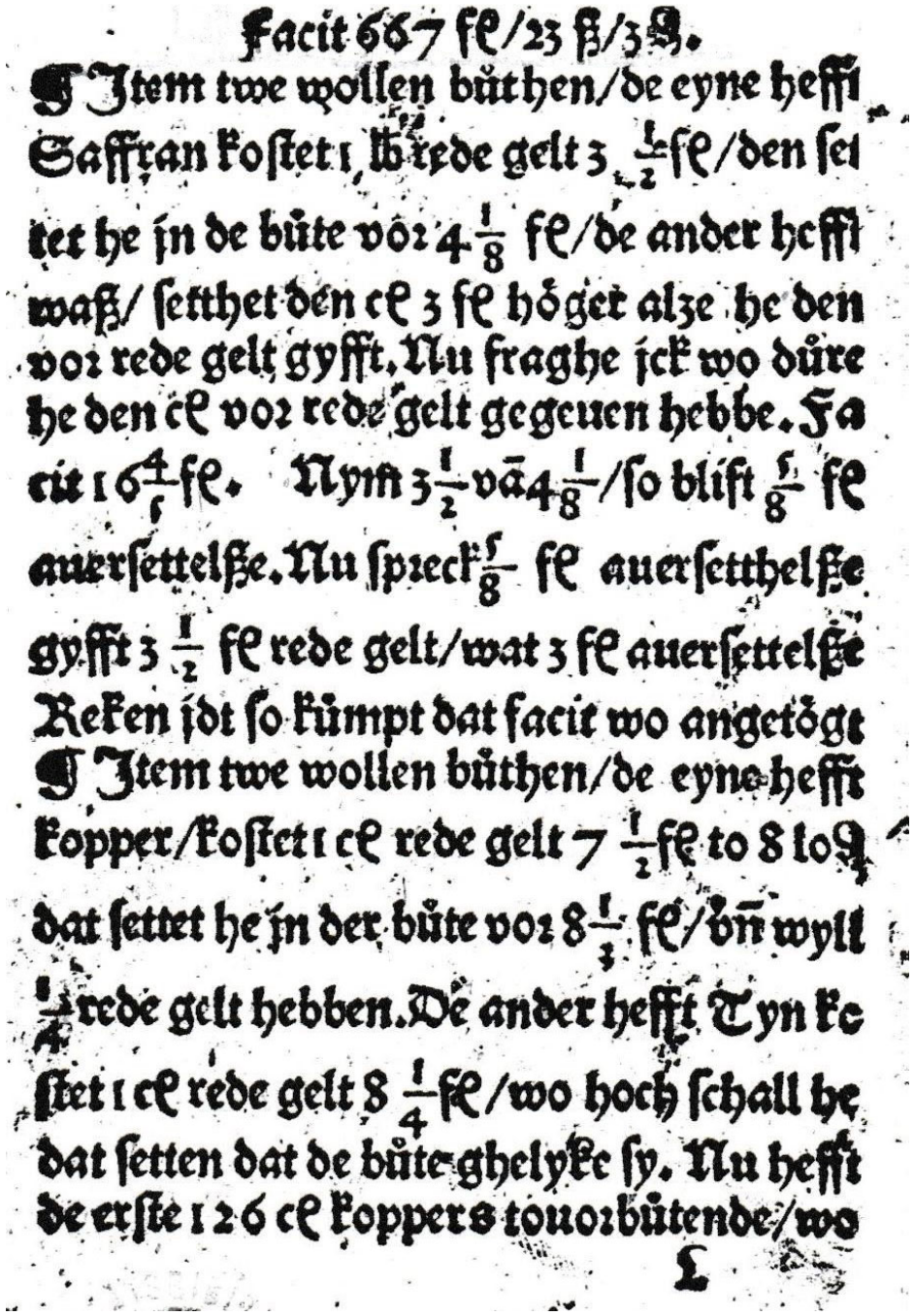
Caspar Hützler

b. ca. 1500 Nürnberg
1517–1519 University Leipzig
1521 University Wittenberg
1522–1539 ? (Gebhardt 2020)
1540 Civic privilege Freiberg
1543–1546 Schulpforta (Naumburg), Freib.

Eyn behende und künstrike Rekensbock

Rostock: Brüder vom gemeinsamen Leben ca. 1527

Only signature L (8 fol.) with end of barter and begin of regula societatis survived.
Text is identical with Lübeck ²1547.
C/V: Hoock I/–29.1; VD16 ZV 32786
Borchling/Claussen Nr. 933, 1436
L: Rostock UB (Lb-1093(2).42)
S: Deschauer, S. In: Jahrbuch Adam-Ries-Bund 2023


Facit 667 ß/23 ß/3 ₰.
¶ Item twe wollen büthen/de eyne hefft Saffran koſtet 1 ℔ rede gelt 3 ½ ß/den ſettet he jn de büte vor 4 ⅛ ß/de ander hefft waß/ ſetthet den ℔ 3 ß höget alze he den vor rede gelt gyfft. Nu fraghe jck wo dure he den ℔ vor rede gelt gegeuen hebbe. Facit 16 4/5 ß. Nym 3 ½ vñ 4 ⅛/ſo blift 5/8 ß auerſettelße. Nu ſpreck 5/8 ß auerſetthelße gyfft 3 ½ ß rede gelt/wat 3 ß auerſettelße Reken jdt ſo kümpt dat facit wo angetögt
¶ Item twe wollen büthen/de eyne hefft kopper/koſtet 1 ℔ rede gelt 7 ½ ß to 8 to 9 dat ſettet he jn der büte vor 8 ⅓ ß/vñ wyll ¼ rede gelt hebben. De ander hefft Tyn koſtet 1 ℔ rede gelt 8 ¼ ß/wo hoch ſchall he dat ſetten dat de büte ghelyke ſy. Nu hefft de erſte 126 ℔ koppers to vor bütende/wo
L

Low German

Caspar Hützler

Eyn behende und künstrike Rekensbock

1st edition Rostock ca. 1527

Other edition ca. 1545? (nothing survived)

Lübeck: Johann Balhorn [2]1547

Preface 1547-01-28, epilogue 1547-04-27

208 p.

C/V: Hoock I/H14 (later edition 1554); VD16 H 5797, 5798; Borchling/Claussen Nr. 1436, 1484, 1623

D/L: Hamburg SUB

S: Reich, U: Ries-Kolloquium 1996

Gebhardt, R: Ries-Kolloquium 2020 [an earlier High German arithmetic of Hützler mentioned several times]

Crecelius, Wilhelm: Niederdt. Rechenbücher. In: Jahrbuch des Vereins für nddt. Sprachforschung 23 (1988) 99–100

Low German

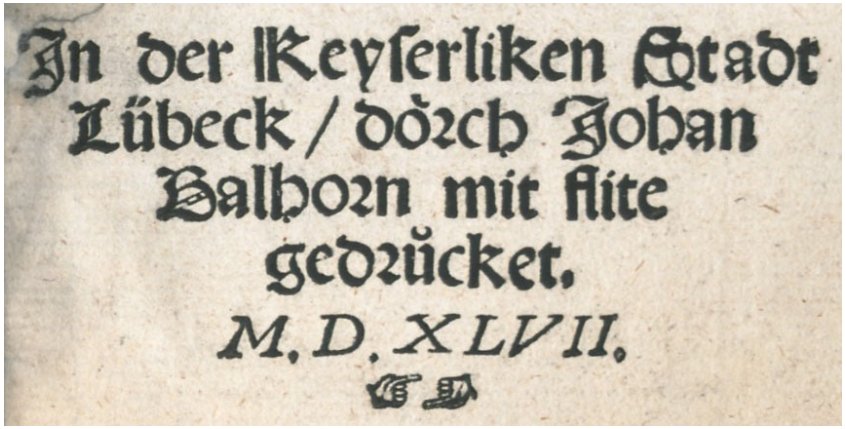
Caspar Hützler

Eyn behende und künstrike Rekensbock

1st edition Rostock ca. 1527

Lübeck: Johann Balhorn [2]1547

Transcription of the title page and of the colophon


In der Keyſerliken Stadt
Lübeck / dörch Johan
Balhorn mit flite
gedrücket.
M. D. XLVII.

[coats of arms of the cities
SVNT, HBOR, LVEBECK, LVBO, ROSTOCH]

Eyn be-
hende vnd künst-
rike Rekensbock/ vp
allerley koephandele/ ym
talle/ mate vnd gewichte/ vp
der Linien vnd tzy⟨s⟩[f]ern/ gantz
grüntlick gemaket vnd tosa-
mende gelesen/ dörch Casper
Hützler van Nörenberch/
Thom andern male auer-
seen/ vnd mit flyte dörch
Johan Balhorn gedrücket.

In der Keyserliken Stadt
Lübeck/ dörch Johan
Balhorn mit flite
gedrucket M.D.XLVII.

Low German

Caspar Hützler

Eyn behende und künstrike Rekensbock

1st edition Rostock ca. 1527

Lübeck: Johann Balhorn 21547

Translation of the title page and of the colophon

[coats of arms of the cities
Stralsund, Hamburg, Lübeck, Lüneburg, Rostock]

An easily
usable and
elaborate arithmetic book
for various commerce activities,
in number, measure and weight,
with the counters and the pen,
very thoroughly arranged and
compiled by
Kaspar Hützler from Nürnberg
revised a second time
and printed with care by
Johann Balhorn

Printed with care
in the imperial city of Lübeck
by Johann Balhorn
1547

Low German

Caspar Hützler

Eyn behende und künstrike Rekensbock

1st edition Rostock ca. 1527

Lübeck: Johann Balhorn [2]1547

Content overview

(according to Aiii[v] and the section headings)

Dedication to the mayors (*Börger-meisteren*) and councilors (*Radtmannen*) of the imperial city (*Keyserlike Stadt*) of Lübeck

Part 1

- Species with the counters (*vp der Linien*)
- Species with the pen (*vp den cifern*), check by nine (*Proba mit Negen*)
- Progressions [as special type of species]
- Regula de tri for integers (*gantze Tallen*)
- Species for fractions (*gebrakene Tallen, Bröke*), identifying a common denominator of a set of fractions (*reducering*)
- Regula de tri for fractions
- Profit and loss (*gewin vnde vorlust*)
- Geometry of the circle
- Motion (pursuit, encounter)
- Silver and gold calculation (*Süluer vnd Golde rekenschop*)
- Loading the crucible (*schickinge des Degels*)
- Coinage (*Münteslag*)
- Barters (*Bütende*)
- Regula societatis (*Geselschöppen*)
- Additive partition (*Deiling*) [incl. special testament]
- Currency exchange (*Wessel, wesling*)

Part 2

- Regula falsi
- Algebra (*Coss*)
- Regula caecis or virginum
- Reductio descendens (*Resoluering*) for various units

Low German – Supplement

Arithmetic books 1527 and later

Stephan Stump: *Rychtestich* [richtsteig, 'guide'] *unde Weghewyser in allerley Kopenshop*. Rostock: Ludwig Dietz (for Hans Schaden) 1527-05-25
Goods-price tables; only fragments extant
C: Hoock I/S33; Borchling/Claussen 925
L: Rostock UB (MK 6060(2).24; sign. A)

Achacius Döringk: *Arithmetica düdesch*. Hamburg from 1549 on
C: Hoock I/D6
D: [1573] Halle/Saale ULB
L: Hamburg SUB
E: Elbing, Bernhard (Rechenmeister 27). Annaberg-Buchholz 2023

Franziskus Brasser (ca. 1520–1594): *Eyn nie* [neues] *vnde Wolgegründet Rekensbock*. Lübeck from 1552 on
C: Hoock I/B23
S: Reich, U: Ries-Kolloquium 1996

Frisian

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

Information: Because Frisian is hardly used as a language of instruction, there are no books for arithmetic or mathematics in Frisian.
All books used at school are in Dutch.
Sometimes, however, there are books that deal with arithmetic and in which mathematical issues are presented.
An example of this is (but it's not a school textbook):
Stutvoet, H J: *Fen njuggenproef oant gouden fyk. Rekkenkindige biwirkingen, wiskundige fynsten en puzzles* [From check by nine to golden ratio. Arithmetic operations, mathematical results and puzzles]. Amsterdam: Ahrend 1943.
In parallel, this book was published in Dutch with the title: *Van negenproef tot gulden snede. Rekenkundige bewerkingen, wiskundige vondsten en puzzles*.

Reference: Fryske Akademy, Leeuwarden
Date: November 2020

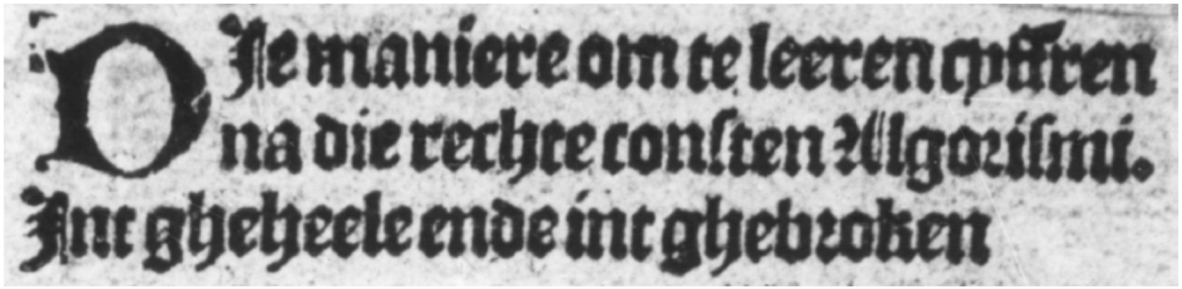
Dutch

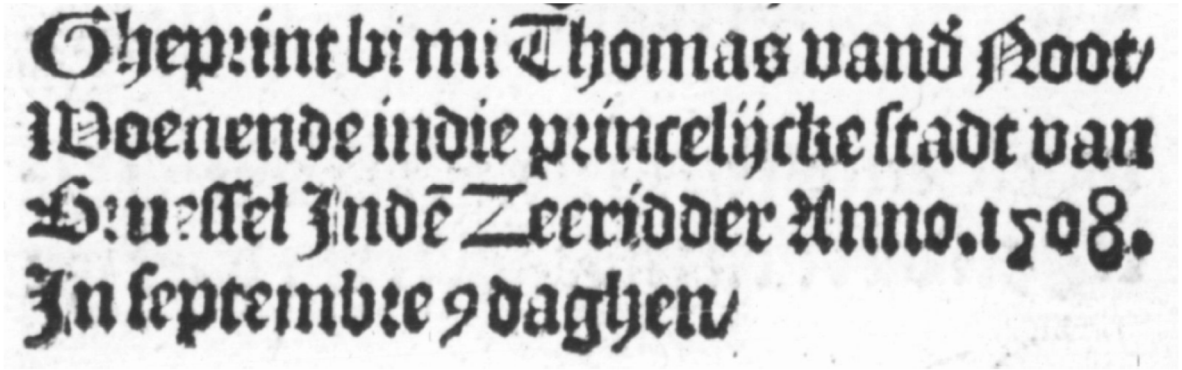
Anonym

Die maniere om te leeren cyffren (ende rekenen metter pennen end metten penningen [ca. 1510])
na die rechte consten Algorismi
Brussel: Thomas van der Noot
1508-09-09
2nd edition
Antwerpen: Willem Vorsterman ca. 1510

French translation of the 2nd edition
La manière pour apprendre a cyfrer
Antwerpen: Martin Lempereur (De Keyser) (for Guillaume (Willem) Vorsterman) 1529
(cf. French – Supplement)

96 p.
C/V: Hoock I/–20
D/L: Brussel Royal L KBR
L: [1510] Amsterdam U (Ned.Inc. 293)


Dese maniere om te leeren cyffren
na die rechte consten Algorismi.
Int gheheele ende int ghebroken


Ghedruct bi mi Thomas vanden Noot
Woenende indie princelijcke stadt van
Brussel Inden Zeeridder Anno.1508.
In septembre 9 daghen

Dutch

Anonym

Die maniere om te leeren cyffren
Brussel: van der Noot 1508

Transcription of the title page and of the colophon

S: Bockstaele, Paul:
Het oudste gedrukte Nederlandse rekenboekje. In: Scientiarum Historia 1, Antwerpen 1959, S. 53–71 und 117–127; The first arithmetics printed in Dutch and English. In: Isis 51 (1960) 315–321
Holl, Alfred: Ries-Kolloquium 2023
Smeur, Alphons J E M:
De zestiende-eeuwse Nederlandse rekenboeken. s' Gravenhage 1960
Struik, Dirk J: Mathematics in the Netherlands during the first half of the sixteenth century. In: Isis 25 (1936) 46–56

DIe maniere om te leeren cyffren
na die rechte consten Algorismi.
Int gheheele ende int ghebroken

Gheprint bi mi Thomas van der Noot/
Woenende in die princelijke stadt van
Bruessel In den Zeeridder Anno .1508.
In septembre 9 daghen/

Dutch

Anonym

Die maniere om te leeren cyffren
Brussel: van der Noot 1508

Translation of the title page
and of the colophon

The way to learn to calculate [cf. French chiffrer]
according to the correct art of algorism.
For integers and fractions

Printed by me Thomas van der Noot
dwelling in the princely city of
Brussel in the [house] *Zeeridder in the year 1508*
on the 9th day of September

zeeridder (sea knight, chevalier marin, Seeritter, zitiron)
with the inscription *Ic sals ghedincken*
('I shall keep the memory alive') in the end of the book

Dutch

Anonym

Die maniere om te leeren cyffren
Brussel: van der Noot 1508

Content overview
(according to the section headings)

2nd edition ca. 1510 additionally contains a 4th part on calculating with the counters

Preface (*Want onder die seuen vrie consten*)
[1] Species (*bewerking*) for integers (*gheheele*)
1 Numeration
2 Addition
3 Subtraction
4 Halving (*mediatio, medieren*)
5 Duplication (*dupleren*)
6 Multiplication
7 Division (all with check by 7 or by inverse operation)
[2] 8–14 The same operations for fractions (*ghebroken ghetalen*)
[3] [Rules]
[3.1] [Basic rules]
Regula de tri (*ghulden reghel*, *reghel von tri*)
Regula societatis and regula societatis temporum (*reghel van gheselscape; reghel van den tide der ghesellen*)
Rule of bartering (*reghel van barteringhen*)
[3.2] [Other rules]
[1] Hare and greyhound: pursuit (*hase ende haeswint*)
[2] Motion in the same direction with constant vs increasing distances per day: pursuit

Dutch

Anonym

Die maniere om te leeren cyffren
Brussel: van der Noot 1508

Content overview
(according to the section headings)

[3] Motion in opposite directions with different distances per day: encounter
[4] Egg woman and broken eggs: remainder
[5] Lazy worker: temporal part
[6] Unknown inheritance: nesting
[7] Testament, one son two daughters triplet: twin inherit.
[8] Two cups and a lid
[9] Gold smith: alloy
[10] Gold coins to silver coins: regula equalitatis
[11] Ship purchase: company (sum of the parts > 1)
[12] Four carpenters build a house: shared work
[13] Lord and servant: interrupted contract
[14] Three young men play dice, equal amounts in the end: nesting
[15] Batch of pepper (unknown price): too much, too little
[16] Almonds (unknown money): too much, too little
[17] A drunkard, his wife and a barrel of beer: shared work

The editions ca. 1510, 1529 (French) widely coincide with [4.4] and the 2nd part (counters) of the earliest English arithmetic books (1537, 1539).

Dutch – Supplement

Later than Anonym 1508/10

Gielis/Aegidius van den Hoecke

1521 University Leuven/Louvain
1535 Lived in Gent/Gand

Een sonderlinghe boeck in dye edel conste Arithmetica, met veel schoone perfecte regulen
Antwerpen/Anvers [1]1537

Jn Arithmetica, een sonderlinge excellent boeck, leerende veel schoone ende perfecte regulen der seluer Conste.
Antwerpen [2]1545 (same pagination; ►)

C: Hoock I/V3
S: Kaunzner, W: Ries-Kolloquium 1999
Bockstaele, P. In: Mededel. Koninkl. Acad. België, Klasse Wetensch.47 (1985) p. 5–

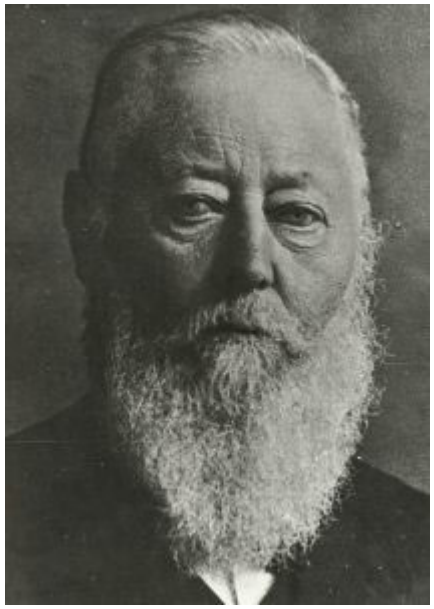
Simon Stevin (1548–1620) *De Thiende* etc.
S: Schneider, I: Ries-Kolloquium 2008

Jn Arithmetica/
een sonderlinge excellēt boeck/
leerende veel schoone ende perfecte
regulen der seluer Conste/eenen yeghelijcken
seer profijtelijck ende van noode te weten.
Wtghegeuen/ghecalculeert/eñ ver-
saemt met grooter neerstichept/
Op Gielis vandē hoecke.
Het inhouden van desen boecke/sult ghy
vinden hier om in dese nauolghende stde.
Ghepzent Thantwerpen/op die Lom-
baerde veste. Op my Symon Cock.

Afrikaans

Casper Peter Hoogenhout

b. 1843 Amsterdam
d. 1922 Wellington
Teacher, poet, translator of the bible, pioneer of the language Afrikaans
(Afrikaans Wikipedia; namibiana.de/namibia-information/lexikon/begriff/c-p-hoogenhout.html)



Uw en mijn cijferboekje

Paarl: Daniël François du Toit 1882

Later editions: [2]1889, [4]1899
Solutions in: *Sleutel van "Uw en mijn cijferboekje"*. Paarl: du Toit 1882, [3]1893

94 p.
C/V: WorldCat
L: Paarl Afrikaanse Taalmuseum (OCLC 1058 47264; 1058 47001)

"UW EN MIJN CIJFERBOEKJE"

VOOR

Hollandsch-Afrikaansche Kinderen,

OP DE LAGERE SCHOLEN

IN ZUID AFRIKA.

Zamengesteld door een Onderwijzer.

UITGEGEVEN DOOR EN VOOR REKENING VAN
D. F. DU TOIT & Co.,
AAN DE PAARL, KAAP DE GOEDE HOOP.
1882.

GEDRUKT VOOR REKENING VAN DE EIGENAARS DOOR
SAUL SOLOMON & CO., DRUKKERS, ST. GEORGESTRAAT.

Afrikaans

Casper Peter Hoogenhout

Uw en mijn cijferboekje
Paarl: D. F. du Toit 1882

Transcription of the title page and of the colophon

"Uw en mijn Cijferboekje"
voor
Hollandsch-Afrikaansche Kinderen,
op de lagere scholen
in Zuid Afrika.

Zamengesteld door een Onderwijzer.

Uitgegeven door en voor rekening van
D. F. du Toit & Co.,
Aan de Paarl, Kaap de Goede Hoop.
1882.

Gedrukt voor Rekening van de Eigenaars door
Saul Salomon & Co., Drukkers, St. Georgestraat.

Afrikaans

Casper Peter Hoogenhout

Uw en mijn cijferboekje
Paarl: D. F. du Toit 1882

Translation of the title page and of the colophon

"Your and my arithmetic booklet"
for
Dutch-African children,
at the primary schools
in South Africa

Arranged by a teacher

Edited by and at the expense of
D. F. du Toit & Co.,
Aan de Paarl, Cape of Good Hope
[= Cape Province, Kaapland, Cape Town area]
1882

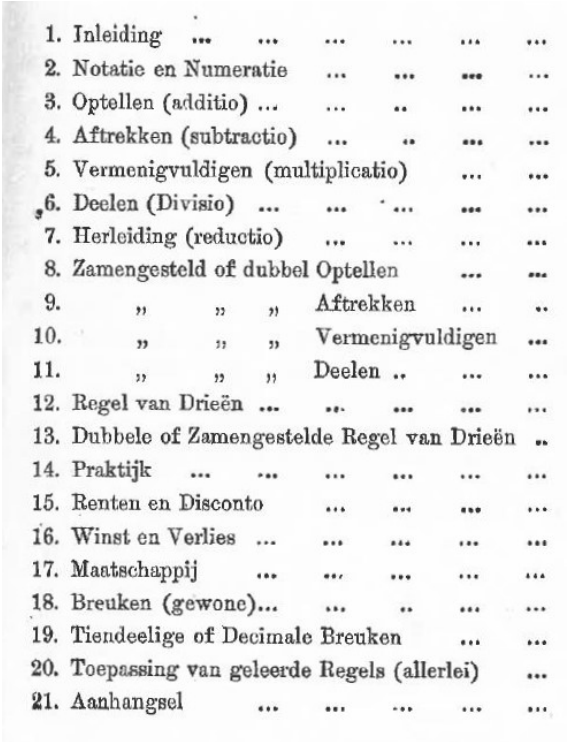
Printed at the expense of the owners by
Saul Salomon & Co., printers, St. George Street

Afrikaans

Casper Peter Hoogenhout

Uw en mijn cijferboekje
Paarl: D. F. du Toit 1882

Content overview
(according to the table of contents)



1. Inleiding ... ...
2. Notatie en Numeratie ... ...
3. Optellen (additio) ... ...
4. Aftrekken (subtractio) ... .
5. Vermenigvuldigen (multiplicatio) ... ...
6. Deelen (Divisio) ... ...
7. Herleiding (reductio) ... ...
8. Zamengesteld of dubbel Optellen ... ...
9. „ „ „ Aftrekken ... ..
10. „ „ „ Vermenigvuldigen ...
11. „ „ „ Deelen .. ..
12. Regel van Drieën ... ...
13. Dubbele of Zamengestelde Regel van Drieën ..
14. Praktijk ... ...
15. Renten en Disconto ... ...
16. Winst en Verlies ... ...
17. Maatschappij ... ...
18. Breuken (gewone)... ... .
19. Tiendeelige of Decimale Breuken ... ...
20. Toepassing van geleerde Regels (allerlei) ...
21. Aanhangsel ... ...

Preface (*Voorrede*)
1 Introduction
2 Numeration
3 Addition (*Optellen*)
4 Subtraction (*Aftrekken*)
5 Multiplication (*Vermenigfuldigen*)
6 Division (*Deelen*)
7 Reduction (*Herleiding*)
8–11 Compound species [for denominate numbers]
12 Regula de tri (*Regel van Drieën*)
13 Regula quinque, double or compound regula de tri (*Dubbele of Zamengestelde Regel van Drieën*)
14 Practice
15 Interest and discount (*Renten en Disconto*)
16 Profit and loss (*Winst en Verlies*)
17 Regula societatis (*Maatschappij*)
18 Common fractions (*Gewone Breuken*)
19 Decimal fractions (*Tiendeelige* or *Decimale breuken*)
20 Application of learned rules – various problems (*Toepassing van geleerde Regels – allerlei*)
21 Appendix

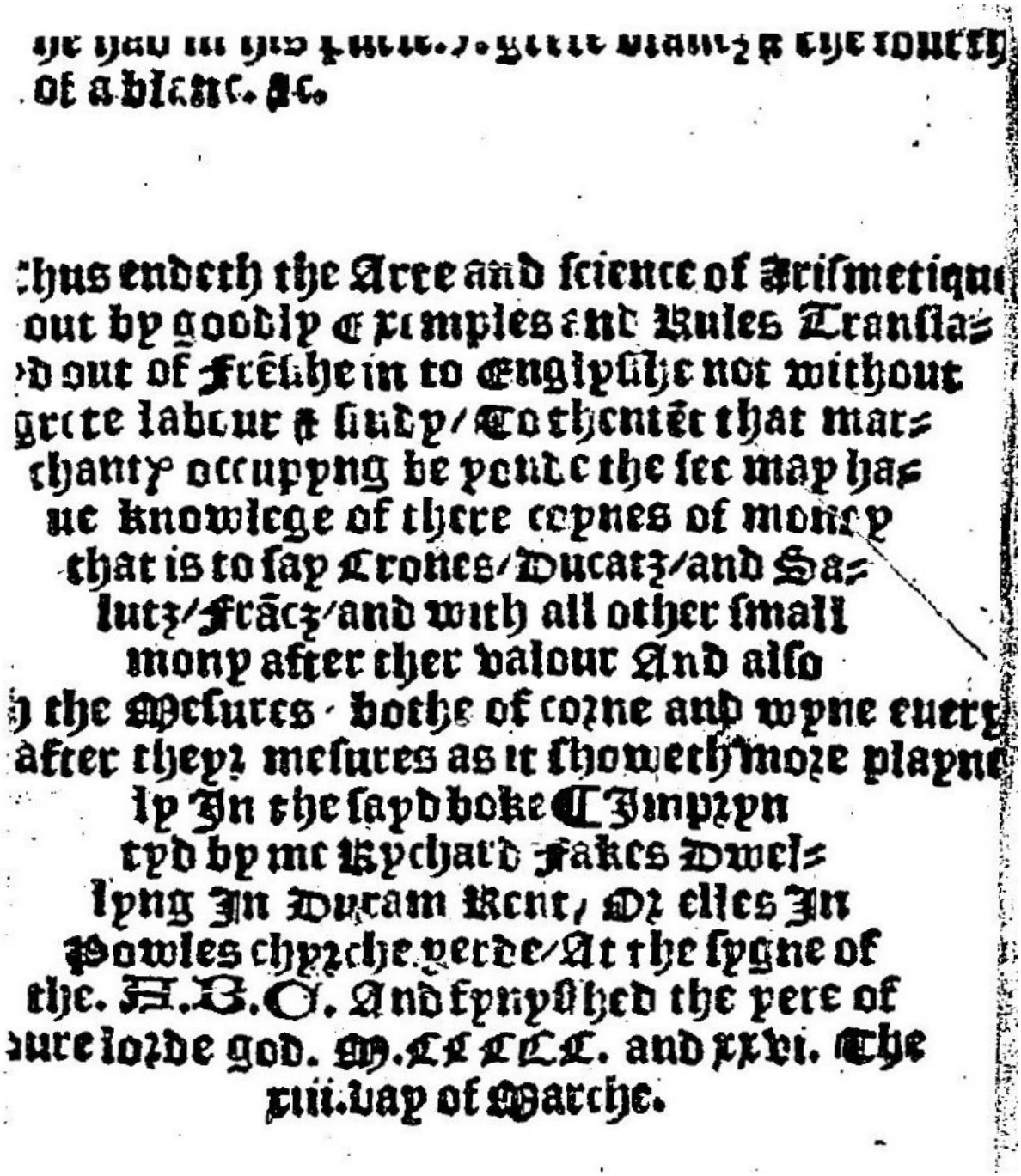
English 1

Anonym

Arte and science of Arismetique
London: Richard Faques
1526-03-13

Only the colophon page extant.
D: Early English Books Online (ProQuest)
L: London BL (OCLC 1170 674509)
S: Holl, Alfred: Ries-Kolloquium 2023
Williams, Travis. In: The Library 13 (2012) 164–184

At the top, the end of the problem of the three saints:
... he had in his purse .5. grete blancz & the fourth of a blanc &c.
This problem is the last one in section [4.3] in the editions of 1537 and 1539.


ye had in his purse .5. grete blancz & the fourth
of a blanc. &c.

thus endeth the Arte and science of Arismetiqu
out by goodly exemples and Rules Transla=
ted out of frenshe in to englysshe not without
grete labour & study/ To thentēt that mar=
chanty occupyng be yende the see may ha=
ue knowlege of there coynes of money
that is to say Crownes/ Ducatz/ and Sa=
lutz/ Frācz/ and with all other small
mony after ther valour And also
the Mesures · bothe of corne and wyne euery
after theyr mesures as it showeth more playne
ly In the sayd boke Imprynt
ted by me Rychard Fakes Dwel=
lyng In Duram Rent/ Or elles In
Powles chyrche yerde/ At the sygne of
the. R.B.O. And fynysshed the yere of
oure lorde god. M.CCCCC. and xxvi. The
xiii. day of Marche.

English 1

Anonym

Arte and science of Arismetique
London: Richard Faques 1526

Transcription of the colophon

Thus endeth the Arte and science of Arismetique
[set] out by goodly Exemples and Rules Transla-
[ty]d out of Frensche in to Englysche not without
grete labour & study/ To thentent that mar-
chants occupyng be yonde the see may ha-
ue knowledge of there coynes of money
that is to say Crones/ Ducatz/ and Sa-
lutz/ Francs/ and with all other small
mony after ther valour And also
[wit]h the Mesures/ bothe of corne and wyne euery
[one] after theyr mesures as it showeth more playne-
ly In the sayd boke. Impryn-
tyd by me Rychard Fakes Dwel-
lyng In Duram Rent/ Or elles In
Powles chyrche yerde/ At the sygne of
the .A.B.C. And fynysched the yere of
oure lorde god. M.CCCCC. and xxvi. The
xiii. day of Marche.

English 1

Anonym

Arte and science of Arismetique
London: Richard Faques 1526

Translation of the colophon

Salut: French gold coin introduced by Charles VI (1380–1422), having as obverse a representation of the Annunciation above/behind the shields of France and England

Thus ends the Art and science of Arithmetic
set out with goodly examples and rules
translated from French into English not without
great labour and study, to the intent that
merchants occupying beyond the sea should
have knowledge of their coins of money,
that is to say Crowns, Ducats and Saluts,
Francs, and with all other small
money after their value; and also
with the measures, both of corn and wine each
one after their measures as it shows [it] *more*
plainly in the said book. Imprinted
by me Richard Faques dwelling
in Durham Rent, or else in
Paul's church yard, at the sign of
the .A.B.C. and finished the year of
our lord God 1526, the
13th day of March.

English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters

[St. Albans: John Hereford] (for R[ichard] Stevenage) 1537

London, Aldersgate street: Nicolas Bourman 1539 etc.

The 1539 edition is the first one which contains the false position method.

288 p.

C/V: Hoock I/–16 (editions until 1629)

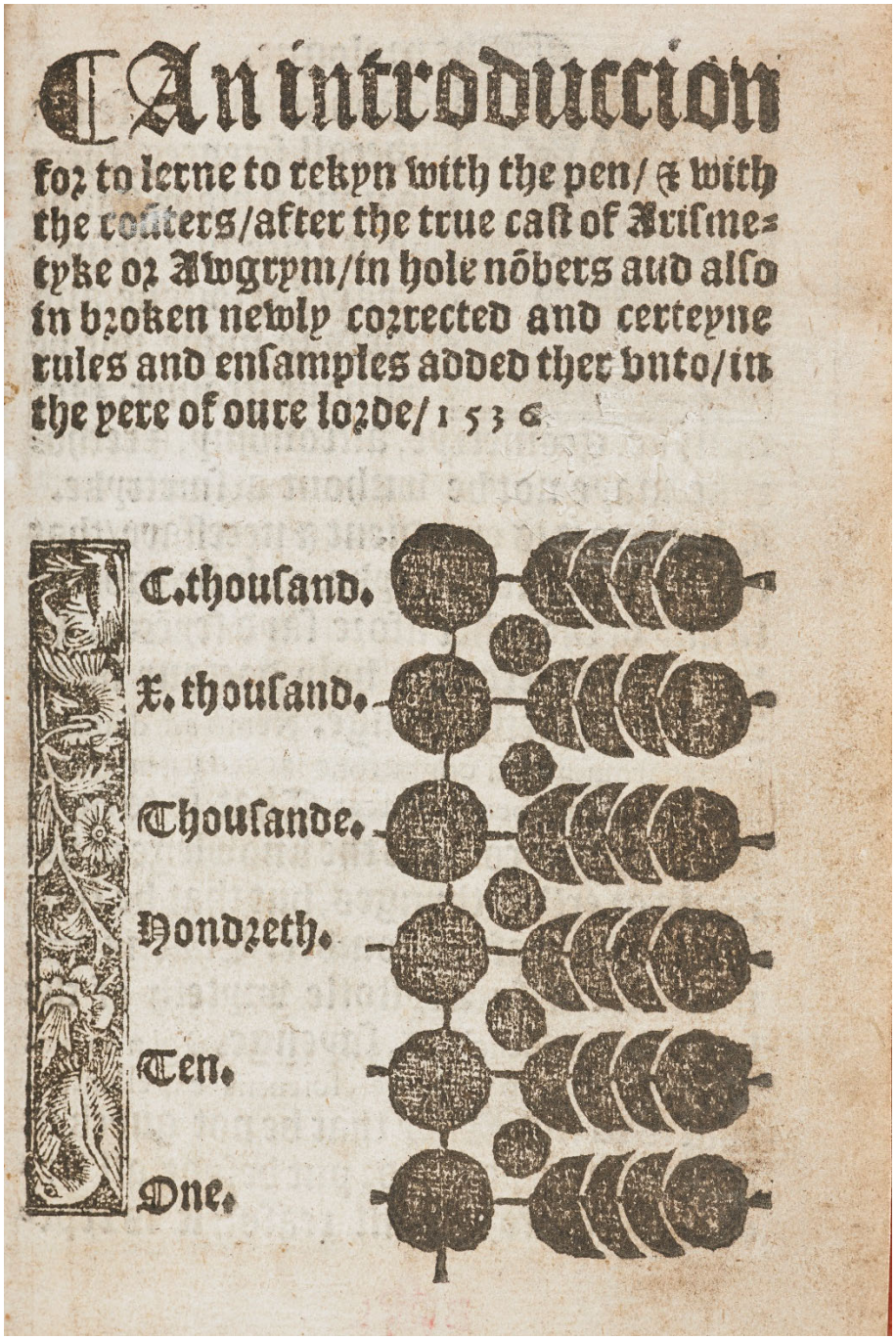
D: [1539] proquest.com

R: [1539] TGR Renascent Books 2009

L: London BL (C.194.a.450)

S: Bockstaele 1959, p. 123–127 (cf. Dutch)

Richeson, A W: The first arithmetic printed in English. In: Isis 37 (1947) 47–56



English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters
[St. Albans: John Hereford] (for R[ichard] Stevenage) 1537

¶ Thus endeth the ſcyence of awgrym the whiche is newly corrected out of dy-uers bokes, bycauſe that the people may come to the more vnderſtandynge and knowlege of the ſayde arte or ſcyence of awgrym. And bycauſe the marchaũt men occuppenge beyonde the ſee, maye haue the better knowlege of the beyonde ſee coynes, we haue ſet dyuers proper rules as of crones ducates, and of frances, and with all other ſmall money after theyr value. And alſo of dyuers meaſures both of wyne and corne. Imprinted in the yere of our lorde 1537.

English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters
[St. Albans: John Hereford] (for R[ichard] Stevenage) 1537

Transcription of the title page and of the colophon
(similar to the one of the 1526 edition)

Richard Stevenage's device carries the Latin inscription around his initials: *Dominus dedit dominus abstulit* [Job 1,21] *sicut domino placuit ita fortuna est.* – *The lord gave and the lord has taken away as pleased the lord; such is fate.*

An introduccion
for to lerne to rekyn with the pen/ & with
the counters/ after the true cast of Arisme-
tyke or Awgrym/ in hole nombers aud [sic!] *also*
in broken newly corrected and certeyne
rules [*of false posytions* [1539]]
and ensamples added ther vnto/ in
the yere of oure lorde/ 1536

Thus endeth the scyence of awgrym
the whiche is newly corrected out of dy-
uers bokes, bycause that the people may
come to the more vnderstandynge and
knowlege of the sayde arte or scyence of
awgrym. And bycause the marchaunt men
occupyenge beyond the see, maye haue
the better knowlege of the beyond see
coynes, we haue set dyuers proper rules
as of crones ducats, and of frances and
with all other small money after theyr
value. And also of dyuers measures both
of wyne and corne. Imprinted in the yere
of our lorde 1537.

English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters
[St. Albans: John Hereford] 1537

Translation of the title page and of the colophon

Middle English *augrim, algrim* ‘algorithm’

An introduction
into learning to calculate with the pen and
with the counters, according to the true form
of arithmetic or algorism for integers
and also for fractions, newly corrected,
and certain rules [of false positions [1539]]
and examples added there onto,
in the year of our lord 1536

Thus ends the science of algorithm
which was newly corrected on the basis of
diverse books so that people should
get a better understanding and
knowledge of the mentioned art or science of
algorithm. And so that merchants
occupying beyond the sea, should have
a better knowledge of the coins beyond
the sea, we have set diverse proper rules
as of Crowns, Ducats and of Francs and
with all other small money after their
value. And also of diverse measures both
of wine and corn. Imprinted in the year
of our lord 1537.

English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters
[St. Albans: John Hereford] 1537

Content overview

(according to the not numbered section headings and according to the math. problems)

The 1st part (pen) until [4.3] widely coincides with a later edition (Trepperel 1512/19) of the earliest French arithmetic book (≤ 1496).

[4.4] and the 2nd part (counters) widely coincide with the editions ca. 1510 and 1529 (French translation) of the earliest Dutch arithmetic book.

Preface (*Amonge all the seuen liberall sciences*)

Learn to reckon with the pen

[1] Eight species for integers: numeration, addition, subtraction, multiplication, division (*partition*), duplication, halving (*mediatio*), progression with check by 9 or inverse operation
Reduction (*reduction*) [only 1539]:
reductio descendens (*to reduce the more summe to the lesse*),
reductio ascendens (*to reduce the lesse to the more*)
Arithmetic progressions with sum formula

[2] Species (*speche* k.i^{v}) for fractions (*broken numbers*): numeration, addition, subtraction, multiplication, division, duplication, halving (*mediatio*)
[1537 totally and 1539 partly uses Dutch terminology: *teller* 'numerator' and *number* 'denominator' from *Die maniere*]

[3] Multiplication phrases [in the 1537 edition in the end of Part 1]

[4.1] The rules 1
Regula de tri (*rule of three*) for integers (*whole numbers*), fractions
Regula de tri for measures (corn, wine and oil) and weights

English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters
[St. Albans: John Hereford] 1537

Content overview

(according to the not numbered section headings and according to the math. problems)

[4.2] The rules 2
Regula societatis (*rule of company*) simplex and temporum
Factors (*rule of company of factors*)
Barters (*rule of changes for to use deceit or fraud*)

[4.3] Many rules and questions
[A1] Collect and tallage (*tallyage*): company
[A2] Three mills (*mylnes*): shared work
[A3] Shepherd: company, pasture lease
[A4] Vessel with three fountains: shared work
[A5] To throw Saracens in the sea: arrangement
[A6] Testament, son daughter twins: twin inheritance
[A7] Building – place: area
[A8] Building – walls: volume, price
[A9] Building – covering: area
[A10] Gatekeepers in the apple garden: nesting
[A11] Ladder with 100 steps: arithmetic progression
[A12] Motion in the same direction with constant vs increasing distances per day (*two men*): pursuit [like [B6]]
[A13] Three women, apples for the market: equal proceeds
[A14] Batch of three metals (*bagge*): alloy [like [B10]]
[A15] Bell: alloy
[A16] Gold coins to silver coins: regula equalitatis [like [B11]]
[A17] Cloth of divers colors: find length
[A18] Spices (*spyceryes*): regula equalitatis

English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters
[St. Albans: John Hereford] 1537

Content overview

(according to the not numbered section headings and according to the math. problems)

[A19] Egg woman and broken eggs: remainder
[A20] Money forgotten with a changer: nesting [like [B9]]
[A21] Age (*time*): find the age, sum of fractions
[A22] Divide a distribution: company
[A23] Spear in the water: find length
[A24] Motion in opposite directions with different distances per day (*two men going against each other*): encounter [like [B7]]
[A25] Cat on a tree: Motion to and fro
[A26] Scholars and hoste: equal additive partition
[A27] The pilgrims' drink bill: regula caecis
[A28] The chanter's rent: regula caecis
[A29] Guess (*dyvyne*) the number of pieces of silver in your fellow's right hand: number guessing
[A30] Three saints: nesting
This is the end of the 1526 edition.

[4.4] Diverse other proper rules
[B1] Lord and servant: interrupted contract
[B2] Three young men play dice, equal amounts in the end: nesting
[–] Weight-price relations of saffron and alum: regula de tri
[B3] Batch of pepper (unknown price): too much, too little
[B4] A drunkard, his wife and a barrel of beer: shared work

English 2

Anonym

An introduction for to learn to reckon with the pen and with the counters
[St. Albans: John Hereford] 1537

Content overview

(according to the not numbered section headings and according to the math. problems)

Learn to reckon with the counters

[5] Five species (basic arithmetic operations)

[6] [Rules]
[6.1] [Basic rules]
Regula de tri (*golden rule*, *regula aurea*) for quantities and prices
Regula societatis simplex (*rule of company*), regula societatis temporum (*rule of company with time*)
Rule of bartering

[6.2] [Other rules]
[B5] Wat and greyhound: pursuit – *wat(te)* Middle English 'rabbit, hare' (Lewis, Robert E: Middle English Dict., vol. 13, p. 146)
[B6] Motion in the same direction with constant vs increasing distances per day (*rule of two fellows*): pursuit [like [A12]]
[B7] Motion in opposite directions with different distances per day: encounter [like [A24]]
[B8] Lazy worker: temporal part
[B9] Unknown inheritance: nesting [like [A20]]
[B10] Goldsmith: alloy [like [A14]]
[B11] Gold coins to silver coins: regula equalitatis [like [A16]]
[B12] Four carpenters build a house: shared work
This is the end of the 1537 edition.

[6.3] Regula falsi (*rule of one and two false positions*) [from 1539 on]

Section	*Art et science* ≤ 1496	*Art et science* 1512/19	*Arte and science* 1526	*Intro-duccion* 1537	*Intro-duction* 1539	*La manière* 1529	*Die maniere* ca. 1510	*Die maniere* 1508
Number of parts	6	6	?	[6]	[6]	[4]	[4]	[3]
Preface	Philosophes	Philosophes	?	7 liberal arts	That art	7 liberal arts	7 liberal arts	7 liberal arts
Species with the pen	Part 2 6 species	Part 1 9 species	?	Part [1] 8 species	Part [1] 7 species	Part [1] 7 species	Part [1] 7 species	Part [1] 7 species
Fractions	Part 3 6 species	Part 3 6 species	?	Part [2] 7 species	Part [2] 5 species	Part [2] 7 species	Part [2] 7 species	Part [2] 7 species
Multiplication phrases	Part 2 end	Part 1 end	?	Part [1] end	Part [3]	-	-	Title page
Rule of three	Part 4 7+3 cases	Part [4] 4+3 cases	?	Part [4.1] 4+3 cases	Part [4.1] 4+3 cases	-	-	-
Companies with/out time, factors, barter	Part 5	Part 5	?	Part [4.2]	Part [4.2]	-	-	-
Problems (starting with proportional partition)	Part 6 probl. 1–34 12: 3 saints	Part 6 probl. 1–30 30: 3 saints	Last problem 3 saints	Part [4.3] [A1]–[A30] [A30]: 3 snts.	Part [4.3] [A1]–[A30] [A30]: 3 snts.	-	-	-
Problems (starting with interrupted contract)	-	-	-	Part [4.4] [B1]–[B4]	Part [4.4] [B1]–[B4]	Part [3.2] [13]–[17]	Part [3.2] [13]–[17]	Part [3.2] [13]–[17]
Species with the counters	Part 1 6 species	Part 2 6 species	-	Part [5] 5 species	Part [5] 5 species	Part [4] 5 species	Part [4] 5 species	-
Rule of three (7 cases), companies with/out time, barter	-	-	-	Part [6.1]	Part [6.1]	Part [3.1]	Part [3.1]	Part [3.1]
Problems (starting with hare and greyhound)	-	-	-	Part [6.2] [B5]–[B12]	Part [6.2] [B5]–[B12]	Part [3.2] [1]–[12]	Part [3.2] [1]–[12]	Part [3.2] [1]–[12]
Simple and double false position method	-	-	-	-	Part [6.3]	-	-	-

English – Supplement

Later than Anonym 1537

S (Robert Recorde):
Ulff-Møller, Jens: Ries-Kolloquium 2002, 2005
Reich, Ulrich: Ries-Kolloquium 2011
Roberts, Gordon: Robert Recorde – Tudor, Scholar and Mathematician. Cardiff 2016
Roberts, Gareth; Smith, Fenny (ed.): Robert Recorde – the life and times of a Tudor mathematician. Cardiff 2012
Williams, Jack: Robert Recorde – Tudor polymath, expositor and practitioner of computation. London 2011

Robert Recorde (Tenby (Wales) 1510/12–1558 London)
The grounde of artes [arithmetic]
London: Reynold Wolfe 1543 etc.
232 p.
C: Hoock I/R3
D/R: [1551] Early English Books Online EEBO (ProQuest)
L: London BL, Oxford Bodleian L

Robert Recorde
The whetstone of witte [algebra]
London: John Kingston 1557
336 p.
R: TGR Renascent Books 2010
Contains the second part of arithmetic [*Grounde of artes*]: roots, algebra and irrational numbers

Hugh Oldcastle
A profitable treatise
London 1543
C: Hoock I/O3: no copy extant

Swedish

Aegidius (Eggert)
Mathie (Matsson)
Aurelius Upsaliensis

b. ca. 1580 Stockholm
d. 1648 Stockholm
1613–1618 School teacher, Uppsala
1618–1648 Administrator, Stockholm
(Svenskt Biografiskt Lexikon)

Arithmetica Eller Een Kort och Eenfaldigh Räknebook
Uppsala: Eskill Mattson 1614

156 p.
C/V: Hoock II/A17 (lists later editions)
D: digi-tilaukset.lib.helsinki.fi/
L: Helsinki U
E: Johansson, Bengt. Uppsala 1995
S: Flensburg/Holl: Ries-Kolloquium 2017

ARITHMETICA
Eller
Een Kort och Eenfaldigh
Räknebook / vth
h:ele och brutne Taal/medh
lustige och sköne Exempel / thē Een
faldighom som til thenne Konst lust och be-
hagh hafwe/ kortelighen och eenfaldeli-
ghen til Nytto och Gagn för-
fattat och tilsammans-
braghen.
aff
ÆGIDIO AURELI(
Upsaliensi S.
Cum Gratia & Privi. Reg.
Tryckt j Upsala / aff
Eschillo Matthiæ,
ANNO
1614

Swedish

Aegidius (Eggert)
Mathie (Matsson)
Aurelius Upsaliensis

Arithmetica Eller Een Kort och Eenfaldigh Räknebook
Uppsala: Eskill Mattson 1614

Transcription of the title page

Privilege by King Gustav II Adolf
(b. 1594, reigned 1611–1632)

Arithmetica
Eller
Een Kort och Eenfaldigh
Räknebook/ vthi
heele och brutne Taal/ medh
lustige och sköne Exempel/ them Een-
faldighom som til thenne Konst lust och be-
hagh hafwe/ kortelighen och eenfaldeli-
ghen til Nytto och Gagn för-
fattat och tilsamman-
draghen.
aff
Ægidio Aurelio
Upsaliensi S.

Cum Gratia et Privi. Reg.
Tryckt j Vpsala/ aff
Eschillo Matthiæ,
Anno
1 6 1 4

Swedish

Aegidius (Eggert)
Mathie (Matsson)
Aurelius Upsaliensis

Arithmetica Eller Een Kort
och Eenfaldigh Räknebook
Uppsala: Eskill Mattson 1614

Translation of the title page

Arithmetic
or
a brief and basic
arithmetic book
for integers and fractions
with pleasant and nice examples,
for the common people
who enjoy and like this art
for their benefit and use briefly and plainly
composed and
collected
by
Aegidius Aurelius
from Uppsala

With grace and privilege of the king
printed in Uppsala by
Eskill Mattson
in the year
1614

Swedish

Aegidius (Eggert)
Mathie (Matsson)
Aurelius Upsaliensis

Arithmetica Eller Een Kort och Eenfaldigh Räknebook
Uppsala: Eskill Mattson 1614

Content overview
(according to the section headings)

Dedication to King Gustav II Adolf of Sweden

1 Numeration (incl. representation of numbers with counters)
Four species with the pen (*räkning med figurer/siffror*) and with the counters (*på linjer med räknebänk/räknebord och räknepenningar*)
2 Addition (check by nine)
3 Subtraction or *subductio* (check by addition, by nine)
4 Multiplication (check by division)
5 Division (check by multiplication)

6 Fractions (*bråk*, *brutne tal*; among others reducing, comparing)
7 Addition; 8 Subtraction; 9 Multiplication and division

10 Regula de tri or aurea (incl. purchase and sales)
11 Regula de tri inversa (*avig* [cf. afwug], *omvänd regula detri*)
12 Regula quinque (*Regula dupli*) (incl. interest)
13 Regula societatis (*sälskapsregel*) (incl. twin testament)
14 Regula alligationis
15 Arithmetic progressions (*progressio arithmetica*)
16 Geometric progressions (*progressio geometrica*)
17 Regula caecis or virginum
18 Square root, square side (*extrahere, uppfinna latus quadratum*)

19 Regula falsi simplicis positionis
20 Regula falsi duplicis positionis (*den andre Regula falsi med 2 tal*)

Seven corollaries (number guessing, arrangement)

Danish

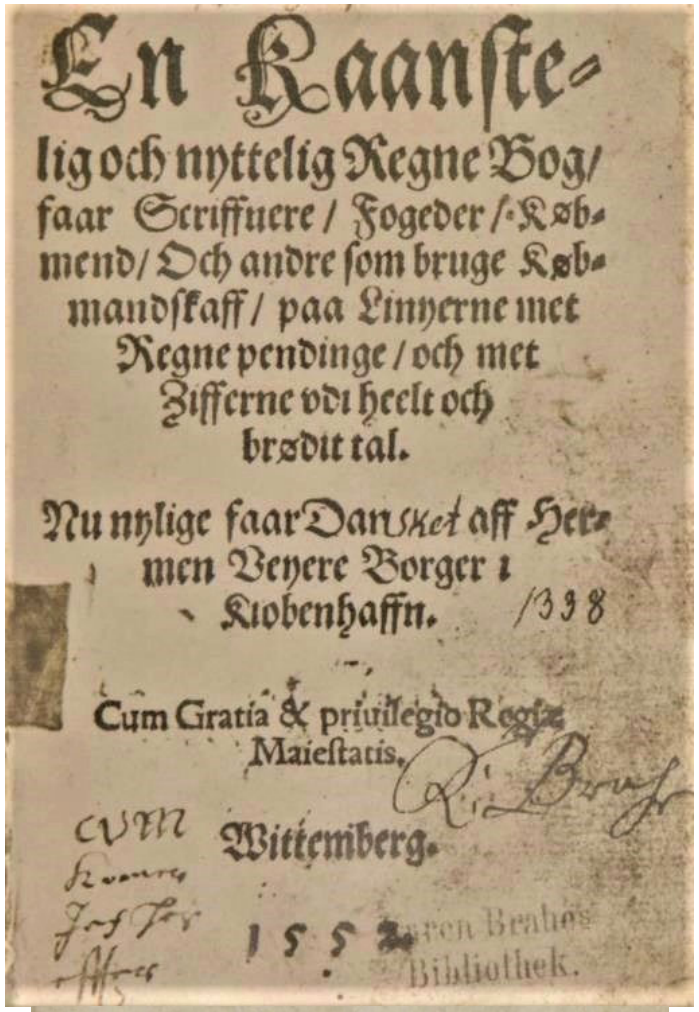
Hermen/Hermann Veyere Veigere/Vejgere/Weier/Weiger

b. Malmö
d. 1556/57 København
1518 University Rostock
1527 Citizen and alderman of Malmö
1541 Citizen of København, owns an inn
(Dansk Biografisk Leksikon DBL)

En kaanstelig och nyttelig Regne Bog

Wittenberg: Jürgen Rhaus Erben (København: Claus Foerd) 1552
[Dedication 1551-08-10 Laurentius' day]

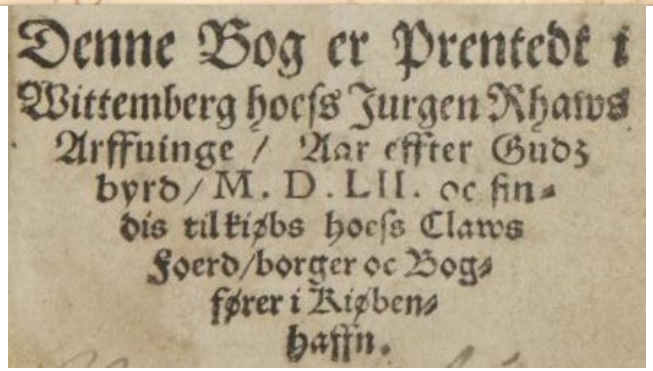
272 p.
C/V: Hoock I/–33.1
D: Internet Archive
L: København Royal L


En Kaanſte-
lig och nyttelig Regne Bog/
faar Scriffuere / Fogeder / Køb-
mend / Och andre ſom bruge Køb-
mandſkaff / paa Linyerne met
Regne pendinge / och met
Zifferne vdi heelt och
brødit tal.

Nu nylige faar Dan sket aff Her-
men Veyere Borger i
Kiobenhaffn. 1398

Cum Gratia & priuilegio Regiæ
Maieſtatis.

CVM
Witiemberg.
1552


Denne Bog er Prentedt i
Wittemberg hoeſs Jurgen Rhaws
Arffuinge / Aar efter Guds
byrd / M. D. LII. oc fin-
dis tilkiøbs hoeſs Claws
Foerd / borger oc Bogs
fører i Kiøbens
haffn.

Danish

Hermen Veyere

En kaanstelig och nyttelig Regne Bog
Wittenberg: Rhau 1552

Transcription of the title page and of the colophon

S: Ulff-Møller, J: Ries-Kolloquium 2002, 2005

Larsen, L Melchior: Traek af regnekunstens historie i Danmark. Matematisk Tidskrift A 1952

Nielsen, Niels: Matematiken i Danmark 1528–1800. København 1912

Christensen, Sophus A: Matematikens udvikling i Danmark og Norge i det XVIII. aarhundrede. Odense 1895

En kaanste-
lig och nyttelig Regne Bog/
faar Scriffuere/ Fogeder/ Køb-
mend/ Och andre som bruge Køb-
mandskaff/ paa Linyerne met
Regne pendinge/ och met
Zifferne vdi heelt och
brødit tal.
Nu nylige faar Dansket aff Her-
men Veyere Borger i
Kiobenhaffn.

Cum Gratia & priuilegio Regiae
Maiestatis
Wittemberg
1552

Denne Bog er Prentedt i
Wittemberg hoess Jurgen Rhaws
Arffuinge/ Aar effter Gudz
byrd/ M. D. LII. oc fin-
dis til kiøbs hoess Claws
Foerd/ borger oc Bog-
fører i Kiøben-
haffn.

Danish

Hermen Veyere

En kaanstelig och nyttelig
Regne Bog
Wittenberg: Rhau 1552

Translation of the title page and of the colophon

Privilege by King Christian III (b. 1503, reigned 1534–1559)

An elaborate
and useful arithmetic book
for clerks, administrators, merchants
and others, who use commerce knowledge,
on lines with counters
and with digits [that is, with the pen]
for integers
and fractions.
Now recently for Danish
by Hermen Veyere,
citizen in København.

With grace and privilege of the royal
majesty
Wittenberg
1552

This book is printed
in Wittenberg by Jurgen Rhau's heirs
in the year 1552 after God's birth
and is sold
by Claus Foerd, citizen
and bookseller
in København.

Danish

Hermen Veyere

En kaanstelig och nyttelig Regne Bog
Wittenberg: Rhau 1552

Content overview
(according to the section headings)

According to Ulff-Møller 2002, oriented towards Jacob Köbel: *Rechenbüchlein*. Oppenheim 1520

Dedication to Johan Friis, royal chancellor (dated 1551-08-10, Laurentius' day), To the reader, Preface (*Fortalen*)
1 Numeration
2 Species with the counters (incl. numeration, duplication, halving (*mediatio*), progressions)
3 Regula de tri
4 Species with the pen; check by nine
5 Species and regula de tri for fractions (*brødit tal*, with Roman and Arabic numbers); purchase and sales, compound denominate numbers
6 Regula de tri conversa (*omvent*), regula societatis (*maskaberi*); lazy worker (temp. part); regula quinque (*settis sammen aff fem tal*); testament, son daughter twins/triplet (twin inherit.), regula falsi
7 Silver purchase and weights (*sølffkøb oc vecter*, silver and gold calculation), regula virginum or caecis, extracting the square root (*extrahere radicem*), pleasant rules for social gatherings (*collatz*) for amusement (*morskab*) and pastime (*tidskortning*) (guessing numbers; proportional distribution, if the claims are higher than the available money), calendar computation (golden number (*gyldene tal*), indiction number (*Rommers skatte tal*, *indictio romana*))

Danish – Supplement

Claus Lauritsen Scavenius

b. Skagen (Jütland), therefore Scavenius
d. 1590 København
1543–1555 Univ. Wittenberg, Paris
1555–1564 Prof. math. Univ. København
1564–1590 Prof. physics Univ. København
(Dansk Biografisk Leksikon DBL)

Arithmetica – regnekunst
Paris: Estienne Mesvière 1552

112 p.
C/V: Hoock I/S7
D: Internet Archive
L: København U
S: Ulff-Møller, J: Ries-Kolloquium 2005

ARITHMETICA
REGNEKVNST, BODE
med Cyphret oc regnepenningh,
Nyligen wdgod po Danſke, wed
Claus lauritſſen. Vdi huilken han
haffuer berammet och beſchreff-
uet thē mode, och the regle, wdaff
huilcke en perſone kan ſnarligen
well forfremmes, tyll ett gott for-
ſtand.

1 5 5 2.

Imprimé à Paris, par Eſtienne meſ-
viere, à l'Hoſtel de Vendoſme, pres
le College de Boncourt.

Norwegian(-Danish koine)

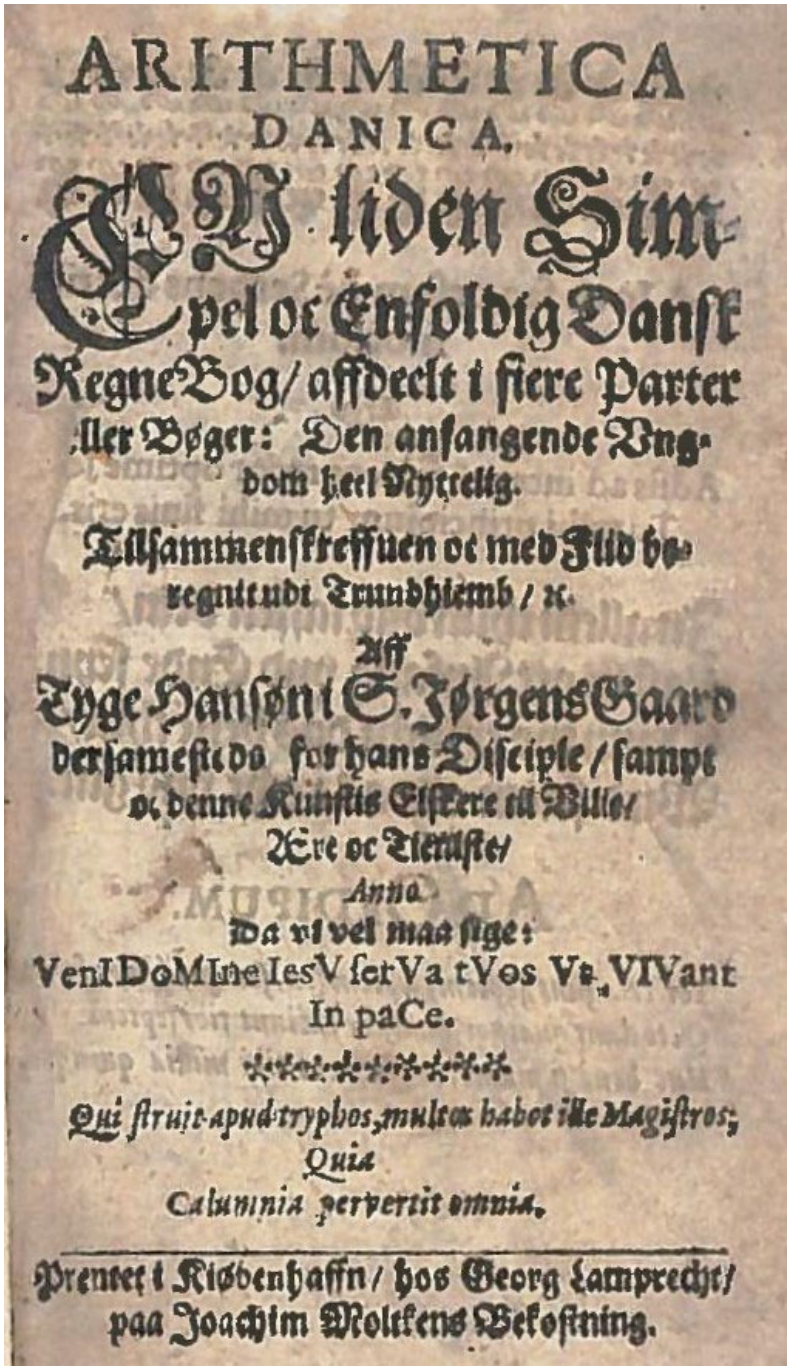
Tyge Hansøn/Hansen

Teacher at the cathedral school
in Trondheim, S. Jørgens Gaard

Arithmetica Danica
København: Georg Lamprecht
(for Joachim Moltke) 1645 (8r)

In the preface (*fortalen*), one finds the designation as Norwegian arithmetic book (*norske regnebog*, 5v, 7v) and a reference to the Norwegian language (*paa Norske*, 2r).

222 p.
C: Hoock II/H4
D/L: København Royal L
S/V: Nossum, Ralf T.; Siegmund-Schultze, Reinhard: Mathematik in Norwegen III. In: MDMV 27 (2019) 140–146
Brun, Viggo: Regnekunsten i det gamle Norge. Oslo/Bergen 1961


ARITHMETICA
DANICA.
Gammel Simpel oc Enfoldig Dansk
RegneBog/ affdelt i fiere Parter
eller Bøger: Den anfangende Ung-
dom heel Nyttelig.
Tilfammenfkreffuen oc med Flid be-
regnet udi Trundhiemb / &c.
Aff
Tyge Hanſøn i S. Jørgens Gaard
derſammeſtedſ for hans Diſciple / ſampt
oc denne Kunſtis Elſkere til Bedſte/
Ære oc Tieniſte/
Anno
Da vi vel maa ſige:
VenI DoMIne IesV ſerVa tVos Va VIVant
In paCe.
Qui ſtruit apud tryphos, multos habet ille Magiſtros;
Quia
Caluminia pervertit omnia.
Prentet i Kiøbenhaffn / hos Georg Lamprecht/
paa Joachim Moltkens Bekoſtning.

Norwegian

Tyge Hansøn/Hansen

Arithmetica Danica
København: Lamprecht 1645

Transcription of the title page

1397–1814 Kalmar Union

The chronogram expresses the year 1640 although the preface is dated 1645-04-12 (8r); the chronogram before part 4 also expresses 1645.

In an apologetic dialog of the 2nd century by Iustinus Martyr, Trypho appears as literary character: a Jew who criticizes Christianity for many reasons.
The hexameter normally starts:
qui struit in callem 'who builds (a house in public) by the highway side' [cf. Thomas Lansing Masson]

Arithmetica
Danica.
EN liden Sim-
pel oc Enfoldig Dansk
RegneBog/ affdeelt i fiere Parter
eller Bøger: Den anfangende Vng-
dom heel Nyttelig.
Tillsammenskreffuen oc med Flid be-
regnit udi Trundhiemb/ etc.
Aff
Tyge Hansøn i S. Jørgens Gaard
dersamesteds for hans Disciple/ sampt
oc denne Kunstis Elskere til Ville/
Ære oc Tieniste/
Anno
Da vi vel maa sige:
VenI DoMIne IesV serVa tVos Vt VIVant
In paCe.

Qui struit apud trypho⟨s⟩, multos habet ille Magistros;
Quia
calumnia pervertit omnia.

Prentet i Kiøbenhaffn/ hos Georg Lamprecht/
paa Joachim Moltkens Bekostning.

Norwegian

Tyge Hansøn/Hansen

Arithmetica Danica
København: Lamprecht 1645

Translation of the title page

Chronogram before Part 1: 1643
O HErre IesV Wer Wor skIoLD
Saa at DV Styrer SVenskIs VoLD
O lord Jesus, be our shield
in order to rein the Swedes' violence

Danish
arithmetic.
A small, simple and basic
Danish arithmetic book,
divided into four parts or books,
quite useful for the young beginners.
Composed and calculated with care
in Trondheim etc.
By
Tyge Hansøn at Saint Jørgens Court
arranged for his pupils
as well as at the request, in honor and at the service
of the enthusiasts of this art
In the year
in which we certainly may say:
Come, lord Jesus, save the faithful
so that they live in peace.
[with chronogram 1640]

Who builds (relies) on Trypho, has many masters (critics);
as calumnies distort everything.

Printed in København by Georg Lamprecht
at the expense of Joachim Moltke

Norwegian

Tyge Hansøn/Hansen

Arithmetica Danica
København: Lamprecht 1645

Content overview
(according to the section headings)

Chronogram before Part 3: 1645
O IesV ChrIste Wer Wor Wen
I rot OMVent Denn' KrIg IgIen.
O Jesus Christ, be our friend,
Turn this war radically back
[certainly a misprint: one 'I' too much!]

Chronogram before Part 4: 1645
KoM nV kIer' HErre IesV ChrIst/
Wor enIst Trøster est ⟨d⟩[D]*W WIst.*
Come now, dear lord Jesus Christ,
you are undoubtedly our only comforter

Preface (*fortalen*)
1 Numeration (numerals to the basis 10, not 20 as in Danish – incl. unit reductions), addition, subtraction, multiplication, division (checks with the inverse operation only), 1.6 regula de tri; all that for integers
2 The six topics of Part 1 for fractions
2.7 tare (incl. regula fusti)
3 3.1 Regula de tri inversa
3.2 Regula quinque (*dupla* – incl. interest)
3.3 Currency conversions (*wedsel*)
3.4 Profit and loss (*vind oc forlust eller tab* – incl. percentage, comparison of offers, barters)
3.5 Regula societatis (*societet* – incl. subcontractor) 3.6 Distributions (*deel* – incl. testaments)
3.7 Ship shares (*skibsparter*)
4 4.1 Silver and gold (*Sølff oc Guld*)
4.2 Regula alligationis
4.3 Square and cube root (*Quadratz oc Cubic Rod*)
4.4 Regula falsi (reg. f. duplicis positionis, algebra (*Algebraica operatio* with *Radix* as unknown), reg. f. simplicis positionis (*unius positionis*)), reg. virginum

Icelandic

Halldór Brynjólfsson

b. 1692-04-15 Saurar (Helgafellssveit)
d. 1752-10-28 Eyrarsund
–1716 Studies in København
1746–1752 Bishop of Hólar (Hjaltadal)
(Icelandic Wikipedia)

Edward Hatton

ca. 1664 – after 1733 London

Lijted Agrip Vmm þær Fioorar Species I Reiknings Konstenne
Hólar: Halldór Eiríksson 1746

14 p.
D: Internet Archive
L: København Royal L
S/V: Bjarnadóttir, Kristín: Mathematical Education in Iceland in historical context. PhD dissertation. Roskilde 2007, 69–70
Ulff-Møller: Ries-Kolloquium 2008, 2014

Portrait in the National Museum of Iceland

Lijted Agrip
Vmm þær Fiorar Species
I
Reiknings Konstenne,
Þa undan eru geingen
Numeratio edur Talan.

1. Additio edur Tillags Talan.
2. Subtractio edur Afdrattar Talan.
3. Multiplicatio Margfiolgande Tala.
4. Diviſio Skipta edur Sundurdeilingar Talan.

Handa Bœndum og Børnum ad komaſt fyrſt i þa Stofun, og til mikillrar Nitſemdar ef ydka ſig i þvi ſama, ſierdeilis i Kaupum og Sølum, i hvorium Additio og Subtractio hellſt brwkaſt.

Jñrettud
Þad nœſt hefur orded komeſt
Epter
E. Hatton
Reiknings Konſt
Edur
Arithmetica.

Selſt Alment Diñbundeñ 1. Fiſk.

C 2 Numer-

Prickt a Hoolum i Hiallta-Dal, af Halldore Eriksſyne, 1746.

Icelandic

Halldór Brynjólfsson

Lijted Agrip Vmm þær Fioorar Species I Reiknings Konstenne
Hólar: Halldór Eiríksson 1746

Probably based on Edward Hatton:
An Intire System of Arithmetic.
London 1721 (**C**: Hoock II/H6.16);
translated into Icelandic and adapted
to Icelandic usage (long hundred 120)
by Halldór Brynjólfsson

Transcription of the title page and of the colophon

Lijted Agrip
Vmm þær Fioorar Species
I
Reiknings Konstenne
Þa undann eru geingenn
Numeratio edur Talann.
1. Additio edur Tillags Talann.
2. Subtractio edur Afdraittar Talann.
3. Multiplicatio Margfiølgande Tala.
4. Divisio Skipta edur Sundurdeilingar Talann.

Handa bændum og Børnum ad komast fyrst i þa Støfun, og til mikillrar Nitsemdar ef ydka sig i þvi sama, sierdeilis i Kaupum og Sølum, i hvørium Additio og Subtractio hellst brwkast.

Innrettud
Þad næst hefur orded komest
Epter
E. Hatton
Reiknings Konst
Edur
Arithmetica.

Selst Alment Oinnbundenn 1. Fisk.

Þrickt a Hoolum i Hiallta-Dal, af Halldore Erikssyne, 1746.

Icelandic

Halldór Brynjólfsson

Lijted Agrip Vmm þær Fioorar Species I Reiknings Konstenne
Hólar: Halldór Eiríksson 1746

Translation of the title page and of the colophon with content overview
(according to Bjarnadóttir 2007, 69)

Three more detailed arithmetic books were not published before 1780–1785 (printed in København) (cf. Bjarnadóttir/ Christiansen/Lepik. In: Nordic studies in mathematics education 18 (2013))
Authors:
Ólafur Ólafsson Olavius
Jón Jónsson Johnsonius
Ólafur Stefánsson

A little compendium
of the four species
in the art of arithmetic
preceded by the numeration.
1. Addition. 2. Subtraction. 3. Multiplication. 4. Division.
Intended for farmers and children to get as early as possible
in contact with these designations and for great usefulness
when practicing them, especially in buying and selling,
in which addition and subtraction is most often used.
Designed – as far as has become known – according to
E. Hatton's
Art of Arithmetic or Arithmetica

Generally sold in sheets – 1 fisk [Icelandic currency]

Printed in Hólum in Hjaltadal by Halldór Eiríksson, 1746

The booklet was published as appendix to
Tilskipan umm þann Islendska Taxta og Kauphøndlan.
Kaupmannahøfn/ D. X. April. Anno MDCCII.
[*Directive on Icelandic prices and trading*]
[*København 1702-04-10*]

Czech

Ondřej Šimkovic Klatovský

b. ca. 1504 Klatovy/Klattau
d. ca. 1551 Prostějov (SW Olomouc)
1524 Baccalaureate Univ. Praha
1533 Citizen of Praha old town
1540 Czech German language textbook
1544 Title of nobility: von Dalmanhorst (z Dalmanhorstu)
1547 Moved to Olomouc/Olmütz

Nowé knížky wo pocztech na Cifry a na lyny. Nürnberg: Friedrich Peypus [1]1530-02-10
Praha: Jan Kantor [2]1558

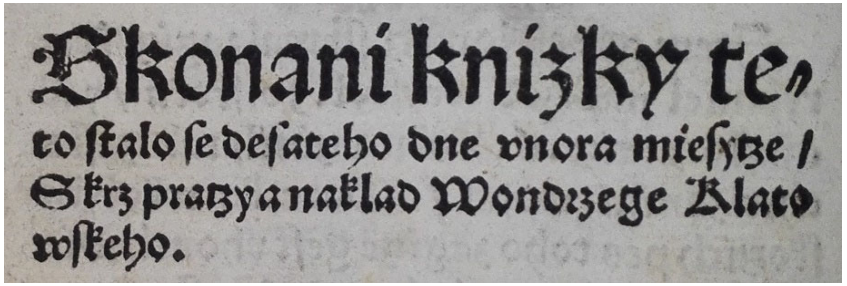
220 p.
C/V: Hoock I/K5
D: 1558 [≈ 1530] aleph.nkp.cz, EBSCO, manuscriptorium.com
L: Praha NL, National Museum, Strahov
S: Škvorová, J: Ries-Kolloquium 2002

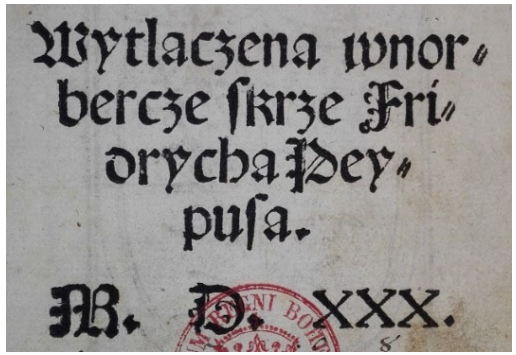
Czech

Ondřej Šimkovic Klatovský

Nowé knížky wo pocztech
Nürnberg: Friedrich Peypus 1530

Orthographically carefully modernized transcription of the title page, of the next to the last page and of the colophon


Skonani knizky te-
to ſtalo ſe deſateho dne vnora mieſyce /
Skrz prazy a naklad Wondzege Klato-
wſkeho.


Wytlaczena wnor-
bercze ſkrze Fri-
drycha Pey-
puſa.
M. D. XXX.

Nové knížky o
počtech na cifry a na liny, při-
tom některé velmi užitečné re-
gule a exempla, mince rozličné
podle běhu kupeckého, krátce
a užitečně sebraná

V Norberce tlačena léta Páně
1530 měsíce ledna

Skonání knížky te-
to stalo se desátého dne února měsíce/
Skrz práci a náklad Ondřeje Klato-
vského

Výtlačená v Nor-
berce skrze Fri-
drycha Pey-
pusa.
M. D. XXX.

Czech

Ondřej Šimkovic Klatovský

Nowé knížky wo pocztech
Nürnberg: Friedrich Peypus 1530

Translation of the title page, of the next to the last page and of the colophon

S: Folta, Jaroslav. In: Science and technology in Rudolfinian Time (= Prague studies in the history of science and technology 1). Praha 1997, 168–194 [contains further references]

New booklets
on calculating with the pen and with the counters,
at the same time several very useful rules
and examples, various coins
according to the commercial business activities,
briefly and usefully compiled

Printed in Nürnberg in the year of our lord
1530 in the month of January

The completion of the booklet
took place on the 10th day of the month of February
by the work and the expense
of Ondřej Klatovský

Printed in Nürnberg
by Friedrich Peypus
1530

Czech

Ondřej Šimkovic Klatovský

Nowé knížky wo pocztech
Nürnberg: Friedrich Peypus 1530

Content overview

(according to the section headings, taken from the 1558 edition as contents and pages are nearly identical with the 1530 edition)

Dedication in modern orthography:
A. G. Poctivému mládenci Svatoslavovi/ rodiči Klatovskému bratru svému pozdravení – Greetings to the honorable young man Svatoslav, the [new] *father, Klatovský, my brother*

Dedication with content overview, dated Jan 14th

1 Seven species: numeration, addition;
checks (*proba*) by inverse operation, by 9 and 7;
subtraction, duplication, halving (*mediatio*), multiplication, division;
arithmetic progressions with sum formula
Units: weights (*vaha*), currencies/coins (*mince*),
measures (*míra*) for wine (*vino*), textiles (*sukno*),
corn (*obilí*), time (*čas*), counting (*počet*)
Species for denominate numbers, incl. progressions
Regula de tri

2 Calculations with the counters (*počet na liny*):
species for pure and denominate numbers,
units mentioned in 1,
regula de tri

3 Calculations with fractions (*lámaný počet*):
species,
fractions of fractions (*lámaný od lámaný*),
reducing fractions (*menší udělat*),
regula de tri,
denominate fractions

Czech

Ondřej Šimkovic Klatovský

Nowé knížky wo pocztech
Nürnberg: Friedrich Peypus 1530

Content overview

(according to the section headings, taken from the 1558 edition as contents and pages are nearly identical with the 1530 edition)

4 About various commercial business activities
(*O rozličném běhu kupeckém*)
[partly German/Czech headings]
Regula societatis (*Gesellschaft*, *tovaryšstvo*), testament, alloy
Currency exchange (*Wechsel*, *změněný*)
Various purchases and sales (*rozličné koupí a prodeje*)
Regula dupla/quinque (*dvojitá regule detry*)
Textiles (*sukno*)
Fusti
Profit and loss (*zisk a ztráta*)
Barter (*prostrčení zboží*) [*prostrčit* is a verbal translation of German *durchstecken* (!) instead of *durchstechen*]
Silver and gold calculation (*počet stříbra a zlata*)
Regula virginum, by some people called caecis
Usury, loan (*lichva*)
Textiles of three colours
Motions
Four further problems

Czech – Supplement

Later than Klatovský 1530

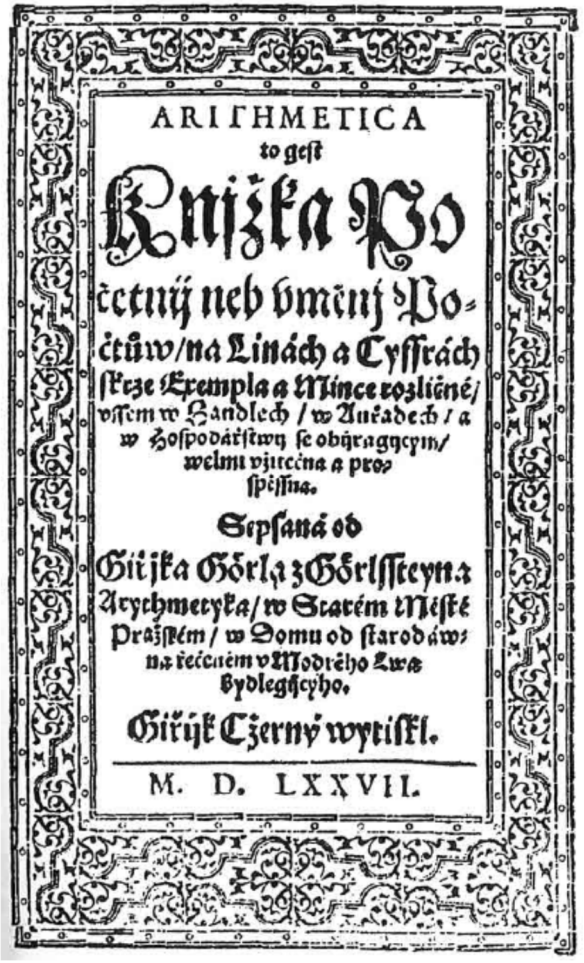
Optát, Beneš (from Telč, South Moravia);
Gzel, Petr (from Praha): *Isagogicon*.
Náměšť nad Oslavou (W Brno) 1535,
Prostějov (SW Olomouc) 1548
[published also Czech grammar book 1535]
C: Hoock I/O5

Náměšť/Namiest

Prostějov/Proßnitz

Brněnský, Jiří Mikuláš: *Knížka …*
Praha 1562, 1567
C: Hoock I/B25

Šram, Pavel: *Arithmetica*. 1615
C: not in Hoock
S: Škvorová, J: Ries-Kolloquium 2002
Clausen, D: Ries-Kolloquium 2020


ARITHMETICA
to geſt
Knjžka Po
četnjj neb vmenj Po-
ctůw/na Linách a Cyffrách
ſkrze Exempla a Mince rozličné/
wſſem w Handlech / w Ankadech / a
w Hoſpodárſtwj ſe obýragjcym/
welmi vžitečna a pro-
ſpěſſna.
Sepſaná od
Girjka Görla z Görlſteyna
Arythmetyka/ w Starém Městě
Pražſkém / w Domu od ſtarodáw-
na řečeném v Modrého Lwa
bydlegjcyho.
Girjk Czerný wytiſkl.
M. D. LXXVII.

Gerl von Gerlstein, Georg = Goerl z Goerlšteyna, Jiří
(from Loket/Elbogen; writes in German and Czech):
Arithmetica to gest Knjzka Pocetnij neb vmenj Poctuw, na Linách a Cyffrách. Praha 1577, 1597, 1610
C: Hoock I/G9
S: Kaunzner, W: Ries-Kolloquium 1999

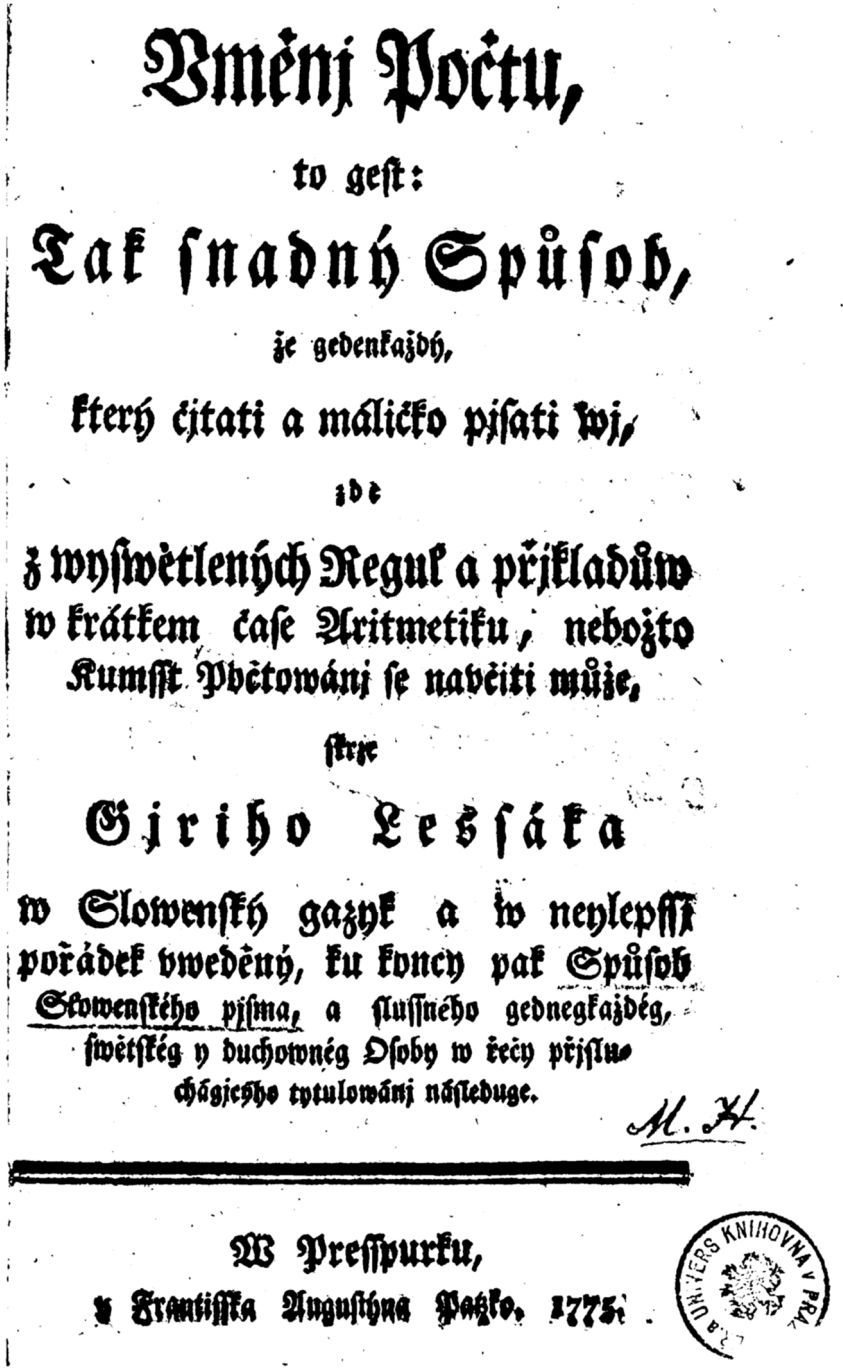
Slovak

Juraj / Giri Lesák

1740–1803
Teacher and organist at the only Slovak school in Bratislava (Suché mýto)

Umenj počtůw
Bratislava / Preßburg:
František Augustin Patzko 1775

D: Google books
L/D: Národný inštitút vzdelávania a mládeže (NIVAM) https://nivam.sk/o-organizacii/kniznica/digitalna-kniznica/ucebnice-od-18-storocia-do-roku-1918/6/ [handwritten copies of missing pages]



Vmênj Počtu,

to geſt:

Tak ſnadný Spůſob,

že gedenkaždý,

který čjtati a málicko pjſati wj,

zde

z wyſwětlených Regul a přjkladůw
w krátkem čaſe Aritmetiku, nebožto
Kumſſt Počtowánj ſe nawčiti může,

ſtrze

Gjriho Leſſáka

w Slowenſkỳ gazyk a w neylepſſj
pořádek wwedený, ku konci pak Spůſob
Slowenſkého pjſma, a ſluſſného gednegkaždé,
ſwětſkég y duchownég Oſoby w řeči přjſlu-
chágjcjho tytulowánj náſleduge.

M. H.

W Preſſpurku,
u Frantiſſka Auguſtina Patzko. 1775.

UNIVERS KNIHOVNA V PRAZE

Slovak

Juraj / Giri Lesák

Umenj počtůw
Bratislava / Preßburg:
František Augustin Patzko 1775

Transcription of the title page

S: Bokrosová, Katarína: Slovenské učebnice do roku 1918 v historickom fonde Slovenskej pedagogickej knižnice v Bratislave. In: Problematika historických a vzácných knižních fondů 2010 (19th conference in Olomouc). Vědecká knihovna v Olomouci; Sdružení knihoven České republiky, p. 145–152 https://kba.vkol.cz/uploads/composer/djvkmria2k-Bokrosova.pdf

Uměnj Počtu[w],
to gest:
Tak snadný Spůsob,
že geden každý
který čjtati a máličko pjsati wj,
zde
z wyswětlených Regul a přjkladůw,
w krátkem[u] čase Arithmetiku, nebožto
Kumsst Počtowánj, se naučiti může,
skrze
Gjriho Lessáka
v Slowenský gazyk a w neylepssj
pořádek uweděný ku koncy pak Spůsob
Slowenského pjsma, a slussného gedneg každég
swětskég y duchownég Osoby w řeči přjslu-
chágjeýho tytulowánj následuge.

W Presspurku,
u Frantisska Augustina Patzko, 1775.

Slovak

Juraj / Giri Lesák

Umenj počtůw
Bratislava / Preßburg:
František Augustin Patzko 1775

Translation of the title page

Early Modern Slovak (Kálmánčok regulations or Bernolák era), with a strong convergence toward the Czech of that time (Kralice Bible orthography), recognizable by spellings such as gazyk (jazyk ‘language’), w instead of v, and g for j. This Slovakized form of Czech (church language, cultural Czech) was the standard written language of educated Slovaks. Lesák adapted the text to the vernacular using numerous Slovak idioms and terms so that ordinary people could understand it.

The art of arithmetic
this is
a method so simple
that anyone
who can read and write a little
here
– using the explained rules and examples –
in a short time
can learn arithmetic or the art of calculating.
By
Giri Lesák
arranged in the Slovak language and in the best order,
then in the end, the method of Slovak writing
and the salutation
of every honorable secular and spiritual person,
as appropriate in speech [gen. qual.]*, follow.*

In Bratislava
by František Augustin Patzko
1775

Slovak

Juraj / Giri Lesák

Umenj počtůw
Bratislava / Preßburg:
František Augustin Patzko 1775

Content overview
(according to the section headings)

The Slovak and Czech languages developed similarly. Czech was the predominant language of literature and administration (also due to the university of Praha). Even in the 19th century, the so-called biblical Czech (language with elements of Slovak and Czech) was used in Slovakia. Slovak – with its simpler morphological system – was not standardized before 1851. Foundation of the Language cultivation society in 1863.

Preface (*předmluwa*)
Five species for integers: Numeration, addition (*adowati*), subtraction (*odbjránj*, p 124) , multiplication (*rozmnoženj*, p. 129), division (*rozdělenj*, p. 132), halving (*polowicowánj*), check with inverse operation
Finding how many smaller coins a number of florins contains
Regula de tri (*regula třech aneb zlatá*, p. 136)
Species for fractions (*zlomek*): resolution (*rozwázánj*), reduction (*na spátek uwedenj*), simplifying (*ukrácenj nebo umenssenj*) etc.
Regula de tri for fractions
Examples for fractions at various positions (*položenj*) in the rule
Regula quinque, regula dupla (*regula pět'*, *dwognásobná regula zlatá*)
Interest; finding the capital (*hlawnj summa*, German *Hauptgut*) from the interest

Slovak

Juraj / Giri Lesák

Umenj počtůw
Bratislava / Preßburg:
František Augustin Patzko 1775

Content overview
(according to the section headings)

Regula de tri inversa (*regula zlatá přewrácená*), quinque inversa
Regula societatis (*regula towarišstwa*)
Regula societatis temporum (*regula dwognásobná towarišstwa*)
Tare exclusive (*na cent*), inclusive (*od centa*)
Profit and loss (*zysk*, *sskoda*)
Barter (*Přefreymarčenj* (German *freimarken*) *wěci za wěc*)
Regula alligationis (*smjssánj*)
Currency exchange (*kambyum, Weksl, proměnění*)
Bills of exchange (*kambyum wlastné*)
Arithmetic progression (*prokračowánj*)
Regula falsi (*regula falessná*)
Motion (*ambulácya nebo chozenj regula*)
Conversion of currency, measures and weights (*běh peněz, mjry a wáhy*)
Slovak writing
Salutations
Index (*ukázatek*)

Polish

Tomasz Kłos

Roman-Catholic priest
No other biographical data known
(Polish Wikipedia)

Algoritmus: To iesth nauka liczby
Kraków/Krakau: Ungler 1538

64 p.
C/V: Hoock I/K6
D: https://cyfrowe.mnk.pl/dlibra/publication/edition/26883/content
L: Kraków U (sign. B–D missing), Kraków Nat Museum (sign. C, H missing), Göttingen SUB
E: Biblioteka Pisarzów Polskich, Kraków 6 (1889), ed. Baranieckí, Maryjan Alexander (Glossary p. 53–56), digital München BSB

Algoritmus: To
iesth nauka Liczby : Polska
rzeczą wydana : Przez Kxiędza Tomasza
Kłosa. Na trzy sie częśći dzieli, Pierwsza bę-
dzie o osobach Liczby, wtora o Regule
detri, Trzecia o rozmaitych rachun-
koch y o społkach Kupieczkich.
Cracouię ex Officina Ungleriana. 1538.

Polish

Tomasz Kłos

Algoritmus:
To iesth nauka liczby
Kraków: Ungler 1538

Transcription of the title page with modern diacritic marks

S/V: Biniewicz, Jerzy: Szesnastowieczne podręczniki matematyki. “Geometria” Stanisława Grzepskiego i “Algorytm” Tomasza Kłosa. Wrocław: Atut 2021

Algoritmus: To
jest nauka Liczby: Polską
rzeczą wydana: Przez Księdza Tomasza
Kłosa. Na trzy się części dzieli, Pierwsza bę-
dzie [o] *osobach Liczby, wtóra o Regule*
detri, Trzecia o rozmaitych rachun-
koch i o spółkach Kupieczkich.

Cracouię ex Officina Ungleriana 1538

Polish

Tomasz Kłos

Algoritmus:
To iesth nauka liczby
Kraków: Ungler 1538

Translation of the title page

Algorism:
That is the science of number:
published in the Polish tongue:
by the priest Tomasz Kłos.
Divided into three parts,
the first one will be about the species of numbers,
the second one about the rule of three,
the third one about various calculations and
merchants companies.

In Kraków from the Ungler printing house 1538

[under the text the coat of arms of the city of Kraków]

Polish

Tomasz Kłos

Algoritmus:
To iesth nauka liczby
Kraków: Ungler 1538

Content overview
(according to the section headings)

Preface (*przedmowa*)
Part 1: Calculation with the counters (*na linijach*) and with the pen (*na cyfrach*)
Multiplication tables until 47 and squares until 100; Roman minutiae
Signs for weights (*waga*), coins (*mńca*) and packaging units (*postaw*)
Calculation (*liczenie*) with non-denominate and denominate integers: addition (*przydawanie*), subtraction (*odejmowanie*), multiplication (*mnożenie*), division (*dzielenie*)
Part 2: Regula de tri for integers (*cała liczba*) and fractions (*łamana liczba*) with check (*próba*)
Numeration of fractions
General (*pospolita*) regula de tri for fractions
Part 3: Various calculations
Quantity price calculations
Time salary, budget, court calculations (*dworzka liczba*)
Regula quinque (*reguła detri w piąci terminiech*)
Conversion of weights (*przemienienie wag*)
Barter (*frimark*)
Regula societatis (*towarzystwo*)
Calculation with Nuremberg currency
Silver (*srebro*) and gold (*złoto*) calculation
Comparison of weights and coins
Regula de tri inversa (*wywrócona reguła*)
Regula falsi (*należnienie przez próbowanie*)
Fractions of fractions

Later than Kłos 1538:
Bernhard Wojewodski: *Algorithm*.
Kraków 1553, 1574
C: Hoock I/W10

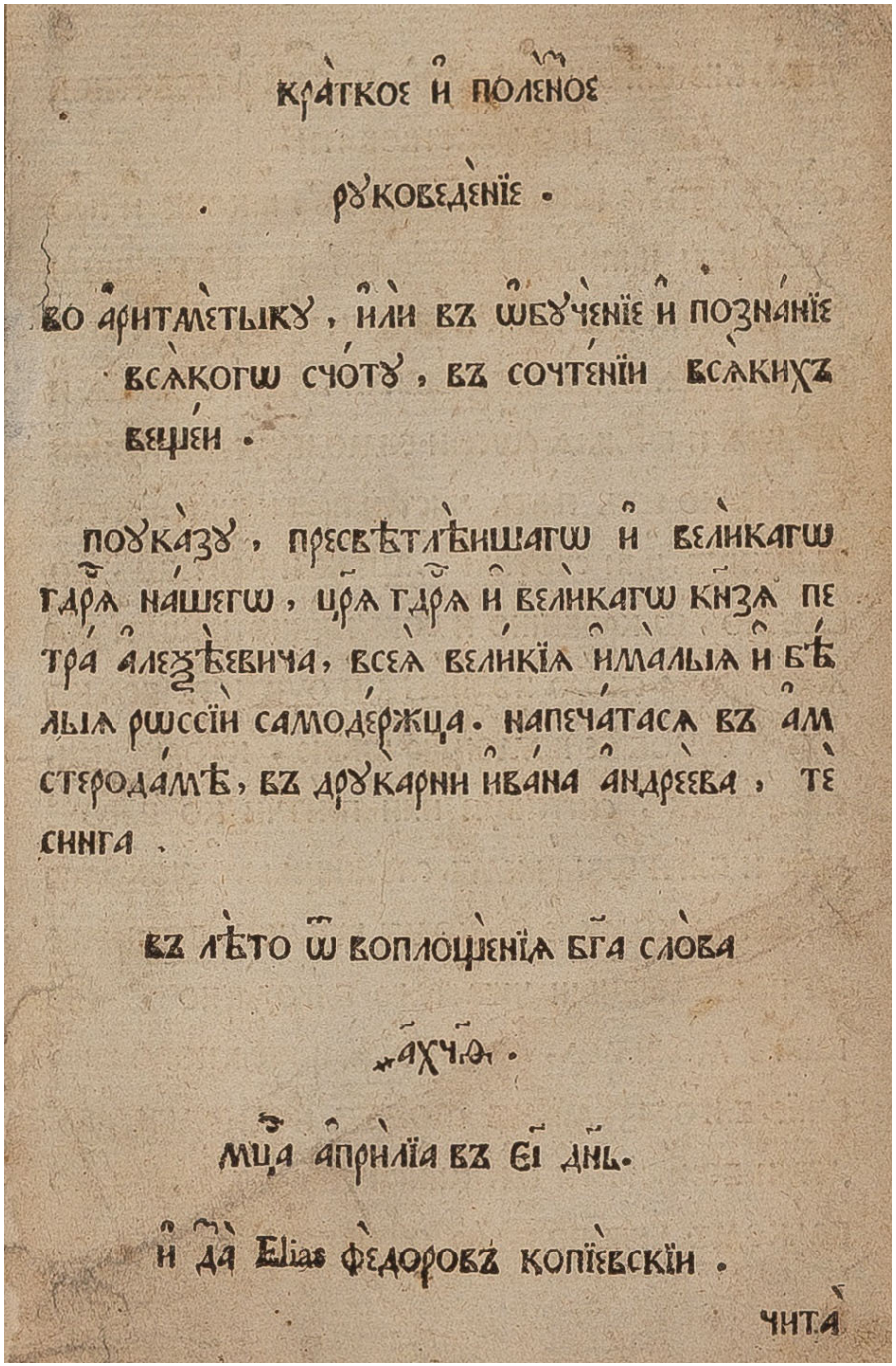
Russian

Elias / Ilia Fëdorov(ič) Kopievskij / Kopievič
Илья Фёдоров Копиевский

b. ca. 1651 Ljachoviči (Belarus)
d. 1714 Moskva
Prot. theologian, author, translator, printer
Latin-Russian-German/Dutch dictionaries (*Nomenklator*), Amsterdam: Tessing 1700; Russian and Latin grammar books

Krátkoe i poléznoe rukovedénïe vo aritmétyku
Amsterdam: Jan Andrieszoon Tessing 1699

16 p. arithmetic, 32 p. mottos and fables
(3350 copies printed)
C/V: Hoock II/K7
D/L: Wolfenbüttel HAB


КРАТКОЕ И ПОЛЕЗНОЕ

РУКОВЕДЕНІЕ .

ВО АРИТМЕТЫКУ , ИЛИ ВЗ ОБУЧЕНІЕ И ПОЗНАНІЕ ВСЯКОГО СЧОТУ , ВЗ СОЧТЕНІИ ВСЯКИХЪ ВЕЩЕЙ .

ПОУКАЗУ , ПРЕСВѢТЛѢЙШАГО И ВЕЛИКАГО ГДРА НАШЕГО , ЦРА ГДРА И ВЕЛИКАГО КНЗА ПЕТРА АЛЕѲѢЕВИЧА , ВСЕЯ ВЕЛИКІЯ ИМАЛЫЯ И БѢЛЫЯ РШССІИ САМОДЕРЖЦА . НАПЕЧАТАСЯ ВЗ АМСТЕРОДАМѢ , ВЗ ДРУКАРНИ ИВАНА АНДРЕЕВА , ТЕ СНИГА .

ВЗ ЛѢТО Ѡ ВОПЛОЩЕНІЯ БГА СЛОВА

ѦХЧѲ .

МЦА АПРІЛІЯ ВЗ ЄІ ДНЬ .

И ДА Elias ФЕДОРОВЗ КОПІЕВСКІИ .

ЧИТА

Russian

Elias Fëdorov Kopievskij

Krátkoe i poléznoe rukovedénïe vo aritmétyku
Amsterdam: Tessing 1699

Transcription of the title page

S: Haara/Stapelbroek/Immanen (ed.): Passions, politics and the limits of society. München, Wien 2020, p. 106
Pekarskij, P P: Nauka i literatura v" Rossii pri Petrě Velikom". Sankt Peterburg 1862
Roussanova, E: Ries-Kolloquium 2023
cerl.org
https://d-nb.info/gnd/1023021889

Краткое и полезное
роуководеніе
во аріѳметікоу, или въ обоученіе и познаніе
всѧкогѡ счотоу, въ сочтеніи всѧкихъ
вещей.

По оуказоу, пресвѣтлѣйшагѡ и велікагѡ
госоударѧ нашегѡ, царѧ госоударѧ и велікагѡ кнѧзѧ пе-
тра алексіевича, всеѧ велікіѧ и малыѧ и бѣ-
лыѧ россіи самодержца. Напечатасѧ въ Ам-
стеродамѣ, въ дроукарни Ивана Андреева, Те
синга.

Въ лѣто от воплощеніѧ бога слова
ѩахѯѳ҃.

Мѣсѧца апріліа въ еі день.

Издал Elias Ѳедоровъ Копіевскіи.

Russian

Elias Fëdorov Kopievskij

Krátkoe i poléznoe rukovedénïe vo aritmétyku
Amsterdam: Tessing 1699

Romanization of the title page

kràtkoe ʾi polèznoe
rukovedènïe
vo ʾaritmètyku, ʾìli vʼʼ ʾōbučènïe ʾi poznánïe
vsȩ̀kogō sčótu, vʼʼ sočténïi vsȩ̀kiḥʼʼ
veŝéi.

po ukàzu, presvětlȅ̈išagō ʾi velìkagō
gosudarę nášegō, carę gosudarę ʾi velìkagō knâzę pe-
trá ʾalexȅ̀eviča, vsèę velíkïę ʾi màlyę ʾi bĕ́-
lyę rōssï̀i samodéržca. Napečátasę vʼʼ ʾam-
sterodámĕ, vʼʼ drùkarni ʾivána ʾandrèeva, tè-
singa.

vʼʼ lȅ̀to ōt voplošènïę boga slòva
a ḥ q ḟ.

měsęca ʾaprìlïa vʼʼ e ị̇ den'.

ʾizdàl Elias fȅ̀dorovʼʼ kopïèvskïi.

Russian

Elias Fëdorov Kopievskij

Krátkoe i poléznoe rukovedénïe vo aritmétyku
Amsterdam: Tessing 1699

Translation of the title page

1689–1725 Czar Peter the Great

Brief and useful
introduction
into arithmetic or into instruction and knowledge
of all calculating, into calculating with all things.

By order
of our most serene and great sovereign,
the Tsar, sovereign and Grand Duke
Peter Alexĕevič, the ruler
over the entire of Great and Little and White Russia,
printed in Amsterdam,
in Ivan Andreev Tesing's printing house.

In the year of the incarnation of the word of God
1699.

In the month of April on the 15th day.

He published [it]*: Elias Fëdorov Kopievskij.*

Russian

Elias Fëdorov Kopievskij

Krátkoe i poléznoe rukovedénïe vo aritmétyku
Amsterdam: Tessing 1699

Content overview
(according to the table of contents and the section headings)

Preface (To the reader, *čitàtelû*)

Arithmetic book (16 pages, signature A)
Species only for integers
1 Numeration (*čísla*)
2 Addition (*pridáča*)
3 Subtraction (*ízętïe*, *ubávka*)
4 Multiplication (*oŭmnožénïe*)
5 Division (*razdělénïe*)
Annual table of sunrise and sunset hours
for the horizon of Moscow

Mottos, Latin – Russian (16 pages, signature B)

Fables (16 pages, signature C)
(fox and donkey, lamb and wolf, eagle and turtle,
wolf and goat, mouse and frog, wolf and crane,
fox and raven, cricket and ant, old lion and fox etc.)

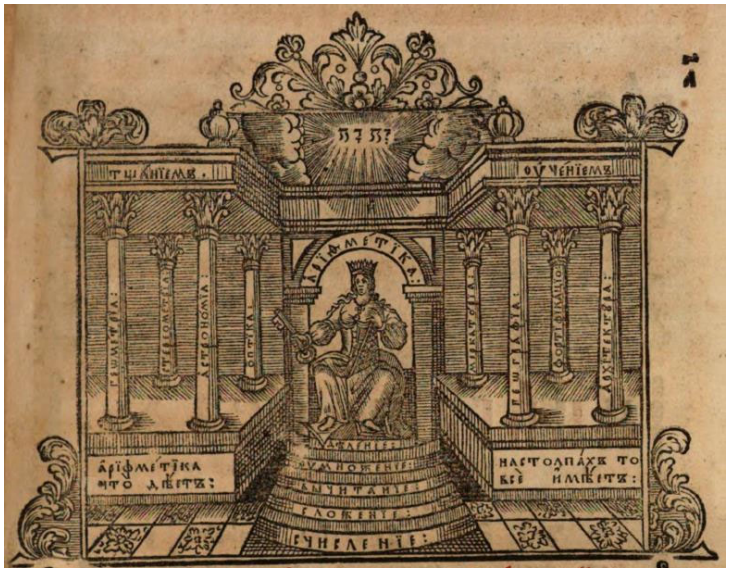
Russian – Supplement

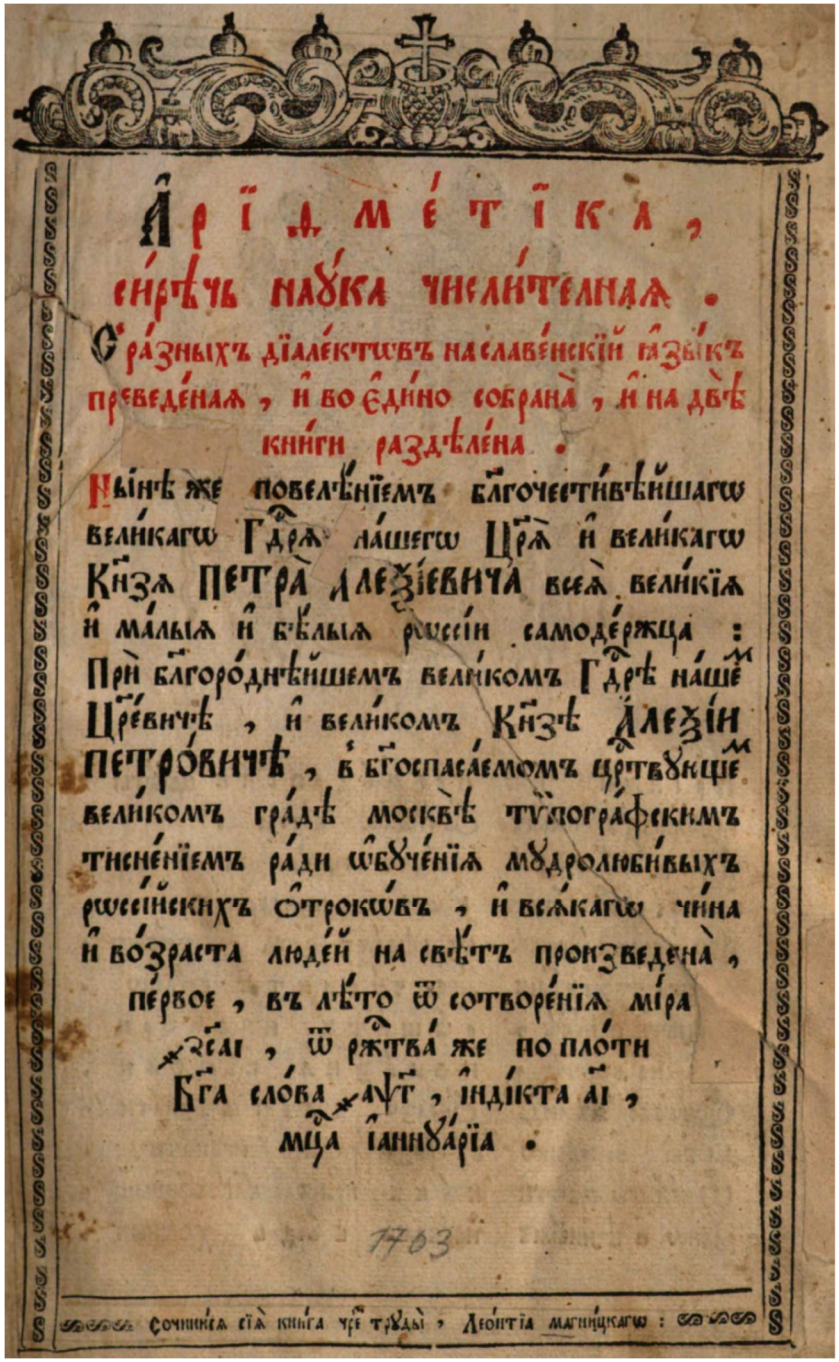
Leontij Filippovič Magnickij
Леонтий Филиппович Магницкий

b. 1669 Ostaškov (Tver Oblast)
d. 1739 Moskva
1714–1739 Director of the Moskva School of Mathematics and Navigation

Arïfmétïka. Moskva 1703

36+612 p. (2400 copies) **D**: München BSB
S: Roussanova, E: Ries-Kolloquium 2008, 2011





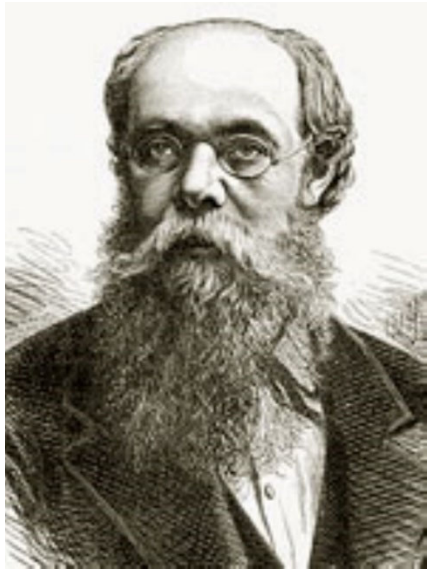
Ukrainian

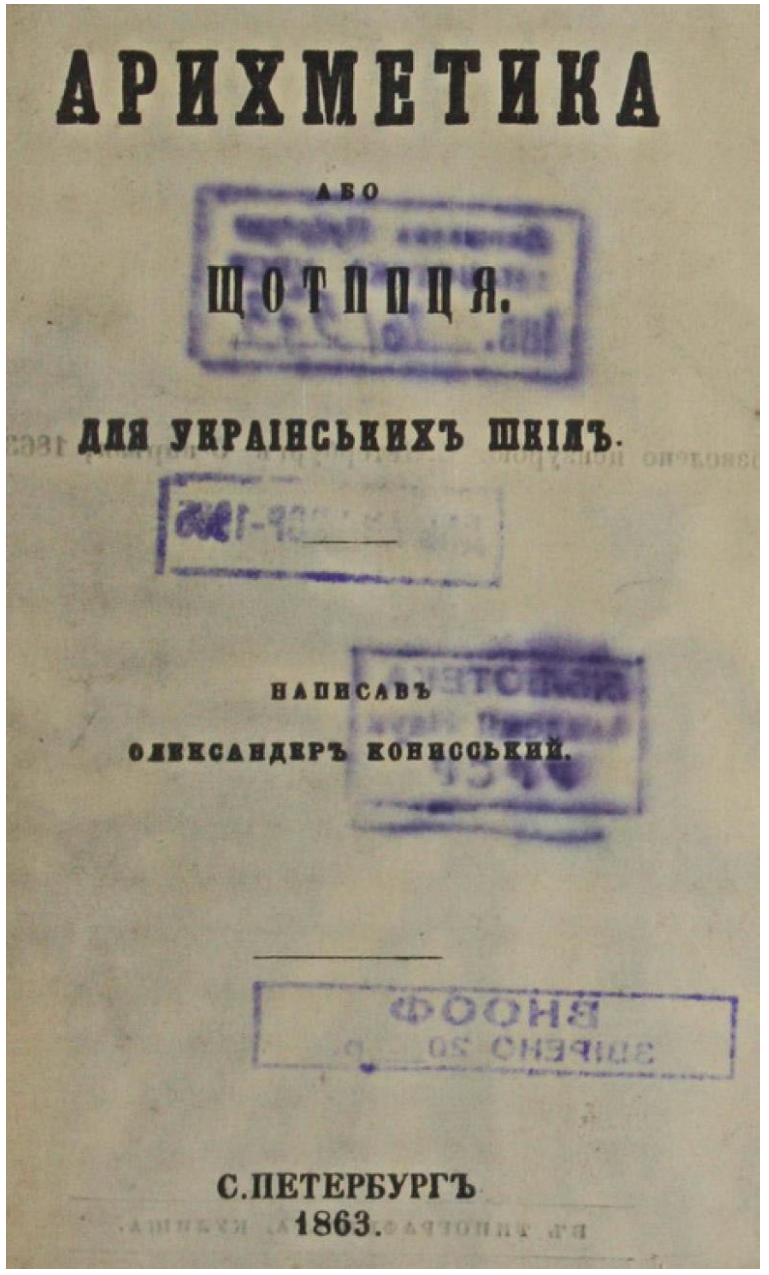
Olexandr Yakovyč Konyskyj
Олександр Якович Коніський
Alexandr Yakovlevič Koniski

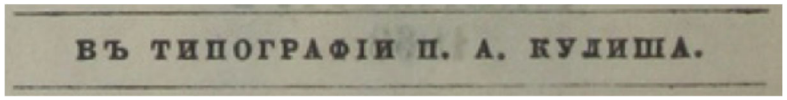
b. 1836 Pereḥodivka (gov. Černigov)
d. 1900 Kiev
Lawyer, journalist, author, translator
(Encyclop. of mod. Ukraine esu.com.ua)

Ariḥmetika abo ŝotnicâ
Sankt-Peterburg:
P[anteleimon] A[leksandrovič].
Kuliš 1863

66 p.
D: irbis-nbuv.gov.ua/ulib/item/0000878
L: Electronic L “Ukrainica”




АРИХМЕТИКА
АБО
ЩОТПЦЯ.
ДЛЯ УКРАІНСЬКИХЪ ШКІЛЪ.
НАПИСАВЪ
ОЛЕКСАНДЕРЪ КОНІССЬКИЙ.
С.ПЕТЕРБУРГЪ
1863.


ВЪ ТИПОГРАФІИ П. А. КУЛИША.

Ukrainian

Olexandr Yakovyč Konyskyj

Ariḥmetika abo ŝotnicâ
Sankt-Peterburg: Kuliš 1863

Transcription of the title page

S/V: Moser, Michael. In: East/West: Journal of Ukrainian studies (ewjus.com) 4 (2017) 39–95 [examines the period when the Ukrainian language was introduced in schools; Koniski's *Ariḥmetika* was published at the beginning of that time]

Арихметика
або
щотниця.

Для украінскихъ шкілъ.

Написавъ
Олександеръ Конисський.

С. Петербургъ
1863.

Въ типографіи П. А. Кулиша.

Ukrainian

Olexandr Yakovyč Konyskyj

Ariḥmetika abo ŝotnicâ
Sankt-Peterburg: Kuliš 1863

Romanization of the title page

This Romanization is based on ISO 9 which neglects national differences in the phonetic value of Cyrillic characters, e.g. the character и (Romanized i) corresponds to the phoneme /i/ in Russian and to /y/ in Ukrainian.

Ariḥmetika
abo
ŝotnicâ.

Dlâ ukraịns'kiḥ" škịl".

Napisav"
Oleksander" Koniss'kij.

S[ankt]. *Peterburg"*
1863.

V" tipografịi P. A. Kuliša.

Ukrainian

Olexandr Yakovyč Konyskyj

Ariḥmetika abo ŝotnicâ
Sankt-Peterburg: Kuliš 1863

Translation of the title page

Arithmetic
or
calculating book

For Ukrainian schools

He wrote [it]*:*
Olexander Konysky

Saint Petersburg
1863

In P. A. Kuliš's printing house

Ukrainian

Olexandr Yakovyč Konyskyj

Ariḥmetika abo ŝotnicâ
Sankt-Peterburg: Kuliš 1863

Content overview
(according to the section headings)

Four species (*sprava*) for integers (*proste čislo*)
1 Addition (*skladanne*)
2 Subtraction (*odlịč'*, *vičitanne*)
3 Multiplication (*pomnoženne*)
4 Division (*podịl"*, *dịlenne*)
Check (*povịrka*) of the four species with inverse operations
Denominate numbers (*pojmenovanne čislo*)
1 Sales
2 Packing
Four species for denominate numbers
Simple fractions (*drịb" prosta*, pl. *drobị*)
and the four species
Decimal fractions (*desâtična drib"*) and the four species
Repeating decimals, periodic fractions (*periodična drib"*)
Continued fractions [Kettenbrüche] (*bezpererivna drib"*)
Ratios and proportions (*otnošenna, proporcii)*
Regula de tri (*trojna sprava*): simple (*prosta*),
compound (*skladova*) [regula quinque]
Regula societatis (*trojna sprava tovaristva)*
Rule of the percentage (*sprava procenti/odsotki*)

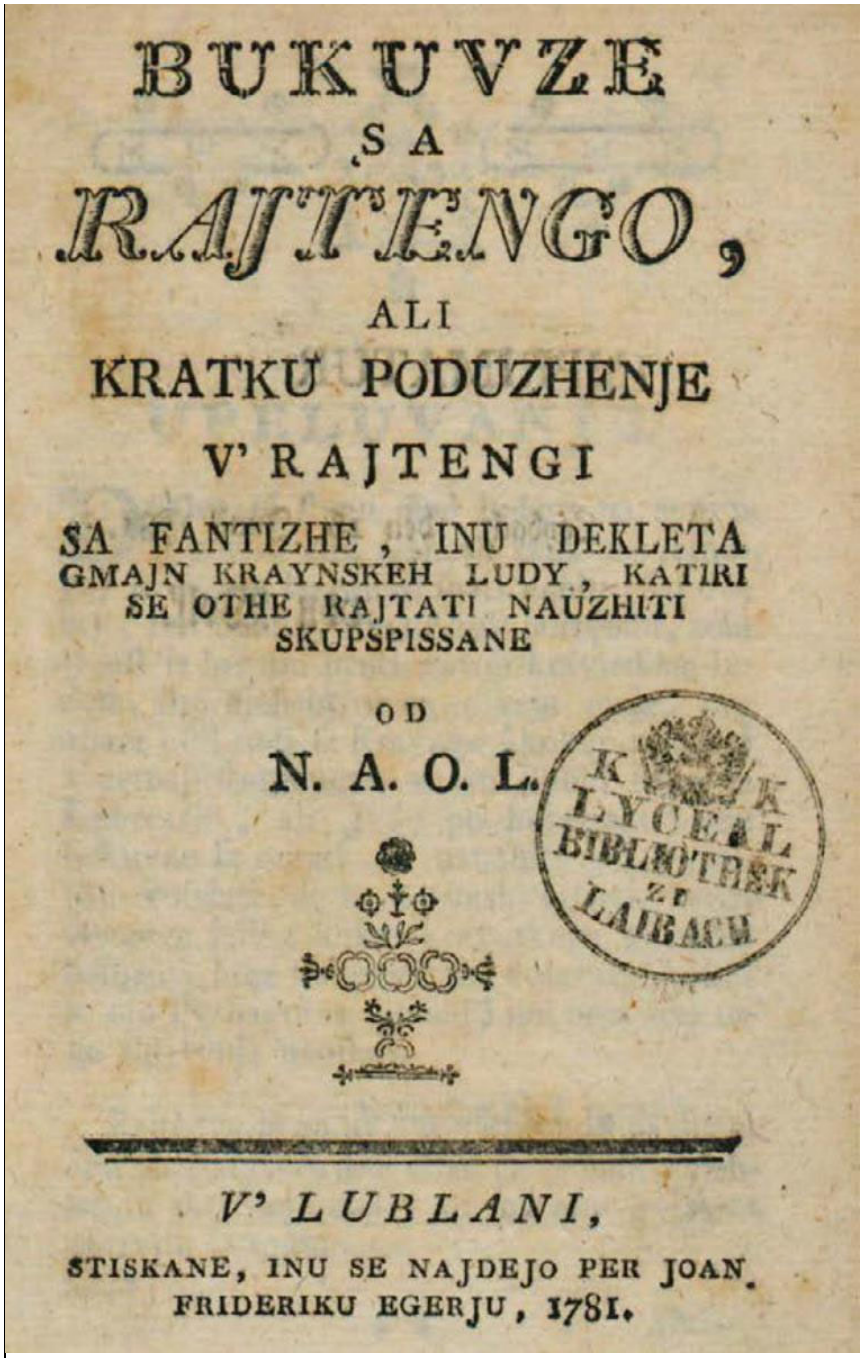
Slovene

Marko Pohlin/Pochlin

Born as Anton Pohlin; OSA name:
Marcus a Sancto Antonio Paduano
b. 1735 Ljubljana/Laibach
d. 1801 Monastery Mariabrunn, Vienna
Order of Saint Augustine OSA
Author of a Slovene grammar, dictionary, theologic and religious literature
(Wurzbach, Constantin von: Biograph. Lexikon des Kaiserthums Oesterreich)

Bukuvze sa rajtengo
Ljubljana: Johann Friedrich Eger 1781

56 p.
D: Digitalna knjižnica Slovenije dlib.si
L: Ljubljana Narodna in univerzitetna knjižnica
V: slovenska-biografia.si


BUKUVZE
SA
RAJTENGO,
ALI
KRATKU PODUZHENJE
V' RAJTENGI
SA FANTIZHE, INU DEKLETA GMAJN KRAYNSKEH LUDY, KATIRI SE OTHE RAJTATI NAUZHITI SKUPSPISSANE
OD
N. A. O. L.
K. K. LYCEAL BIBLIOTHEK ZU LAIBACH
V' LUBLANI,
STISKANE, INU SE NAJDEJO PER JOAN. FRIDERIKU EGERJU, 1781.

Slovene

Marko Pohlin

Bukuvze sa rajtengo
Ljubljana: Eger 1781

Transcription of the title page

The pen name *N. A. O. L.* could mean *Novus Augustiniani ordinis Laibacensis*; Pohlin also used other pen names such as just *Novus* (id.loc.gov/authorities)

S: Hladnik, Milan: Prvi slovenski matematični učbeniki. In: Solska kronika 2017, p. 291–323

Bukuvze
sa
rajtengo
ali
kratku poduzhenje
v' rajtengi
sa fantizhe, inu dekleta
gmajn kraynskeh ludy, katiri
se othe rajtati nauzhiti
skupspissane
od
N. A. O. L.

V' Lublani,
stiskane, inu se najdejo per Joan
Frideriku Egerju, 1781.

Slovene

Marko Pohlin

Bukuvze sa rajtengo
Ljubljana: Eger 1781

Translation of the title page

Booklet
for
arithmetic
or
short instruction
in arithmetic
for boys and girls
of those of the Carniolan people who
want to learn to calculate
compiled
by
Marko Pohlin

In Ljubljana,
printed by, and can be found with Johann
Friedrich Eger, 1781

Slovene

Marko Pohlin

Bukuvze sa rajtengo
Ljubljana: Eger 1781

Content overview
(according to the section headings)

Pohlin's text contains particular word creations.

Translated using fran.si/iskanje; Slovarji Inštituta za slovenski jezik Frana Ramovša and Pohlin's trilingual dictionary *Tu malu besedishe treh jesikov* (Slovene, German, Latin) Ljubljana: Eger 1781 (https://www.dlib.si)

Imprimatur
Introduction (*upeluvanje*), reference to Eliyah Mizraḥi

1.1 Numeration (*numerazijo, shtivenje*)
1.2 Addition (*addizijo*)
1.3 Subtraction (*subtrakzijo*)
1.4 Multiplication (*multiplikazijo*)
1.5 Division (*divisijo*)
(verification for all four species with check by 9)

2 Denominate numbers (*od shtivila is imęnam*)
2.1 Currencies (*dnarji*); measures (*mira*) of time, wine, capacity, length; weight (*vaga*) of merchandise, gold, silver; measures of paper
2.2 Addition
2.3 Subtraction
2.4 Multiplication
2.5 Division

3 Regula de tri
Regula de tri inversa (*narobe*)
Six corollaries for fun (*Perstavkov sa shpas*)

Croatian (Kajkavian)

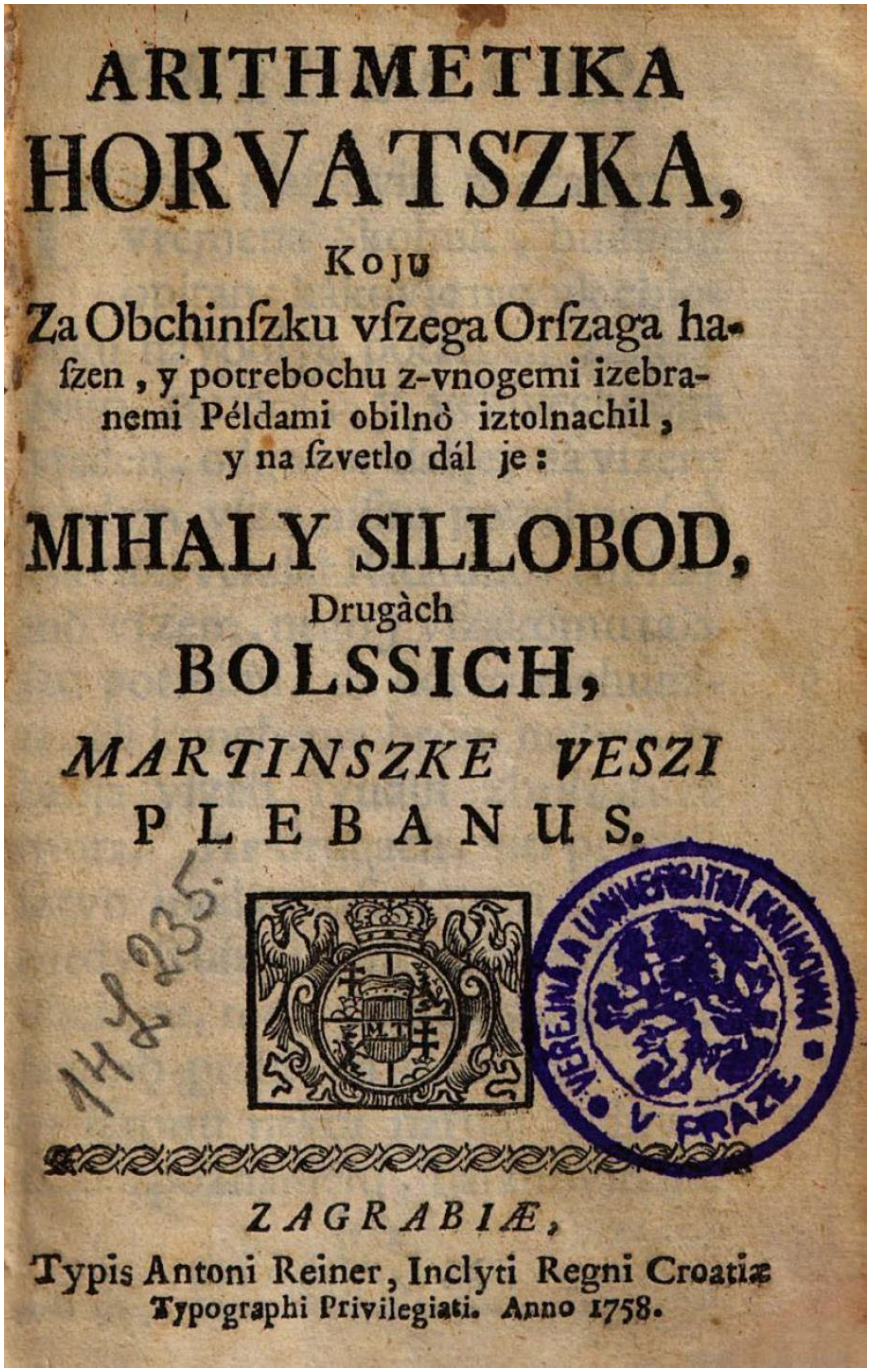
Mihael Šilobod-Bolšić

b. 1724
d. 1787
Studied philosophy in Vienna and theology in Bologna
Pastor in Martinska Ves and Sveta Nedelja
Author of religious literature, a small encyclopedia and Latin songs
His name became proverbial for math. knowledge

Arithmetika horvatszka

Zagreb: Anton Reiner 1758

384 p.
D: aleph.nkp.cz, EBSCO; Google
L: Praha NL
S/V: Ptičar, Adela: Prvi hrvatski računski priručnici. In: Rasprave, časopis instituta za hrvatski jezik i jesikoslovlje 30 (2004) 173–179 (hrcak.srce.hr/9473)


ARITHMETIKA
HORVATSZKA,
Koju
Za Obchinſzku vſzega Orſzaga haſzen, y potrebochu z-vnogemi izebranemi Példami obilnò iztolnachil, y na ſzvetlo dál je:
MIHALY SILLOBOD,
Drugàch
BOLSSICH,
MARTINSZKE VESZI
PLEBANUS.
ZAGRABIÆ,
Typis Antoni Reiner, Inclyti Regni Croatiæ
Typographi Privilegiati. Anno 1758.

Croatian

Mihael Šilobod-Bolšić

Arithmetika horvatszka
Zagreb: Anton Reiner 1758

Transcription of the title page

Arithmetika
horvatszka,
koju
Za Obchinszku vszega Orszaga ha-
szen, y potrebochu z-vnogemi izebra-
nemi Példami obilnò iztolnachil,
y na szvetlo dál je:
Mihaly Sillobod,
Drugàch
Bolssich,
Martinske Veszi
plebanus.

Zagrabiae,
Typis Antoni Reiner, Inclyti Regni Croatiae
Typographi Privilegiati. Anno 1758.

Later than Šilobod-Bolšić 1758:
Mate Zoričić (OFM): *Aritmetika u slavni jezik ilirički sastavljena*. Jakin (Ancona): Peter Ferk 1766 (in Štokavian – basis of today's Serbian, Croatian, Bosnian and Montenegrin standards);
(OCLC 8559 15955)

Croatian

Mihael Šilobod-Bolšić

Arithmetika horvatszka
Zagreb: Anton Reiner 1758

Translation of the title page

Translated using fran.si/iskanje; Slovarji Inštituta za slovenski jezik Frana Ramovša

Croatian
arithmetic
which [he],
for the benefit related to the municipalities
of the entire country and for the demand,
with many selected examples
abundantly commented
and [which he] *made see the light* [of the world]:
Mihael Šilobod,
otherwise
Bolšić,
pastor
of Martinska Ves.

In Zagreb,
at the printing house of Anton Reiner, privileged
typographer of the famous Kingdom of Croatia.
In the year 1758.

Croatian

Mihael Šilobod-Bolšić

Arithmetika horvatszka
Zagreb: Anton Reiner 1758

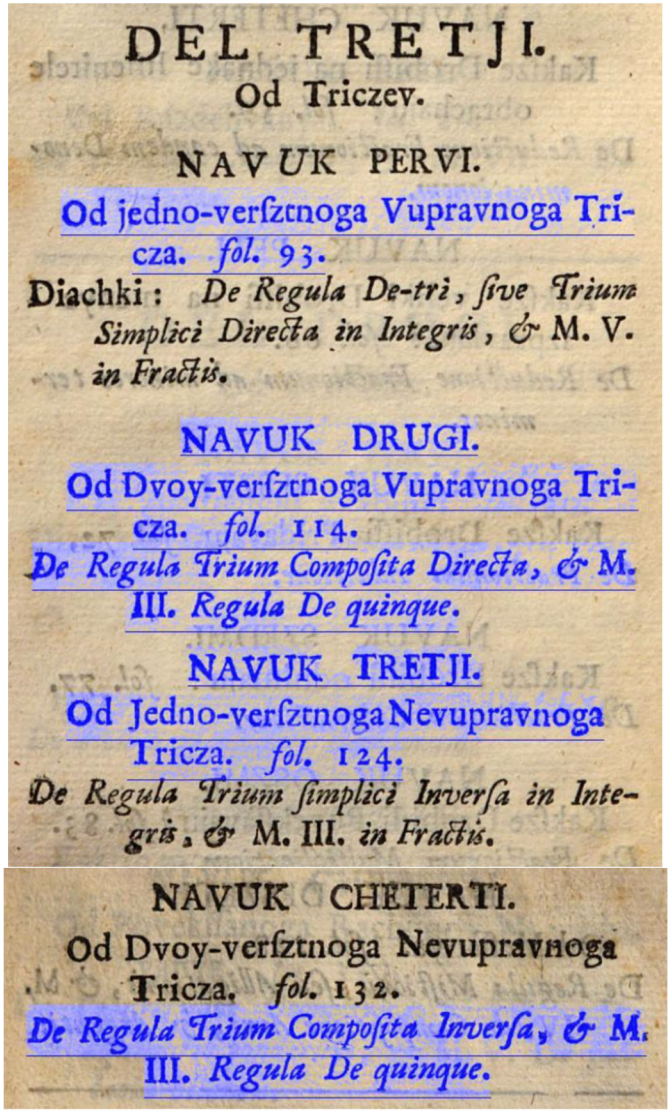
Content overview
(according to the Croatian and Latin tables of contents)

Preface (*predgovor*)
Table of contents

1 Simple calculations (*račun*)
1.1 Numbers (*broj*), numeration
1.2 Addition (*pridavanye*)
1.3 Subtraction (*odnimanye*)
1.4 Multiplication (*povekšavanye*)
1.5 Division (*razdelivanye*)

2 Fractions (*drobis*)
2.1 Simple fractions
2.2 Fractions of fractions
2.3 Conversion of fractions to integers and v.v.
2.4 Identifying a common denominator (reduction)
2.5 Reduction of fractions
2.6 Addition of fractions
2.7 Subtraction of fractions
2.8 Multiplication of fractions
2.9 Division of fractions

Croatian: Mihael Šilobod-Bolšić
Arithmetika horvatszka 1758
Content overview



DEL TRETJI.
Od Triczev.

NAVUK PERVI.
Od jedno-verſztnoga Vupravnoga Tricza. *fol.* 93.
Diachki: *De Regula De-tri, ſive Trium Simplici Directa in Integris, & M. V. in Fractis.*

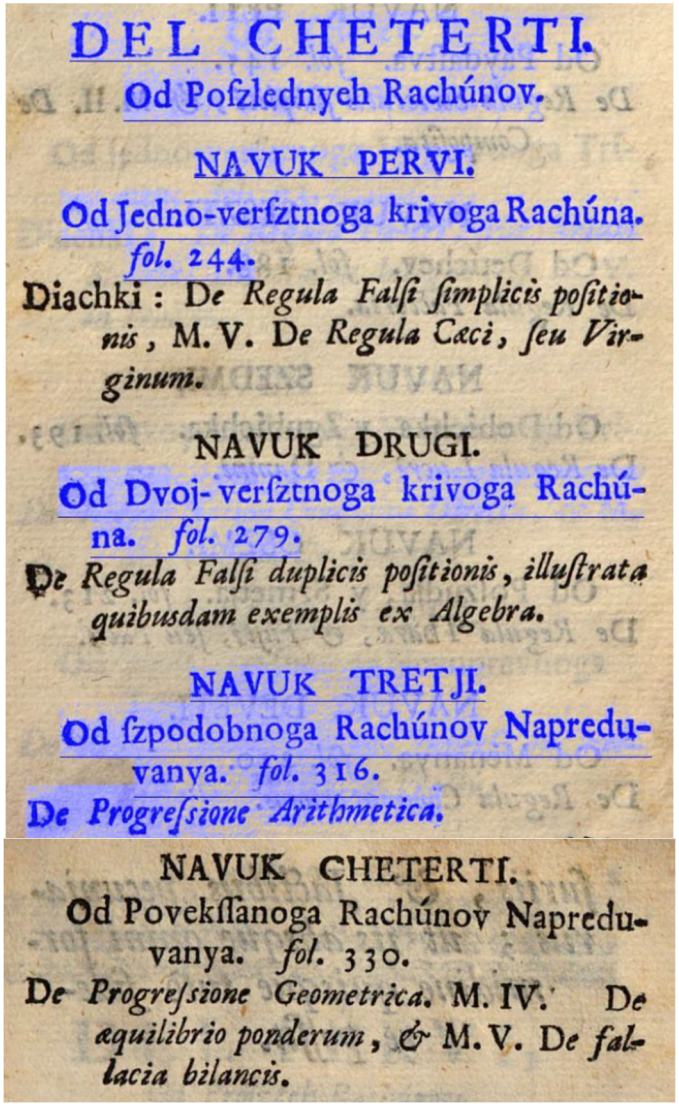
NAVUK DRUGI.
Od Dvoy-verſztnoga Vupravnoga Tricza. *fol.* 114.
De Regula Trium Compoſita Directa, & M. III. Regula De quinque.

NAVUK TRETJI.
Od Jedno-verſztnoga Nevupravnoga Tricza. *fol.* 124.
De Regula Trium ſimplici Inverſa in Integris, & M. III. in Fractis.

NAVUK CHETERTI.
Od Dvoy-verſztnoga Nevupravnoga Tricza. *fol.* 132.
De Regula Trium Compoſita Inverſa, & M. III. Regula De quinque.

3 Regula de tri (*tricza*)
3.1 Regula de tri (simplex) directa
3.2 Regula de tri composita directa (regula quinque)
3.3 Regula de tri (simplex) inversa
3.4 Regula de tri composita inversa (regula quinque)
3.5 Regula societatis (*paydastvo*)
3.6 Subcontractor (regula factoris; *detič*)
3.7 Profit, loss (regula lucri, damni; *dobiček, zgubiček*)
3.8 Tare, tret (regula tarae, fusti, faecis; *poszudje, szmetje*)
3.9 Barter (regula commutationis; *menanye*)
3.10 Regula alligationis (regula mistionis; *mešanye*)

Croatian: Mihael Šilobod-Bolšić
Arithmetika horvatszka 1758
Content overview



DEL CHETERTI.
Od Poſzlednyeh Rachúnov.

NAVUK PERVI.
Od Jedno-verſztnoga krivoga Rachúna. *fol.* 244.
Diachki: De *Regula Falſi ſimplicis poſitionis*, M. V. De *Regula Caeci, ſeu Virginum.*

NAVUK DRUGI.
Od Dvoj-verſztnoga krivoga Rachúna. *fol.* 279.
De *Regula Falſi duplicis poſitionis, illuſtrata quibusdam exemplis ex Algebra.*

NAVUK TRETJI.
Od ſzpodobnoga Rachúnov Napreduvanya. *fol.* 316.
De *Progreſsione Arithmetica.*

NAVUK CHETERTI.
Od Povekſſanoga Rachúnov Napreduvanya. *fol.* 330.
De *Progreſsione Geometrica.* M. IV. De *æquilibrio ponderum*, & M. V. De *fallacia bilancis.*

4 Final calculations
4.1 Regula falsi simplicis positionis (*jedno-versztnoga krivoga račun*); regula caecis
4.2 Regula falsi duplicis positionis (*dvoj-versztnoga krivoga račun*)
4.3 Arithmetic progression (*szpodobnoga računov napreduvanye*)
4.4 Geometric progression (*povekšanoga računov napreduvanye*)
4.5 Permutation, anagram, lottery
4.6 Riddle (aenigma, arithmetica divinatoria; *zganke*)

Appendix: tables for interests and conversions of currencies

Bosnian (Štokavian)

Ambrož Matić

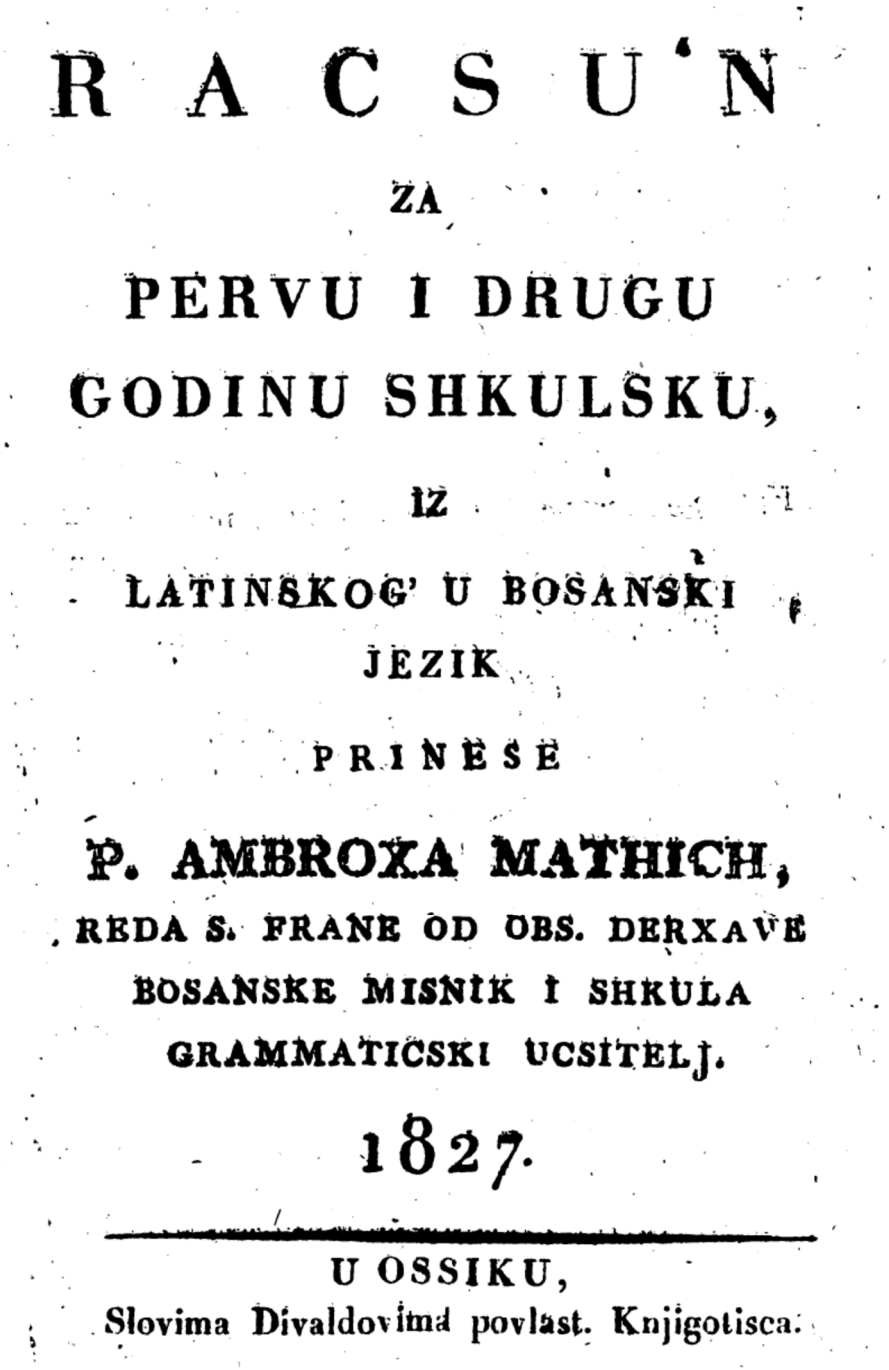
b. 1795 Blaževac, Pelagićevo
d. 1849 Garevac, Modriča
Author, poet, teacher in Kraljeva Sutjeska,
Franciscan friar
Studies in philosophy and theology
in Slavonska Požega
Latin textbook: Knjižica ručna 1832
(Croatian Wikipedia)

Račun

Osijek: Divald 1827

Preface dated 1827-01-04

120 p.
D: data.onb.ac.at/rec/AC10106032
D/L: Wien ÖNB
S/V: Ptičar, Adela: Prvi hrvatski računski priručnici. In: Rasprave, časopis instituta za hrvatski jezik i jesikoslovlje 30 (2004) 173–179 (hrcak.srce.hr/9473)



RACSU'N

ZA

PERVU I DRUGU

GODINU SHKULSKU,

IZ

LATINSKOG' U BOSANSKI

JEZIK

PRINESE

P. AMBROXA MATHICH,

REDA S. FRANE OD OBS. DERXAVE

BOSANSKE MISNIK I SHKULA

GRAMMATICSKI UCSITELJ.

1827.

U OSSIKU,

Slovima Divaldovima povlast. Knjigotisca.

Bosnian

Ambrož Matić

Račun
Osijek: Divald 1827

Transcription of the title page

Racsun
za
pervu i drugu
godinu shkulsku,
iz
latinskog' u bosanski
jezik
prinese
p. Ambroxa Mathich,
reda s. frane od obs. derxave
bosanske misnik i shkula
grammaticski ucsitelj.

1827.
U Ossiku,
Slovima Divaldovima povlast. Knjigotiska.

Bosnian

Ambrož Matić

Račun
Osijek: Divald 1827

Translation of the title page

Ivan Martin Divald (1743–1806)
since 1775 privileged printer in Osijek

Arithmetic
for
the first and second
school year,
from
the Latin into the Bosnian
language
translated [it]
friar Ambrož Matić,
order of St. Francis of the observant branch
Bosnian missionary and
grammar school teacher

1827
In Osijek,
printed by [literally: *with the types of*]
Divald's privileged printing house.

Bosnian

Ambrož Matić

Račun
Osijek: Divald 1827

Content overview

(according to the table of contents and the section headings)

Preface (*pridgovor*) dated 1827-01-04, approbation (*facultas*)
List of ecclesiastical and secular supporters

Basic knowledge
Part 1: Various changes (*prominjivanja*) of numbers (*brojevi*)
1 Numeration
2 Changes of numbers in general
3 Species for integers (*dillovanja u brojema čitavim*)
Addition (*skupljenje*)
4 Subtraction (*uzimanje*); check (*izkušanje*) by addition
5 Multiplication (*uzmložanje*)
6 Division (*razdielenje*); check (*izkušanje*) by multiplication

Part 2: Arithmetic for the second grammar school year
7 Denominate integers and descending reduction:
"well-known reducible integers" (*brojevi poznati čitavi okretljivi*)
7.1 Various changes
7.2–7.5 Four species
8 Ordinary fractions (*prikinutja običajni*): Properties
9 Ordinary fractions: Various changes
10 Ordinary fractions:
10.1–10.4 Four species
Four problems (*viežbanja*)

Table of contents

Serbian (Štokavian)

Vasilije Damjanović
Василије Дамјановић

b. 1734 Sombor (Serbia, prov. Vojvodina, at the Hungarian border)
d. 1792 Sombor
Prot. high school Bratislava
Student in Venezia
Senator in Sombor

Novaja serbskaja Arifmetika
Venezia 1767

368 p.
D: elibrary.matf.bg.ac.rs
L: Novi Sad, L of Matica Srpska
S/V: Pejović, Nadežda: Digitization of math. textbooks. In: Pregled Nacionalni centar za digitalizaciju (Overview NCD) 12 (2008) 55–64, ncd.org.rs;
Karp/Schubring: Handbook on the history of mathematics education. 2014, p. 149

Новая
Сербская
АРИѲМЕТИКА
или
Простое наставленіе къ Хесапу
Изъ разныхъ Книгъ собрано, новыми примѣры кратчайшимъ образомъ изъяснено, и къ употребленію Сербскія учащимся юности издано
отъ
ВАСИЛІЯ ДАМЯНОВИЧА.
Въ Млетцахъ 1767.
5445

Serbian

Vasilije Damjanović

Novaja serbskaja Arifmetika
Venezia 1767

Transcription of the title page

Новаѧ
сербскаѧ
ариѳметика
или
Простое наставленіе къ Хесапу
изъ разныхъ книгъ собрано, новыми примѣры
кратчайшимъ образомъ изѧснено, и къ
употребленію Сербскіѧ учащіѧсѧ
юности издано
отъ
Василіѧ Дамѧновића.

Въ Млеткахъ 1767.

Serbian

Vasilije Damjanović

Novaja serbskaja Arifmetika
Venezia 1767

Romanization of the title page
(no information about the printer)

Novaę
serbskaę
Arifṁetika
ili
Prostoe nastavlenïe k” Ḥesapu
Iz” Raznyḥ” Knig” sobrano, novymi priměry
kratčajšim” obrazom” izęsneno, i k”
upotrebleniiû Serbskïę učaŝïęsę
ûnosti izdano
ot”
Vasilïę Damęnovića

V” Mletkach” 1767

hesap (from Turkish *hesap*, Arabic *ḥisāb*)
‘arithmetic, calculation’

Serbian

Vasilije Damjanović

Novaja serbskaja Arifmetika
Venezia 1767

Translation of the title page

New
Serbian
arithmetic
or
simple introduction into calculating
compiled from various books, with new examples
explained in the briefest manner and for
the use of the studying Serbian youth
published
by
Vasilije Damjanović

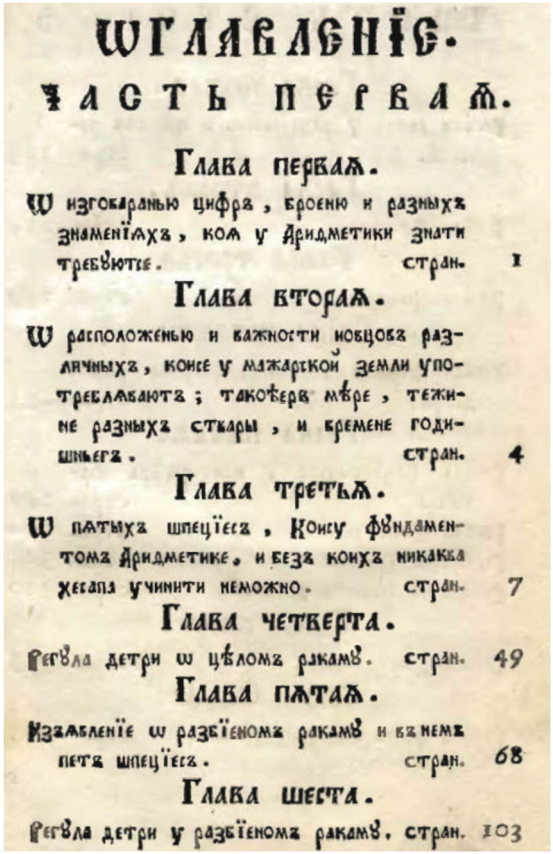
In Venezia 1767

Serbian

Vasilije Damjanović

Novaja serbskaja Arifmetika
Venezia 1767

Content overview



ШГЛАВЛЕНІЄ.

ЧАСТЬ ПЕРВАЯ.

Глава первая.

Ш изображенію цифръ, броенію и разныхъ знаменіяхъ, ком у Аридметики знати требующе. стран. 1

Глава вторая.

Ш расположенію и важности новцовъ различныхъ, консе у мажарской земли употребляютъ; такоѣерв мѣре, тежине разныхъ стварн, и времене годишњега. стран. 4

Глава третья.

Ш пятыхъ шпецїесъ, Консу фѣндаментомъ Аридметике, и безъ конхъ никакъ хесапъ учинити неможно. стран. 7

Глава четверта.

Регвла детри ш цѣломъ ракамъ. стран. 49

Глава пятая.

Измабленіе ш разбїеномъ ракамъ и въ немъ петъ шпецїесъ. стран. 68

Глава шеста.

Регвла детри у разбїеномъ ракамъ. стран. 103

Preface (*predslovie*) to the reader, dated 1765-05-29
Table of contents

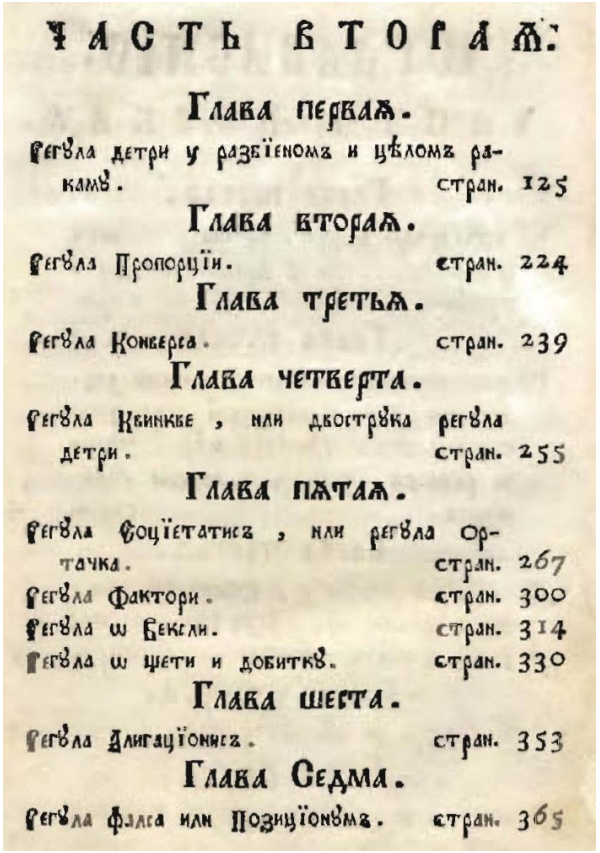
Part 1:
1 Numeration, abbreviations
2 Currencies (among others Hungarian), measures, weights, paper measures, units of time
3 Five species (*špecïes”*, incl. *numeracïa*)
4 Regula de tri for integers (*ō cělom” rakamu*)
5 Five species for fractions
6 Regula de tri for fractions (*ō razvïenom” rakamu*)

Serbian

Vasilije Damjanović

Novaja serbskaja Arifmetika
Venezia 1767

Content overview



ЧАСТЬ ВТОРАѦ:

Глава первая.

Регѹла детри ѹ разбїеномъ и цѣломъ ракѹ. стран. 125

Глава вторая.

Регѹла Пропорцїи. стран. 224

Глава третья.

Регѹла Конверса. стран. 239

Глава четверта.

Регѹла Квинкве, или двострѹка регѹла детри. стран. 255

Глава пата.

Регѹла Соцїетатиса, или регѹла Ортачка. стран. 267
Регѹла Фактори. стран. 300
Регѹла ѡ Векли. стран. 314
Регѹла ѡ цети и добитку. стран. 330

Глава шеста.

Регѹла Алигацїониса. стран. 353

Глава Седма.

Регѹла фалса или Позицїонѹма. стран. 365

Part 2:
1 Regula de tri for fractions and integers
2 Quantity-price relationships (*regula proporcii*)
3 Regula [de tri] conversa
4 Regula quinque or Regula dupla (*dvostruka*)
5 Regula societatis (or: *ortačka*), subcontractors, money exchange, barter, profit and loss
6 Regula alligationis
7 Regula falsi or positionum

Later arithmetic book (from Digital National Library of Serbia):
Димитријевић Секереш, Атанасије
Ри́ководствїе ко аріѯметїки: за употребленїе Ілліри́ческїе нейнїтскїе в° малх° училиштах° учаштїесѧ юности
Vienna: Joseph Kurzböck 1777, 155 p.

Montenegrin-Serbian
(Štokavian)

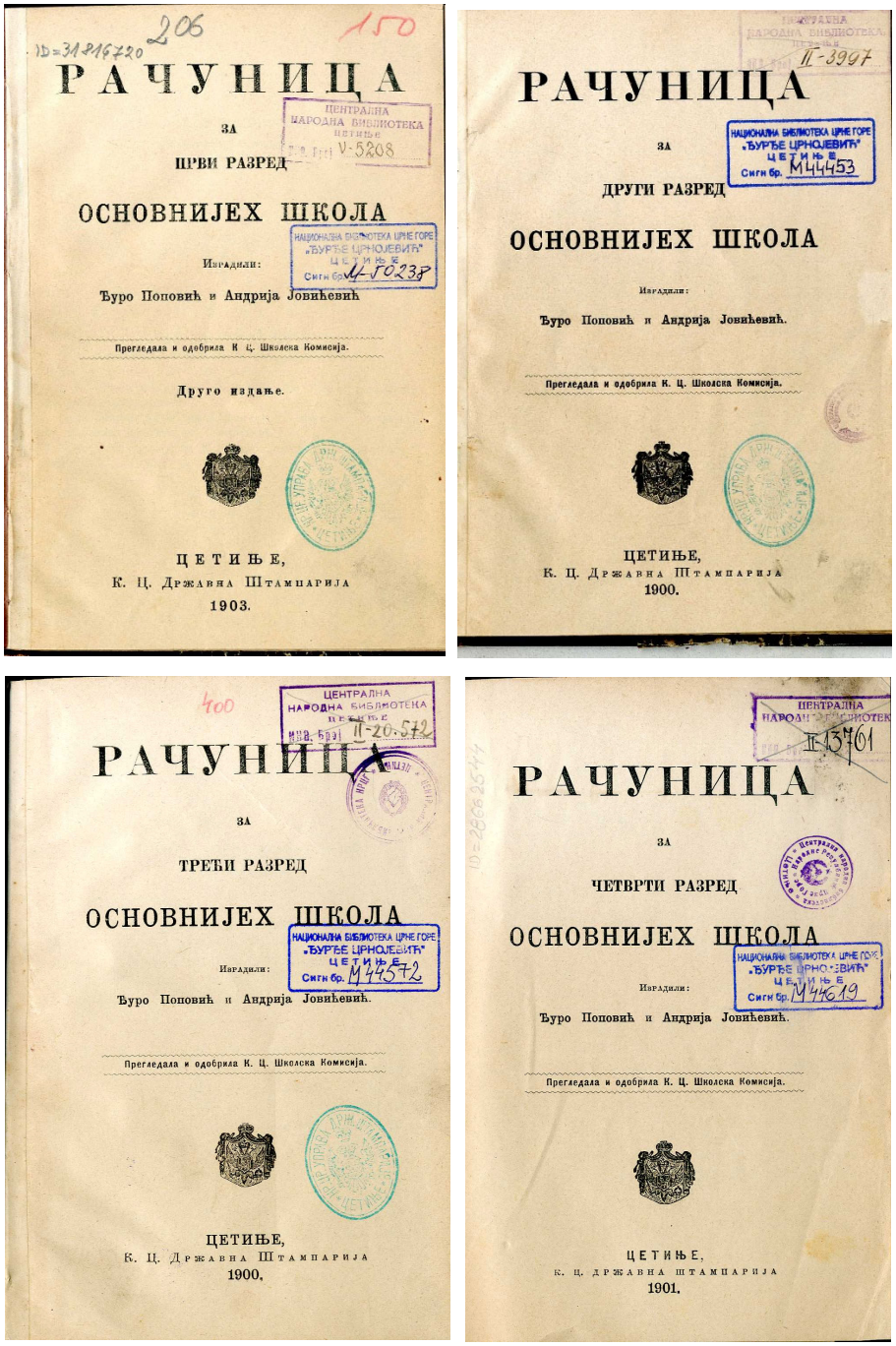
Ćuro Popović
Ђуро Поповић
Andrija Jovićević
Андрија Јовићевић

Računica za prvi, drugi, treći, četvrti razred osnovnijeh škola
Cetin'e: K. C. Državna Štamparija 1900

Arithmetic for the 1st, 2nd, 3rd, 4th grades of the primary school

No table of contents

Information from National Library of Montenegro (2025)



Bulgarian

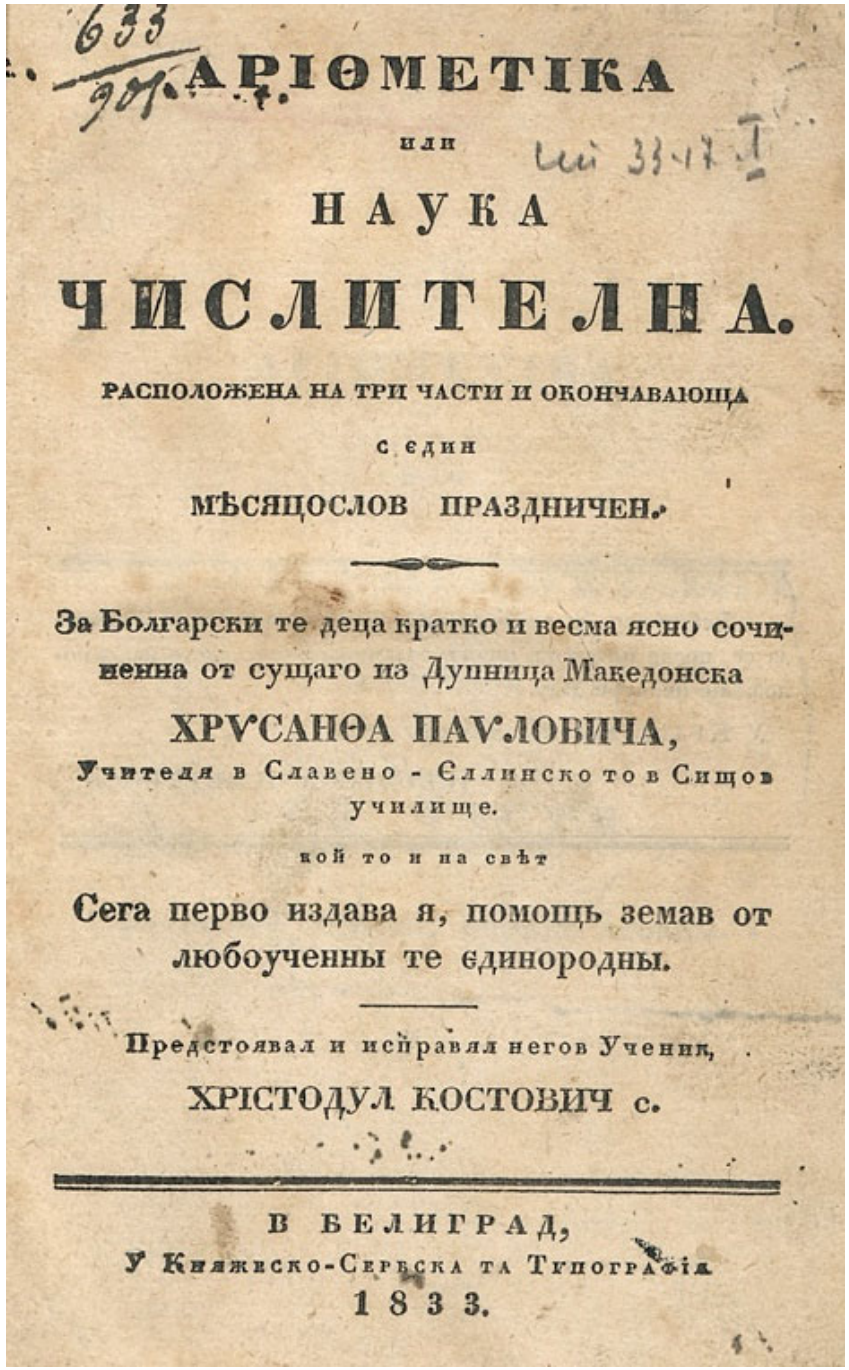
Ḥristaki Pavlovič Georgiev
Христаки Павлович Георгиев

b. ca. 1804 Dupnica (S Sofia)
d. 1848 (cholera) Svištov (on the Danube)
Teacher and author of school books
Education: Rila Monastery, Melnik, Ser
1834–1848 Teacher in Svištov

Христаки Павлович

Arifmetika ili nauka čislitelna
Beograd: Princely Serbian Printing House 1833

72 p. arithmetic, 46 p. calendar
D: digilib.nationallibrary.bg:8082/show-sk?id=19; dl.wdl.org/12879/service/12879.pdf
L: Bulgaria NL, Bulg. Acad. of Sciences



633

АРІѲМЕТІКА

или

НАУКА

ЧИСЛИТЕЛНА.

РАСПОЛОЖЕНА НА ТРИ ЧАСТИ И ОКОНЧАВАЮЩА

С ЄДИН

МѢСЯЦОСЛОВ ПРАЗДНИЧЕН.

За Болгарски те деца кратко и весма ясно сочиненна от сущаго из Дупница Македонска

ХРѴСАНѲА ПАѴЛОВИЧА,

Учителя в Славено - Єллинско то в Сицов училище.

кой то и на свѣт

Сега перво издава я, помощь земав от любоученны те єдинородны.

Предстоявал и исйравля негов Ученик,

ХРІСТОДУЛ КОСТОВИЧ с.

В БЕЛИГРАД,

У Княжиско-Сербска та Тыпографіа

1833.

Bulgarian

Ḥristaki Pavlovič Georgiev

Arifmetika ili nauka čislitelna
Beograd: Princely Serbian
Printing House 1833

Transcription of the title page

S/V: Gančev, Ivan: Matematičeskite znaniâ u nas do 1878 g. In: Bulgarski matematici. Sofia 1987, 5–15, esp. 8–9
Institute of Mathematics and Informatics (Muzei matematikata i informatikata v bulgaria) mmib.math.bas.bg/?page_id=378

Аріѳметіка
или
наука
числителна.
Расположена на три части и окончавающа
с един
мѣсяцослов праздничен.

За Болгарски те деца кратко и весма ясно сочи-
ненна от сущаго из Дупница Македонска
Хрѵсанѳа [Хрѵстаки] Паѵловича,
Учителя в Славено-Еллинско то в Свищов
училище.
кой то и на свѣт
Сега перво издава я, помошь земав от
любоученны те единородны.

Предстоявал и исправял негов Ученик,
Хрістодул Костовіч с[амоковец].

В Белиград,
У Княжеско-Сербска та Тѵпографія
1833.

Bulgarian

Ḥristaki Pavlovič Georgiev

Arifmetika ili nauka čislitelna
Beograd: Princely Serbian
Printing House 1833

Romanization of the title page

This Romanization is based on ISO 9 which neglects national differences in the phonetic value of Cyrillic characters, e.g. the character щ (Romanized ŝ) corresponds to the phoneme /šč/ in Russian and to /št/ in Bulgarian.

Arifmetika
ili
nauka
čislitelna.
Razpoložena na tri časti i okončavaûŝa
s edin
měsâcoslov prazdničen.

Za Bolgarski te deca kratko i vesma âsno soči-
nenna ot suŝago iz Dupnica Makedonska
Ḥrỳstaki Paỳloviča,
Učitelâ v Slaveno-Ellinsko to v S[v]išov
učiliŝe,
koj to i na svět
Sega pervo izdava â, pomoŝ' zemav ot
lûboučenny te êdinorodny.

Predstoâval i ispravâl negov Učenik,
Ḥristodul Kostovič s[amokovec].

V Beligrad,
U Knâžesko-Serbska ta Tỳografiâ.
1833.

Bulgarian

Ḥristaki Pavlovič Georgiev

Arifmetika ili nauka čislitelna
Beograd: Princely Serbian
Printing House 1833

Translation of the title page

Ḥristodul Kostovič Sičan-Nikolov
Христодул Костович Сичан-Николов
b. 1808 Samokov; d. 1889 Samokov
Teacher and author of textbooks, e.g.
Bolgarska Aritmetika, Bucureşti 1845
(dl.wdl.org/4123/service/4123.pdf)

Arithmetic
or
the science
of numbers.
Arranged in three parts and ending
with a
monthly calendar of the holidays.

For the Bulgarian children, briefly and very clearly composed by a true native of Makedonian Dupnica,
Ḥristaki Pavlovič,
teacher at the Slavic-Greek school
in Svištov
who now publishes it
for the first time to the world with the help
of education-loving compatriots.

His student Ḥristodul Kostovič [*from Samokov*].
supervised and corrected [it].

In Beograd,
at the Princely Serbian Printing House
1833

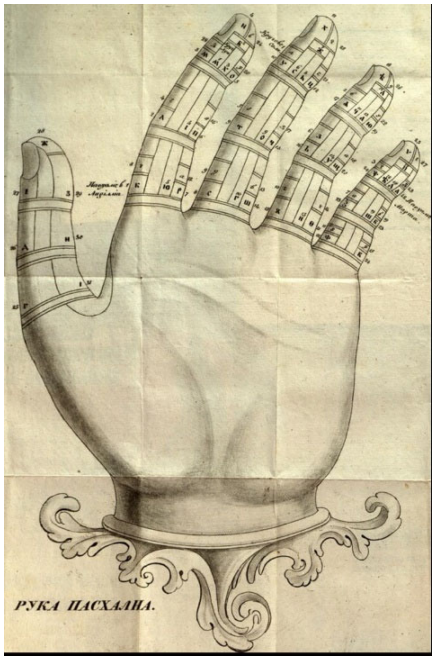
Bulgarian

Ḥristaki Pavlovič Georgiev

Arifmetika ili nauka čislitelna
Beograd: Princely Serbian Printing House 1833

Content overview

(according to the section headings – there are no section numbers)



[1] Basic operations (*dělaniê*) for integers (*čislo*, pl. *čisla*)
[1.1] Numeration, addition (*priloženiê*), subtraction (*izâtiê*), multiplication (*umnoženiê*), division (*děleniê*)
[1.2] Check (*uvěreniâ*) of the four species with inverse operations
[1.3] Denominate numbers: Turkish currency, time, wine, wheat, length, paper, capacity; reductio descendens (*privedeniê*), reductio ascendens (*vozvedeniê*), species

[2] Fractions (*razdroblenny čisla*)
Numeration, basic operations, reduction, expansion

[3] Regula de tri (*trojno pravilo*) [Cyrillic *H* symbol for unknown *x*]
Simple (*prosto*) regula de tri
Compound (*složenno*) regula de tri [regula quinque]
Regula societatis (*sodružestvenno*)
Regula falsi (*ložno*) simplicis (*prosto*), duplicis (*dvojno*) positionis
Regula alligationis (*směšenno*)

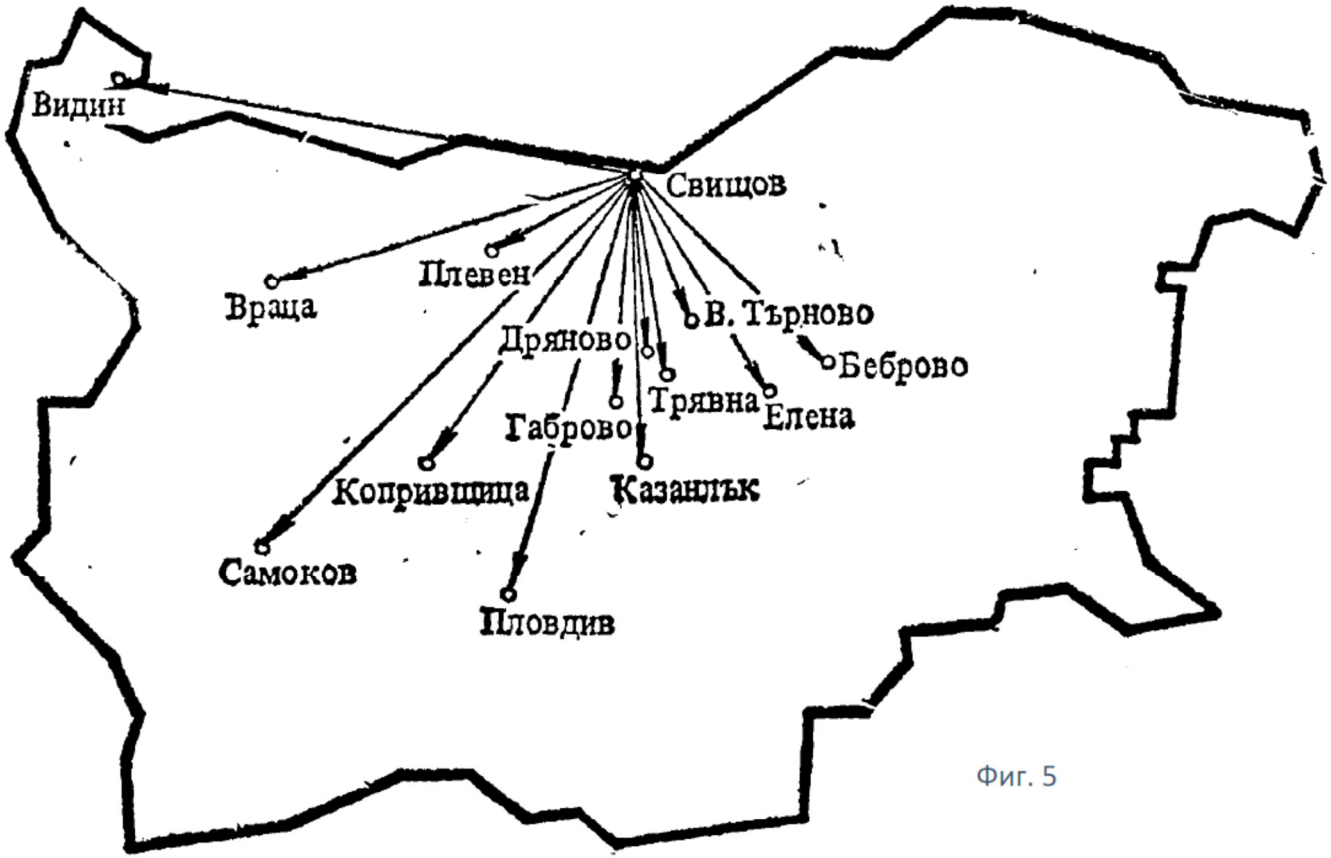
[4] Calendar (*měsâcoslov*) of moveable (*dvižimi*), not moveable feasts (*prazdnici*)
(containing “month hand”, “Easter hand” *ruka pasḥalna*)
List of good and bad monthly days

List of supporters of the book (12 p.)
Addition, subtraction, multiplication, division table

Bulgarian

Ḥristaki Pavlovič Georgiev

Arifmetika ili nauka čislitelna
Beograd: Princely Serbian Printing House 1833



Map showing the home towns of supporters (according to the list in the end of the book)
(Gančev 1987)

Bulgarian – Supplement

Neofit Bozveli
Неофит Бозвели
Emanuil Vaskidovič
Емануил Васкидович

Slavjano-bulgarskoto detevodstvo – Vol. 4
Svištov 1835

? p.
S: Gančev, Ivan: "Slavjano-bulgarskoto detevodstvo" na Neofit Bozveli i Emanuil Vaskidovič. Svištov 1995 (München BSB)

Неофит Бозвели

b. ca. 1785 Kotel
d. 1848 Sveta Gora

Емануил Васкидович

b. 1795 Melnik
d. 1875 Svištov

Other Slavic languages

Sorbian

Information: The first arithmetic book in Sorbian was published in 1951:
Józef Nawka: *Aritmetika*.
Reference: catalog of the Sorbian Central L, Bautzen
Date: December 2020

Belarusian

Information: Early arithmetic books in Belarus were written in Polish or Russian depending on the political situation.
The first arithmetic book in Belarusian is:
Yurevič, R. Ya.: *Zadačnik dla pačatkovaj školy*. [Arithmetic book for primary schools]. Vilnius (Lithuania) 1916
It is held by Martynas Mažvydas NL of Lithuania and in NL of Belarus:
http://www.libis.lt/simpleSearch.do?marcFullType=full&BI001=C10001657096
https://e-catalog.nlb.by/Record/BY-NLB-br689012
Information is available in “Кнігі Беларусі: 1517–1917. Зводны каталог”
Reference: NL of Belarus, Minsk
Date: November 2020

Latvian

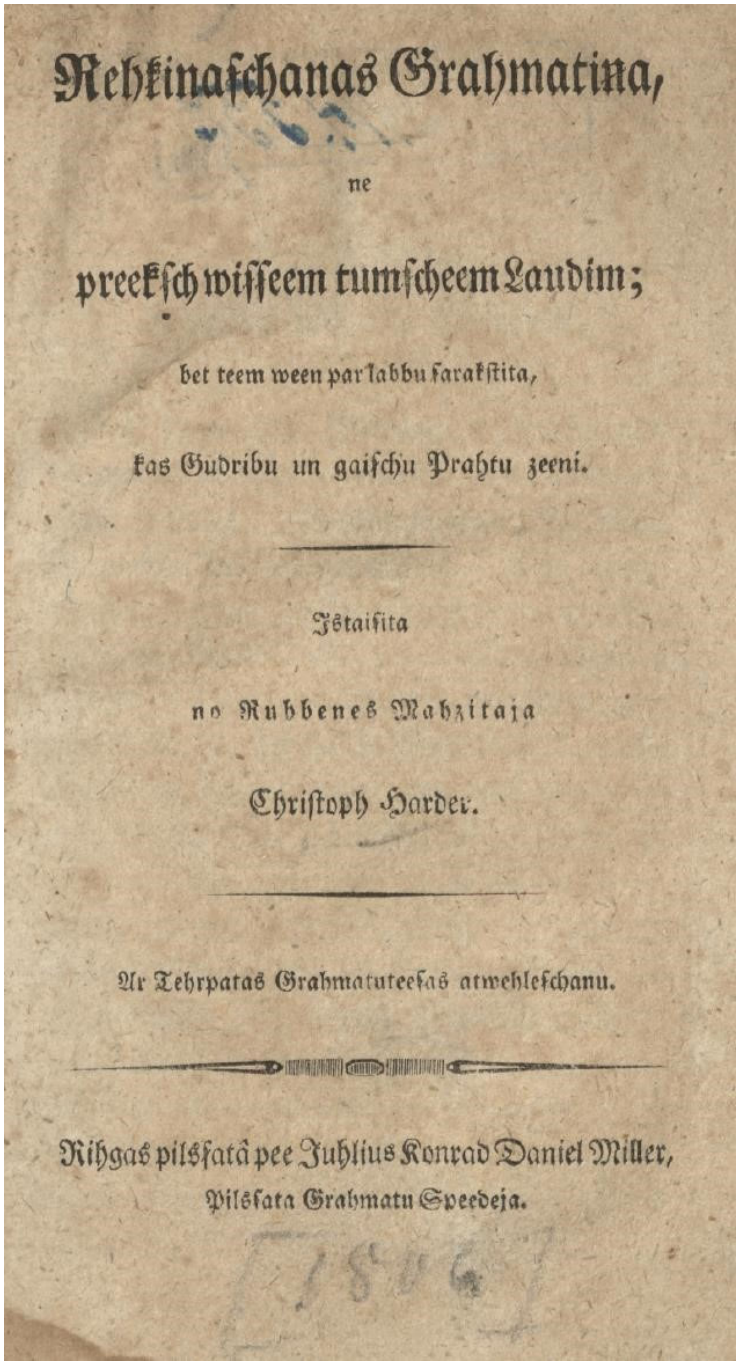
Christoph Harder

b. 1747
d. 1818
Studies in Königsberg/Kaliningrad
1772–1817 Pastor of Rubene (Papendorf), Kocēni (Kokenhof) community
SW Valmiera (Wolmar)
[not S Jekabpils (Jakobstadt)]

Rēķināšanas grāmatiņa

Riga: Julius Konrad Daniel Miller 1806

134 p.
D: dom-acc.lndb.lv/data/obj/634773.html; proxy.europeana.eu/97/634733
L: Latvijas Nacionālā Bibliotēka
V: literatura.lv/en/person/Christof-Harder/872958



Rehkinaſchanas Grahmatina,

ne

preekſch wiſſeem tumſcheem Laudim;

bet teem ween par labbu farakſtita,

kas Gudribu un gaiſchu Prahtu zeeni.

Iſtaiſita

no Rubbenes Mahzitaja

Chriſtoph Harder.

Ar Tehrpatas Grahmatuteeſas atwehleſchanu.

Rihgas pilſſatâ pee Juhlius Konrad Daniel Miller,
Pilſſata Grahmatu Speedeja.

1806

Latvian

Christoph Harder

Rēķināšanas grāmatiņa
Riga: Miller 1806

Transcription of the title page

Modern orthography
(according to library catalog)
Rēķināšanas grāmatiņa ne priekš visiem tumšiem ļaudīm, bet tiem vien par labu sarakstīta, kas gudrību un gaišu prātu cienī
Iztaisīta no Rubenes mācītāja

[letters with cedille are palatals]

Rehķinaşchanas Grahmatiņa,
ne
preekşch wişşeem tumşcheem Ļaudim;
bet teem ween par labbu şarakstita,
kas Gudribu un gaişchu Prahtu zeeni.

Istaişita
no Rubbenes Mahzitaja
Christoph Harder.

Ar Tehrpatas Grahmatuteeşas atwehleşchanu.

Rihgas pilsşatâ pee Juhlius Konrad Daniel Miller,
Pilsşata Grahmatu Şpeedeja.

Latvian

Christoph Harder

Rēķināšanas grāmatiņa
Riga: Miller 1806

Translation of the title page

Arithmetic book
not
for all the obscure people
but only for the benefit of those, of those alone
who respect knowledge and understanding.

Arranged
by the pastor of Rubene
Christoph Harder.

With the permission of the Book Court
in Tērbata [Tartu, Dorpat].

Riga's town hall by Julius Konrad Daniel Miller,
Town hall book shipping agency.

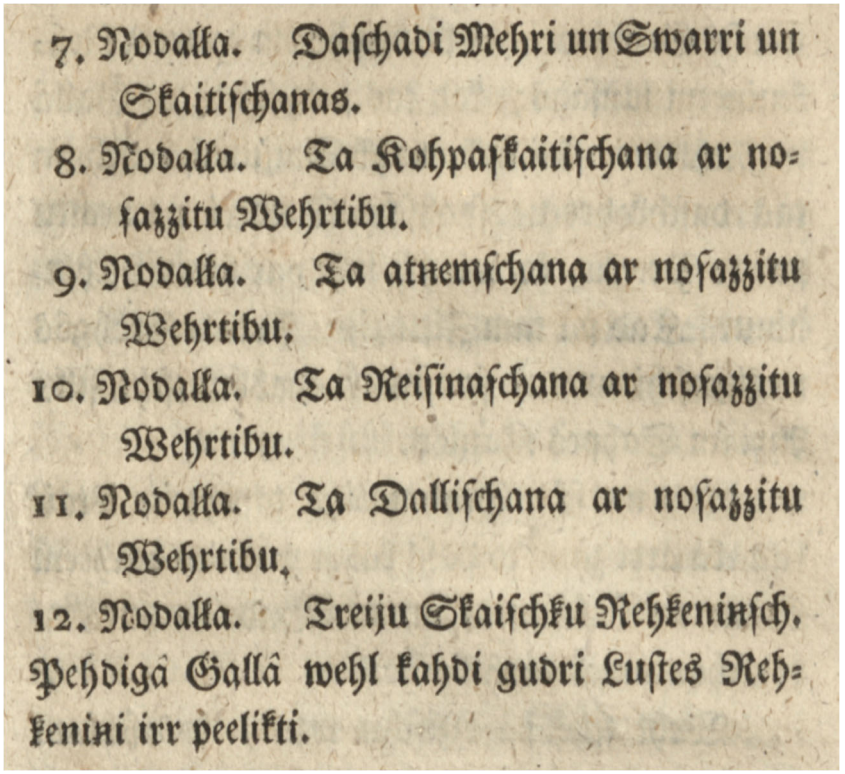
For help with translations, I am indebted to Latvia NL.

Latvian

Christoph Harder

Rēķināšanas grāmatiņa
Riga: Miller 1806

Content overview


7. Nodalla. Daſchadi Mehri un Swarri un Skaitiſchanas.
8. Nodalla. Ta Kohpaſkaitiſchana ar noſazzitu Wehrtibu.
9. Nodalla. Ta atnemſchana ar noſazzitu Wehrtibu.
10. Nodalla. Ta Reiſinaſchana ar noſazzitu Wehrtibu.
11. Nodalla. Ta Dalliſchana ar noſazzitu Wehrtibu.
12. Nodalla. Treiju Skaiſchku Rehkeninſch.
Pehdigâ Gallâ wehl kahdi gudri Luſtes Rehkenini irr peelikti.

Preface with table of contents

1 Numeration: The learning of numbers (*zihper*), or how to designate the numbers properly, as well as how to designate denominate numbers correctly

2 How many ways [*Wihse* corresponds to German *Weise*] of calculation (species) available?
3 Addition (*kohpaşkaitişchana*)
4 Subtraction (*atņemşchana*)
5 Multiplication (*reisinaşchana*)
6 Division (*dallişchana*)

7 Various measures for length, weight and for counting objects; currencies
8 Addition with denominate numbers (*ar noşazzitu Wehrtibu*)
9 Subtraction with denominate numbers
10 Multiplication with denominate numbers
11 Division with denominate numbers

12 Regula de tri (*treiju skaişchķu rehķeniņşch*)

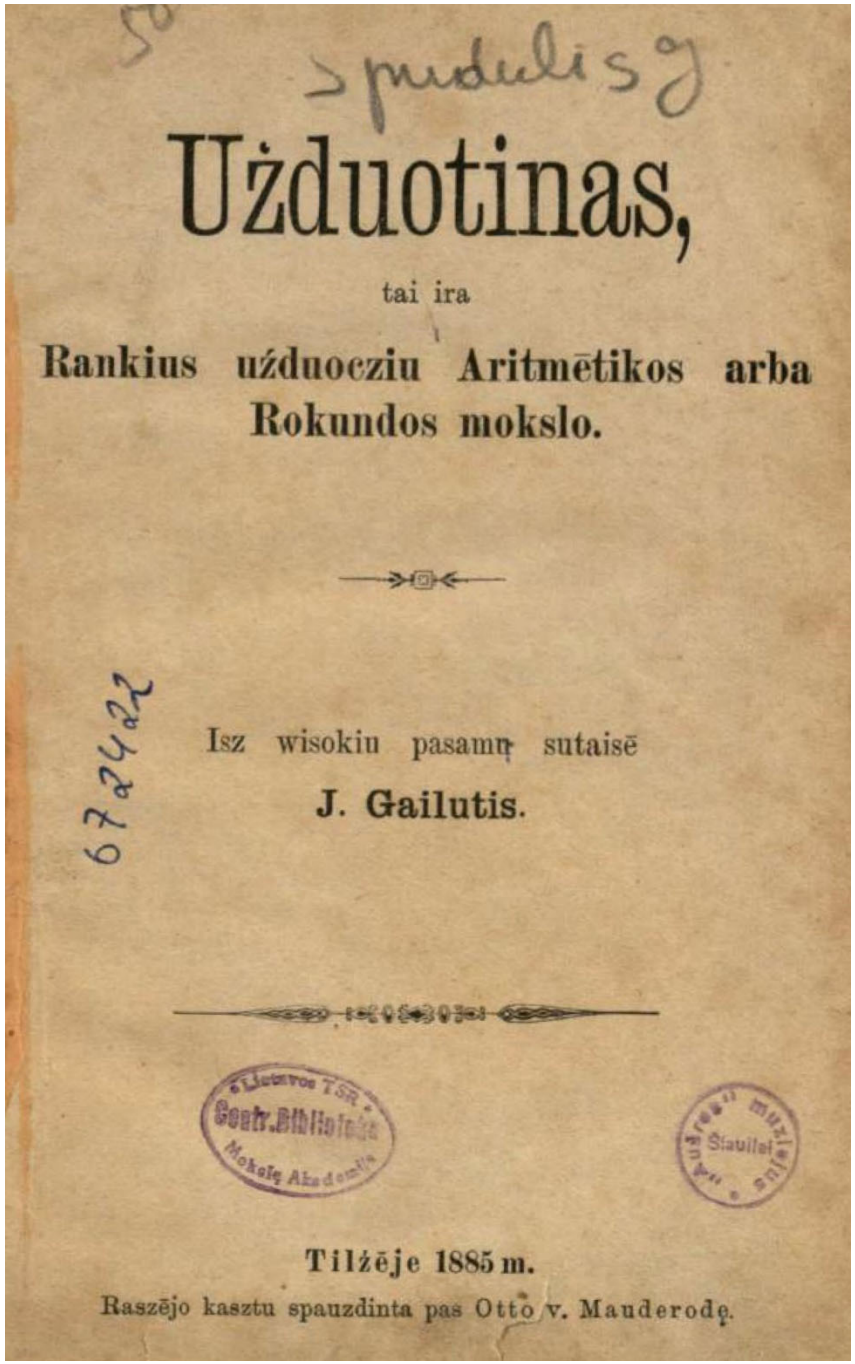
At the very end, some more complicated arithmetic problems for fun are added

Lithuanian

Jonas Spudulis,
pen name J. Gailutis

b. 1860 Pašvinys (Šiauliai district)
d. 1920 Tauragė
Physician, linguist, creator of Lithuanian arithmetic and linguistic terminology
Studies in Moskva, Sankt Peterburg
(Lithuanian Wikipedia)

Užduotinas tai ira rankius užduocziu aritmetikos arba rokundos mokslo
Tilsit/Tilžė/Sovietsk: Otto v. Mauderode 1885



80 p.
D: elibrary.mab.lt/handle/1/22367
L: Poland NL (OCLC 8302 69198)
V: Banionis 2009 (see Supplement)

Lithuanian

Jonas Spudulis,
pen name J. Gailutis

Užduotinas tai ira rankius užduocziu aritmetikos arba rokundos mokslo
Tilsit/Sovietsk: Mauderode 1885

Transcription of the title page

S: Duoba, Jonas: Lietuviški matematikos terminai pirmuosiuose vadovėliuose [Lithuanian mathematical terms in the earliest textbooks]. In: Matematikos Istoria α + ω (2002, 2) 42–48

Użduotinas,
tai ira
Rankius użduocziu Aritmētikos arba
Rokundos mokslo.

Isz wisokiu pasamu sutaisē
J. Gailutis.

Tilżēje 1885 m.
Raszējo kasztu spauzdinta pas Otto v. Mauderode.

Lithuanian

Jonas Spudulis,
pen name J. Gailutis

Užduotinas tai ira rankius
užduocziu aritmetikos arba
rokundos mokslo
Tilsit/Sovietsk: Mauderode 1885

Transcription of the title page

Regarding pen names: In 1863, the use of the Lithuanian language in official life was forbidden. Textbooks used in the secret Lithuanian schools had to be published in Prussia (Leipus/Manstavičius in European Math. Society Newsletter 12/2020, 68).

Questions,
that is,
a collection of problems in arithmetic or
calculation science.

With all kinds of protections provided [it]
[cf. suteikti ‘to provide’]
J. Gailutis.

In Tilsit in the year 1885.
With assumption of the expenses
printed by Otto v. Mauderode.

Lithuanian

Jonas Spudulis,
pen name J. Gailutis

Užduotinas tai ira rankius užduocziu aritmetikos arba rokundos mokslo
Tilsit/Sovietsk: Mauderode 1885

Content overview
(according to the section headings)

I Non-denominate numbers (*gryni skaitliai*)
1 Addition (*Sudējimas*)
2 Subtraction (*Atēmimas*)
3 Multiplication (*Dauginimas*)
4 Division (*Dalijimas*)
5 Various mixed problems for the four species (*veikmė*)

II Denominate numbers (*praminti skaitliai*)
6 Reductio descendens (*smulkinimas*)
7 Reductio ascendens (*stambinimas*)
8 Addition; 9 Subtraction
10 Multiplication; 11 Division
12 All kinds of problems with denominate numbers

III Fractions (*nuotrupos*)
13 Origin (*kiltis*) of fractions
14 Simplification (*sutrumpinimas*) of fractions
15 Expansion (*padidinimas*) and reduction (*pamažinimas*) of fractions
16 Addition and subtraction of fractions
Solutions, multiplication table, conversions
Some unusual mathematical terms (German, Polish)

Lithuanian – Supplement

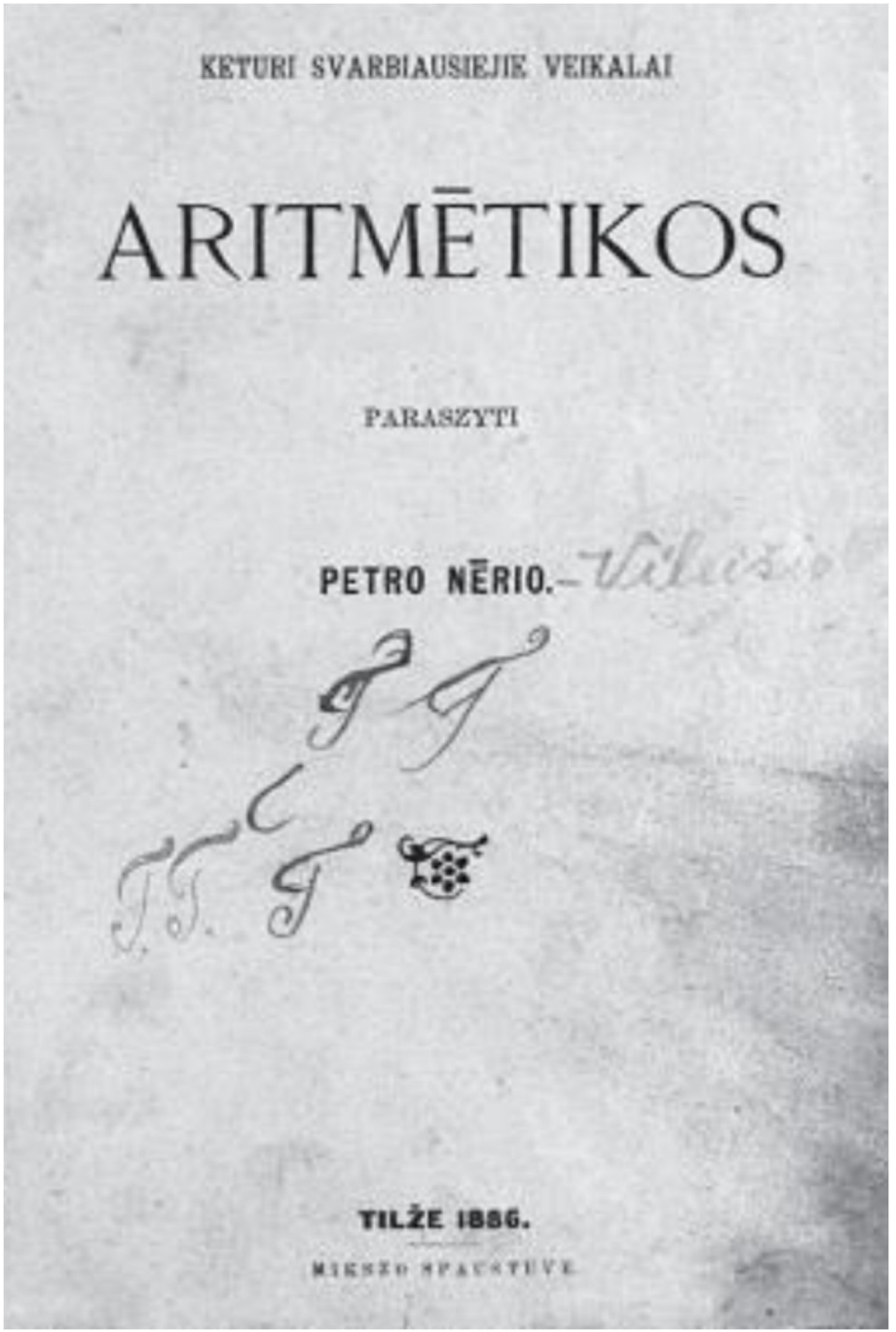
Later than Spudulis 1885

Petras Vileišis,
pen name Petras Nēris

1851–1926, engineer

Keturi svarbiausiejie veikalai aritmētikos [The four most important arithmetic operations]
Tilsit: Jurgis Mikšas 1886

50 p.
L: Martynas Mažvydas NL of Lithuania (lnb.libis.lt);
Lietuvos Akademine Elektronine Biblioteka (aleph.library.lt)
S: Banionis, Juozas: P. Vileišis. In: Liet. mat. rink. LMD darbai 50 (2009) 145–148 (journals.vu.lt/LMR/article/view/17918/17081)


KETURI SVARBIAUSIEJIE VEIKALAI

ARITMĒTIKOS

PARASZYTI

PETRO NĒRIO.

TILŽE 1886.

Scottish Gaelic

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

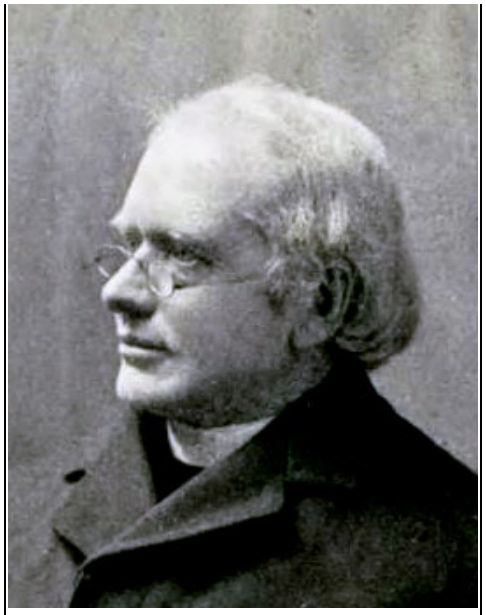
Anderson, Robert: The Edinburgh history of education in Scotland. Edinburgh: Edinburgh University Press 2015
In this book, Chapter 9 ‘Education in rural Scotland’ (153–170):
“Rural Scotland was central to the parochial education system which operated between 1696 and the introduction of compulsory education in 1872.”
In this book, Chapter 17 ‘Gaelic education since 1872’ (304–325):
“The Education (Scotland) Act 1872 aimed to ‘provide elementary education in reading, writing and arithmetic’ for all children aged five to twelve, but did not specify the language in which literacy skills should be developed.”
(WorldCat Identificator 8182 381 776)

A work from the 21st century is:
Maths glossary: English-Gaelic / Gaelic-English
(To be used with Scottish Heinemann Maths)
Kershader, Isle of Lewis: Stòrlann Nàiseanta na Gàidhlig 2006
(OCLC 7005 9375)

Irish

Peadar Ua Laoghaire
Peter O'Leary

b. 1839 Clondrohid, County Cork
d. 1920 Castlelyons
Catholic priest, writer;
a founder of modern Irish literature
1891 Priest in Castlelyons, 1906 canon
(English and Irish Wikipedia)



Leabhar nua ar áireamh
Dublin: Browne and Nolan
ca. 1900

112 p.
D: Internet Archive
L: Ireland NL, Toronto U
(OCLC 8480 88320, 5285 5412)
V: Ireland NL, Cork Univ College Boole L

Irish

Peadar Ua Laoghaire
Peter O'Leary

Leabhar nua ar áireamh
Dublin: Browne & Nolan 1900

Transcription of the title page

Leabhar nua
ar áireamh

Aodh Magill i Liam Parr
do chúm i mBéarla ar dtúis

An t-Athair Peadar Ua Laoghaire
do chuir Gaedhilg ar

Brún agus Ó Nualláin, teor[*anta*].
i mBaile Átha Cliath – i mBéal Feirste
i gCorcaigh – i bPortláirge

Irish

Peadar Ua Laoghaire
Peter O'Leary

Leabhar nua ar áireamh
Dublin: Browne & Nolan 1900

Translation of the title page

An original English textbook by Magill and Parr could not be found.

Content overview:
the four basic arithmetic operations for integers and fractions

New book
on calculation

Hugh Magill and William Parr
composed it in English first

The Father/Reverend Peter O'Leary
translated it into Irish

Browne and Nolan, ltd.
in Dublin – in Belfast
in Cork – in Waterford

Irish – Supplement

Earlier books for trading between Ireland and the UK were written in English, e.g.
Edward Hatton:
The Irish comes commercii
Dublin 1739
C: Hoock II/H6.24 etc.

Textbooks of the 19th century were also in English, e.g.
A treatise on arithmetic in theory and practice: for the use of the Irish National Schools
Dublin: Commissioners of National Education in Ireland
[3]1850

The digital copy (Internet Archive)
of *Leabhar nua ar áireamh*
contains additionally:

1. Peter O'Leary:
Eólas ar áireamh [Knowledge of calculation] –
Arithmetical tables in Irish.
[Irish numerals, calculation tables, conversions]
Dublin: Browne and Nolan [n. d.]
Dublin: Irish Book Company 1902

2. Anonym ("a bilingual teacher"):
Bilingual arithmetic (revised and enlarged)
[in the beginning Preface, Irish numerals,
in the end mathematical terms English – Irish]
Dublin: Browne and Nolan 1922

Welsh

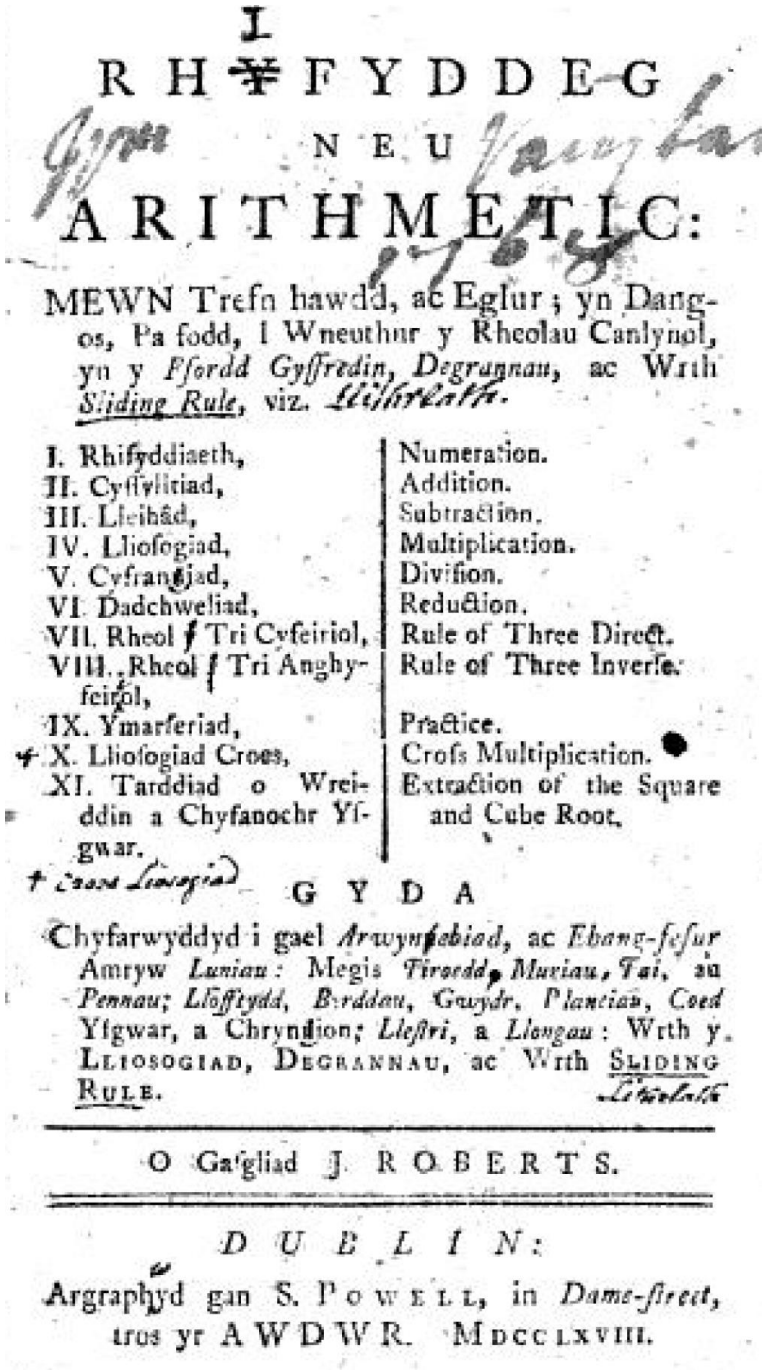
John Roberts / Siôn Robert Lewis

b. 1731 Llanaelhaearn, Caernarfonshire
d. 1806 Holyhead, Isle of Anglesey
Author of many works on various subjects
Around 1760 license of the bishop of Bangor to open a school

Rhifyddeg neu Arithmetic
Dublin: S. Powell 1768

Arithmetic neu rifyddeg. Dublin 1796

156 p.
D: Google, London BL
L: London BL, Cardiff U, Wales NL
V: Entry for Roberts, John. In: Stephens, Meic (ed.): The Oxford companion to the literature of Wales. Oxford University Press 1986 biography.wales/article/s-ROBE-JOH-1731



RHIFYDDEG
NEU
ARITHMETIC:

MEWN Trefn hawdd, ac Eglur; yn Dangos, Pa fodd, I Wneuthur y Rheolau Canlynol, yn y *Ffordd Gyffredin, Degrannau*, ac Wrth *Sliding Rule*, viz. *Llithrfalen*.

I. Rhifyddiaeth,	Numeration.
II. Cyffylltiad,	Addition.
III. Lleihâd,	Subtraction.
IV. Lluofogiad,	Multiplication.
V. Cyfrannjad,	Divifion.
VI. Dadchweliad,	Reduction.
VII. Rheol ſ Tri Cyfeiriol,	Rule of Three Direct.
VIII. Rheol ſ Tri Anghyfeiriol,	Rule of Three Inverſe.
IX. Ymarferiad,	Practice.
X. Lluofogiad Croes,	Croſs Multiplication.
XI. Tarddiad o Wreiddin a Chyfanochr Yſgwar.	Extraction of the Square and Cube Root.

GYDA

Chyfarwyddyd i gael *Arwynebiad*, ac *Ebang-feſur* Amryw *Lunian*: Megis *Tiroedd, Muriau, Tai*, au *Pennau; Llofftydd, Byrddau, Gwydr, Plancian, Coed* Yſgwar, a Chryndion; *Lleſtri*, a *Llongau*: Wrth y. LLUOSOGIAD, DEGRANNAU, ac Wrth SLIDING RULE.

O Gaſgliad J. ROBERTS.

DUBLIN:

Argraphyd gan S. POWELL, in *Dame-ſtreet*, tros yr AWDWR. MDCCLXVIII.

Welsh

John Roberts

Rhifyddeg neu Arithmetic
Dublin: Powell 1768

Transcription of the title page

I

R H Y F Y D D E G

NEU

A R I T H M E T I C:

MEWN Trefn hawdd, ac Eglur; yn Dangos, Pa fodd, I Wneuthur y Rheolau Canlynol, yn y *Ffordd Gyffredin, Degrannau*, ac Wrth *Sliding Rule*, viz. *Llithrelath.*

O Gasgliad J. ROBERTS.

DUBLIN:

Argraphyd gan S. POWELL, in *Dame-street*, tros yr AWDWR. MDCCLXVIII.

Rhifyddeg
neu
Arithmetic
Mewn Trefn hawdd, ac Eglur; yn Dangos, Pa fodd; I Wneuthur y Rheolau Canlynol, yn y Ffordd Gyffredin, Degrannau, ac Wrth Sliding Rule viz. [manually added *Llithelath*]

[arithmetic content]

Gyda
Chyfarwyddyd i gael Arwynebiad, ac Ehang-fesur Amryw Luniau: Megis Tiroedd, Muriau, Tai, au Pennau; Llofftydd, Borddau, Gwydr, Planciau, Coed Ysgwar, a Chrynion; Llestri, a Llongau: Wrth y Lliosogiad, Degrannau, ac Wrth Sliding Rule. [manually added *Llithelath*]

O Gasgliad J. Roberts
Dublin:
Argraphyd gan S. Powell, in Dame-street, tros yr Awdwr. MDCCLXVIII

Welsh

John Roberts

Rhifyddeg neu Arithmetic
Dublin: Powell 1768

Translation of the title page

Calculation
or
Arithmetic
in easy and clear order, showing
how to profit from the following rules
in the common way, the decimals and
using the slide rule [*"flute"*]

[arithmetic content]

With
guidance to identify area and volume measures
for various forms: such as lands, walls, houses and façades
[front, principal face]*; upstairs rooms, boards, glass, planks,*
timber (square and round/thick); crockery and ships: using
multiplication, decimals and
the slide rule [*"flute"*]

From J. Roberts's gathering
Dublin:
Printed by S. Powell in Dame street
for the author 1768

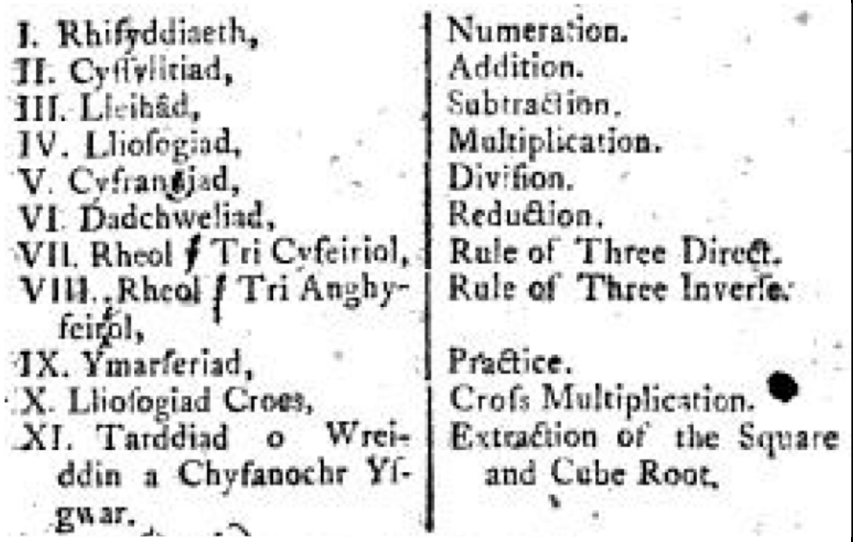
Welsh

John Roberts

Rhifyddeg neu Arithmetic
Dublin: Powell 1768

Content overview

(according to table of contents, section headings and page headers [do not coincide])



I. Rhifyddiaeth,	Numeration.
II. Cyſſylltiad,	Addition.
III. Lleihâd,	Subtraction.
IV. Lliofogiad,	Multiplication.
V. Cyfraniad,	Diviſion.
VI. Dadchweliad,	Reduction.
VII. Rheol ſ Tri Cyfeiriol,	Rule of Three Direct.
VIII. Rheol ſ Tri Anghyfeiriol,	Rule of Three Inverſe.
IX. Ymarferiad,	Practice.
X. Lliofogiad Croes,	Croſs Multiplication.
XI. Tarddiad o Wreiddin a Chyfanochr Yſgwar,	Extraction of the Square and Cube Root.

Prefaces
1 Numeration (*rhifyddiaeth*)
2 Addition (*cyssylltiad*): integers (*rhifedi cyfan*), money (*arian o amryw enwau*), troy weight (*pwysau troy*), avoirdupois weight, liquid measure (*gwlyb-fesur*), dry measure (*sych-fesur*), long measure (*hyd-fesur*), land measure (*fesur tir*), time (*amser*)
3 Subtraction (*lleihad*): integers, money, troy weight, avoirdupois weight, liquid mesure, dry mesure
4 Multiplication (*lliosogiad*): integers, money
5 Division (*cyfraniad*): money
6 Reductio a/descendens (*dadchweliad*): money, long measure, time
7 Regula de tri directa (*rheol y tri cyferiol*), golden rule (*rheol euraid*)
8 Regula de tri inversa (*rheol y tri anghyfeiriol*)
9 Rules of practice (*ymarferiad*): interest (*log arian*)
10 Multiplication of lengthes in feet, inches, 1/12 inches (*lliosogiad troedfeddau, modfeddau a rhanau*)
11 Decimals (*degrannau*):
I. Conversion of fractions to decimals (*toriadau yn degrannau*)
II. Reductio descendens: conversion of unit decimals to smaller units: money, weights, measures
[III.] Basic arithmetic operations with decimals
12 Extraction of the square root (*tarddiad o wreiddin ysgwar*)
13 Extraction of the cube root (*tarddiad o wreiddin cyflawnochr*)

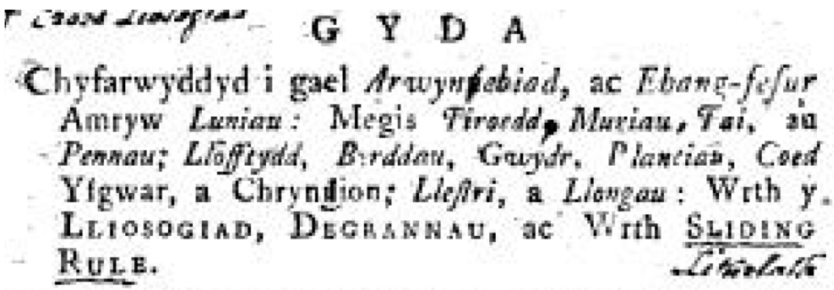
Welsh

John Roberts

Rhifyddeg neu Arithmetic
Dublin: Powell 1768

Content overview

(according to table of contents, section headings and page headers [do not coincide])



G Y D A

Chyfarwyddyd i gael *Arwynebiad*, ac *Ebang-fesur* Amryw *Luniau*: Megis *Tirogdd*, *Muriau*, *Tai*, au *Pennau*; *Llofftydd*, *Byrddau*, *Gwydr*, *Plancian*, *Coed* Ysgwar, a Chryndion; *Llestri*, a *Llongau*: Wrth y. Lliosogiad, Degrannau, ac Wrth Sliding Rule.

14 Slide rule: multiplication, division, fractions and decimals, regula de tri, square root, geometric mean (*canolrif perthynol*)
15 Measuring of surfaces (*mesur arwynebiad*): square, rectangle, triangle, circle, semi-circle, quarter circle, ellipse
16 Measuring for certain purposes
1 Carpenter's work (*weith seiri coed*)
2 Stone mason's work (*weith seiri cerrig / meini*)
3 Painting (*baentio*)
4 Roof slater's work (*gwaith llech doiwyr*)
5 Glazier's work (*waith gwydrwyr*)
6 Land measure (*mesur tir*)
7 Board measure (*mesur byrddau*)
8 Timber volume measure (*ehang fesur coed*)
Square timber (*bren ysgwar*)
Round timber (*bren crwn*)
Crockery measure (*mesur llestri*)
Square gauging (*mesur ysgwar*)
Cask gauging (*mesur casc*)
Ship gauging (*mesur llongau*)
Calendar computation
Golden number and epact of a year (*prif neu rhifedi euraid, epact*)
Age of the moon (*oed y lleuad*)
Arrival of the moon in the south (*dyfodiad y lleuad ir deheu*)
Notion of change and defects (*amcan o'r newid a'r diffigiau*)

Breton

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

Information: The first arithmetic book in Breton was published in 1943:
Kelennerien "Ober":
Niveri ha konta e Brezoneg. Diazezou istor Breiz
[To numerate and to calculate in Breton. A résumé of the history of Brittany].
Roazon / Rennes: Ti-Moulerez Kreiz-Ker 1943, 66 p.
(OCLC 5237 7136, 5075 0062)

References: Paris BNF (Réserve des livres rares); Michigan State U
Date: September 2020

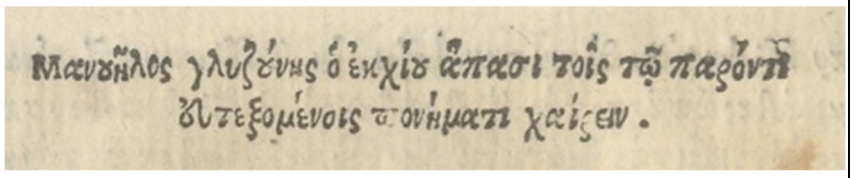
(Modern) Greek

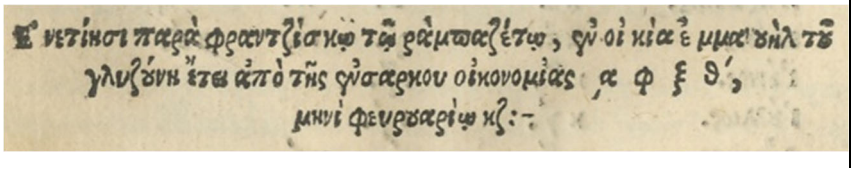
Manuelos Glynzonios

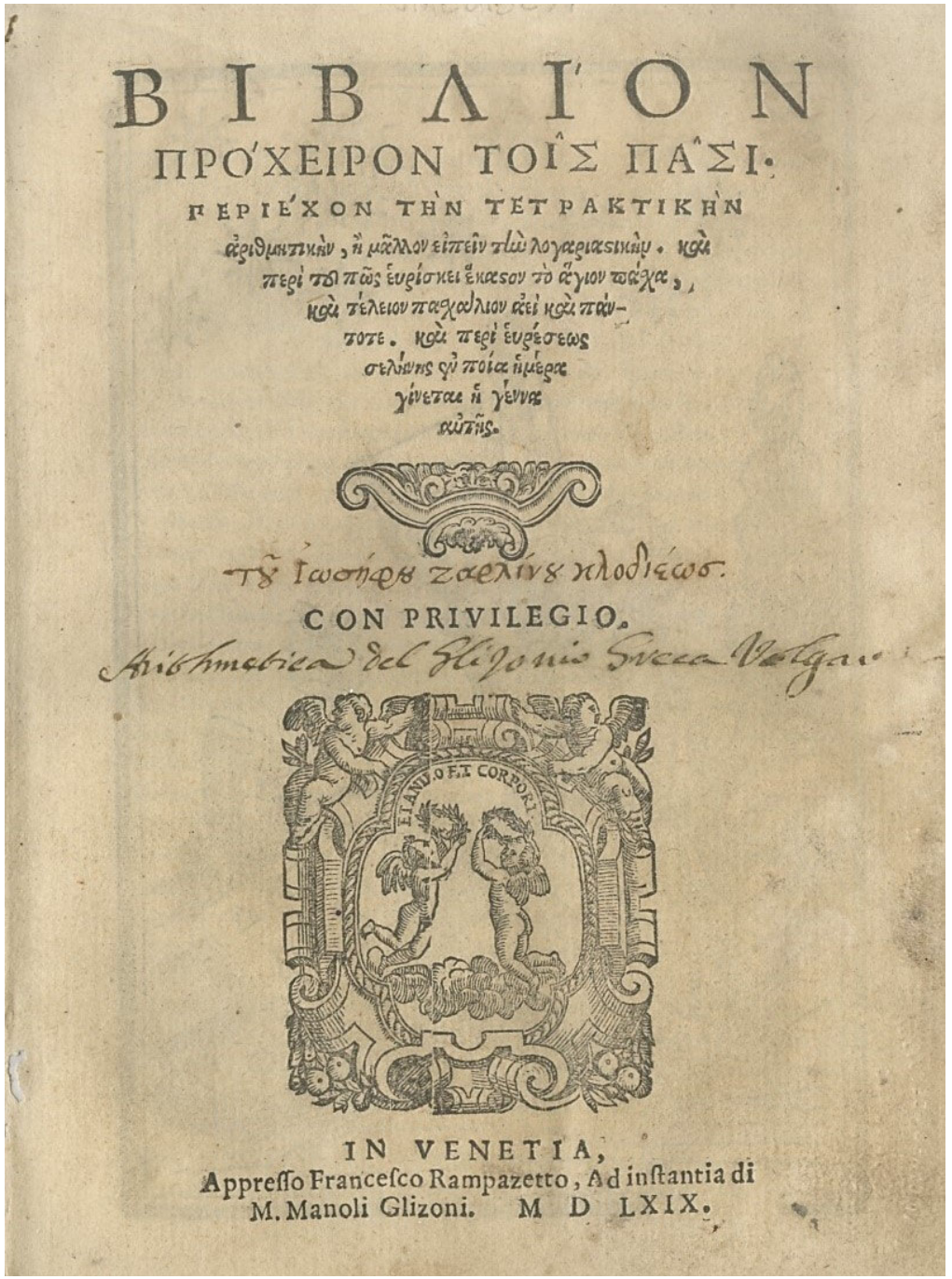
b. ca. 1530 Chios
d. 1596 Venezia (CERL cni00020993)
Since latest 1580 in Venezia
Editor of liturgical books of Byzantine rite

Biblíon prócheiron toîs pâsi periéchon tèn te praktikèn arithmetikèn
Venezia: Francesco Rampazetto
[1]1569-02-27

142 p. arithmetic, 22 p. calendar


Μανυὴλος γλυζόνης ὁ ἐκχὶσ ἅπασι τοῖς τῷ παρόντι
ὑντεξομένοις τονήματι χαίρειν.


Ἐνετίησι παρὰ φραντζίσκῳ τῷ ραμπαζέτῳ, ϛῳ· οἱ κίαι ἐμμανὴλ τοῦ
γλυζόνη ἔτει ἀπὸ τῆς ϛῳσαρκου οἰκονομίας ͵αφξθ΄,
μηνὶ φευρουαρίῳ κζ:-


ΒΙΒΛΙΟΝ
ΠΡΟΧΕΙΡΟΝ ΤΟΙΣ ΠΑΣΙ·
ΠΕΡΙΕΧΟΝ ΤΗΝ ΤΕΤΡΑΚΤΙΚΗΝ
ἀριθμητικὴν, ἢ μᾶλλον εἰπεῖν πλὴν λογαριασικὴν· καὶ
περὶ τοῦ πῶς ἐυρίσκει ἕκασον τὸ ἄγνον πάσχα,
καὶ τέλειον παχαλιον ἀεὶ καὶ πάν-
τοτε· καὶ περὶ ἐυρέσεως
σελήνης ϛῦ ποία ἡμέρα
γίνεται ἡ γέννα
αὐτῆς.
τῦ Ἰωσήφ ζαελίνυ πλοδιέως.
CON PRIVILEGIO.
Aritmetica del Glizonio Greca Volgare
IN VENETIA,
Appresso Francesco Rampazetto, Ad instantia di
M. Manoli Glizoni. M D LXIX.

Greek

Manuelos Glynzonios

Other spellings of the last name:
Glynzoneios, Glyzonios, Glynzuni(o)s,
Glyzunios, Glytzounis, Glionzon, Glinzon

Biblíon ... periéchon tèn te praktikèn arithmetikèn
Venezia: Rampazetto [1]1569

Transcription of the title page, the beginning of the preface and the colophon

C/V: Hoock I/G8 [1st edition 1569 missing]
D: Vicenza Biblioteca Civica Bertoliana
L: Venezia Biblioteca Naz. Marciana
S: Sicherl, Martin. In: Byzantin. Zeitschrift 49 (1956) 34–54
Legrand, Émile: Bibliographie Hellénique. Paris 1885 f., II 120 f.

Βιβλίον
πρόχειρον τοῖς πᾶσι·
Περιέχον τὴν τε πρακτικὴν
ἀριθμητικήν, ἢ μᾶλλον εἰπεῖν τὴν λογαριαστικὴν· καὶ
περὶ τοῦ πῶς εὑρίσκει ἕκαστον τὸ ἅγιον πάσχα,
καὶ τέλειον πασχάλιον ἀεὶ καὶ πάν-
τοτε·καὶ περὶ εὑρέσεως
σελήνης ἐν ποίᾳ ἡμέρᾳ
γίνεται ἡ γέννα
αὐτῆς.

Con privilegio.

In Venetia,
Appresso Francesco Rampazetto, Ad instantia di
M. Manoli Glizoni. M D LXIX.

Μανουῆλος γλυζούνης ὁ ἐκ χίου ἅπασι τοῖς τῷ παρόντι
ἐυτεξομένοις πονήματι χαίρειν.

Ἐνετίησι παρὰ φραντζίσκῳ τῷ ῥαμπαζέτῳ, ἐν οἰκίᾳ ἐμμανουὴλ τοῦ
γλυζούνη ἔτει ἀπὸ τῆς ἐνσάρκου οἰκονομίας ,αφξθ΄,
μηνὶ φευρουαρίῳ κζ :–

Greek

Manuelos Glynzonios

Biblíon ... periéchon tèn te praktikèn arithmetikèn
Venezia: Rampazetto [1]1569

Romanization of the title page, the beginning of the preface and the colophon

Biblíon
prócheiron toîs pâsi
periéchon tèn te ⟨*p*⟩[t]*raktikèn*
arithmetikèn, è mâllon eipeîn tèn logariastikèn kaì
perì toû pôs heurískei hékaston tò hágion páscha,
kaì téleion paschálion aeì kaì pán-
tote, kaì perì heuréseōs
selḗnēs en poía hēméra
gínetai hē génna
autês.

Con privilegio.

In Venezia,
Appresso Francesco Rampazetto, Ad instantia di
M[*esser*]*. Manoli Glizoni. M D LXIX.*

Manouêlos glyzoúnēs ho ek chíou hápasi toîs tô parónti
eutexoménois [from εὐτικτῶ] *ponḗmati chaírein* [*légei*].

Enetíēsi parà frantzískō tô ràmpazétō, en oikía emmanuèl toû
glyzoúnē étei apò tês ensárkou oikonomías ,α φ ξ ϑ',
mēnì feurouaríō κζ :–

Greek

Manuelos Glynzonios

Biblíon ... periéchon tèn te praktikèn arithmetikèn
Venezia: Rampazetto [1]1569

Translation of the title page, the beginning of the preface and the colophon

Computus: a set of rules how to calculate the Easter calendar date.

Birth of the moon: start of a lunar cycle with the first visibility of the crescent in the West (after sunset) after new moon.

Handbook
for all
which contains both the practical
arithmetic – or rather said commercial mathematics –
and [rules] *about how one finds every Holy Easter*
and the perfect computus for always and
every time and [rules] *about finding*
on which day
the birth of the moon
takes place.

With privilege.

In Venezia
with Francesco Rampazetto, on request of
Mr. Manuel Glyzoni. 1569

Manouelos Glyzounes from Chios sends his greetings to all those who will achieve good things with the present work

In Venezia, with Francesco Rampazetto, in the house of Emmanuel Glyzounes, moreover at his own expenses, 1569, in the month of February [day] *27*

Greek

Manuelos Glynzonios

Biblíon ... periéchon tèn te praktikèn arithmetikèn
Venezia: Rampazetto [1]1569

Content overview
(according to the table of contents)

Regula septem, example:
8 people each of whom invests 25 florins over 40 months make a profit of 12 florins each. Which profit make 9 people each of whom invests 50 florins over 35 months?
Answer: 23 5/8 florins each.

Preface, Contents
Numeration: digit signs (*sēmeía psēphíōn*; *psēphío*, pl. *psēphía*), zero (*noûla*, pl. *noûles*), integers (*akéraio*, pl. *akéraia*), multiplication table (*psēphēphoría*) etc.
Addition (*sýnapsis*, *soumarismós*)
Subtraction (*hypheilmós*)
Multiplication (*polyplasiasmós*) – various methods; check by nine and seven (*dokimè tôn ennéa kai tôn heptá*); products consisting of one and the same digit only
Division (*merismós*) – various methods; conversion: 1 florin (*phlourion*) = 60 *áspra*; 1 *áspron* = 2400 folles (*phóles*)
Fractions (*tzákisma*, pl. *tzakísmata*)
Addition, subtraction of fractions – various methods
Reduction of fractions (*schismós tzakismátōn*)
Multiplication and division of fractions – various methods
Regula de tri (*méthodos tôn triôn*) – various applications
Regula de tri inversa (*méthodos tôn triôn anápali*)
Regula quinque (*méthodos tôn e'*); Italian *regula de 'tsinke'*
Regula septem (*méthodos tôn z'*); Italian *regula de sete*
Regula societatis simplex (*syntrophía*) – profit (*kérdos*) and loss (*zēmía*) – various applications
Regula societatis temporum (*syntrophía mè mênes*)
Dealing with zeros (*noûles*) in multiplications and divisions
Purchase and sales (*koumérkion*)

Greek

Manuelos Glynzonios

Biblíon ... periéchon tèn te praktikèn arithmetikèn
Venezia: Rampazetto [1]1569

Content overview
(according to the table of contents)

For help with translations, I am very indebted to Prof. Dr. Dimitris Maretis, University of Applied Sciences Osnabrück.

Barters (*allaxiá*, pl. *allaxiés*)
Sails (*paní*) with different surfaces (*plátos*)
Travels (*taxídion*)
Problems of motion (*drómos*): ships (*karábi*, pl. *karábia*) etc.
Another type (*strôsis*) of calculations (*psēphía*) with regula quinque and their check (*dokimḗ*) with regula de tri
Converting metal weights, minting coins (*nomísmata kóptountai*): 1 pound (*lítra*) = 12 ounces (*oggíes*) ≙ 96 florins (*phlouría*)
Alloys (*smíxis*, pl. *smíxeis*): separation (*chṓrisis*) etc.
Height of a tower (*hýpsos pýrgou*) or another object (*prágma*)
Partition (*moirasía*) of money (*stámena*) in a testament (*diathḗkē*)
Finding the number of pupils (*mathetḗs*, pl. *mathetés*)
Two men draw (*exagklízō* [today *antlṓ*]) water from a well (*pēgádi*) [fathom (*orgýia*)]
Building (*ktízei*) a house (*spḗti*) and not paying (*plērṓnei)*
Finding the quantity of cubits (*pḗchēs*, pl. *pḗches*) of two textiles
Partition of a number into two summands (*eis dýo mérē*)
Finding a number (*arithmós*) from a comparison (*diaphorá*)
Finding the number someone chooses (*bálei*) in his mind (*noûs*)
The money (*stámena*) three people have in their purses (*pougkí*)
Find a ring (*daktylídion*) in a company (*syntrophía*): who, on which hand (*chéri*), on which finger (*dáktylos*), on which joint (*harmós*)
Find the number of people of three descents (*geneá*, pl. *geneés*)

Computus (calculation of the Easter calendar date)

Greek – Supplement

Further editions of Glynzonios' *Biblíon*:

Venezia: Pietro Zanetti 1596
C: Hoock I/G8
D: EROMM Classic, Google
L: London BL, Oxford U

Venezia: Francesco Giuliani 1596
L: Glasgow U

Venezia: Antonio Pinelli 1621
L: Amsterdam U, Oxford U, Paris BNF

Venezia: Andrea Giuliani 1654
L: London UC, Oxford U, Harvard U

Venezia: Demetrios Theodosis 1765
C: Hoock I/G8
D: Google
L: London BL

Venezia: Nicolao Glykai 1679, 1818
L: Athenai NL

Venezia: Nicolao Glykai 1804
C: Hoock I/G8
L: Paris BNF, Athenai NL

Later than Glynzonios 1569

Methódios Anthrakítēs
Hodòs mathematikḗs (3 vol.)
[Access to mathematics]
Venezia: Antonio Bortoli 1749
D: onassislibrary.gr

Spyrídōn Asánēs
Stoicheîa arithmetikès te kaì álgebras
[Elements of arithmetic and algebra]
Venezia: Nicolao Glykai 1797
[adapted from
Nicolas-Louis de Lacaille
(1713–1762, French astronomer, published among others
Leçons élémentaires de Mathématiques, Paris 1741) and
Guido Grandi
(1641–1742, Italian mathematician, published among others
Istituzioni di aritmetica pratica, Firenze 1740)
(The Oxford Handbook on the History of Mathematics, p. 187)]
D: anemi.lib.uoc.gr (University of Crete)

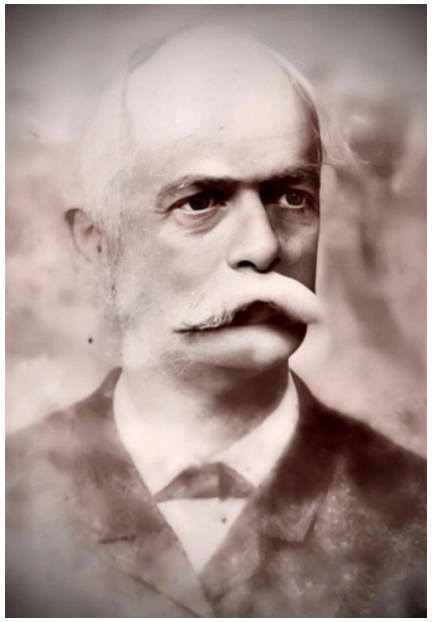
Albanian

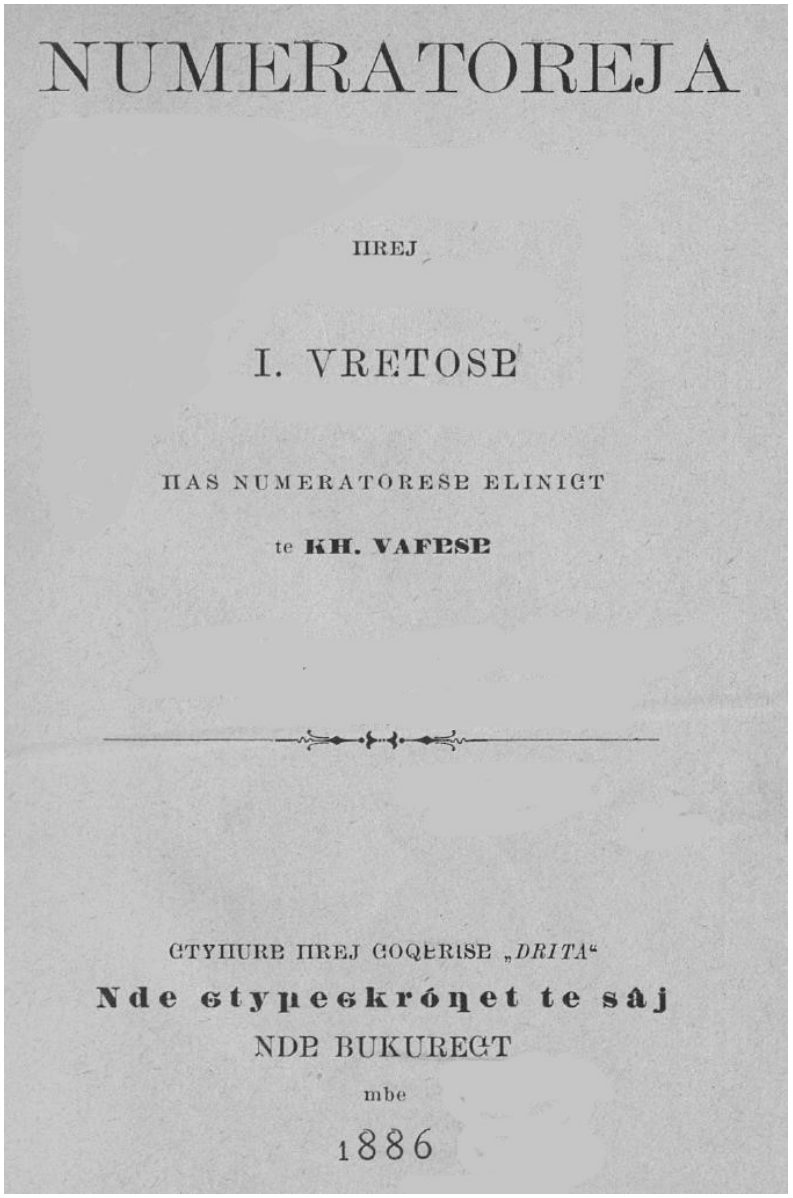
Jani Vreto

b. 1820/22 Postenan, Korçë
d. 1900 Athens
Writer, publisher
Albanian National Awakening
Albanian alphabet designer
Albanian printing house of Bucureşti
(English Wikipedia)

Numeratoreja
Bucureşti 1886

168 p.
D: München BSB (BV046996105)
L: München BSB (1474 2537; OCLC 1220 904822)
V/S: Elsie, Robert: Historical Dictionary of Albania. Lanham, Toronto [2]2010, 478–479




NUMERATOREJA

HREJ

I. VRETOSE

HAS NUMERATORESE ELINIGT

te KH. VAFESE

GTYHURE HREJ GOQERISE „*DRITA*“

Nde gtypegkrónet te sâj

NDE BUKUREGT

mbe

1886

Executée par M-eur *Grégoire Balanesco* dans l'imprimerie de la Société Albanaise *Drita* à Bucarest.

Albanian

Jani Vreto

Numeratoreja
Bucureşti 1886

Romanization of title page and of the colophon

The book is printed in the Istanbul alphabet from 1879; Jani Vreto was involved in the creation of this alphabet;
cf. BV041839478 (München BSB) and "Albanian alphabet" in English Wikipedia

Numeratoreja
prej
I. Vretosë
pas Numeratoresë elinisht
të Kh. Vafësë

Shtypurë prej Shoqërisë „Drita“
Ndë shtypëshkrónjët të sâj
ndë Bukuresht
mbë
1886

Executée par M-eur Grégoire Balanesco
dans l'imprimerie de la
Société Albanaise Drita à Bucarest.

Albanian

Jani Vreto

Numeratoreja
Bucureşti 1886

Translation of title page and of the colophon

Original Greek textbook:
Bápha(s), Chrḗstos (b. 1804 Syrráko): *Praktikḕ arithmetikḗ: pròs chrêsin tôn mathēteuóntōn eis tà hellēnikà scholeîa tês Helládos*. Athenai 1834 until 1851; Athenai NL (OCLC 6424 42210)

Arithmetic
by
J[ani] Vreto
after the Greek arithmetic
of Kh. Bapha

Printed by the Society „Drita“ [‘light’]
in its printing house
in Bucureşti
in
1886

Finished by Mr. Grégoire Balanesco
in the printing house of the
Albanian Society Drita [‘light’] *in Bucureşti.*

Albanian

Jani Vreto

Numeratoreja
Bucureşti 1886

Content overview
(according to the section headings)

There are a few strange Albanian neologisms due to very literal translations from the Greek original.

Part 1: Numeration for integers: names (*émërat*) of numbers (*númuret*), notations (writing *shkrúarët*) of numbers
Quantities (*shumícat*): especially time
Fractions (broken numbers *númuret të cópëtë*), mixed (*përzjém*) fractions and denominate (*qyshdonjérrashm*, Greek *monado-diáphoron* 'uniquely distinct', *symmigḗs* 'joined') numbers
Numbers with equal denominations (homogeneous – *nënjésës*), also e.g. hundreds and twelfths are considered as denominations!), with different (but compatible!) denominations (inhomogeneous – *jatrënjésës*); denominate numbers with compatible units (*njëshumícës*), with incompatible units (*jatrëshumícës*)
Part 2: Operations (*púnërat*) on integers (*númuret e térëtë*, Greek *akeraíoi*)
Addition (*mblédhjia*)
Subtraction (*zbrítja*)
Checks (*próvë*) for addition and subtraction
Multiplication (*shumëzími*)
Division (*pjesëtími*)
Checks for multiplication and division
Ratios (*fjálët* 'words', Greek *lógoi*) and numbers with the same ratio (*njëfjálëtë*, Greek *análogoi* – e.g. 9/45 = 7/35)
Divisors (*pjesëtónjësit*) and greatest (*madh*) common (*báshkëtinë*) divisors (Euclidean division algorithm)

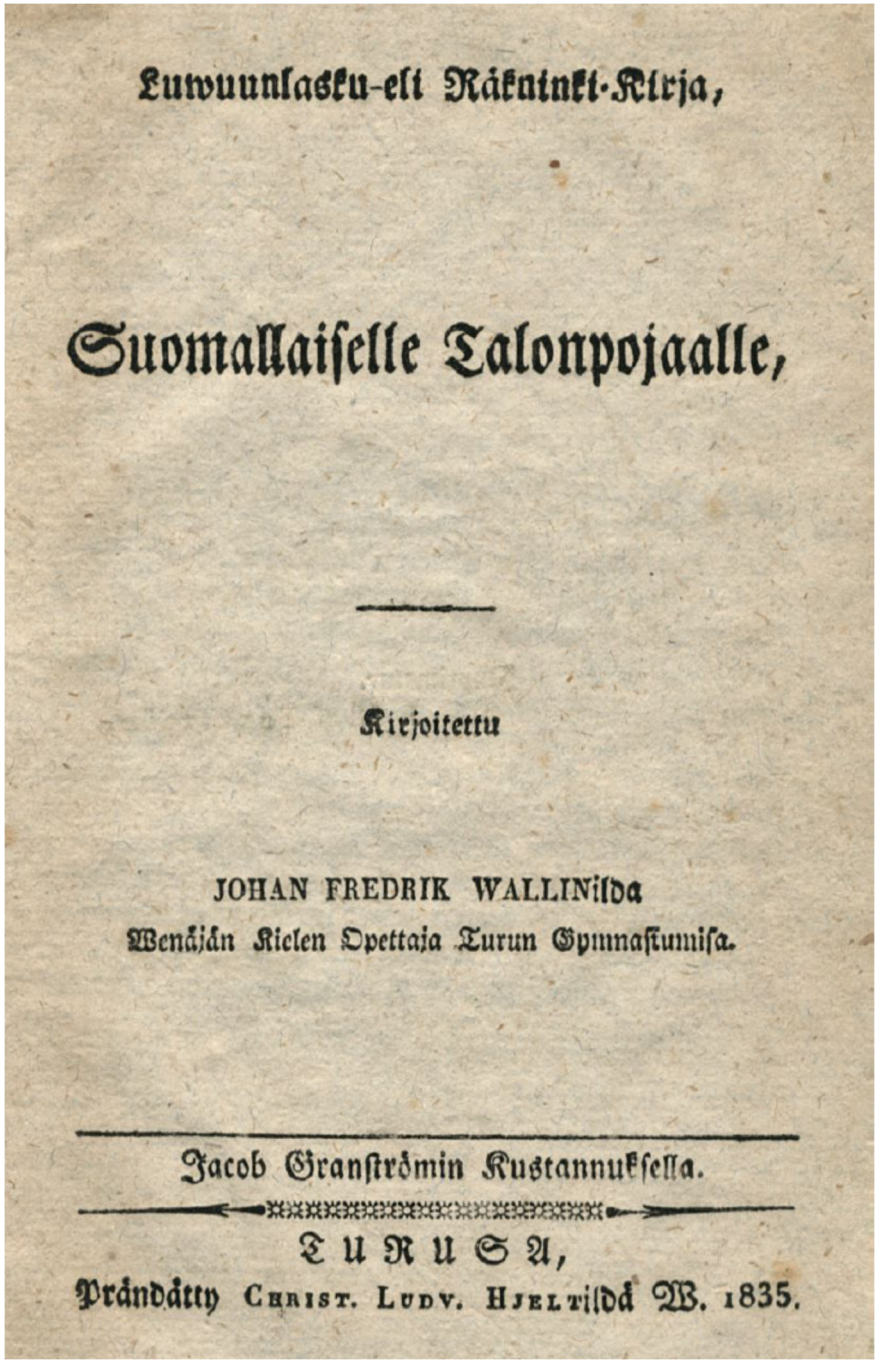
Finnish

Johan Fredrik Wallin

b. 1799 Turku
d. 1850 Kalvola
Pastor, teacher, author
1820 Ordained priest
1830–1840 Russian language teacher in Turku
1841–1850 Pastor of Kalvola
(Student register: ylioppilasmatrikkeli.helsinki.fi; ID 13319)

Luwunlasku- eli Räkninki-Kirja
Turku [Åbo]: Christian Ludvig Hjelt (for Jacob Granström)
[1]1835

48 p.
D: digi.kansalliskirjasto.fi/collections?id=501
L: NL of Finland
V: L of Congress (July 2020)


Luwunlasku-eli Räkninki-Kirja,

Suomallaiselle Talonpojaalle,

Kirjoitettu

JOHAN FREDRIK WALLINilda
Wenäjän Kielen Opettaja Turun Gymnasiumisa.

Jacob Granströmin Kustannuksella.

TURUSSA,
Prändätty Christ. Ludv. Hjeltildä W. 1835.

Finnish

Johan Fredrik Wallin

Luwunlasku- eli Räkninki-Kirja
Turku: Hjelt 1835

Transcription of the title page

Luwunlasku- eli Räkninki-Kirja,

Suomallaiselle Talonpojaalle,

Kirjoitettu

Johan Fredrik Wallinilda
Wenäjän Kielen Opettaja Turun Gymnasiumisa.

Jacob Granströmin Kustannuksella.

Turusa,
Prändätty Christ. Ludv. Hjeltildä W[uonna] 1835.

Finnish

Johan Fredrik Wallin

Luwunlasku- eli Räkninki-Kirja
Turku: Hjelt 1835

Translation of the title page

Arithmetic or calculation book

for the Finnish peasant

written

by Johan Fredrik Wallin,
Russian language teacher at Turku High School.

At the expense of Jacob Granström.

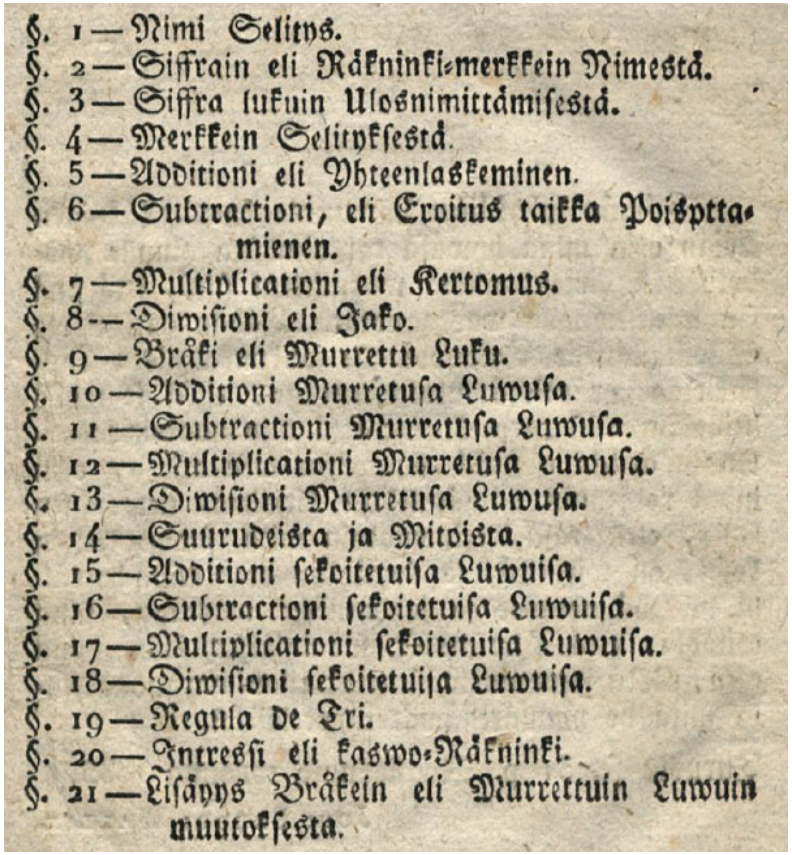
In Turku,
printed by Christian Ludvig Hjelt in 1835.
[1786–1849 (ylioppilasmatrikkeli.helsinki.fi; ID 11597)]

Finnish

Johan Fredrik Wallin

Luwunlasku- eli Räkninki-Kirja
Turku: Hjelt 1835

Content overview



§. 1 — Nimi Selitys.
§. 2 — Siffrain eli Räkninki-merkkein Nimestä.
§. 3 — Siffra lukuin Ulosnimittämiſestä.
§. 4 — Merkkein Selitykſestä.
§. 5 — Additioni eli Yhteenlaskeminen.
§. 6 — Subtractioni, eli Eroitus taikka Poisptta-
mienen.
§. 7 — Multiplicationi eli Kertomus.
§. 8 — Diwiſioni eli Jako.
§. 9 — Bräki eli Murrettu Luku.
§. 10 — Additioni Murretuſa Luwuſa.
§. 11 — Subtractioni Murretuſa Luwuſa.
§. 12 — Multiplicationi Murretuſa Luwuſa.
§. 13 — Diwiſioni Murretuſa Luwuſa.
§. 14 — Suurudeista ja Mitoista.
§. 15 — Additioni ſekoitetuiſa Luwuiſa.
§. 16 — Subtractioni ſekoitetuiſa Luwuiſa.
§. 17 — Multiplicationi ſekoitetuiſa Luwuiſa.
§. 18 — Diwiſioni ſekoitetuiſa Luwuiſa.
§. 19 — Regula de Tri.
§. 20 — Intreſſi eli kaswo-Räkninki.
§. 21 — Liſäyys Bräkein eli Murrettuin Luwuin
muutokſesta.

Preface, Contents
1 Explanation of terms
2 Digit names
3 Designation of numbers
4 Explanation of operation symbols
5 Addition of integers
6 Subtraction of integers
7 Multiplication of integers
8 Division of integers
9 Fractions – reduction, expansion
10 Addition of fractions
11 Subtraction of fractions
12 Multiplication of fractions
13 Division of fractions
14 Quantities and measures (weights, currencies, time)
15 Addition of denominate numbers
16 Subtraction of denominate numbers
17 Multiplication of denominate numbers
18 Division of denominate numbers
19 Regula de tri
20 Interest calculation
21 Conversion of fractions of currency/weight units

Finnish – Supplement

Johan Fredrik Wallin

Suomalainen Luwunlasku- eli Räkninki-Kirja. Turku: J. C. Frenckell [2]1839

Transcription and translation
of the title page

Suomalainen

Luwunlasku- eli Räkinki-Kirja,

Kirjoitettu

Yhteiselle Kansaalle

Johan Fredrik Wallinilda,
Wenäjän Kielen Opettaja Turun Gymnasiumisa.

Uusi-painet.

Turusa,
Painettu J. C. Frenckellin ja Pojan luona,
wuonna 1839.

Suomalainen
Luwunlasku- eli Räk[n]*inki-Kirja,*
Kirjoitettu
Yhteiselle Kansaalle
Johan Fredrik Wallinilda,
Wenäjän Kielen Opettaja Turun Gymnasiumisa.
Uusi-painet.
Turusa,
Painettu J. C. Frenckellin ja Pojan luona,
wuonna 1839.

Finnish
arithmetic or calculation book
written
for the common people
by Johan Fredrik Wallin,
Russian language teacher at Turku High School.
New print.
In Turku,
printed by Johan Christopher Frenckell and son,
[1789–1844 (ylioppilasmatrikkeli.helsinki.fi; ID 11845)]
[son Johan Christopher Frenckell, 1819–1856 (ID 15363)]
in 1839.

Estonian

Peter Heinrich von Frey

b. 1757 Erastvere manor (Kanepi commune)
d. 1833, buried in Pyha (Püha)
Balt of German descent
1777–1780 University Halle-Wittenberg
1785–1833 Pastor in Püha (Pyha) on Saaremaa island (Ösel), Kuressaare (Arensburg) municipality

Arropiddamisse ehk Arwamisse-Kunst
Tartu (Dorpat): Johann Michael Gerhard Grenzius 1806

163 p.
D: www.digar.ee/arhiv/et/kollektsioonid/14569
L: Estonia NL
S/V: Bjarnadóttir/Christiansen/Lepik. In: Nordic studies in mathematics education 18 (2013) 27–58, especially p. 36

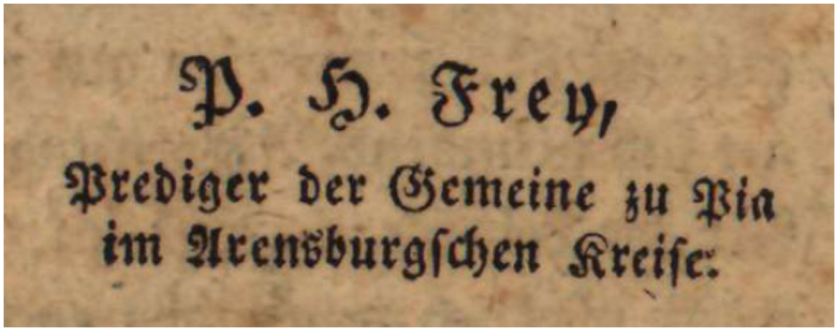
Arropiddamisse
ehk
Arwamisse-Kunst.
Katseks öppetud
Eesti-Ma Rahwa heaks ja kassuks.
Tarto liñnas,
trükkitud 1806 aastal
Krentsiusse kirjade ning temma kullo ning warraga.

Estonian

Peter Heinrich von Frey

Arropiddamisse ehk
Arwamisse-Kunst
Tartu: Grenzius 1806

Transcription of the title page and the author information in the preface


P. H. Frey,
Prediger der Gemeine zu Pia
im Arensburgſchen Kreiſe.

S: Lepmann, L: The first maths textbook in Estonian. In: Abel, E; Lepmann, L (eds.), Teaching maths 7 Tartu U, p. 143–147

Arropiddamisse
ehk
Arwamisse-Kunst.
Katseks öppetud
Eesti-Ma Rahwa heaks ja kassuks.

Tarto linnas,
trükkitud 1806 aastal
Krentsiusse kirjade-ning temma kullo-ning
warraga.

P. H. Frey,
Prediger der Gemein[d]*e zu Pia*
im Arensburgischen Kreise.

Estonian

Peter Heinrich von Frey

Arropiddamisse ehk
Arwamisse-Kunst
Tartu: Grenzius 1806

Translation of the title page and the author information in the preface

V: Erelt, Mati: Estonian Language, p. 293
dspace.ut.ee/bitstream/handle/10062/56290/estonian_language_erelt_ocr.pdf

For help with translations, I am indebted to Estonia NL.

Language explanations:
arropiddamisse ‘species’ [acc. to contents]
öpetus ‘teaching (method)’ [acc. to preface]

The art of calculating
or
arithmetic.
To the attempt of a teaching method
for the use and benefit of the Estonians.

In the town of Tartu
printed in the year 1806
with the types of Grenzius
at his expenses and with his assets.

[that is, *printed and published*
by Johann Michael Gerhard Grenzius (1759–1822),
printer of the University of Tartu 1802–1818]

P. H. Frey,
preacher of the Pyha congregation
in the Kuressaare (*Arensburg*) *municipality.*

Estonian

Peter Heinrich von Frey

Arropiddamisse ehk Arwamisse-Kunst
Tartu: Grenzius 1806

Content overview
(according to the German and Estonian tables of contents)

Earlier publications by Otto Wilhelm Masing (1795) and Georg Gottfried Marburg (1805) contain sections on mathematics, but are not yet arithmetic textbooks.

German dedication to Georg Friedrich Parrot, rector of the imperial university Dörpt (Dorpat, Tartu)
German and Estonian prefaces
German and Estonian tables of contents

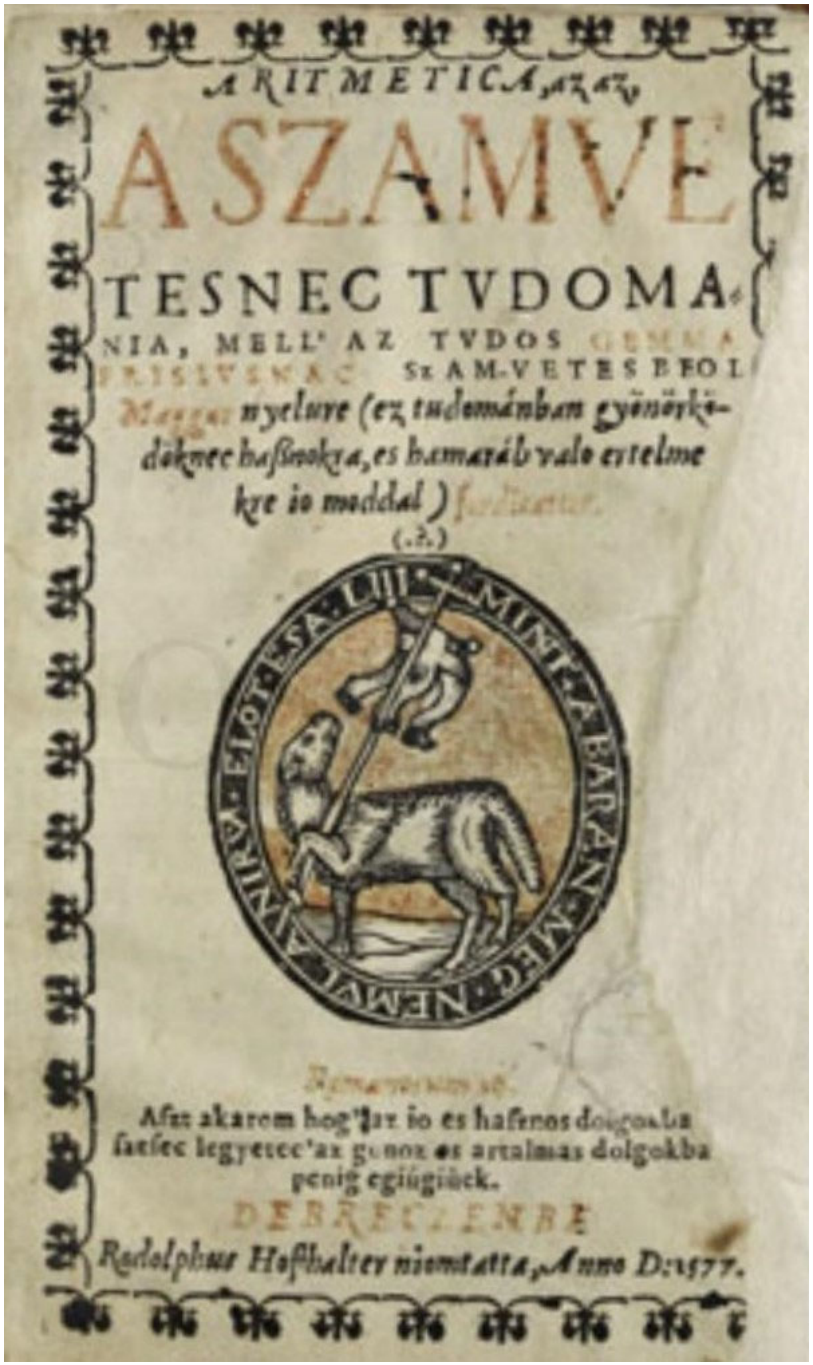
1 Numeration
2 Preliminary explanation of the four species
3 Addition (incl. fractions, measures, weights)
4 Subtraction (incl. fractions)
5 Multiplication (incl. fractions)
6 Division (incl. fractions)
7 Proportional calculation (Regula de tri, Regula quinque)

Hungarian

Anonym

Aritmetica, az az a számvetésnek tudomania mell' az tudós Gemma Frisiusnak számvetésböl Magyar nyelvre forditattot
Debrecen: Rodolphus Hoffhalter 1577, 1582
Cluj: Heltai 1591
Preface by R. Hoffhalter 1577-08-13

144 p. (8 pages missing in the only copy)
C/V: Hoock I/–4
D: oszkdk.oszk.hu/DRJ/6940
L: Budapest NL Országos Széchényi Könyvtar (Res litt. Hung., 378, 504, 665)
E: Hárs, János: A Debreceni Aritmetika. Budapest 1938 (German summary)



Hungarian

Anonym

Aritmetica
Debrecen: Hoffhalter 1577

Transcription of the title page
(Hárs 1938, p. 34)

Aritmetica, az az
A Számve
tésnec Tvdoma-
nia Mell' Az Tvdós Gemma
Frisivsnac Számvetésböl [sc. *Számvetésbeol*]
Magyar nyelure (ez tudománban gyön[y]*örkö-*
döknec haßnokra és hamaráb valo értelme-
kre io moddal) forditattot.

Mint a bárán[y] *megnémvl*
a n[y]*írv előt Esa LIII*

Romanorum 16.
Aszt akarom hog[y] *'az io es hasznos dolgokba*
[e]*szesec legyetec 'az gonoz es artalmas dolgokba*
pe⟨n⟩[d]*ig egiúgiúek*
Debreczenbe[n]
Rodolphus Hoffhalter niomtatta, Anno D: 1577

Hungarian

Anonym

Aritmetica
Debrecen: Hoffhalter 1577

Translation of the title page
(Hárs 1938, p. 165–166)

Arithmetic, that is
the calculation
science
which was translated from the scholar's
Gemma Frisius arithmetic
into the Hungarian language (for those who find joy
in this science, for the purpose of quick
understanding in easy method)

[Inscription around Debrecen's shield: Isaiah 53:7]
And as a sheep
before its shearers is silent

Romans 16[:19]
But I want you to be wise about what is good,
and innocent about what is evil.
In Debrecen
Printed by Rodolphus Hoffhalter in 1577

Hungarian

Anonym

Aritmetica
Debrecen: Hoffhalter 1577

Content overview
(according to Hárs 1938, p. 166–167)

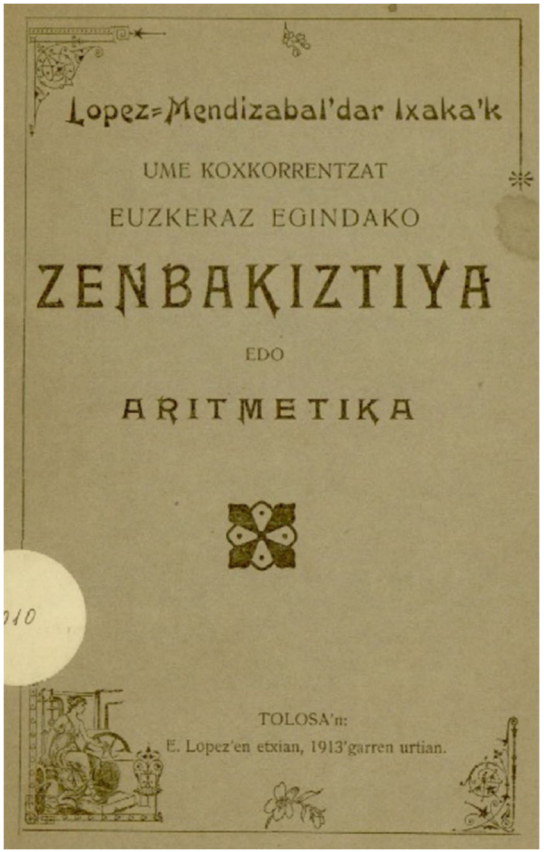
The referenced work by Gemma Frisius (1508–1540), *Arithmeticae practicae methodus* (*facilis*), Antwerpen 1540, however, uses a completely different structure in this and all of the other editions:

1 Basic arithmetic operations for integers; progressions, regula de tri
2 Fractions, regula de tri
3 Regulae vulgares, societatis, alligationis, falsi, square/cube roots, coss (algebra)
4 De proportione (Arithmetica speculativa according to Boethius)

Preface by Rodolphus Hoffhalter
[Title repeated in slightly changed form]
Numeration, addition, subtraction and multiplication for integers and fractions
Division for integers only
Arithmetic progressions
Regula de tri for integers and fractions
Regula vulgaris
Regula societatis simplex and temporum
Regula falsi
Hungarian and German currencies and measures
Remainder problem Ta-yen "If you want to know how much money your fellow has in his purse, so try it" (*ho meg akarod* ...)
(from China, Sun Tzu (3rd c.); later Christoff Rudolff, *Künstliche Rechnung mit der Ziffer und mit den Zahlenpfennigen*, Wien 1526, N7v, under the heading *Schimpfrechnung*; edition by Kaunzner/Röttel 2006, p. 318, 402; cf. Tropfke 1980, p. 636–640)
Calculating with the counters: four species

Basque

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.



Information: The earliest mathematics book in Basque is:
Lopez-Mendizabal, Ixaka (1879–1977): *Ume koxkorrentzat euzkeraz egindako Zenbakiztiya edo Aritmetika*.
Toulouse: E. Lopez'en etxian [house] 1913; 32 p.
http://w390w.gipuzkoa.net/WAS/CORP/DBKVisorBiblioteca WEB/visor.do?ver&amicus=10635

The title could be translated like this: A [book] of "Zenbakiztiya" or Arithmetic for children in Basque language. It was for use at primary schools. "Zenbakiztiya" is a Basque native form for "Arithmetic".

The author was a Basque intellectual and publisher.
He published this book in his own publishing house.
His name, written in a standard way, is: Ixaka Lopez Mendizabal in Basque language, and Isaac López Mendizábal in Spanish spelling (s. English Wikipedia).

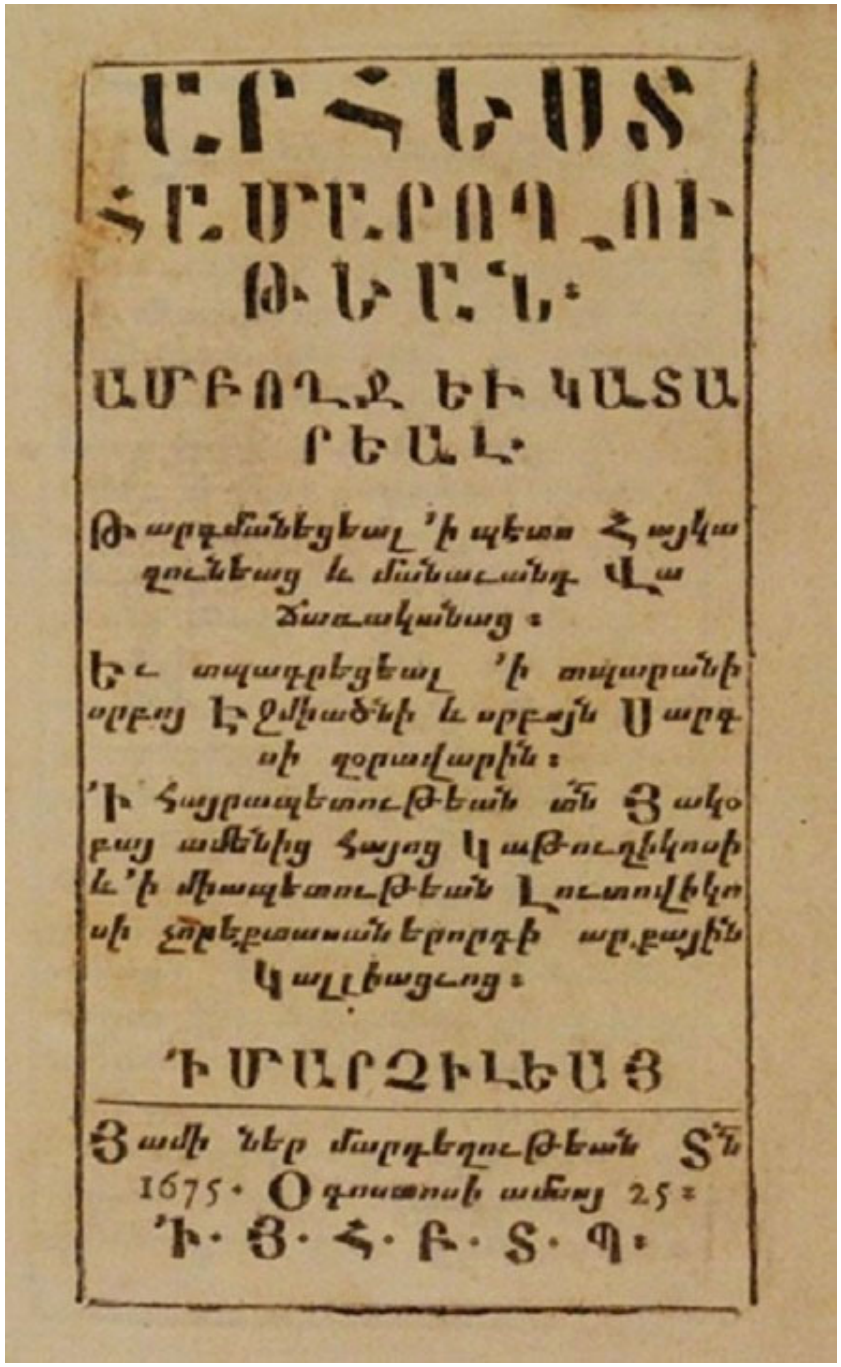
Reference: Azkue Biblioteka eta Artxiboa [archive], Euskaltzaindia (Real Academia de la Lengua Vasca), Bilbao
Date: November 2020

Armenian (Grabar)

Anonym

Arhest hamarogowt'ean ambogj ew katareal
[The art of arithmetic]
Marseille: Saint Edjmiatzine, Saint Serge 1675-08-25

146 p.
C/V: Hoock II/–9
D: greenstone.flib.sci.am/gsdl/cgi-bin/library.cgi
L: Armenia NL (armunicat.nla.am)
S: Kévonian, Kéram: Marchands arméniens au 17e siècle. In: Cahiers du monde russe et soviétique 1975 / 16, 199–244
Aslanian, Sebouh D: Port cities and printers. In: Book History 17 (2014) 51–93


ԱՐՀԵՍՏ
ՀԱՄԱՐՈԳՈՒԹԵԱՆ
ԹՆԱՆ։
ԱՄԲՈՂՋ ԵՒ ԿԱՏԱ
ՐԵԱԼ։
Թարգմանեցեալ ՚ի պետս Հայկա
զունեաց և մանաւանդ Վա
ճառականաց։
Եւ տպագրեցեալ ՚ի տպարանի
սրբոյ Էջմիածնի և սրբոյն Սարգ
սի զօրաւարին։
՚Ի հայրապետութեան տն Յակո
բայ ամենից հայոց կաթուղիկոսի
և ՚ի միապետութեան Լուտովիկո
սի չորեքտասաներորդի արքային
Կաղղիացւոց։
՚Ի ՄԱՐՍԱԻԼԵԱՅ
Յամի ՚ներ մարդեղութեան Տն
1675· Օգոստոսի աւուր 25։
՚Ի· Յ· Հ· Բ· Տ· Պ։

Armenian

Anonym

Arhest hamarogowt'ean
Marseille: Saint Edjmiatzine,
Saint Serge 1675

Romanized translation
of the title page
from Grabar into New Armenian

The book is partly copied from *Epitome arithmeticae practicae*, Köln 1584, by Christoph Clavius (1538–1612), mathematician, astronomer and calendar reformer from Bamberg.

Ambochdsch
jew
katarjal
(twabanutjan dasagirq).

Targmanvac hajkazunneri jew
manawand
watscharakanneri kariqneri hamar.

Tpagrvac Surb Edschmiacni jew
Surb Sargis Zorawari tparanum.

Ter Hakob Amenajn Hajoc
katoghikosi hajrapetutjan jew
fransiacinneri Ljudowikos 14-rd
arqaji miapetutjan oroq.

Marsel

Tirods mardeghutjan tarum
1675, ogostosi 25.

T' Y H B T P

Armenian

Anonym

Arhest hamarogowt'ean
Marseille: Saint Edjmiatzine,
Saint Serge 1675

Translation of the title page

Katholikos Hakob IV. Jughayetsi

The art of
arithmetic
complete and
perfect

Translated for the Armenian people [*descendants of Hayk*],
especially for the needs
of merchants.

Published in the printing house
St. Etchmiadzin and
St. Sargis Zoravar.

During the patriarchate
of the Katholikos of all Armenians
Pater Hakob and
the monarchy
of the French king Louis XIV.

Marseille

In the year of the incarnation of the Lord
1675, August 25th

Armenian

Anonym

Arhest hamarogowt'ean
Marseille: Saint Edjmiatzine, Saint Serge 1675

Content overview
(according to the section headings)

1 Numeration for integers
2 Addition for integers
3 Subtraction for integers
4 Multiplication (multiplication table) for integers
5 Division (division table) for integers
For the four basic operations: checks by seven (table of multiples of 7) and nine (calculation cross for both) and check by inverse operation

1 Basic arithmetic operations for decimal fractions (80–96)
– Division of "cut" numbers – compound amounts consisting of higher and lower currency units in a system of 1|20|12 units (96–105)
2 Regula de tri; regula quinque (106–115)
– Regula societatis (115–120)
3 Trade and merchants (121–139):
Multiplications of decimal fractions, divisions with remainder, numbers with trailing zeroes

Kurdish

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

Information: WorldCat records as earliest Kurdish textbooks a set of 12 volumes of primary school textbooks on a variety of subjects (arithmetic, physics, hygiene) and grades printed by the Iraqi Ministry of Education in the 1950s.
It is held by University of Pennsylvania Libraries, Van Pelt L (OCLC 3175 60865)

Reference: WorldCat
Date: April 2021

Persian

Bahāʾ al-Dīn Muḥammad bin al-Ḥusain al-ʿĀmilī
بَهاء الدِّين مُحمَّد بنَ الحُسَين العامُلىّ

b. 1546/47 Baalbek/Amul, Syria
d. 1621/22 Isfahan
Studies in Qazvin, Jerusalem, Herat
High Shiite theologian
(Encyclopaedia Britannica, Iranica)

Ḫulāṣat al-ḥisāb (خُلاصةَ الحساب)
[The Essential of Arithmetic]
Calcutta/Kolkata: P. Pereira, Hindustani Press 1812

Maulewi Ruschen Ali: *Persian translation and commentary*

512 p.
D/**L**: München BSB
E/**V**: Nesselmann, G. H. F. 1843

The earliest printed Persian arithmetic book seems to be the translation of the Arabic on the left (see Arabic).

Later exclusively Persian arithmetic books are:

Bhāscara [II] Āchārya / Bhāscarācārya (1114–1185)
Shaikh Abu-al-Faid Ibn-Mubārak (pen name Faidī/Faizī/Feizi; 1547–1595) (translator)
The Līlāvatī – a treatise on arithmetic
(translated into Persian from Sanskrit)
Calcutta/Kolkata: The Education Press 1827/28
158 p.
D: München BSB (OCLC 1659 22017)
L: München BSB, London Univ College UCL (OCLC 2654 26145)

Uṣūl-i ʿilm-i ḥisāb ba-zabān-i fārsī –
An elementary treatise on arithmetic in Persian
Calcutta/Kolkata: Calcutta School Book Society 1830
86 p.
L: Berlin SB (OCLC 2512 47612)

Persian – Supplement

Bhāscara *The Līlāvatī* 1827/28

THE

LILAVATI,

A

Treatise on Arithmetic,

TRANSLATED INTO

PERSIAN,

FROM THE SANSCRIT WORK

OF

BHASCARA ACHARYA,

BY THE CELEBRATED

FEIZI.

Calcutta:

PRINTED AT THE EDUCATION PRESS.

1827.

این نسخهٔ لیلاوتي

بهاسکراچارج کهابوالفیض فیضي

آنرا ترجمه نموده بود

درعهد نواب مستطاب معلی القاب

ارل امهرست اف ارکان

گورنر جنرل بهادر دام اقباله

درسنه ۱۸۲۸ عیسوي

درمطبع صاحبان مدارس متعلقهٔ فورت ولیم

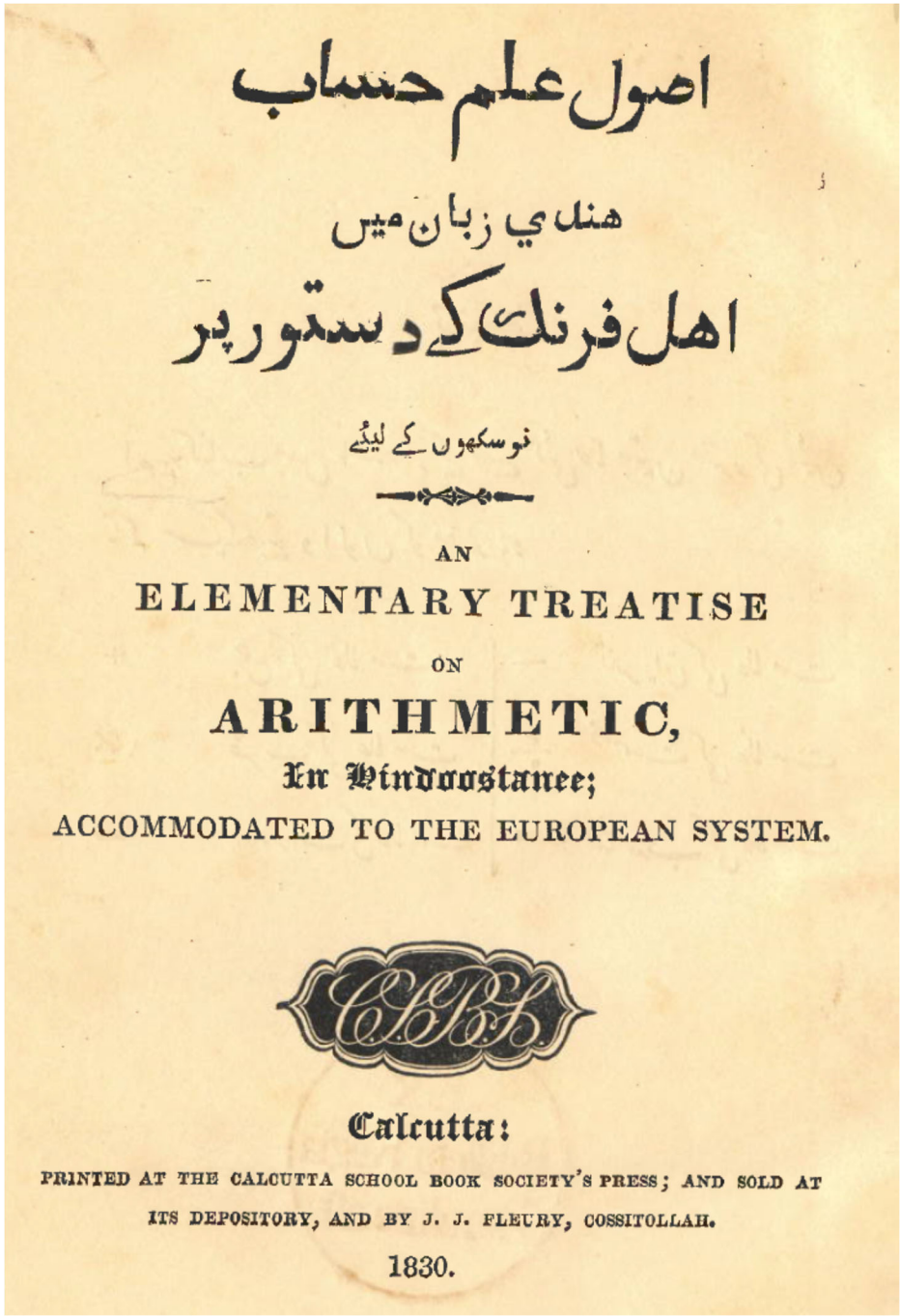
بقالب طبع درآمده

Urdu

Anonym

Uṣūl ʿilm ḥisāb hindī zabān mīn –
An elementary treatise on arithmetic in Hindoostanee
Calcutta/Kolkata: Calcutta School Book Society 1830

78, 10 p.
D: –
L: Berlin SB, Jena ULB (OCLC 2512 47618)
S: Gupta, Abhijit: The Calcutta School Book Society. In: English Studies in Africa 2014 (57, 1) 57–67


اصول علم حساب

هندي زبان ميں

اهل فرنك كے دستور پر

نوسكھوں كے ليئے

AN

ELEMENTARY TREATISE

ON

ARITHMETIC,

In Hindoostanee;

ACCOMMODATED TO THE EUROPEAN SYSTEM.

Calcutta:

PRINTED AT THE CALCUTTA SCHOOL BOOK SOCIETY'S PRESS; AND SOLD AT ITS DEPOSITORY, AND BY J. J. FLEURY, COSSITOLLAH.

1830.

Urdu

Anonym

Uṣūl ʿilm ḥisāb
hindī zabān mīn
Calcutta/Kolkata: Calcutta
School Book Society 1830

Transcription and translation
of the title page

Uṣūl-e ʿilm-e ḥisāb
hindī zabān mīñ
ahl-e farang ke dastūr par
nau-sīkhoñ ke liye

Principles of the science of arithmetic
in the Hindustani language
according to the system of the Europeans [*"Franks"*]
for beginners [*"Sikhs"*]

An
elementary treatise
on
arithmetic,
In Hindoostanee;
accommodated to the European system.

CSBS [Calcutta School Book Society]
Calcutta:
Printed at the Calcutta School Book Society's Press; and sold at
its depository, and by J. J. Fleury, Cossitollah.
1830.

Urdu

Anonym

Uṣūl ʿilm ḥisāb hindī zabān mīn
Calcutta/Kolkata 1830

Content overview
(according to the table of contents)

اعداد ۱
جمع کا عمل ۳
تفریق کا عمل ۵
ضرب کا عمل ۸
قسمت کا عمل ۱۵
تحویل کا حساب ۲۶
جمع مرکب ۲۶
تفریق مرکب ۲۷
ضرب مرکب ۲۸
قسمت مرکب ۳۲
قانون مثلثي ۳۵
قانون عدد مثلثي کا الٹ کر عدد مثلثي کے دگنا کرنے کا قانون ۳۸
صعود کا حساب ۴۰
نزول کا حساب ۴۱
سلسلۂ جمع اور تفریق کا حساب ۴۴
سلسلۂ ضرب اور تقسیم کا حساب ۴۷
عام کسرون کي تعریف ۵۱
کسور عام کي تحویل ۵۳
کسور عام کي جمع کا عمل ۵۱
کسور عام کي تفریق کا عمل ۵۸
کسور عام کے ضرب کا عمل ۵۹
کسور عام کي قسمت کا عمل .. ۵۹
کسور اعشاریہ کي تعریف ۶۰
عام کسرون کي تحویل ۶۳
کسور اعشاریہ کي جمع کا عمل ۶۳
کسور اعشاریہ کي تفریق کا عمل ۶۴
کسور اعشاریہ کے ضرب کا عمل ۶۴
کسور اعشاریہ کي قسمت کا عمل ۶۵
لوگارثم یعنے اعداد متنا سبہ کي گنتي ۶۶
لوگارثم کي اعمال ۷۰
ضرب کا عمل حساب لوگارثم سے ۷۳
قسمت کا عمل حساب لوگارثم سے ۷۴
صعود کا عمل حساب لوگارثم سے ۷۵
نزول کا عمل حساب لوگارثم سے ۷۷

Numeration, addition, subtraction, multiplication, division
Four species for denominate (compound) numbers
Regula de tri
Regula de tri inversa, regula quinque
Exponentiation and root extraction
Arithmetic progressions
Geometric progressions
Description of common fractions
Four species for common fractions
Four species for decimal fractions
Logarithms
Operations with logarithms
Multiplication and division with logarithms
Exponentiation and root extraction with logarithms

Sindhi

Prītamdās(u) Qismatrā'e/i Tolārāmāṇī

No biographic data
Other books by the same author recorded in *Catalogue of the L of the India Office Vol. ii Part iii*, 1902

Lekhe jī pīṛha
Karachi: Ta'līm Khāto [4]1871

84 p.
D: –
L: London BL (OCLC 4997 51695; 1873: 4997 51809)
C/V: WorldCat

Same title (author Udhārām Thānvardās?): Bombay 1866 and Karachi 1871
32 p.
L: London BL (OCLC 5002 72815, 5002 72526)

Hindustani / Hindi

Matthew Thomson Adam

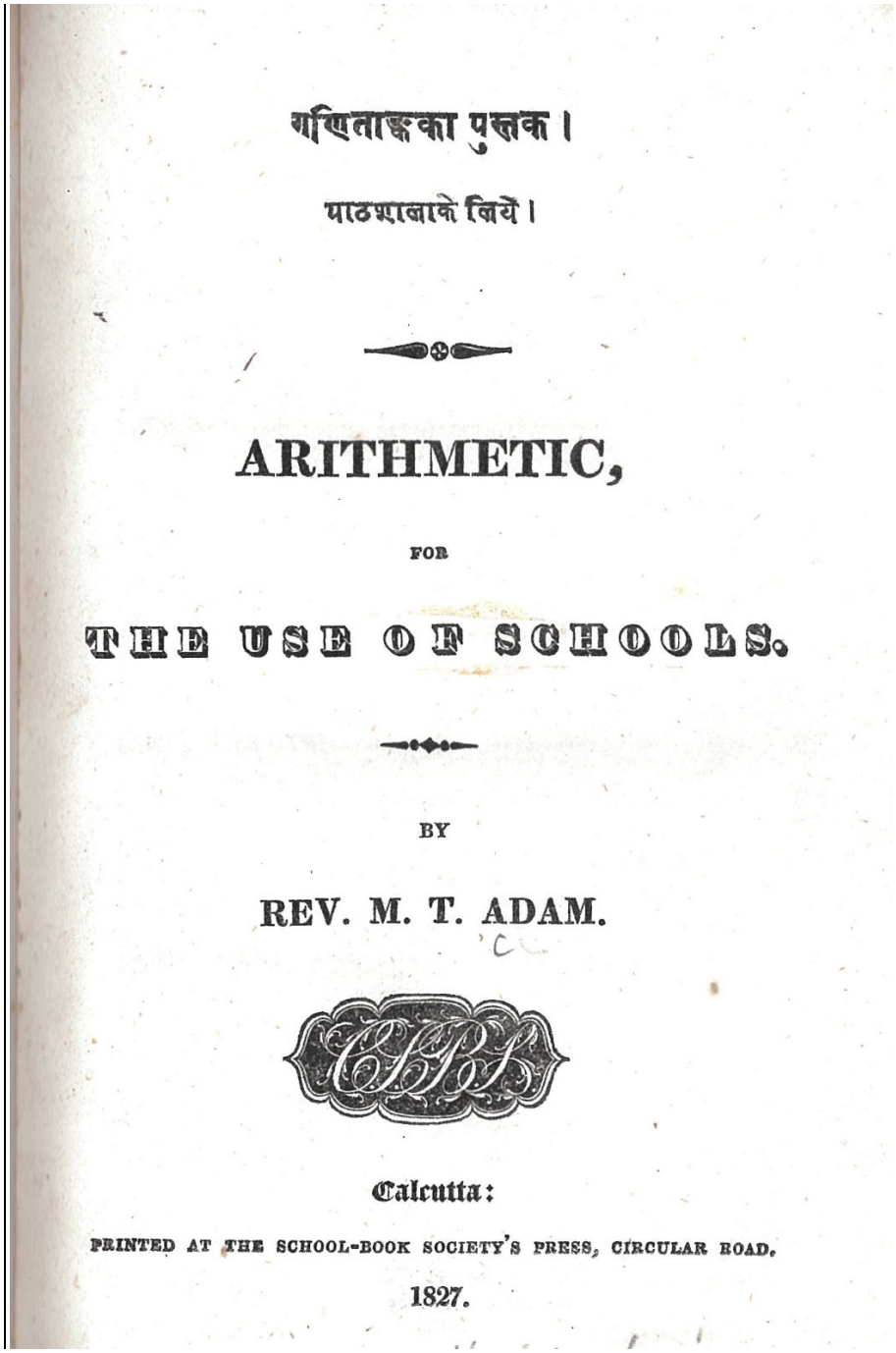
b. ca. 1790
1819 Ordained in London
1820 Moved to Calcutta, then to Benares London Missionary Society
1830 Moved back to England, then to USA
(Karttunen, whowaswho-indology.info)

Gaṇitāṅka kā pustaka – Arithmetic [book], *for the use of schools*
Calcutta/Kolkata: Calcutta School Book Society 1827
2nd edition 1834

157 p.
D: –
L: Cambridge Harvard U (OCLC 7023 37333); London Univ College UCL (OCLC 9270 47838, 1170 392246)

Based on works of John Thomas Graves

b. 1806 Dublin
d. 1870 Cheltenham
Irish jurist and mathematician
(English Wikipedia)



गणिताङ्कका पुस्तक ।

पाठशालाके लिये ।

ARITHMETIC,

FOR

THE USE OF SCHOOLS.

BY

REV. M. T. ADAM.

Calcutta:

PRINTED AT THE SCHOOL-BOOK SOCIETY'S PRESS, CIRCULAR ROAD.

1827.

Hindustani / Hindi

Matthew Thomson Adam

Gaṇitāṅka kā pustaka – Arithmetic [book], *for the use of schools*
Calcutta/Kolkata: Calcutta School Book Society 1827

Transcription of the title page

S: Aggarwal, Abhilasha: Mathematical books for and in India in the 19th century. In: BSHM Bulletin: Journal of the British Society for the History of Mathematics 22 (2007) 11–21 [contains information for several Indo-Aryan languages], dx.doi.org/10.1080/1749 8430 6011 48671

Book of Gaṇita [Arithmetic]
for schools

Arithmetic,
for
the use of schools.

By
Rev. M. T. Adam

CSBS [Calcutta School Book Society]
Calcutta:

Printed at the School-Book Society's Press, Circular Road.

1827.

Panjabi / Punjabi

Bihārī Lāla

No biograohic data

Gaṇitamañjarī [Flower of Gaṇita [Arithmetic]] (by Gaṇeśa) Ludhiana [Punjab] 1869

144 p.
D: –
L: – (OCLC 1818 96576)
C/V: WorldCat

By the same author:
Bījagaṇita [Algebra]
Lahore 1878
96 p.
D: –
L: – (OCLC 1818 96575)
C/V: WorldCat

Gaṇeśa

Indian astronomer of the 16th century;
wrote a commentary to the *Līlāvatī* [Arithmetic] and the *Bījagaṇita* [Algebra] by
Bhāscara [II] Āchārya / Bhāscarācārya (1114–1185)

Gujarati

George Ritso Jervis

b. 1794 Madras
d. 1851 Boulogne-sur-Mer, France
Lieutenant Colonel of the Engineers, Bombay Company
Founder of the Engineering School at Bombay in 1823
Member of the Institution of Civil Engineers
(Grace's Guide to British Industrial History: gracesguide.co.uk)

A course of mathematics in the Goojratee language
Vol. 1: Arithmetic and book-keeping
Bombay/Mumbai:
P. D. Ramos 1828

465 p.

Translated from works by

Charles Hutton

b. 1737 Newcastle upon Tyne
d. 1823 Charlton, Kent
Professor of mathematics at the Royal Military Academy, Woolwich
(English Wikipedia; mathshistory.st-andrews.ac.uk/Biographies)

John Bonnycastle

b. ca. 1750 Buckinghamshire
d. 1821 Woolwich, London
Professor of mathematics at the Royal Military Academy, Woolwich
(English Wikipedia; mathshistory.st-andrews.ac.uk/Biographies)

Vol. 2: Algebra, logarithms, geometry, application of algebra to geometry, plane trigonometry, mensuration with tables of logarithms
Vol. 3: Geometry and application of algebra to geometry

Gujarati
G. R. Jervis: *Arithmetic* 1828

शिक्षामाला

गुजराती भाषामां

प्रथम पुस्तक

जेमां

गणित

वेव्हारनी रेवडी

अनें

नाणाओनी तपासणीनुं वर्त्तमान.

एओनां मूळपुस्तको इंग्रेजी भाषामां छे तेमनो कवी

डाकतर चार्ल्स हट्टन अनें बाणिए कांस्टेल साहेब

ते पुस्तकोनुं भाषांतर

कापटन जार्ज जार्विस साहेब इंजनेर

एओये

जगन्नाथशास्त्री क्रमवंत एओनी सहायताथी

गुजराती भाषामां कर्युं

शिळा छापउपर छाप्युं

मुंबई

१८२८

A

COURSE

OF

MATHEMATICS

IN THE

GOOJRATEE LANGUAGE,

VOL: I

CONSISTING OF

ARITHMETIC

AND

BOOK-KEEPING

BY

SINGLE AND DOUBLE ENTRY,

WITH AN ASSAY TABLE &c.

TRANSLATED

from the works of

DR. CHARLES HUTTON, AND MR. BONNYCASTLE;

BY

CAPTAIN GEORGE RITSO JERVIS,

Bombay Engineers.

LITHOGRAPHED IN BOMBAY,

BY

F. D. RAMOS.

1828.

Gujarati

George Ritso Jervis (translator)

Charles Hutton

John Bonnycastle

A course of mathematics in the Goojratee language
Vol. 1: Arithmetic and book-keeping
Bombay: P. D. Ramos 1828

Transcription
of the English title page

L: vol. 1 – London Univ College UCL (OCLC 9268 84300, 9268 75291, 1170 456057, 1170 290341); vol. 2 – Dresden SUB (OCLC 3123 35807)
C/V: WorldCat

A
course
of
mathematics
in the
Goojratee language,
vol: I

Consisting of
arithmetic
and
book-keeping
by
single and double entry
with an assay table &c.

Translated
from the works of
Dr. Charles Hutton, and Mr. Bonnycastle,
by
Captain George Ritso Jervis,
Bombay Engineers.

Lithographed in Bombay,
by
P. D. Ramos.
1828.

Gujarati

George Ritso Jervis (translator)

Charles Hutton

John Bonnycastle

A course of mathematics in the Goojratee language
Vol. 1: Arithmetic and book-keeping
Bombay: P. D. Ramos 1828

Content overview
(according to the table of contents)

Notation and numeration
Four species (for integers)
Reduction and tables of money, weights etc.
Four species for denominate (*compound*) numbers
Regula de tri (*Golden rule or rule of three*)
Regula quinque (*compound proportion*)
Chain rule of three
Common (*vulgar*) fractions: reduction, four species
Decimal fractions: four species, reduction
Duo-decimals
Exponentiation (*involution*)
Extraction of roots (*evolution*)
To extract square, cube root, root whatever
Ratios, proportions and progressions
Arithmetical and geometrical proportion
Regula societatis (*single* and *double fellowship*)
Simple and compound interest
Alligations (*medial* and *alternate*)
Regula falsi (*single* and *double position*)
Book-keeping by single and double entry

Marathi

George Ritso Jervis (translator)

Charles Hutton

John Bonnycastle

Details see above: Gujarati

A course of mathematics in the Marat'ha language
Bombay: P. D. Ramos 1828

ca. 465 p. (vol. 1)
Title page and contents in English and Marathi
D: –
L: vol. 2 – London Univ College UCL (OCLC 1170 823639);
vol. 3 – Paris BNF (OCLC 4573 25026)
C/V: WorldCat

Vol. 1: Consisting of arithmetic and book-keeping by single and double entry
Vol. 2: Consisting of elements of algebra, logarithms, elements of geometry, application of algebra to geometry, plane trigonometry, mensuration with tables of logarithms
Vol. 3: Consisting of elements of geometry and application of algebra to geometry

Sinhalese

Church Missionary Society

A Singhalese arithmetic: for the use of the native schools belonging to the Church Missionary Society
Ceylon: Cotta Church Mission Press [2]1839

48 p.
D: –
L: Oxford U (OCLC 6363 57754)
C/V: WorldCat

Nepali (Gorkhali)

Arithmetic books in this language are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

Information: Raikhola et al. state that mathematics books entirely written in Nepali were only printed after the beginning of the 20th century; they present a list. The two earliest arithmetic books recorded by WorldCat are:

Raghunātha Panta: *Gaṇitacandracandrikā. Pahilā bhāga – Arithmetic in Gorkhali*. 1932 (1922?)
(OCLC 5025 05751)

Bhāscara [II] Āchārya / Bhāscarācārya (1114–1185)
Ṭīkārām(a) Dhananjaya (Śarmā) (commentator):
The Līlāvatī (Nepali and Sanskrit). 1936
Held by the L of Congress (OCLC 2330 29435)

References: Raikhola, Sher Singh, et al.: Contributions of Nepalese mathematics during Shah and Rana era. In: Advances in historical studies 9 (2020) 130–141, doi.org/10.4236/ahs.2020.93012;
WorldCat

Date: April 2021

Bengali

John Harle

b. 1789 County of Northumberland
d. 1824 Calcutta
Baptist missionary
London Missionary Society
(Missionary register for 1824, London 1824, p. 417)

Arithmetic or *Gaṇitanka*

Calcutta/Kolkata: Calcutta School Book Society 1818
Hugli Chuchura/Chinsurah: Calcutta School Book Society 1819
Further editions 1821, 1846, 1871, 1878

124 p.
D: Google
L: Berlin SB, Cambridge Harvard U, Oxford U (1819: OCLC 5326 7180)
C/V: WorldCat

HARLE'S ARITHMETIC.

FOR THE USE OF BENGALEE SCHOOLS.

Harle

COMPRISING.

The five fundamental Rules:
Tables of Money, Weights, and Measures.
Reduction. Single Rule of Three, Direct and Inverse.
Land Measure &c. Bengal, and Madras, Factory, and Bazar Weights.
Native contracted Rules for calculating the value of Goods,
Admeasurement of Boats, Grain
Gold and Brass Weights,
Batta, Wages &c. &c.

গণিতাঙ্ক.

পাঠশালার নিমিত্তে.

কলিকাতা স্কুল বুক সোসাইটী দ্বারায় ছাপা হইল.

পাঠশালার ছাপাখানাতে.

চুঁচুঁড়া.

ই০ ১৮১৯.

CHINSURAH.
Printed for the CALCUTTA SCHOOL BOOK SOCIETY.
At the SCHOOL PRESS.
1819.

Bengali

John Harle

Arithmetic
Calcutta 1818, Chinsurah 1819

Transcription and translation
of the title page
with content overview

S: Raj, Kapil: Relocating modern science. Circulation and the construction of knowledge in South Asia and Europe 1650–1900. London 2007, p. 174
Gupta, Abhijit: The Calcutta School Book Society. In: English Studies in Africa 2014 (57, 1) 57–67

Harle's Arithmetic.
For the use of Bengalee schools.

Comprising.
The five fundamental Rules.
Tables of Money, Weight, and Measures.
Reduction. Single Rule of Three, Direct and Inverse.
Land Measure etc. Bengal, and Madras, Factory, and Bazar Weights.
Native contracted Rules for calculating the value of Goods,
Admeasurement of Boats, Grain
Gold and Brass Weights,
Batta [that is extra pay, allowance], *Wages etc. etc.*

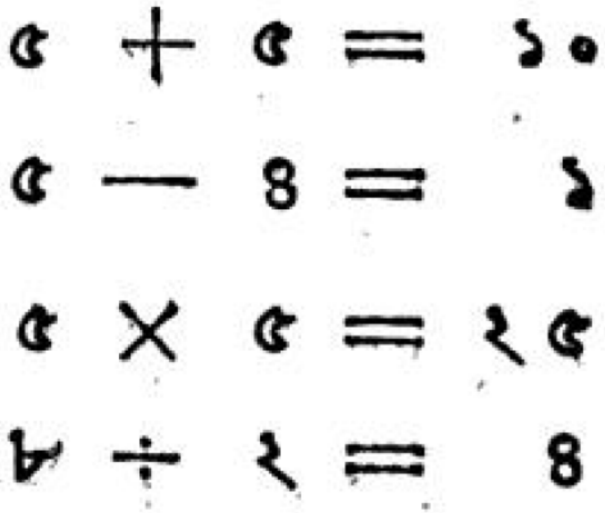
Mathematics
for school
Printed by Calcutta School Book Society
in the School Printing Press
1819.

CSBS [Calcutta School Book Society]
[Hooghly-]*Chinsurah* [West Bengal].
Printed for the Calcutta School Book Society.
At the School Press.
1819.

Bengali

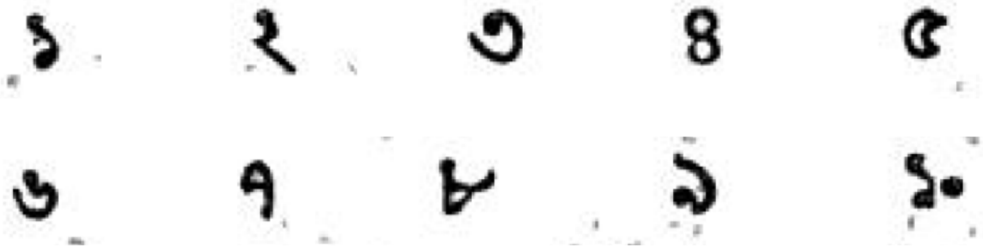
John Harle

Arithmetic
Calcutta 1818, Chinsurah 1819



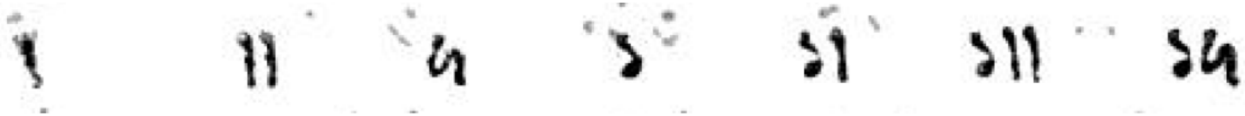
5 + 5 = 10
5 – 4 = 1
5 · 5 = 25
8 : 2 = 4

Digit symbols:



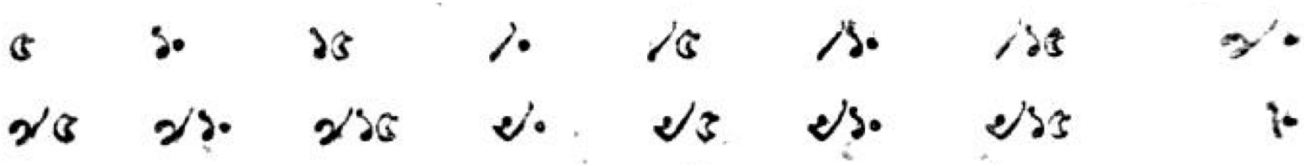
Quarter symbols:

¼	½	¾	1	1¼	1½	1¾



Special symbols for multiples of 20:

5	10	15	20	25	30	35	40
45	50	55	60	65	70	75	80



Bengali – Supplement

Popular competing textbook

Robert May

Gonito, being a collection of arithmetical tables with rules for their application to business. Calcutta: Calcutta School Book Society 1817

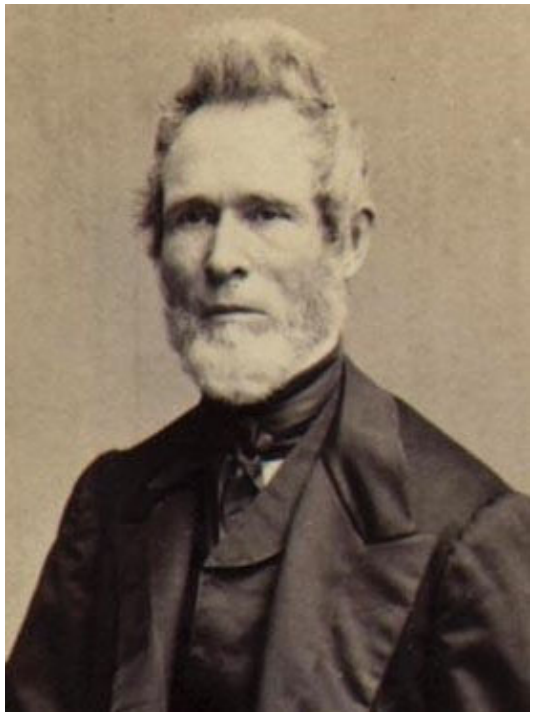
No copy of the 1817 edition found (Raj 2007)
L: Hartford Trinity College L ([2]1819: OCLC 5326 6862); [3]1821

Both textbooks refer to local ways of reasoning and teaching (Raj 2007)

Assamese

Eliza W. Brown, née Ballard

Married 1830
d. 1871
Work partner and husband
Rev. Nathan Brown (1807–1886), American Baptist missionary to India and Japan, famous for his works on the Assamese language
(English Wikipedia; onlinesivasagar.com; Karttunen, whowaswho-indology.info)



First arithmetic in Assamese
Sivasagar/Sibsagor 1845

48 p.
L: Cambridge Harvard U
(OCLC 3499 0749)
C/V: WorldCat

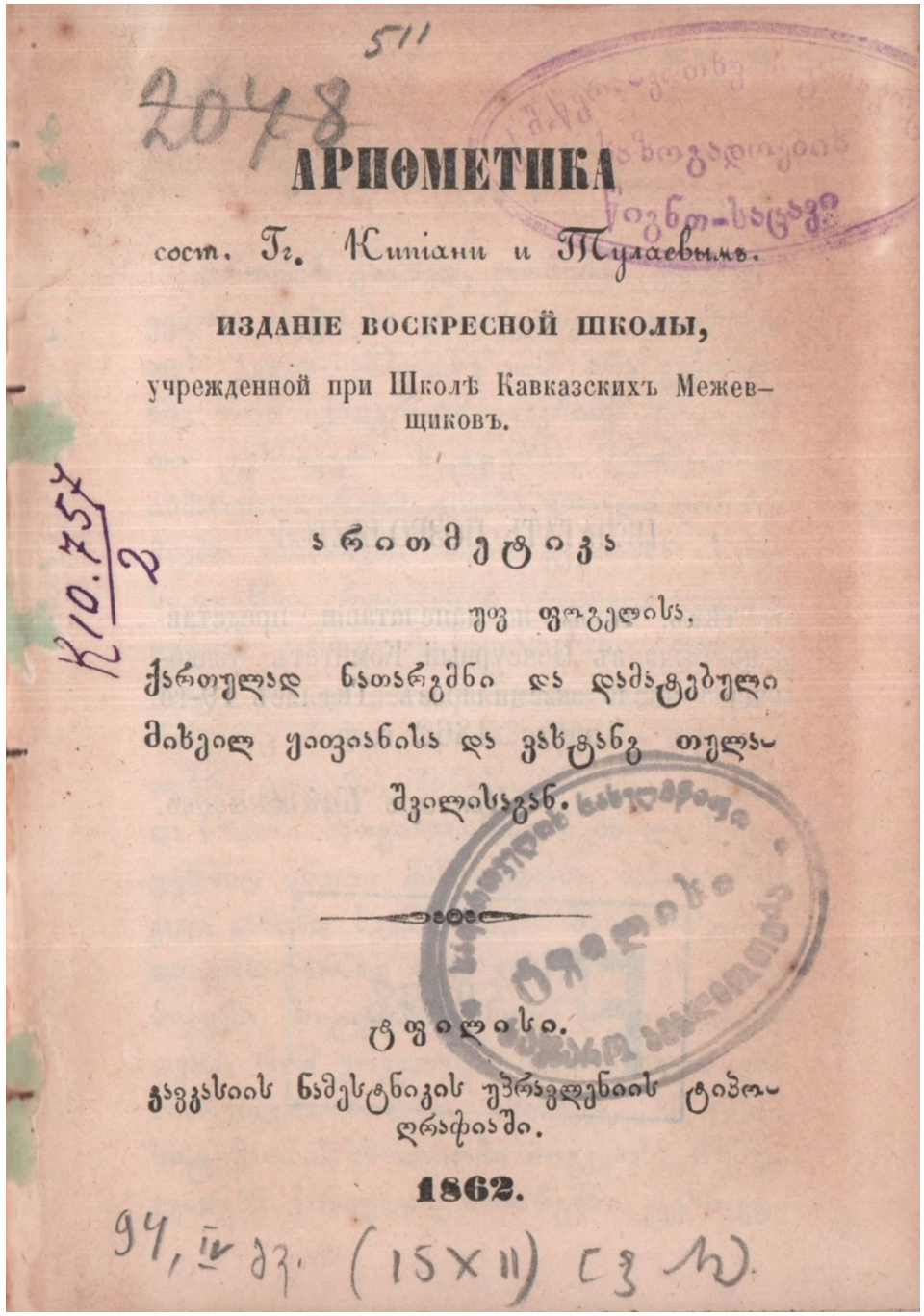
Georgian

R. V. Fogel (also A. Vogel)
Translators:
Mikhail Kipiani
Vakhtang Tulashvili

არიფმეტიკა (*aripmetica*)
Sankt-Peterburg: K. Wulf 1861,
Tiflis 1862

The authors created new arithmetic terms listed at the end of the preface.

D: no digital copy of the National Parliamentary Library of Georgia, perhaps later
S: Rusudan Gogiberidze (რუსუდან გოგიბერიძე): First Georgian Manuals in Math. In: Intellectual (Intelektuali) 13 (2010) [digital archive of the NL]



АРИѲМЕТИКА

сост. Г. Кипіани и Тулаевымъ.

ИЗДАНІЕ ВОСКРЕСНОЙ ШКОЛЫ,

учрежденной при Школѣ Кавказскихъ Межевщиковъ.

არითმეტიკა

უფ ფოგელისა,

ქართულად ნათარგმნი და დამატებული

მიხეილ ყიფიანისა და ვახტანგ თულაშვილისაგან.

ტფილისი.

კავკასიის ნამესტნიკის უწრავლუნიის ტიპოგრაფიაში.

1862.

Georgian

R. V. Fogel (also A. Vogel)
Translators:
Mikhail Kipiani
Vakhtang Tulashvili

არიფმეტიკა (*aripmetica*)
Sankt-Peterburg: K. Wulf 1861,
Tiflis 1862

Biographies

R. V. Fogel (ფოგელი, Р. В. Фогель)

No further biographic and bibliographic data.
He is not the Nobel Prize laureate Robert William Vogel.
Although he is partly quoted as A. Vogel, he is certainly not the German pedagog August Vogel (https://d-nb.info/gnd/117529931)
„A.“ could have been the abbreviation of Академик.
The abbreviations of the first names are certainly errors of librarians regarding the identification of letters.
His *Arifmetika* was obviously only a manuscript serving as a guide to a curriculum of mathematics in Georgia.

Mikhail Kipiani (მიხეილ ყიფიანი)

b. 1833; d. 1891 Tbilisi
Translator, educator, publicist
(http://www.nplg.gov.ge/bios/ka/00005859/)

Vakhtang Tulashvili (ვახტანგ თულაშვილი)

b. 1834; d. 1910 Tbilisi
Educator, pedagogue
(http://www.nplg.gov.ge/bios/ka/00005616/)

Georgian

R. V. Fogel (also A. Vogel)
Translators:
Mikhail Kipiani
Vakhtang Tulashvili

არიფმეტიკა (*aripmetica*)
Sankt-Peterburg: K. Wulf 1861,
Tiflis 1862

Transcription of the title page
(Google Gemini)

АРИФМЕТИКА
сост. М. Кипиани и Тулаевымъ.
ИЗДАНІЕ ВОСКРЕСНОЙ ШКОЛЫ,
учрежденной при Школѣ Кавказскихъ
Межевщиковъ.

ა რ ი თ მ ე ტ ი კ ა
უფ. ფოგელისა,
ქართულად ნათარგმნი და დამატებული
მიხეილ ყიფიანისა და ვახტანგ თულაშვილისაგან.

ტფილისი.
კავკასიის ნამესტნიკის უპრავლენიის
ტიპოგრაფიაში.
1862.

Georgian

R. V. Fogel (also A. Vogel)
Translators:
Mikhail Kipiani
Vakhtang Tulashvili

არითმეტიკა (*aripmetica*)
Sankt-Peterburg: K. Wulf 1861,
Tiflis 1862

Translation of the title page
(Google Gemini)

ARITHMETIC
Compiled by M. Kipiani and Tulaev.
EDITION OF THE SUNDAY SCHOOL,
established at the School of Caucasian Land Surveyors.

A R I T H M E T I C
of Mr. Fogel,
translated into Georgian and supplemented
by Mikheil Kipiani and Vakhtang Tulashvili.

Tiflis
In the Printing House of the Administration
of the Viceroy of the Caucasus
1862

Georgian – Supplement

Leontij Filippovič Magnickij

(*Arifmétika*. Moskva 1703; see Russian)

Translated by Mikheil Elvidze

Corrected by Vakhtang VI (1675–1737), king of Georgia under Persian government; established the first printing house in Tiflis in 1709

დიდი არითმეტიკა

(*didi aripmetica*) [Great arithmetic] Tiflis 1731

V/S: Chichinadze, Z.: The Russian Patriotic 1812 War, Peter Bagrationi and Selim Pasha Khimshiashvili. Tiflis: Electric printer “Sorapani” Madatov Island 1912, p. 16 openlibrary.ge/bitstream/123456789/6553/3/Rusetis SamamulisSvilo omi 1912.pdf)

The translation of Magnickij is an exile manuscript in the Kekelidze National Center of Manuscripts in Tbilisi in the historical archival collections.

The supposedly earlier arithmetic book from 1762 is a book on Computus (Easter calculation). It used the traditional Georgian alphabet-based number system (where letters of the alphabet function as numerals, e.g., ა = 1, ბ = 2, etc.), similar to the Greek system (Catholicos-Patriarch Anton I (Bagrationi) and the scholarly circle of King Erekle II: Arithmetika. Tbilisi, Kingdom of Kartli-Kakheti: Royal Printing House 1762).

Arabic

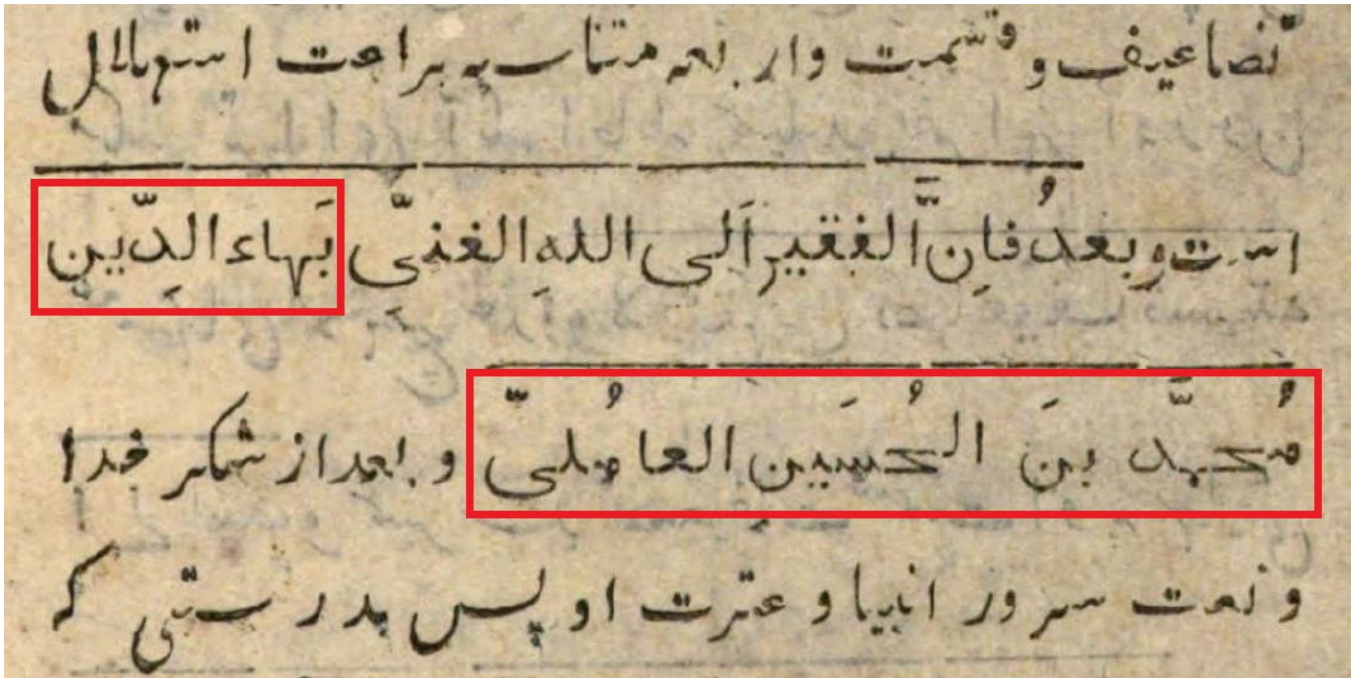
Bahāʾ al-Dīn Muḥammad bin al-Ḥusain al-ʿĀmilī
بَهاء الدِّين مُحمَّد بنَ الحُسَين العامُلىّ

b. 1546/47 Baalbek/Amul, Syria
d. 1621/22 Isfahan
Studies in Qazvin, Jerusalem, Herat
High Shiite theologian
(Encyclopaedia Britannica, Iranica)

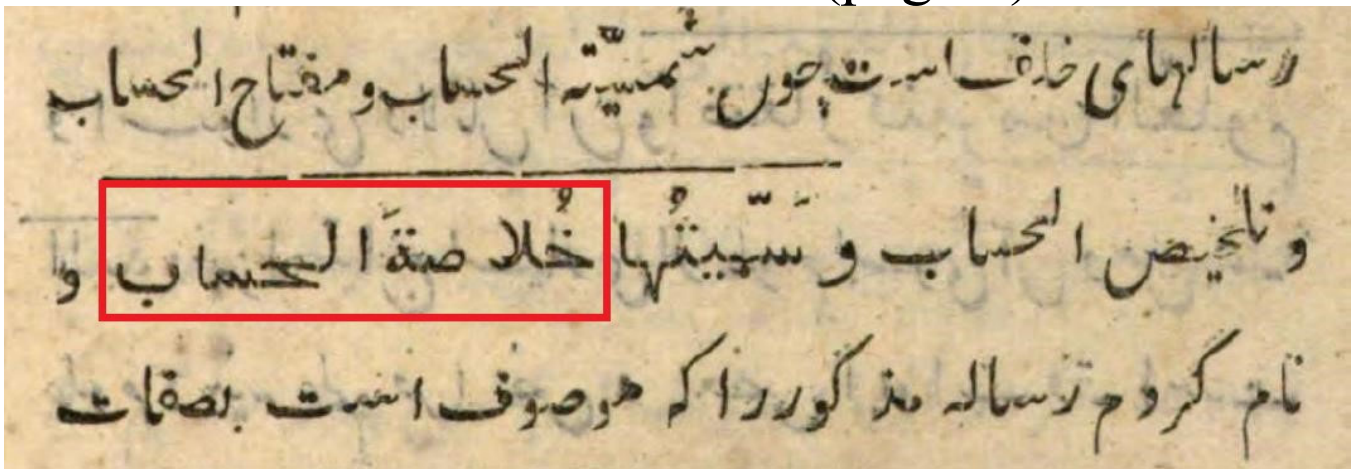
Ḫulāṣat al-ḥisāb (خُلاصةَ الحساب)
[The Essential of Arithmetic]
Calcutta/Kolkata: P. Pereira, Hindustani Press 1812

Maulewi Ruschen Ali: *Persian translation and commentary*

512 p.
D/L: München BSB
E/V: Nesselmann, G. H. F. 1843



The author's name (page 2)



Title (page 4)
(Arabic original text marked with a line above)

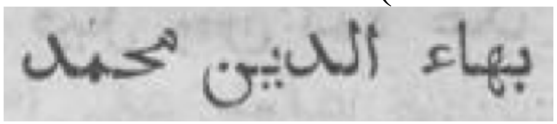
Arabic

Bahāʾ al-Dīn al-ʿĀmilī

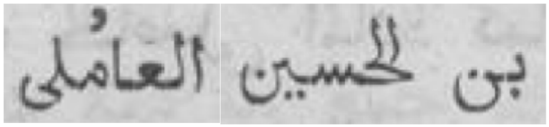
Ḫulāṣat al-ḥisāb
Calcutta: Pereira 1812

Beginning of the text
in Nesselmann's translation 1843

The author's name (Nesselmann's edition):



Bahāʾ al-Dīn Muḥammad



bin al-Ḥusain al-ʿĀmilī

Title (Nesselmann's edition):

Im Namen Gottes, des Barmherzigen, des Erbarmers.

Wir preisen Dich, dessen Gnadensumme keine Zahl begrenzt, und dessen ohne Ende wiederholte Theilungen zu keinem Ende führen; wir beten für unsern Herrn Mohammed, den Auserwählten, und für seine Verwandtschaft, vorzüglich die vier unter einander Verbundenen [1]), die Inhaber des Herrschermantels [2]). Ist das geschehen, so (darf sich nennen) der Arme in Vergleich zu Gott dem reichen, Beha-eddin Mohammed, Sohn des Alhosain, aus Amul, den Gott der Erhab'ne möge sprechen lassen, was sich als wahr erweist am Tage, da Rechnung gelegt wird.

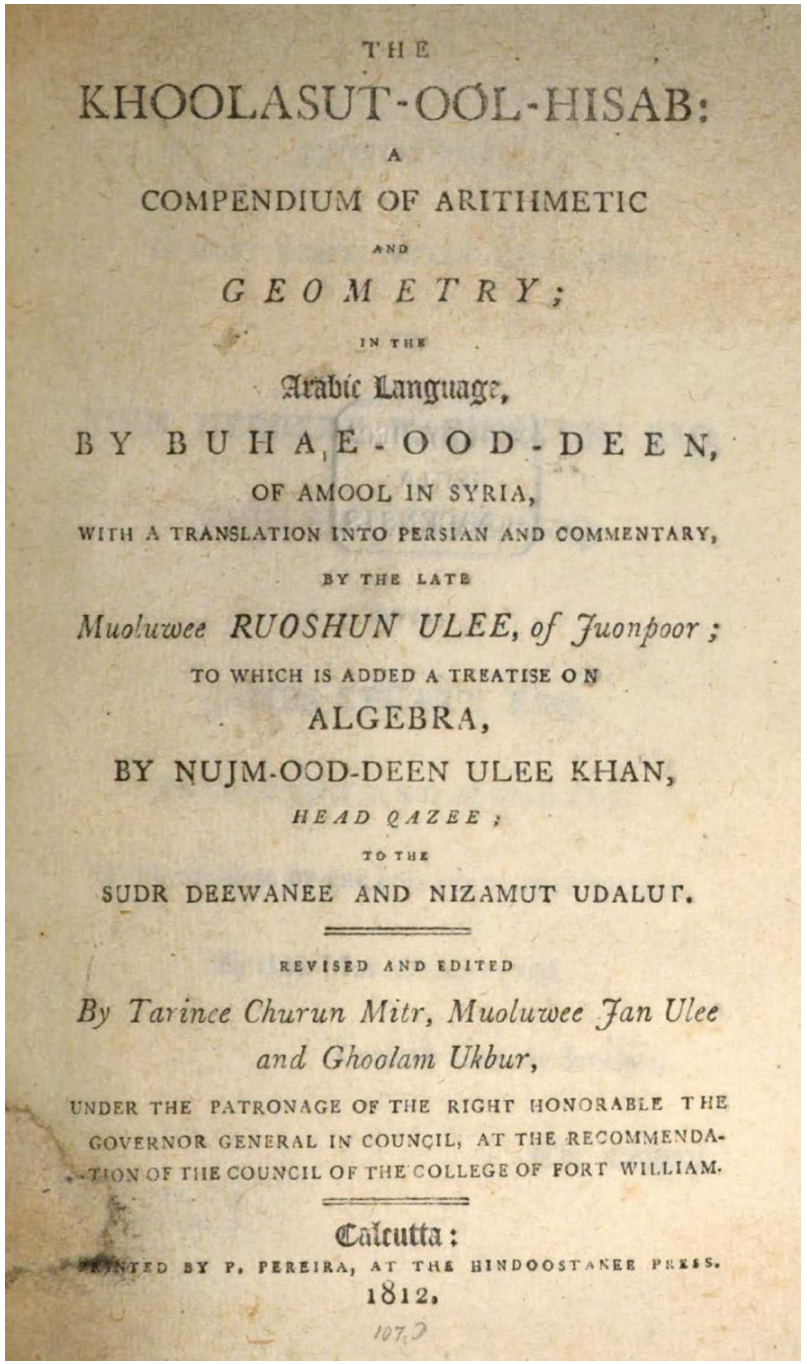
Er sagt: „Was die Rechenkunst anlangt, so ist es nicht unbekannt, wie erhaben ihr Wesen, wie hoch ihr Rang, wie zierlich ihre Aufgaben, wie fest ihre Beweise sind, noch dafs viele Wissenschaften ihrer bedürfen und eine unzählige Menge von Geschäften von ihr Gebrauch macht. Dieses ist eine Abhandlung, welche das Nothwendigste von ihren Elementen umfafst, und das Wichtigste aus ihren Kapiteln und Abschnitten vereinigt, und von ihr aufgenommen hat zierliche Kunstgriffe, welche die Essenz der Bücher älterer Auctoren ausmachen, und ist daraus gearbeitet auf ausgezeichneten Grundlagen, welche das Mark der Abhandlungen künftiger Schriftsteller sein werden [3]). Ich habe sie genannt Essenz der Rechenkunst, und habe sie angeordnet in eine Einleitung und zehn Kapitel.

Arabic

Bahāʾ al-Dīn al-ʿĀmilī

Ḫulāṣat al-ḥisāb
Calcutta: Pereira 1812

English title page



THE

KHOOLASUT-OOL-HISAB:

A

COMPENDIUM OF ARITHMETIC

AND

GEOMETRY;

IN THE

Arabic Language,

BY BUHA-E-OOD-DEEN,

OF AMOOL IN SYRIA,

WITH A TRANSLATION INTO PERSIAN AND COMMENTARY,

BY THE LATE

Muoluwee RUOSHUN ULEE, of Juonpoor;

TO WHICH IS ADDED A TREATISE ON

ALGEBRA,

BY NUJM-OOD-DEEN ULEE KHAN,

HEAD QAZEE;

TO THE

SUDR DEEWANEE AND NIZAMUT UDALUT.

REVISED AND EDITED

By Tarince Churun Mitr, Muoluwee Jan Ulee and Ghoolam Ukbur,

UNDER THE PATRONAGE OF THE RIGHT HONORABLE THE GOVERNOR GENERAL IN COUNCIL, AT THE RECOMMENDATION OF THE COUNCIL OF THE COLLEGE OF FORT WILLIAM.

Calcutta:

PRINTED BY P. PEREIRA, AT THE HINDOOSTANEE PRESS.

1812.

107.J

Arabic

Bahāʾ al-Dīn al-ʿĀmilī

Ḫulāṣat al-ḥisāb
Calcutta: Pereira 1812

Transcription
of the English title page

The
Khoolasut-ool-hisab:
a
compendium of arithmetic
and
geometry;
in the
Arabic Language,
by Buhae-ood-Deen,
of Amool in Syria,
with a translation into Persian and commentary,
by the late
Muoluwee Ruoshun Ulee, of Juonpoor;
to which is added a treatise on
algebra,
by Nujm-ood-Deen Ulee Khan,
Head Qazee;
to the
Sudr Deewanee and Nizamut Udalut.
Revised and edited
By Tarinee Churun Mitr, Muoluwee Jan Ulee
and Goolam Ukbur,
under the patronage of the right honorable the
Governor General in Council, at the recommenda-
tion of the Council of the College of Fort William.
Calcutta:
printed by F. Pereira at the Hindoostanee Press.
1812.

Arabic

Bahāʾ al-Dīn al-ʿĀmilī

Ḫulāṣat al-ḥisāb
Calcutta: Pereira 1812

Content overview
(according to Nesselmann 1843)

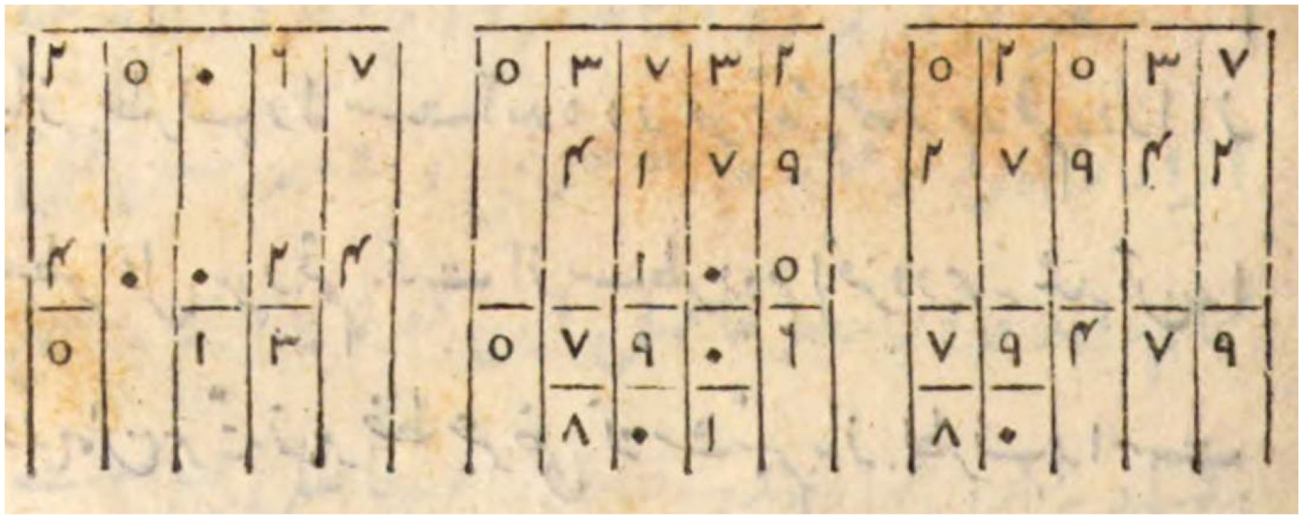
1 Calculating with integers
2 Calculating with fractions
3 Identifying the unknown using a proportion
4 Identifying the unknown using regula falsi duplicis positionis
5 Identifying the unknown using the inversion method
6 The art of measuring, surveying
7 Applying the art of measuring to leveling in order to lay water mains and to examining the height of tall objects, the breadth of rivers and the depth of wells
8 Identifying the unknown using the algebraic method
9 Excellent rules and subtle tricks which the arithmetician can neither avoid nor miss
10 Miscellaneous problems – using various methods – which sharpen and strengthen the learner's mind regarding the identification of the unknown

Arabic

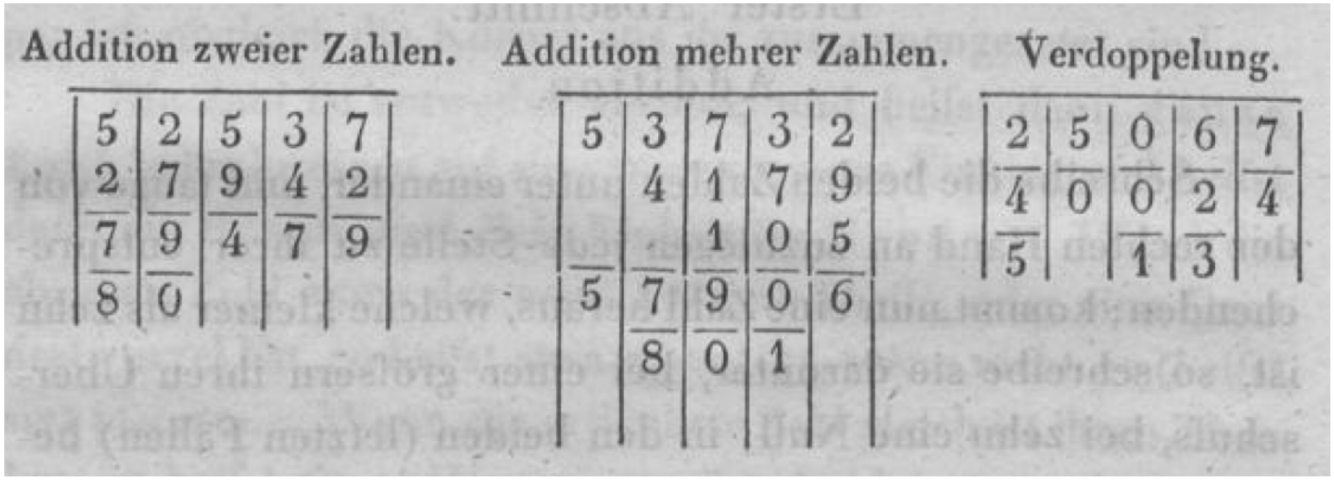
Bahāʾ al-Dīn al-ʿĀmilī

Ḫulāṣat al-ḥisāb
Calcutta: Pereira 1812

Addition and duplication
(Nesselmann 1843, p. 6)



(Original: duplication on the left, addition on the right)



Hebrew 1

Eliyah Mizraḥi

b. ca. 1450 (jewishencyclopedia.com)
d. 1525/26
Turkish rabbi and mathematician
1495 Grand rabbi of the Ottoman empire
Mathematical, rabbinical, exegetical works

Sēfer ha-mispār
Konstantinopolis: Girolamo Soncino / Gershom Sontsin 1533

Edited by Mizraḥi's son Iśrael
222 p.; **C**/**V**: –
D: reader.digitale-sammlungen.de
L: München BSB
E: Wertheim, Gustav: Die Arithmetik des Elia Misrachi. Frankfurt [1]1893, Braunschweig [2]1896
S: Steinschneider, Moritz: Mathematik bei den Juden (1893–1901). Hildesheim 1964
jewishencyclopedia.com

ספר המספר

להחכם האלהי מוהר׳

אליה המזרחי זל׳

בקוסטנטינא

Hebrew 1

Eliyah Mizraḥi

Sēfer ha-mispār
Konstantinopolis: Soncino 1533

Transcription of the title page

The year of publication is not indicated explicitly, only as twelfth year of the reign of Sultan Suleiman I. (see next page). This would lead to 1532/33 CE. According to the NL of Israel, the year of publication is Hebrew 5294. This (subtracting 3761/3760) corresponds to 1533-09-20–1534-09-09 CE.

ספר המספר

להחכם האלהי מוהר"ר [מורנו ורבינו הרב רבי]
אליה המזרחי ז"ל

בקוסטנטינא

קרית אדוננו המלך הגדול והאדיר

שולטאן שולימאן

ירום הודו ויתנשא : בשנת שתים עשרה למלכו:

בבית זעיר המחוקקים קטון התלמידים
[מחוקק מלשון חקוק, בית מוחקקים = בית דפוס (קלצ'קין)]
גרשם בן הח"ר [החכם רבי] משה בן החכם המופלג
הר"ר [הרבי רבי]
ישראל נתן שונצין בן שמואל בן הר' משה ז"ל
והוא נלחם בעיר פירט נגד פרא יואן
די קאפיסטראנו וגרש אותו עם כל חילו משם:
והוא היה דור חמישי למה"ר [מורינו הרב] משה משפירה הנזכר
בתוספות מטוך: שנת כי גר הייתי בארץ נכריה

Hebrew 1

Eliyah Mizraḥi

Sēfer ha-mispār
Konstantinopolis: Soncino 1533

Romanization of the title page

Suleiman/Süleyman I. the Magnificent (1494/96–1566), Sultan of the Ottoman empire from 1520-09-21 on

Johannes Capistranus, San Giovanni da Capestrano (1386–1456), Franciscan friar, preacher, inquisitor, crusader, “scourge of the Jews”

Firt/Furth/Pfirt/Ferrette, Alsace (Italian Wikipedia, Soncino)

Sēfer ha-mispār
le-ha-ḥaḵam ha-elohi m.w.h.r.r [*moreinu we-rabeinu ha-raḇ rabi*; *moharar*]
Eliyah ha-Mizraḥi z.l.
be Qosṭanṭina
qiriat adonenu ha-meleḵ ha-gadol we ha-adir
Śulṭan Śuliman
yarum hodo we-itnaśe: be-šnat šteim ʿaśrah le-malko

Be-beit zaʿir ha-meḥoqeqim qaṭon ha-talmidim
Geršom ben h.ḥ.r. [*ha-ḥaḵam rabi*] *Moše ben ha-ḥaḵam ha-muflag h.r.r.* [*ha-rabi rabi*]
Iśrael Natan Śonṣin ben Šmuel ben ha-r. Moše z.l.
We-hu nilḥam b-ʿir Firṭ neged pere Yowan
di Qapisṭrano we-gereš oto ʿim kol ḥeilo mišam:
We-hu haya dor ḥamiši le-m.h.r. [*moreinu ha-raḇ*; *mahar*]
Moše Mišapira ha-nizkar
be-tosafot me-Ṭuḵ: šnat ḵi ger haiti be-ereṣ noḵria

Hebrew 1

Eliyah Mizraḥi

Sēfer ha-mispār
Konstantinopolis: Soncino 1533

Translation of the title page

For transcriptions, Romanizations and translations, I am very indebted to Dr. Stela Segev, Herzog College, Jerusalem, author of a Hebrew dissertation on this arithmetic book (Jerusalem 2010).

Book of the Number
by the divine sage
Eliyah Mizraḥi our teacher and rabbi of blessed memory
in Constantinople,
the city of our sovereign, the great and mighty king
Sultan Süleyman,
may his majesty rise and rise,
in the year twelve of his reign.

In a tiny printing house a humble student
Ghershom, son of the wise rabbi Moshe, son of the very wise rabbi
Israel Natan Sonṣin, son of Shmuel, son of rabbi Moshe, of blessed memory.
And he [Moshe] *fought in the town Firth against the savage*
Giovanni di Capestrano and expelled with all his army away:
And he [Moshe] *was the fifth generation to our teacher and rabbi*
Moshe Mishapira mentioned
in Tosafot [commentaries on the Talmud] *from Touques:*
[Rabbi Eliezer (ca. 1250 – ca. 1300) was a tosafist
who lived in Touques (Normandy)]
I was a stranger in a foreign land.

Hebrew 1

Eliyah Mizraḥi

Sēfer ha-mispār
Konstantinopolis: Soncino 1533

Content overview

Divided into three books,
each divided into "gates" (*še'ar*),
subdivided into chapters (*pereq*)
(Wertheim, G. 1896, p. 14–15)

1.1 Integers: addition, multiplication, subtraction, division
1.2 Fractions: multiplication, addition, subtraction, division
1.3 Mixed fractions: addition, multiplication, subtraction, division

2.1 Astronomical fractions ($^{1}/_{60}$ etc.): addition, multiplication, subtraction, division
2.2 Extraction of square and cube roots
2.3 Proportions: arithmetic, geometric, harmonic

3.1 Arithmetical problems
  3.1.1 Problems (40) solved with the regula de tri
  3.1.2 Problems (40) solved without the regula de tri
3.2 Geometrical problems
  3.1.1 Problems (11) solved with the regula de tri
  3.1.2 Problems (9) solved without the regula de tri

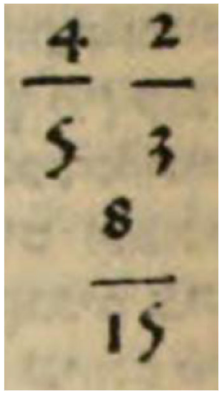
Hebrew 1

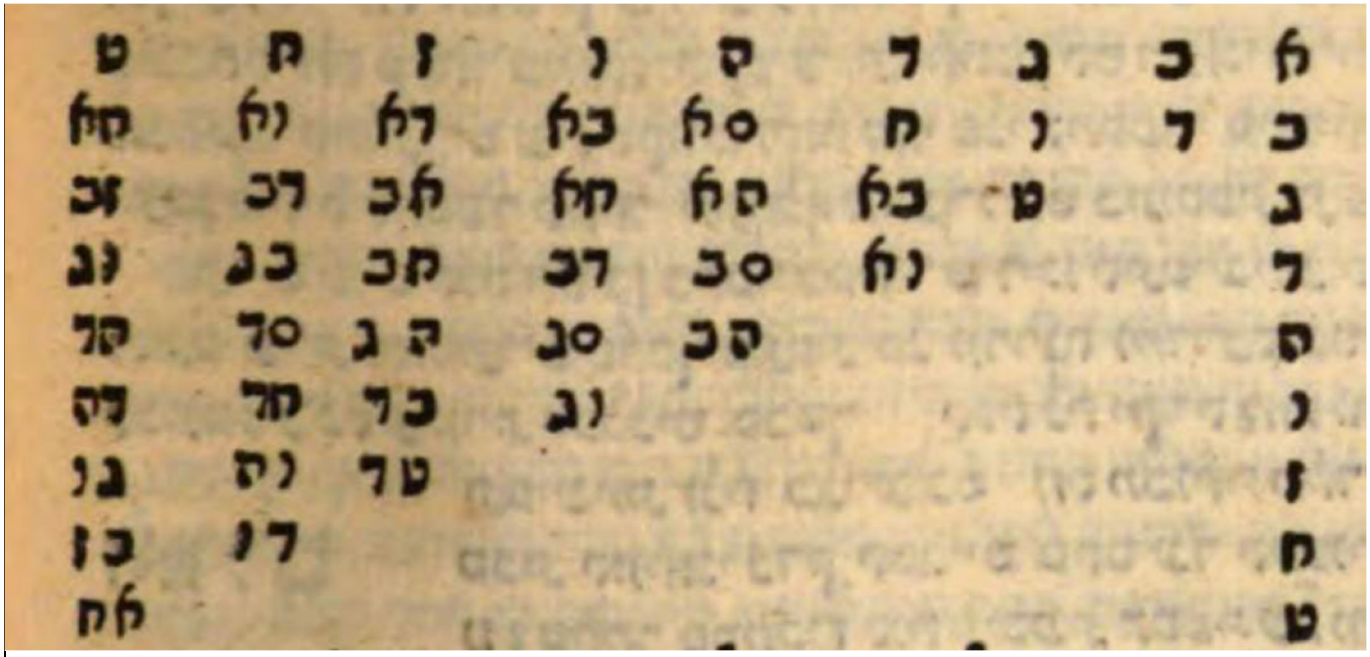
Eliyah Mizraḥi

Sēfer ha-mispār
Konstantinopolis: Soncino 1533

Mizraḥi calculates mainly with the Indo-Arabic number system, uses fractions with fraction bar, e.g. in the multiplication

$$4/5 \cdot 2/3 = 8/15$$





Multiplication table with numerals consisting of Hebrew letters

In the beginning of the book, there are a few calculations with the Hebrew letter system, e.g. the multiplication

$125 \cdot 236$
$= 750 + 3750 + 25000$
$= 29500$

Hebrew 1 – Supplement

Eliyah Mizraḥi

Qiṣur ha-meleket mispār.
Arithmetica secundum omnes species suas. Compendium arithmetices
Basel: Heinrich Petri 1546

Hebrew 352 p.: Ḥiyya 211 p., Mizraḥi 141 p.
Latin 207 p.: Ḥiyya 110 p., Mizraḥi 97 p.

Abridgment of the first two parts of *Sēfer ha-mispār* and of Abraham bar Ḥiyya's (Savasorda; ca. 1065–ca. 1136) *Sēfer ṣurat ha-areṣ* (Book on the form of the earth), made by Sebastian Münster (Nieder-Ingelheim 1488–1552 Basel; cosmographer, humanist, Hebraist).
With Latin annotations by Erasmus Oswald Schreckenfuchs (Merckenstein 1511–1575 Freiburg; mathematician, astronomer, humanist, Hebraist).
D/**L**: München BSB
R: Amsterdam: B. R. Grüner 1968

סֵפֶר צוּרַת הָאָרֶץ וְהַבְנִית

קִיצוּר חֻמְלַאכֶת מִסְפָּר

SPHAERA MVNDI, AVTORE RABbi Abrahamo Hiſpano filio R. Haïjæ.

ARITHMETICA SECVNDVM OMnes ſpecies ſuas autore Rabbi Elija Orientali.

QVOS LIBROS OSVVALDVS SCHRE-ckenfuchſius uertit in linguam latinam, Sebaſtianus uero Munſterus illuſtrauit annotationibus.

BASILEAE PER HENRI-CHVM PETRVM.

ueſtra. Bene ualete, Baſileæ menſe Iulio, Anno 1546.

סֵפֶר צוּרַת הָאָרֶץ וְהַבְנִית

מְלֶאכֶת חֻמְסָּפֶר

SPHAERA MVNDI AVTORE ABRAhamo filio Chaï, natione Hiſpano, miro ingenio Hebraicè cõſcripta, & ab Oſuualdo Schreckenfuchſio ex uetuſtiſſimo exemplari latinè facta.

Item Arithmetica ſecundum omnes ſpecies ſuas in numeris integris & fractis, à Rabi Elia Hebraicè cum exemplis conſcripta.

Acceſſerunt quoque opera Sebaſtiani Munſteri annotationes marginales, quæ & Hebraiſmum & Aſtronomicas ſpeculationes adhibitis opportunis figuris, pulchrè explicant. Geminum ergo fructum, eumq; eximium, hinc ſtudioſi ſibi acquirere poſſunt.

קִיצוּר חֻמְלַאכֶת

חֻמְסָּפֶר

COMPEN-

DIVM ARITHMETICES, DE-

CERPTVM EX LIBRO ARITHmeticarum inſtitutionum magiſtri Eliæ Orientalis.

Hebrew 2

Menaḥēm Ṣiyōn/Ṣijjōn/Tzion (Emanuel) Port Kōhēn Rapa

b. ca. 1595 Trieste (jewishencyclopedia.com)
d. ca. 1660 Padova
Math., astronomer, rabbi in Trieste, Padova
Port(o) possibly derived from Porto (near Verona, Italy) or Firt/Furth/Pfirt/Ferrette (Alsace)
Rapa possibly derived from German *rape* 'raven' (in the coat of arms) or Hebrew *rofeh* 'physician'

Sēfer ʿōḇēr la-sōḥēr
Venezia: Giovanni Calleone (for Pietro, Aluise and Lorenzo Bragadini) 1627 (Hebrew [5]387)

42 p.
C/V: Hoock II/M17
D: www.hebrewbooks.org/11814

כפר
עובר לסוחר
והוא ספר המכפר מרוכלים
השלם במודרך מנחם ציון
פורטכרן רפא נרו
נדפס בוניזיא בבית
יואני קאליוני
שפז
במנוח הסרים המעולים
פייטרו אלויסי ולורינצו
בראגאדיני
Appresso gli Illustriſ. Sig.
Pietro, Aluiſe, & Lorenzo
Bragadini.

Hebrew 2

Menaḥēm Ṣiyōn (Emanuel)
Port Kōhēn Rapa

Sēfer ʿōḇēr la-sōḥēr
Venezia: Calleone 1627

Transcription of the title page

L: Basel U, Michigan U
S: Heller, Marvin J.: The 17th century Hebrew book. Leiden 2010
Segev, S. ICHME Warsaw 2024

ספר

עובר לסוחר

והוא ספר המספר מהחכם

השלם כמוהרר [כבוד מורנו הרב רבי] **מנחם ציון**

פורט כהן רפא נרו

[נַטְרֵיהּ, רַחֲמָנָא וּפַרְקֵיהּ (ישמרהו הרחמן ויצילהו)]

נדפס בויניציא בבית

יואני קאליוני

שפז

בחנות השרים המעולים

פייטרו אלויסי ולורינצו

בראגאדיני

Hebrew 2

Menaḥēm Ṣiyōn (Emanuel) Port Kōhēn Rapa

Sēfer ʿōḇēr la-sōḥēr Venezia: Calleone 1627

Romanization of the title page

Coat of arms of the rabbi Aḇraham Menaḥēm of the Rappaport family [Porto (near Verona) 1520–1596 Verona]

Sēfer
ʿōḇēr la-sōḥēr
we-hu sēfer ha-mispār me-he-ḥaḳam
ha-šalem k.m.w.h.r.r [*kḇod moreinu we-rabeinu*
ha-raḇ rabi; moharar] *Menaḥem Ṣiyon*
Porṭ Kohen Rapa n.r.o.

Nidpas be-Winiṣia be-beit
Yowani Qalioni
š.p.z [(5)*387*]
Be-ḥanut ha-śarim ha-meʿulim
Piyeṭro Aluisi we-Lorinṣo
Bragadini

Appresso gli Illustris(simi) Sig(nori)
Pietro, Aluise, & Lorenzo
Bragadini.

–

The inscription in the ribbons of the coat of arms runs:
Aḇraham Menaḥēm ben Yaʿaqoḇ ha-Kōhēn
Rapa – May his memory be blessed – mi-Porṭo
The raven refers to the name Rapa, the two hands show a priestly blessing gesture [cf. English Wikipedia]

Hebrew 2

Menaḥēm Ṣiyōn (Emanuel) Port Kōhēn Rapa

Sēfer ʿōḇēr la-sōḥēr
Venezia: Calleone 1627

Translation of the title page

The Title *ʿōḇēr la-sōḥēr* is taken from Abraham's purchase of Makhpelah from Ephron the Hittite (Genesis 23,16) (Heller 2010, p. 461)

The Hebrew year [5]387 (subtracting 3761/3760) corresponds to 1626/27 CE.

For transcriptions, Romanizations and translations, I am very indebted to Dr. Stela Segev, Herzog College, Jerusalem.

Book
"money current among the merchants"
It is the book of the number by the wise (scholar),
our completely honorable teacher and rabbi
Menaḥēm Ṣiyōn
Porṭ Kōhēn Rapa,
the Merciful will preserve him and save him.

Printed in Venezia in the house of
Giovanni Calleone
1627
In the store of the noble gentlemen
Pietro, Aluise and Lorenzo
Bragadini

With the illustrious Messrs.
Pietro, Aluise and Lorenzo
Bragadini

Hebrew 2

Menaḥēm Ṣiyōn (Emanuel)
Port Kōhēn Rapa

Sēfer ʿōḇēr la-sōḥēr
Venezia: Calleone 1627

Content overview

הקדמת תלמידו של הרב המחבר נר"ו

1 פרק א קבוץ השלמים

2 פרק ב חסור בשלמים

3 פרק ג הבאה בשלמים

4 פרק ד במין החלוק

5 פרק ה בשברים

6 פרק ו קבוץ בשברים

7 פרק ז חסור בשברים

8 פרק ח הבאה בשברים

9 פרק ט חלוק בשברים

10 פרק י הוט המשולש

11 פרק יא בשאלות

12 פרק יב קשור בספים

בריך רחמנא דסייען · והניענו עד כען

Hebrew 2

Menaḥēm Ṣiyōn (Emanuel)
Port Kōhēn Rapa

Sēfer ʿōḇēr la-sōḥēr
Venezia: Calleone 1627

Content overview
(according to the section headings)

In the introduction, the author mentions predecessors, particularly Eliyah Mizraḥi's *Sēfer ha-mispār*, calls it a deep and difficult work, and emphasizes that he has made this book more accessible to the reader (partly from Heller 2010, p. 461).

Verses encouraging purchase of the book
Introduction (*haqdama*)
Second introduction (*haqdama*) by Gershom ben Kalonymous Hefez, a student of the author, who was responsible for publishing the book
Chapters (*pereq*)
1 Addition of integers (*qibuṣ ha-šlemim*) 1–7
2 Subtraction of integers (*ḥisur be-šlemim*) 1–11
3 Multiplication of integers (*hakaah be-šlemim*) 1–10
4 Division of integers (*bmin ha-ḥiluq*) 1–11
5 Fractions (*be-šeḇarim*) 1–3
6 Addition of fractions (*qibuṣ be-šeḇarim*) 1–11
7 Subtraction of fractions (*ḥisur be-šeḇarim*) 1–5
8 Multiplication of fractions (*hakaah be-šeḇarim*) 1–8
9 Division of fractions (*ḥiluq be-šeḇarim*) 1–16
10 Regula de tri (*ho⟨ṭ⟩*[q] *ha-mešulaš*) 1–4
11 Problems (*be-šeilot*) 1–21
12 Problems dealing with money (*qašur be-safim*) 1–13
Blessed be God who helped us. [Aramaic blessing]
And we have arrived now.

Hebrew 2

Menaḥēm Ṣiyōn (Emanuel)
Port Kōhēn Rapa

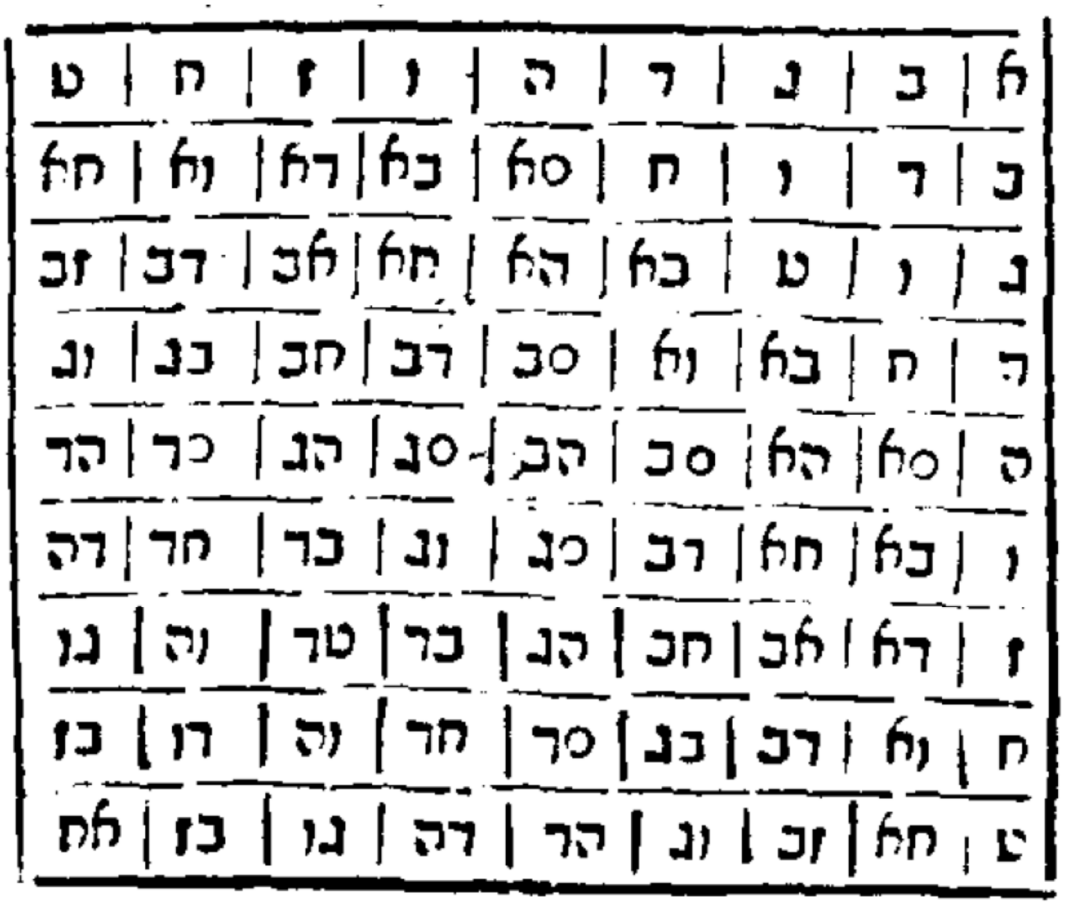
Sēfer ʿōḇēr la-sōḥēr
Venezia: Calleone 1627

Subtraction
3534 – 1232
= 2302

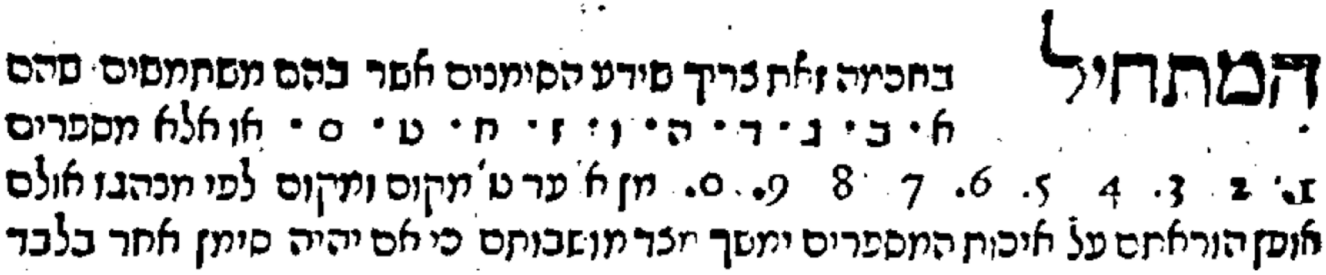
ד	ג	ה	ג
כ	ג	ב	ה
ב	ס	ג	ג

Addition
of fractions
3/8 + 2/7
= 21/56 + 16/56
= 37/56

כ	ג
ז	מ
מז	כא
יה	יה
לז	
לז	



Multiplication table with numerals consisting of Hebrew letters



The only reference to the not used Indo-Arabic digits

Other Afro-Asiatic languages

Arithmetic books in these languages are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

WorldCat records the following years for the earliest arithmetic books in these languages:

Semitic
Amharic 1921 (OCLC 8048 0745, 4597 45574)

Tigrinya 1943/44 (OCLC 6548 33842)

Cushitic
Somali 1971 (OCLC 3237 9049)

Chadic
Hausa 1951 (OCLC 3785 4970)

No records for Berber languages

Reference: WorldCat, London SAOS University
Date: April/May 2021

(Southern) Sotho, Sesotho

Charles Adolphe Mabille

b. 1836 Baulmes, Vaud, Switzerland
d. 1894 Moria
Paris Evangelical Missionary Society
1860– in Lesotho

Bukanyana ea arithmetic: Lipalo
[Booklet of arithmetic: numbers]
Moria [Limpopo province]: [Mission Press] 1876

69 p.
D: –
L: Pretoria NL of South Africa (OCLC 1017 263350)
C/V: WorldCat

(USC Digital L)

Sotho translation of the Bible
Sesuto-English dictionary
Sesotho Book Depot
First newspaper in Sotho
(Boston University, School of Theology bu.edu/missiology; Dictionary of African Christian Biography dacb.org; Historical Dictionary of Lesotho books.google.com)

Swahili

Anonym

Chuo cha Kwanza cha kufanyia hesabu
[First course of practicing arithmetic]
Zanzibar: [publisher not identified] 1882

42 p.
D: –
L: Edinburgh NL of Scotland
(OCLC 3148 46825)
C/V: WorldCat

Tswana (Western Sotho)

John Tom Brown

b. 1860
d. 1925
London Missionary Society
Author of liturgical and cultural books,
a Secwana dictionary and grammar book

Lokwalo loa arithmetic:
ke go re loa dipalo
[Arithmetic textbook:
that is, about numbers]
Kuruman [Northern Cape
province]: Mission Press 1883

124 p.
D: –
L: Hennopsmeer Kimberley Africana L
(OCLC 4166 31015, 4166 30995)
C/V: WorldCat

(Guide to the London Missionary Society Archive,
SOAS (London) Digital Collections, p. 94)

Zulu

James Churchill Bryant

b. 1812 Easton, Mass.
d. 1850 Ifafa, KwaZulu-Natal, South Africa
Congregationalist reverend, missionary, Zulu scholar

Incwadi yokubala [Book about calculation]

Port Natal: American Mission Press; Smithsonian Institution 1849

48 p.
D: –
L: Yale U, Washington LoC, South Africa NL (OCLC 4197 7712); London BL (OCLC 5615 75919, 7714 87559)
C/V: WorldCat

(viaf.org/viaf/54021753;
Savage, Thomas: Memoir of Rev. James C. Bryant, late missionary of Am. B. C. F. Missions [American Board of Commissioners for Foreign Missions] to South Africa. Boston: Massachusetts Sabbath School Society 1854 (Internet Archive)

Printed entirely in Zulu, except for a five page chart that includes Arabic numerals, Roman numerals, and the numbers written out in both Zulu and English, and a note on page 48 concerning Zulu orthography (WorldCat comment).

Other Niger-Congo languages

Arithmetic books in these languages are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

WorldCat records the following years for the earliest arithmetic books in these languages:

Bantu
Chichewa/Chinyanja 1932 (OCLC 4654 51334)

Kongo 1908 (OCLC 4541 08656)

(Kinya-)Rwanda 1900–1959 (OCLC 8448 3302)

Swazi 2003 (OCLC 1445 25574)

Xhosa 1963 (OCLC 8141 42694)

Volta-Niger
Igbo 1949 (OCLC 5627 09073)

Yoruba 1930 (OCLC 2174 8866)

Reference: WorldCat
Date: June 2021

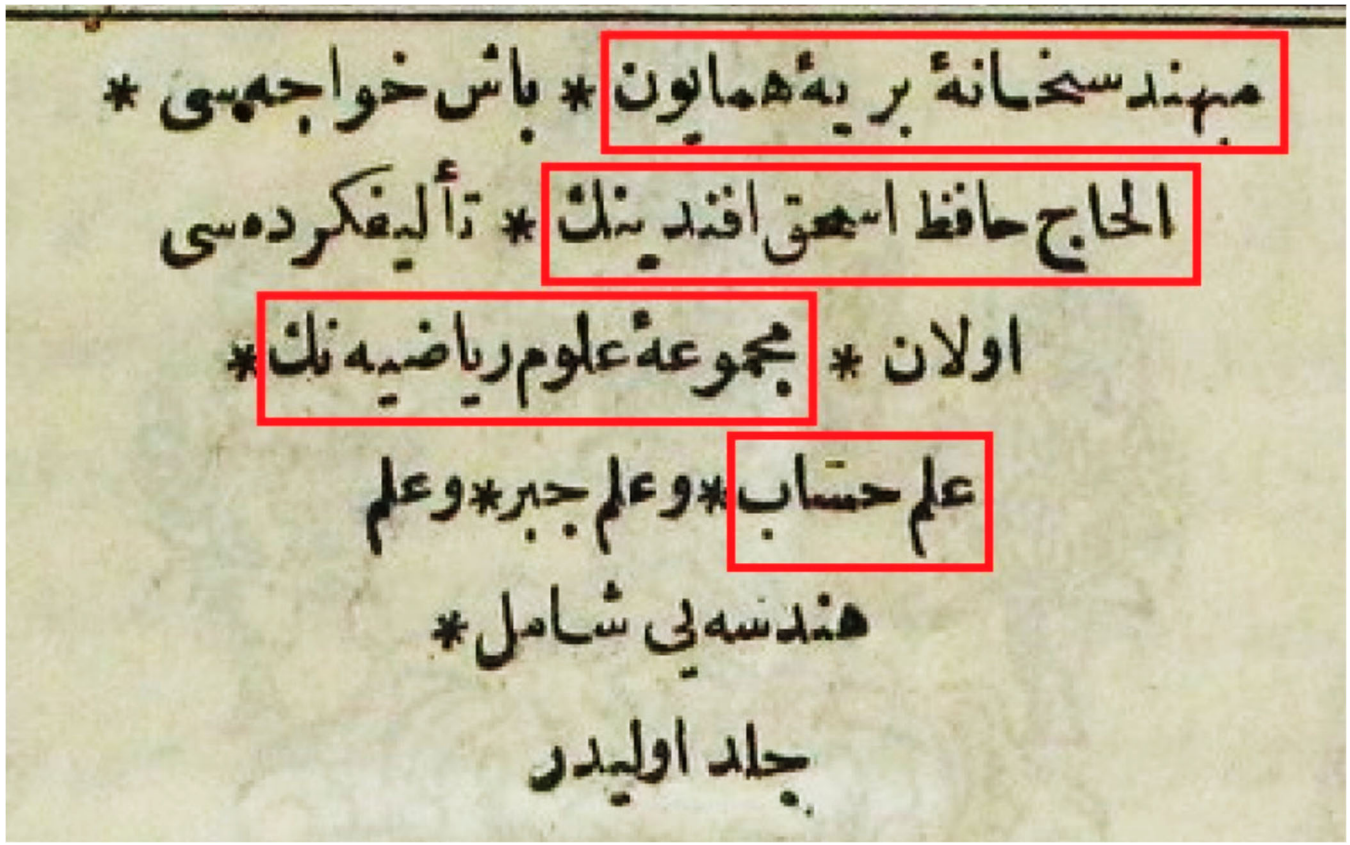
(Ottoman) Turkish

Hoca İshak Efendi

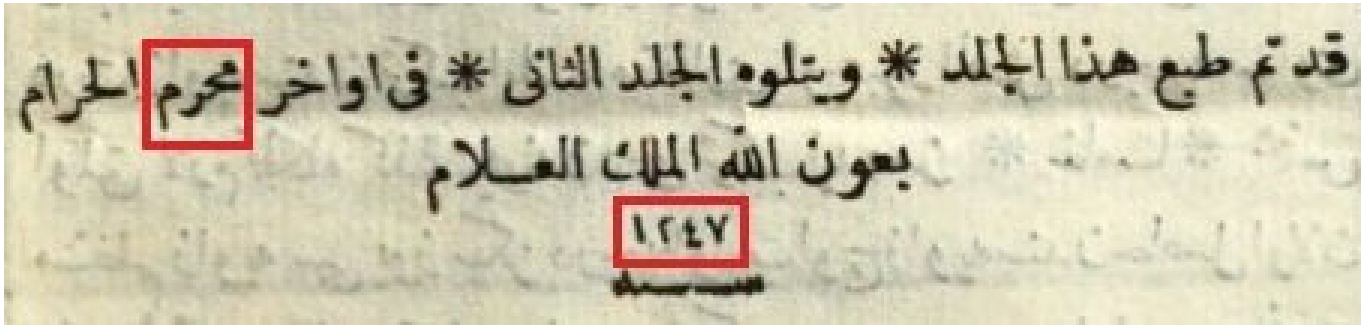
b. Narta, 60 km south of Ioannina
(his father had converted from Judaism)
d. 1836 (1252 Hijra) Suez
1815–1824 Senior teacher at the
Mühendishâne-i Berrî-i Hümâyün
(military engineering academy)
1824–1828 Interpreter of Sultan Mahmud II.
1830 Chief instructor at Mühendishâne
(İhsanoğlu, Ekmeleddin 1999; p. 280)

Mecmua-i ulûm-u riyaziye
[Compendium of mathematical sciences]
Istanbul: Matbaa-i Amire
[1]1831–1834 (1247–1250 Hijra)
Bulak, Trabzon [2]1835–1845 (1251–1261)

4 vol.; vol. 1: 10+512 p.
D/**L**: hdl.handle.net; hathitrust.org
L: U of California



Title page (school, author, title and word *arithmetic* marked)



Colophon (p. 512) (month Muharrem and year 1247 marked)

(Ottoman) Turkish

Hoca İshak Efendi

Mecmua-i ulûm-u riyaziye
Istanbul [1]1831–1834

Romanization of the title page and the colophon

C/V: İhsanoğlu, Ekmeleddin et al.: Osmanlı matematik literatürü tarihi. Istanbul 1999; p. VIII: “maths books first printed in the 1st quarter of the 19th century”; p. 280 Hoca İshak Efendi

S: Abdeljaouad, Mahdi Mohamed: Teaching European mathematics in the Ottoman Empire during the 18th and 19th centuries. In: ZDM Mathematics Education 44 (2012) 483–498

Tezer, Cem: Başhoca İshak Efendi ve Mecmu’a-yi ‘ulûm-i riyâziye. Dört Öge-Yıl 2012, 67–106

Mühendishâne-i Berrî-i Hümâyün * baş hocası *
el hac hafız İshak efendinin * te'lif gerdesi
olan * mecmua-i ulûm-u riyaziyyenin *
ilm-i hesab * ve ilm-i cebir * ve ilm-i
hendese-i şamil *
cild-i evvelidir.

[The colophon is in Arabic]

qad tamma ṭabʿun haḏa al-ğildi *
wa-yatlūhu al-ğildu aṯ-ṯani *
fī awāḫiri muḥarrami al-ḥarāmi
bi-ʿauni allahi al-maliki al-ʿalāmi
1247

(Ottoman) Turkish

Hoca İshak Efendi

Mecmua-i ulûm-u riyaziye
Istanbul [1]1831–1834

Translation of the title page and the colophon

This is the first book of
the Compendium of Mathematical Sciences,
including (the topics of)
arithmetic (*ilm-i hesab*), algebra (*ilm-i cebir*) and
geometry (*ilm-i hendese-i şamil*)
written by el-Haj Hafiz Ishaq Efendi
who is the chief instructor (*baş hoca*)
in the military engineering academy
(*Mühendishâne-i Berrî-i Hümâyün*).

[The title *el Haj hafiz* mostly shows
that the person became Muslim by choice later in his life.]

It was finished the print of this book
– and it will follow a second book –
at the end of the month of Muharram al-Haram
with the help of Allah, the king of the world
in 1247 (Hijra)

(Ottoman) Turkish

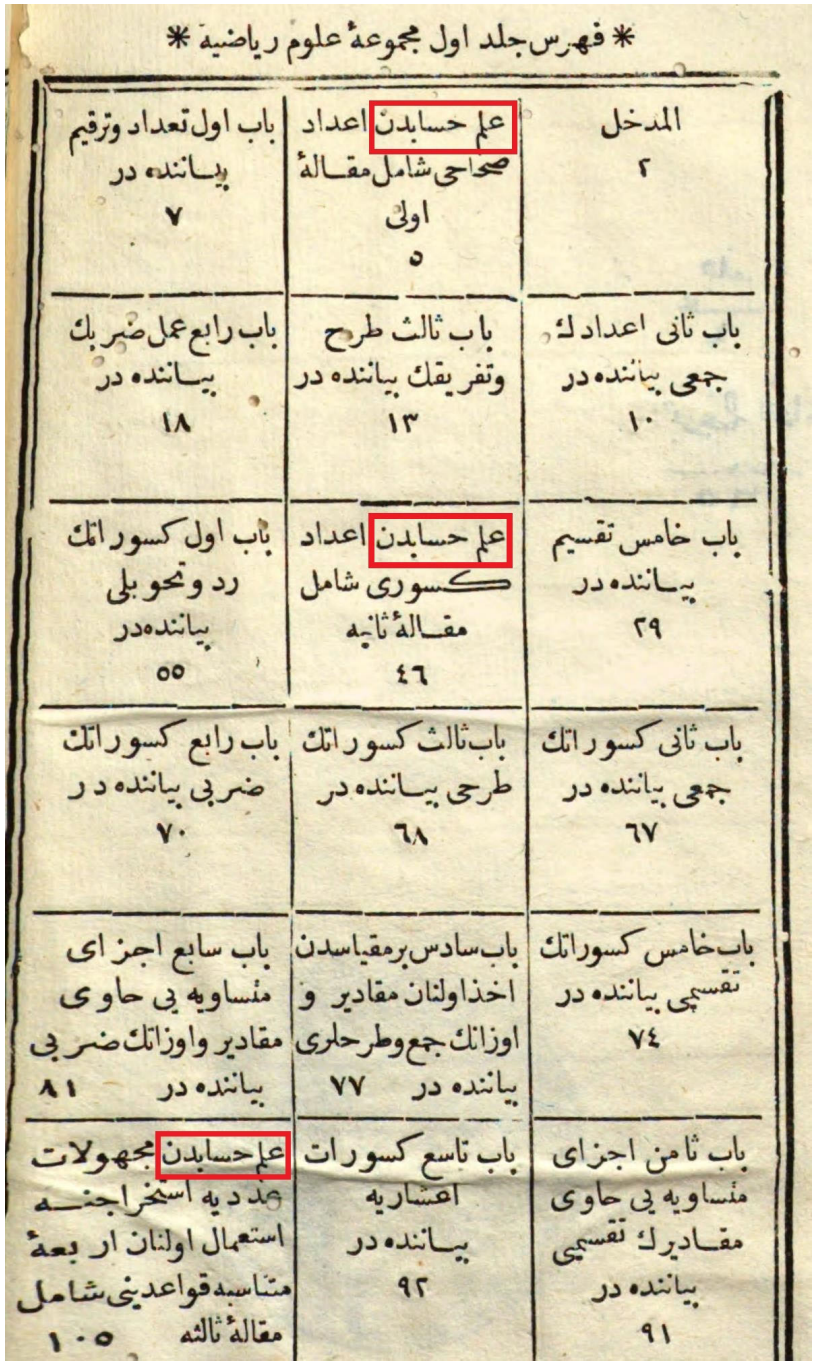
Hoca İshak Efendi

Mecmua-i ulûm-u riyaziye
Istanbul [1]1831–1834

1st page of the table of contents

Section headings

1 Calculation: *‘İlm-i hesabdan* (p. 5)
1.1 Integers (p. 5)
1.2 Fractions (p. 46)
1.3 Commercial maths, profit-loss, interest (p. 105)



* فهرس جلد اول مجموعهٔ علوم رياضية *

المدخل ٢	علم حسابدن اعداد صحاحی شامل مقالهٔ اولی ٥	باب اول تعداد وترقيم بيانندە در ٧
باب ثانی اعداد ك جمعی بيانندە در ١٠	باب ثالث طرح وتفريقك بيانندە در ١٣	باب رابع عمل ضربك بيانندە در ١٨
باب خامس تقسيم بيانندە در ٢٩	علم حسابدن اعداد كسوری شامل مقالهٔ ثانيه ٤٦	باب اول كسورات رد وتحويلی بيانندەدر ٥٥
باب ثانی كسورات جمعی بيانندە در ٦٧	باب ثالث كسورات طرحی بيانندە در ٦٨	باب رابع كسورات ضربی بيانندە در ٧٠
باب خامس كسورات تقسيمی بيانندە در ٧٤	باب سادس برمقياسدن اخذاولنان مقادير و اوزانك جمع وطرحلری بيانندە در ٧٧	باب سابع اجزای متساويه يی حاوی مقادير واوزانك ضربی بيانندە در ٨١
باب ثامن اجزای متساويه يی حاوی مقاديرك تقسيمی بيانندە در ٩١	باب تاسع كسورات اعشاريه بيانندە در ٩٢	علم حسابدن مجهولات عددیه استخراجنه استعمال اولنان اربعهٔ متناسبه قواعدينی شامل مقالهٔ ثالثه ١٠٥

(Ottoman) Turkish

Hoca İshak Efendi

Mecmua-i ulûm-u riyaziye
Istanbul [1]1831–1834

Content overview
(according to the table of contents)

For Romanizations and translations of the Ottoman texts, I am very indebted to Dr. Öğr. Üyesi İrem Aslan Seyhan, Bartın University, author of several papers on the history of Ottoman mathematics.

For Romanizations and translations of the Arabic texts, I am very indebted to Prof. Dr. Michael Zapf, Nuremberg Institute of Technology, Germany

Contents of vol. 1

1 Calculation (*'İlm-i hesab*) (p. 5)
1.1 Integers (p. 5)
1.2 Fractions (p. 46)
1.3 Commercial maths, profit-loss, interest (p. 105)
2 Algebra (*'İlm-i cebir*) (p. 136)
2.1 Equations, operations, irrational numbers (p. 136)
2.2 Arithmetic, geometric progressions, logarithms (p. 214)
2.3 First, second and higher order equations (p. 282)
3 Geometry (*'İlm-i hendese*) (p. 378)
3.1 Geometry of lines (p. 378)
3.2 Geometry of the plane (p. 422)
3.3 Geometric proportions (p. 454)
3.4 Geometry of solids (p. 494)

Contents of vol. 2–4

4 Conic sections (*Hendese-yi 'âlâ veya 'ilm-i mahrûtiyât*)
5 Differentiation and integration (*'İlm-i hesâb-ı tamâmî ve tefâzulî*)
6 Natural sciences (*Usûl-i hikmet-i tabi'î*)
7 Mechanics (*'İlm-i cerr-i aksal*)
8 Optics (*'İlm-i menâzır*)
9 Heath and electricity of the objects (*'İlm-i bahs-i ecsâm-ı nâriyye ve elektrik*)
10 Spherical triangles (*Usûl-i müsellesât-ı kürevîye*)
11 Astronomy (*'İlm-i hey'et*)
12 Special discussions about natural sciences (*'İlm-i hikmet-i tabi'iye-yi mahsus*)

Other Turkic languages

Arithmetic books in these languages are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

WorldCat records the following years for the earliest arithmetic books in these languages:

Azerbaijani 1929 (OCLC 1389 0312)

Kazakh 1930 (OCLC 4594 6370)

Kirghiz 1925 (OCLC 2034 2165, 2051 7139)

Tatar 1928 (OCLC 8432 5892)

Uighur 1981 (OCLC 5153 9315)

No records for Turkmen and Uzbek

Reference: WorldCat
Date: May 2021

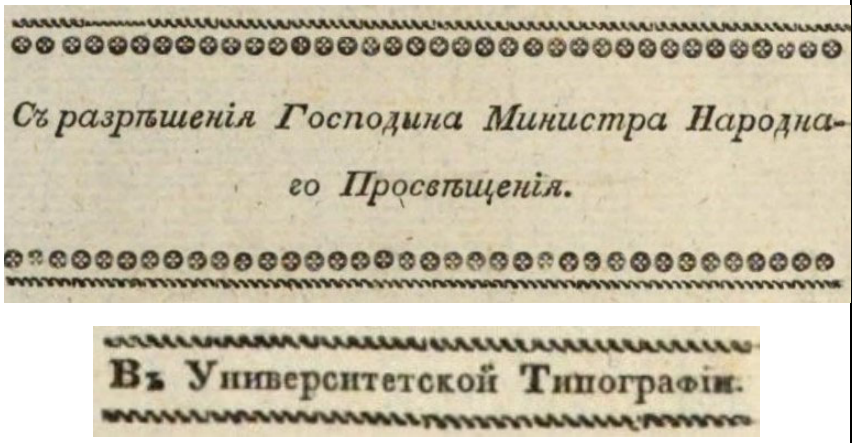
Mongolian

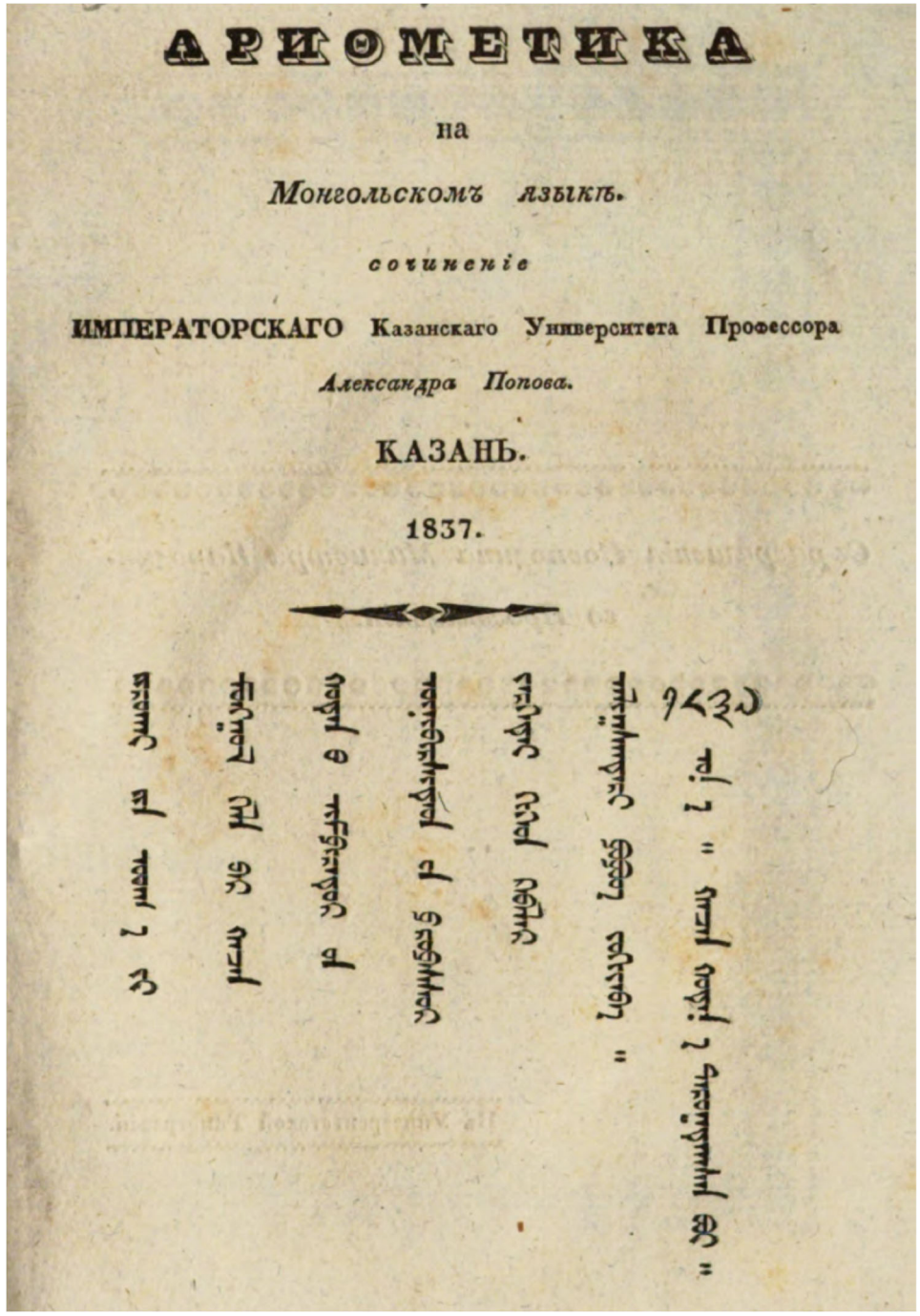
Aleksandr Fëdorovič Popov
Александр Фёдорович Попов

1815–1878/79 (kazan.ws/eng/)
Studied mathematics and physics in Kazan
1846 Successor of Lobačevskij in Kazan

Arifmetika na Mongol'skom" âzykě. Kazan: University Printing House 1837

221 p.





Mongolian

Aleksandr Fëdorovič Popov

Arifmetika na Mongol'skom" âzykě
Kazan: University Printing House 1837

Transcription
of the Russian title page

D: Hathi Trust
L: London BL (OCLC 6674 2018)

Арифметика
на
Монгольскомъ языкѣ.
сочиненіе
Императорскаго Казанскаго Университета
Профессора
Александра Попова.
Казань.
1837.

Съ разрѣшенія Господина Министра Народнаго Просвѣщенія.

Въ Университетской Типографіи.

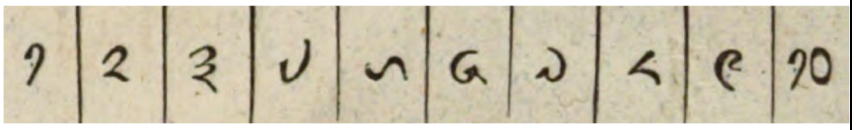
Mongolian

Aleksandr Fëdorovič Popov

Arifmetika na Mongol'skom" âzykě
Kazan: University Printing House 1837

Romanization
of the Russian title page

Digits:



Arifmetika
na
Mongol'skom" âzykě.
sočinenie
Imperatorskago Kazanskago Universiteta
Professora
Aleksandra Popova.
Kazan'.
1837.

S" razprěšeniâ Gospodyna Ministra Narodnago Prosvěšeniâ.

V" Universitetskoj Tipografii.

Mongolian

Aleksandr Fëdorovič Popov

Arifmetika na Mongol'skom" âzykě
Kazan: University Printing House 1837

Translation
of the Russian title page

Content overview:
Four species for integers and common fractions

Arithmetic
in
the Mongolian language.
Work by
Alexander Popov,
Professor
at the Imperial University of Kazan.
Kazan
1837
[The Mongolian text has the same meaning and adds the day *24th of July*]

With the permission of His Excellency the Minister of National Education

In the University Printing House

Kannada / Kanarese

Benjamin Holt Rice

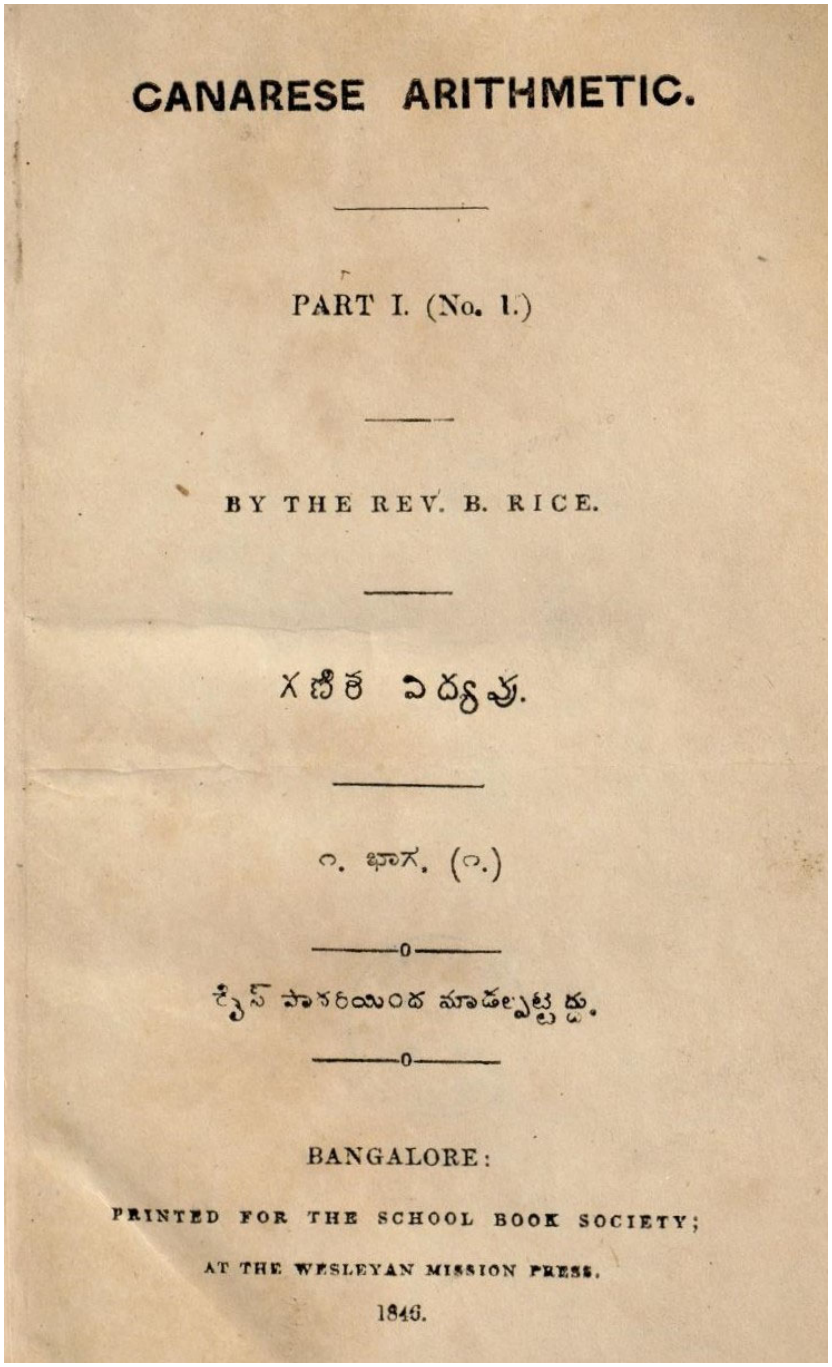
b. 1814 London
d. 1887 Bangalore
1836 London Missionary Society
Canarese scholar; published also
Elements in geography in Canarese

Gaṅita vidyavu – Canarese arithmetic

Bangalore / Bengaluru [state Karnataka]: Wesleyan [Methodist] Mission Press 1846

97 p.
D: Tübingen U (OCLC 1077 761705)
L: Tübingen U (OCLC 3112 97262)
C/V: WorldCat

(Lovett, Richard: History of the London Missionary Society 1795–1895. London 1899, p. 107–113; Rice, Edward P.: Benjamin Rice or Fifty years in the Master's service. London 1888; English Wikipedia – Rice Memorial Church, Bangalore)



CANARESE ARITHMETIC.

PART I. (No. 1.)

BY THE REV. B. RICE.

ಕನ್ನಡ ವಿದ್ಯೆಪು.

೧. ಭಾಗ. (೧.)

ಕೈಸ್ ಪಾಸರಿಯಿಂದ ಮಾಡಲ್ಪಟ್ಟದ್ದು.

BANGALORE:

PRINTED FOR THE SCHOOL BOOK SOCIETY;

AT THE WESLEYAN MISSION PRESS.

1846.

Kannada / Kanarese

Benjamin Holt Rice

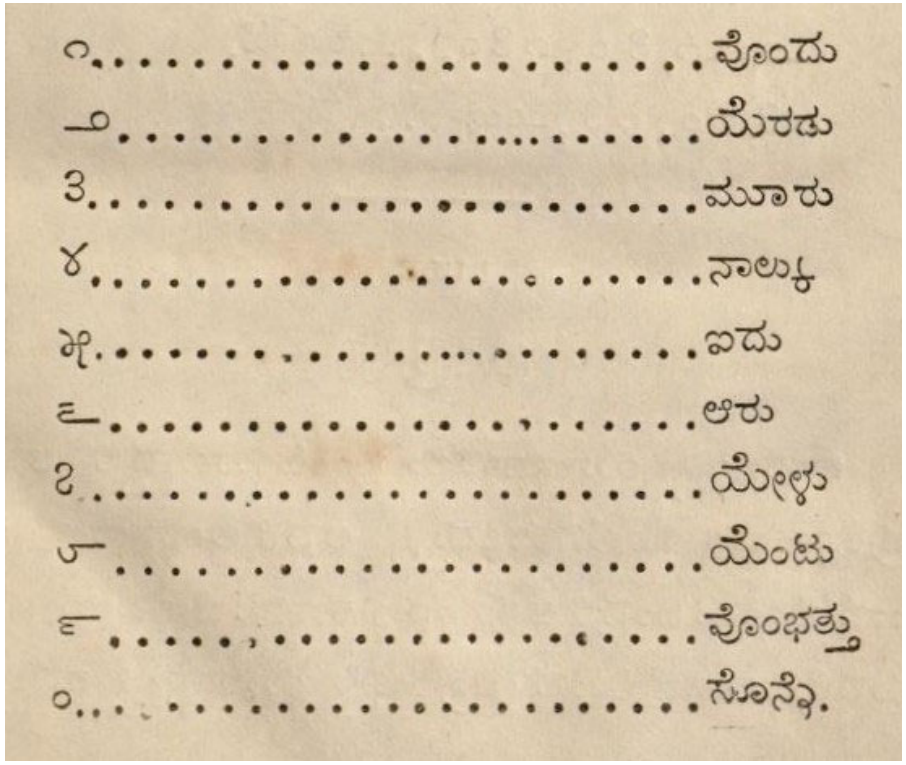
Gaṅita vidyavu –
Canarese arithmetic
Bangalore: Wesleyan Mission Press 1846

Transcription of the title page

Digits

Canarese arithmetic.
Part I. (No. 1.)
By the Rev. B. Rice.

Bangalore: printed for the School Book Society;
at the Wesleyan Mission Press.
1846.

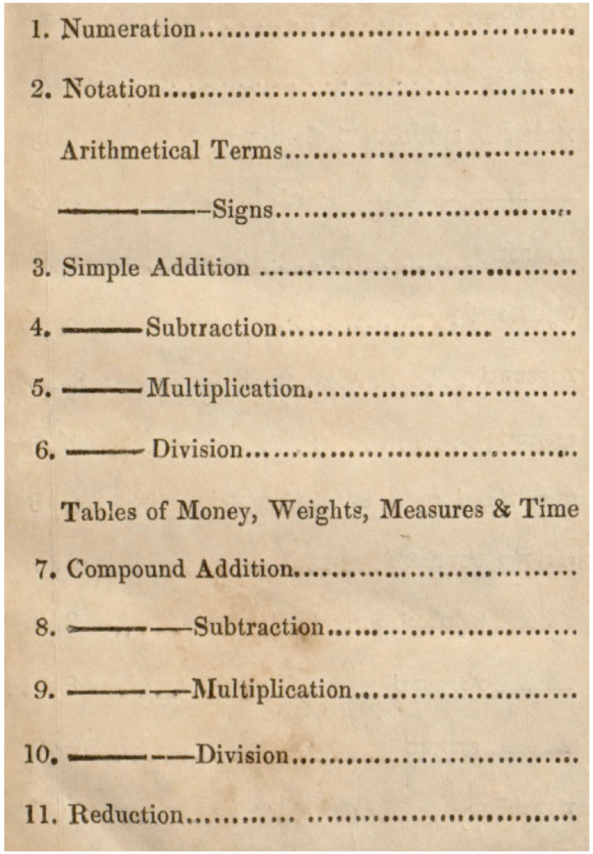


Kannada / Kanarese

Benjamin Holt Rice

Canarese arithmetic 1846

Content overview
(according to the table of contents)



1. Numeration.....
2. Notation.....
Arithmetical Terms.....
——————Signs.....
3. Simple Addition .....
4. ——Subtraction.....
5. ——Multiplication.....
6. —— Division.....
Tables of Money, Weights, Measures & Time
7. Compound Addition.....
8. ——————Subtraction.....
9. ——————Multiplication.....
10. ——————Division.....
11. Reduction.....

1 Numeration
2 Notation
Arithmetical Terms
Arithmetical Signs
3 Simple Addition
4 Simple Subtraction
5 Simple Multiplication
6 Simple Division
Tables of Money, Weights, Measures & Time
7 Compound Addition [denominate numbers]
8 Compound Subtraction
9 Compound Multiplication
10 Compound Division
11 Reduction

Kannada – Supplement

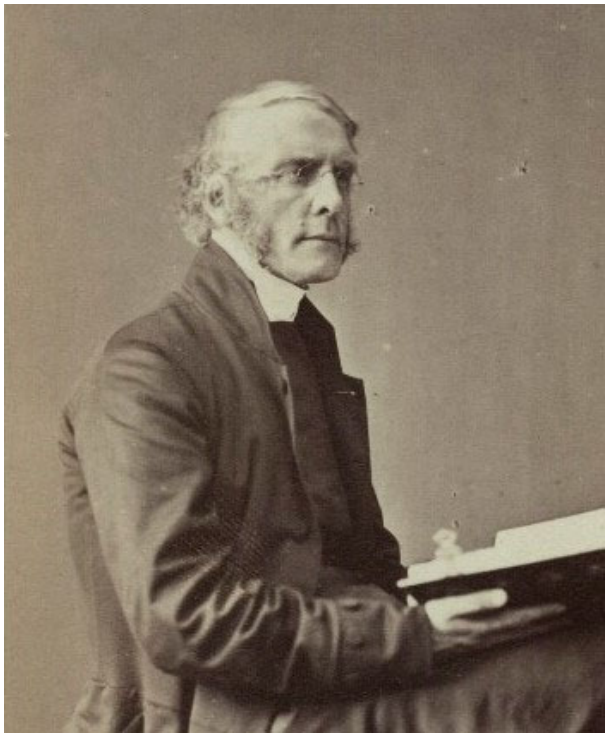
John William Colenso

Colenso's Arithmetic in Canarese: Translated and adapted to the vernacular schools of the Madras Presidency
Mangalore / Mangaluru [state Karnataka] 1862

? p.
D/L: – (OCLC 6044 84916)
C/V: WorldCat

John William Colenso

b. 1814 St Austell, Cornwall
d. 1883 Durban, Natal Colony
Cornish cleric and mathematician, since 1853 the first bishop of Natal (South Africa), scholar of the Zulu language
Books on arithmetic, algebra, geometry and trigonometry from 1846 on (Cambridge 1841 (OCLC 5577 2313), later London: Longman & Co.)
(English Wikipedia, WorldCat)



Malayalam

John William Colenso

[see Kannada]

Colenso's Arithmetic [in Malayalam]*: adapted to the use of schools in the Madras Presidency by order of the Director of Public Instruction*
Mangalore / Mangaluru [state Karnataka]: Plebst & Stolz 1866

243 p.
D: –
L: Strasbourg BNU (OCLC 4941 25108),
– (OCLC 8365 30390)
C/V: WorldCat

Tamil

Anonym

An elementary arithmetic
Jaffna [Sri Lanka] 1849

? p.
D: –
L: Yale U (OCLC 4467 3062)

Pallikkutankalir payirruvikka ventiya Tamilk kanakkup puttakam
Madras / Chennai: Christian Knowledge Society's Press 1849

51 p.
D: –
L: London BL (OCLC 5255 6285)
C/V: WorldCat

John William Colenso

[see Kannada]

Aṅka kaṇitac curukkam [Tamil translation of John William Colenso's Arithmetic]
Madras: Public Instruction Press 1858–

Part I (105 p.), Part II *Vulgar and decimal fractions* (226 p.)
D/L: – (OCLC 5255 6080–6082)
C/V: WorldCat

Telugu

Davulury Venkata Subba Rao / Row

Problems in Arithmetic
Madras / Chennai:
Graves Cookson & Co. 1880

41 p.
D/L: – (OCLC 8084 1215)
C/V: WorldCat

John William Colenso

[see Kannada]

Colenso's Arithmetic – Kolensōgāri aṅkaganitamu
Madras / Chennai:
Kalaratnakar Press [10]1884

vol. 1–2
D/L: – (OCLC 7740 7676)
C/V: WorldCat

Thai

Wǣn Dai

Tamrā khit lēk lēm ton: rīak wā tamrā čhōt talāt samdǣng hai rū nai withī thang with-būak læ lop khūn hān

[Phranakhǭn?] [1]1873, [2]1892

(Phra Nakhon: central district of Bangkok)

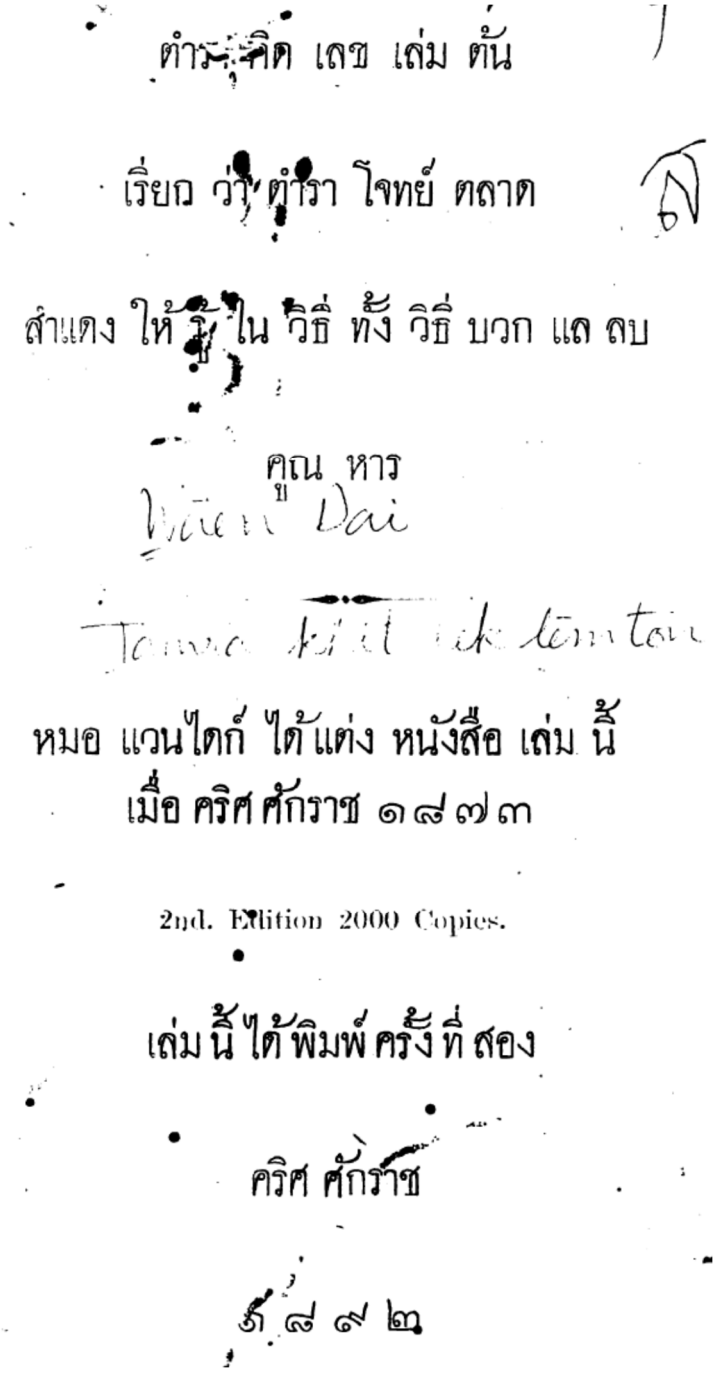
74 p.

D: omnia.ie (U of Michigan); catalog.hathitrust.org/Record/000397533

L: U of Michigan, William J. Gedney Collection (OCLC 2349 0954)

C/V: WorldCat;

London BL, Asian and African studies blog, contains the information that the earliest Thai books were printed in 1835



ตำรา คิด เลข เล่ม ต้น

เรียก ว่า ตำรา โจทย์ ตลาด

สำแดง ให้ รู้ ใน วิธี ทั้ง วิธี บวก แล ลบ

คุณ หาร

Wæn Dai

Tamra khit lek lem ton

หมอ แวนไดก์ ได้แต่ง หนังสือ เล่ม นี้

เมื่อ คริศ ศักราช ๑๘๗๓

2nd. Edition 2000 Copies.

เล่ม นี้ ได้ พิมพ์ ครั้ง ที่ สอง

คริศ ศักราช

๑๘๙๒

Thai

Wǣn Dai

Tamrā khit lēk lēm ton
[Phranakhǭn?] [1]1873, [2]1892

Translation of the title page

For help with translations, I am indebted to NL of Thailand nlt.go.th.

Beginners' book for calculation:
textbook in general arithmetic in Thailand.
Practice in plus, minus,
multiply, divide

Doctor Wǣn Dai composed this book
in the year 1873

2nd edition 2000 copies

This book was published a second time
in the year
1892

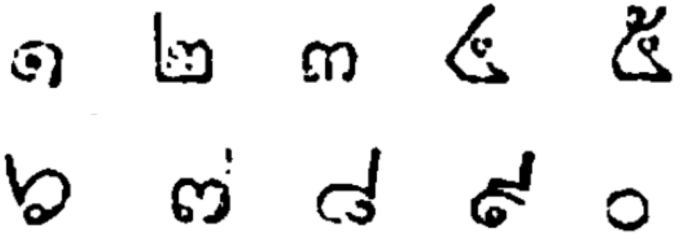
Thai

Wǣn Dai

Tamrā khit lēk lēm ton
[Phranakhǭn?] [1]1873, [2]1892

Content overview:
designation of numbers and
the four basic arithmetic operations
without operation signs

Digits:



๙ กับ ๐ เป็น ๙

9 + 0 = 9

๗ ถบ ๗ เหลือ ๐

๗ ,, ๘ ,, ๑

– 7 + 7 = 0; – 7 + 8 = 1

๖ หน ๑ เป็น ๖

6 · 1 = 6

๕ หาร ๘๒๔ ได้ ๑๖๔—๔

: 5 · 824 = 164 remainder 4

Other Kra-Dai languages

Arithmetic books in these languages are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

WorldCat records the following years for the earliest arithmetic books in these languages:

Lao 1983 (OCLC 1621 05653)

Reference: WorldCat
Date: May 2021

Austroasiatic / Mon-Khmer languages

Arithmetic books in these languages are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

WorldCat records the following years for the earliest arithmetic books in these languages:

Khmer 1980 (OCLC 2172 58749, 6408 6598)
for maths in general 1971 (OCLC 1652 21228)

Vietnamese before 1956 (OCLC 6391 3854)
[École Française d'Extrême-Orient]
For maths in general 1909 (OCLC 6322 6767)
For more details cf. Tr'ân, Nghia; Gros, François (ed.): Catalogue des livres en hán nôm. 3 vols. Hanoi: Editions Sciences Sociales 1993 (Publications de l'Institut Hán Nôm et de l'École Française d'Extrême-Orient).
For Vietnamese mathematical manuscripts cf.: Volkov, Alexei: An Early Japanese Work on Chinese Mathematics in Vietnam: Yoshio Mikami's Study of the Vietnamese Mathematical Treatise *Chi Minh Toan Phap*. In: Knobloch, Eberhard et al. (ed.): Seki, founder of modern mathematics in Japan. Berlin 2015, p. 149–172.

Reference: WorldCat
Date: May 2021

Malagasy

London Missionary Society

Faninsana: fampianariny ny fombany ny isa
[Arithmetic (means of numbering): instructions on the nature of numbers]
Antananarivo: Press of the London Missionary Society
1836

52 p.
D: –
L: Auckland Libraries
(OCLC 1558 32555)
C/V: WorldCat

Malay

Thomas Beighton

b. 1790 Ednaston
d. 1844 Penang
London Missionary Society

Arismetik – ʿIlmu ḥisāb – Science of arithmetic
Malacca: Mission Press 1824

68 p.
D: –
L: London BL Oriental and India Office Collections (14620.b.13(5); lacks title page)
London SOAS (School of African and Oriental Studies) University – including the Congregational Council for World Mission Archive CCWM (D6/29)
V/S: Proudfoot, Ian: Early Malay printed books. Kuala Lumpur: University of Malaya 1993, p. 130, 266, 686, 810, 853

Indonesian

Anonym

Kitab Malajoe akan mengadjar permoelaän deri pada ilmoe hitongan
[*Kitab Melayu akan mengajar permulaan dari pada ilmu hitungan* – The Malay book will teach you the basics of the science of arithmetic]
Batavia [Djakarta]: [publisher not identified] 1834

53 p.
D: –
L: Ithaca Cornell U (OCLC 6362 8959)
C/V: WorldCat

Indonesian is a standard variety of Malay

Sundanese

Anonym

Kitab (elmu angka sareng) elmu itungan
[Book (of the science of numbers and) of the science of arithmetic]
Batavia [Djakarta]: Lands-Drukkerij 1853

73 p.
D: –
L: London BL (OCLC 4999 61324), Monash U (OCLC 9205 05169)
C/V: WorldCat

Javanese

Anonym

Uubuka ning kawruhan litung
[Book on the science of arithmetic]
Batavia [Djakarta]: Lands-Drukkerij 1852

122 p.
D: –
L: Sydney StateL of New South Wales (OCLC 8174 82431)
C/V: WorldCat

Batak (Angkola, Mandailing)

W. F. [Friedrich Wilhelm] Betz

b. 1832
d. 1881
1859– Missionary (Ermelo Missionary Society) in the Batak area together with Gerrit van Asselt (Schmidt-Brücken, Daniel: Koloniallinguistik 2015; according to Warneck, Johannes: 50 Jahre Batakmission 1911, p. 17–20)
Belongs perhaps to the family of Gerardus Henri Betz (1816–1868), 1866 co-editor of *Tijdschrift voor Nederlandsch-Indië* (Nieuw Nederl. Biograf. Woordenboek)

Pamoekaän ni parbinotoän ni etongani ima sada boekoe etongan toe dakdanak di bagasan hata Ankola
Batavia [Djakarta]: Lands-Drukkerij 1871

Based on the 2nd print of *Ilmoe hitoengan*
[1st print Batavia 1861, 51 p. (OCLC 5684 9232);
2nd print Batavia 1863, 51 p. (OCLC 8016 45558);
both in Malay]
by

Justus Rinia Petrus François Gonggrijp

b. 1827 Sinderen, Netherlands
d. 1909 Wiesbaden, Germany
1849–1864 teacher in the Dutch East Indies (Nederlandsch Zendeling Genootschap)
1864– teacher for Malay and Sundanese at the Indische Instelling in Delft
(Dutch Wikipedia, Nieuw Nederlandsch Biografisch Woordenboek)

Gonggrijp

Batak (Angkola, Mandailing)

W. F. [Friedrich Wilhelm] Betz
J. R. P. F. Gonggrijp

Pamoekaän ni parbinotoän ni etongani ima sada boekoe etongan toe dakdanak di bagasan hata Ankola
Batavia [Djakarta]: Lands-Drukkerij 1871

48 p.
D: Google, Hathi Trust
L: Madrid U, Ithaca Cornell U
(OCLC 8802 27918)
C/V: WorldCat

PAMOEKAÄN

NI PARBINOTOÄN NI ETONGANI

IMA SADA

BOEKOE ETONGAN

TOE DAKDANAK DI BAGASAN HATA ANKOLA.

W. F. BETZ.

(Rekenboek in het Ankolaasch dialect, bewerkt naar den 2den druk van GONGGRIJP'S Ilmoe Hitoengan.)

BATAVIA,
LANDS-DRUKKERIJ.
—
1871.

Batak (Angkola, Mandailing)

W. F. [Friedrich Wilhelm] Betz
J. R. P. F. Gonggrijp

Pamoekaän ni parbinotoän ni etongani ima sada boekoe etongan toe dakdanak di bagasan hata Ankola
Batavia [Djakarta]: Lands-Drukkerij 1871

Transcription of the title page

Pamoekaän
ni parbinotoän ni etongani
ima sada
boekoe etongan
toe dakdanak di bagasan hata Ankola.
W. F. Betz.

(Rekenboek in het Ankolaasch dialect, bewerkt naar den 2den druk van [J. R. P. J.] *Gonggrijp's Ilmoe Hitoengan)*

Batavia,
Lands-Drukkerij.
1871.

Batak (Angkola, Mandailing)

W. F. [Friedrich Wilhelm] Betz
J. R. P. F. Gonggrijp

Pamoekaän ni parbinotoän ni etongani ima sada boekoe etongan toe dakdanak di bagasan hata Ankola
Batavia [Djakarta]:
Lands-Drukkerij 1871

Translation of the title page

Content overview:
Four species for integers and denominate numbers

For help with translations, I am indebted to NL of Indonesia.

Introduction
to arithmetic,
namely
an arithmetic book
for children in the Angkola language.
W. F. Betz

(Arithmetic book in the Angkola dialect, arranged according to the 2nd print of [J. R. P. J.] *Gonggrijp's Ilmoe Hitoengan)*

Batavia [Djakarta]
National Printing House
1871

Tagalog (Filipino)

Rufino Baltazar Hernández

From Santa Cruz, prov. La Laguna, Luzón

Aritmética redactada en tagalo y castellano
Manila: Imprenta del Colegio de Santo Tomás 1868
Tagalog and Spanish in parallel columns

224 p.
D: Google
L: Madrid BN, Madison U Wisconsin (OCLC 4337 18883), Chicago Newberry L (OCLC 8785 66810)

ARITMÉTICA

REDACTADA EN

TAGALO Y CASTELLANO

POR

D. RUFINO BALTAZAR HERNANDEZ

Natural y vecino del pueblo y cabecera de Sta. Cruz de la provincia de la Laguna.

Con la aprobacion de la Junta de Censura y licencia del Superior Gobierno.

PRIMERA EDICION.

MANILA:

IMPRENTA DEL COLEGIO DE SANTO TOMÁS.

Á CARGO DE D. E. SALÓ.

1868.

Tagalog

Rufino Baltazar Hernández

Aritmética redactada en tagalo y castellano
Manila: Imprenta del Colegio de Santo Tomás 1868

Transcription of the title page

Aritmética
redactada en
tagalo y castellano
por
D. Rufino Baltazar Hernández
Natural y vecino del pueblo y cabecera de Sta. Cruz de la provincia de la Laguna.

Con la aprobación de la Junta de Censura y licencia del Superior Gobierno.

Primera edición.

Manila:
Imprenta del Colegio de Santo Tomás,
a cargo de D. B. Siló.
1868.

Tagalog

Rufino Baltazar Hernández

Aritmética redactada en tagalo y castellano
Manila: Imprenta del Colegio de Santo Tomás 1868

Translation of the title page

Arithmetic
composed in
Tagalog and Castilian
by
Mr. Rufino Baltazar Hernández
native and inhabitant of the town and capital Santa Cruz in the province of La Laguna [isle of Luzón].

With the approval of the Censorship Board and the license of the Superior Government.

First edition

Manila:
Printing house of the College of St. Thomas,
at the expense of Mr. B. Siló
1868

Tagalog

Rufino Baltazar Hernández

Aritmética redactada en tagalo y castellano
Manila: Imprenta del Colegio de Santo Tomás 1868

Example page (about the digits) showing the dialog between teacher and pupil in Tagalog and Spanish in two columns

din sa halaga ó sarilíng bilang na tagloy nang isà,t, isà?

M: Ang lalông maliuanag at madaling icà-quilala,t, icà-talastas nang cani-caniyang bilang, sampuô nang cayarí-an nilang isinásangcap sa ibang bágay at paraang ibig pag-sangcapan, ay basahing mulî,t,-mulî itong sosonod.

dad, ó valor que tienen cada uno?

M: Leer tantas veces, ó lo que és lo mismo, saber de memoria la tabla siguiente.

CARDINALES.			ORDINALES.		
Sa guarismo.	Sa letra sa castila.	Sa letra sa tagalog.	Sa guarismo.	Sa letra sa castila.	Sa letra sa tagalog.
1	Uno	Isá	1.°1.ª1.°	Prim° prim' prim'	Cáona-onáhan
2	Dos	Dalauá	2.°..2.°	Segundo. segunda	Icalauá.
3	Tres	Tatló	3.°..3.°	Tercero. tercera	Icatló.
4	Cuatro	Ápat	4.°..4.°	Cuarto.. cuarta	Icápat.
5	Cinco	Limá	5.°..5.°	Quinto.. quinta	Icalimá.
6	Seis	Ánim	6.°..6.°	Sesto... sesta	Icánim.
7	Siete	Pitó	7.°..7.°	Séptimo. séptima	Icapitó.
8	Ocho	Caló	8.°..8.°	Octavo.. octava	Icanaló.
9	Nueve	Siyam	9.°..9.°	Nono... nona	Icasiyam.
0	Cero	Walá	0.....0	Cero...	Walâ.

ANG ICALAGA.

Ang pagbàsa nang tucoy sa munti,t, malaquing halaga ó cantidad

M: Ná-quiquilala mo-ná bago *Eduardo* ang hanay nang sampuhag *guarismo*, bilang ó halagang taglay nang hanay,t, isa?

D: Oo, *Maestro*, at inà-acalà-cong walâ-nong pagca-limot, sa uicâ man at sa gauâ ang boong cayarí-an nila.

LO SEGUNDO.

Modo de leer mayor y menor cantidad.

M: Estás enterado ya *Eduardo* de la propiedad de cada uno de los diez *guarismos* espresados?

D: Sí, *Maestro*, y creo nunca me olvidaré, tanto en *oral* como *escrito* de sus circunstancias.

Tagalog

Rufino Baltazar Hernández

Aritmética redactada en tagalo y castellano
Manila: Imprenta del Colegio de Santo Tomás 1868

Content overview
(according to the table of contents)

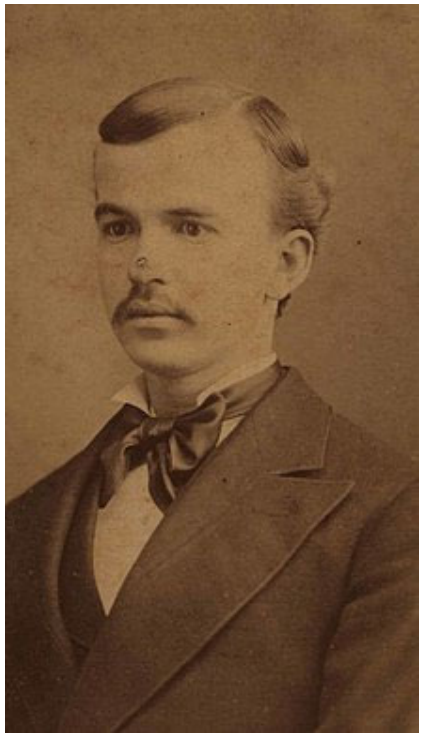
Weights and measures
Four species for integers
Four species for fractions
Four species for mixed numbers
Four species for denominate numbers
Arithmetic and geometric progressions
Regula de tri
Simple interest calculation
Regula quinque, regula septem
Regula societatis simplex and temporum
Regula de tri inversa, quinque inversa, septem inversa
Barters
Regula falsi
Regula alligationis
Interest calculations, compound interest
Powers; square and cube roots
Halving of denominate numbers
Decimal fractions

Marshallese (Bislama, Melanesian creole)

Edward Topping Doane, Hezekiah Aea

Buk in bwinbwin
[Book of counting] –
Marshall Islands primary arithmetic
Ebon [Marshall Islands]:
Mission Press 1862;
Honolulu 1863
Further editions until 1900

24 p.
D: Auckland Council L
L: Hamburg SUB, Cambridge Harvard U, Manoa U Hawaii (OCLC 1262 049672, 6636 52209, 8300 5584)
C/V: WorldCat



Edward Topping Doane

b. 1820 Tompkinsville, Staten Island
d. 1890 Honolulu
Protestant missionary, American Board of Commissioners for Foreign Missions
Married to Clara Strong Doane
Numerous publications:
religion, linguistics, geography
(English Wikipedia)

Hezekiah Aea

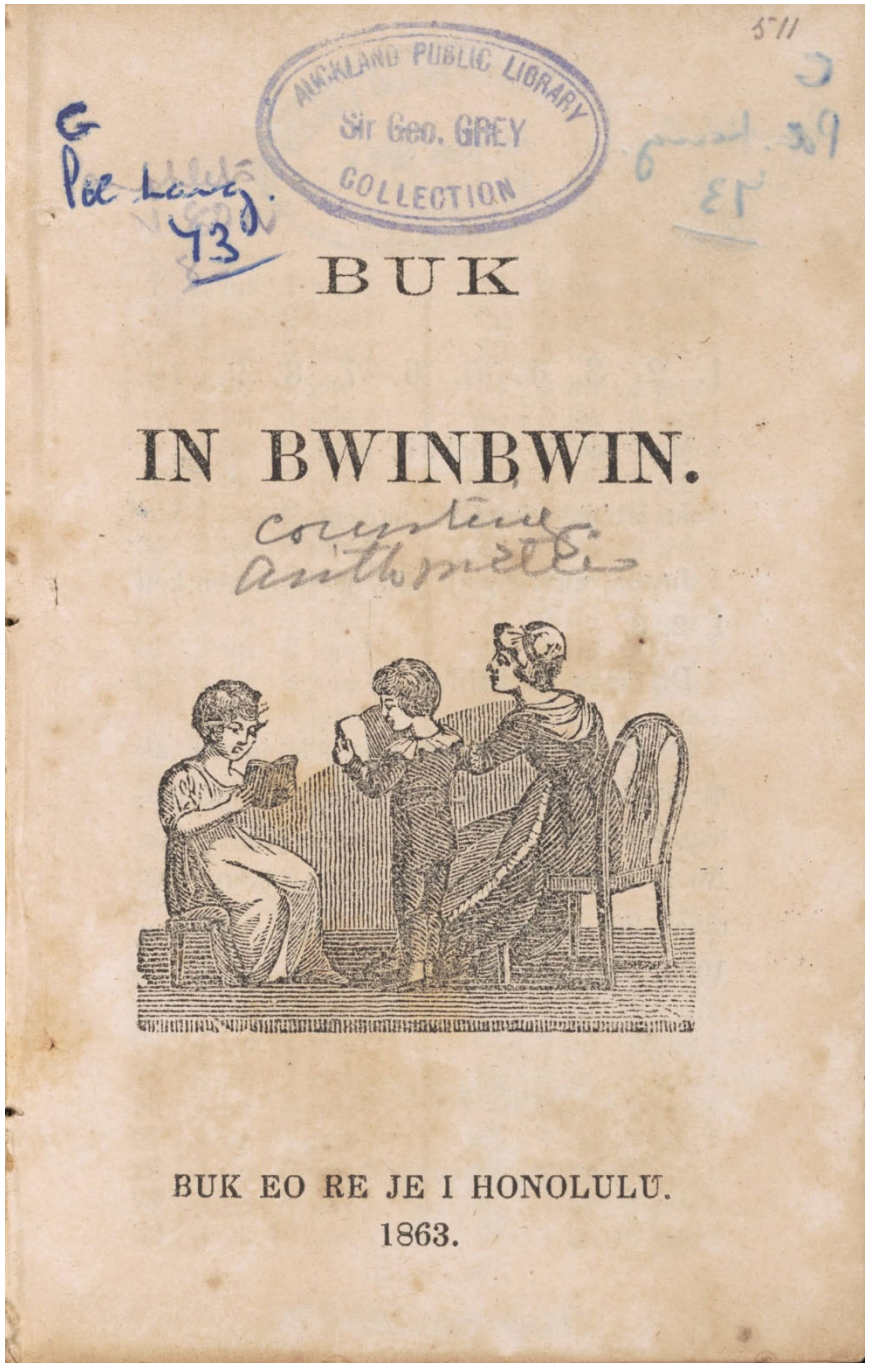
Hawaiian missionary
working in the Marshall Islands
b. 1838 Puna, Hawaii
d. 1872 Hawaii
Married to Debora Kimiala
(Anderson, Gerald H: Biographical Dictionary of Christian Missions 1999;
Hawaiian Historical Society, Annual Report 1947)

Marshallese
(Bislama, Melanesian creole)

Edward Topping Doane,
Hezekiah Aea

Buk in bwinbwin
[Book of counting] –
Marshall Islands primary arithmetic
Ebon [Marshall Islands]:
Mission Press 1862;
Honolulu 1863

Title page



Gilbertese / Kiribati

Minerva Clarissa (Clara) Brewster Bingham

b. 1834 Northampton, Mass.
d. 1903 Honolulu
Married to Hiram Bingham II (1831–1908)
Publications: Bible texts, hymns, geography in Gilbertese

Te boki n rei te ware-bai
[A primer in mathematics] –
Gilbert Islands arithmetic
Honolulu: Boreti Uean Awaii – Hawaiian Board of Missions 1871
Further editions until 1903

64 p.
D: –
L: Manoa U Hawaii, Auckland Museum L (OCLC 6634 00923)
C/V: WorldCat

Hiram Bingham II
Protestant missionary to Hawaii and the Gilbert Islands
Publications: the Bible, hymns, dictionaries in Kiribati
(English Wikipedia: Hiram Bingham II; L of Congress Authority file)

Fijian

Anonym

A vu ni vika vakaviti, sa tabaki me yaga e na veiwili-vola
[The origin of the Fijian number system –
a literacy guide]
[Levuka, Fiji] 1865?

12 p.
D: –
L: Auckland L
(OCLC 9183 81953)
C/V: WorldCat

For the translation of the Polynesian titles, I am very indebted to Dr. Apo Aporosa, University of Waikato, Hamilton, New Zealand, and Polynesian colleagues of his.

Anonym

Ai vola ni fika
[A book of numbers]
Newtown [Fiji]: T. D. Hartwell 1871

It is not clear whether the book ist about the Western number system or the Taukei (indigenous Fijian) number system.

24 or 78 p.
D: –
L: Berlin Staatliche Museen, Canberra NL of Australia, Auckland L
(OCLC 1566 71571, 1566 71557, 8373 06154)
C/V: WorldCat

Samoan

Martin Dyson

b. 1830 Yorkshire
d. 1894
Wesleyan Methodist Missionary:
(competition with London Miss. Society)
1854 Tonga, 1857 Samoa, 1864 Tonga
Married to Sarah Anne Dyson
(Reeson, Margaret: Pacific Missionary
George Brown 2013, jstor.org;
Colwell, James B: A century in the Pacific)

'O le ulua'i tusifika mo ā'oga
[The first mathematics book for school]
Sydney: Samuel Ella 1864

48 p.
D: –
L: NL New Zealand (OCLC 9467 30729);
Canberra NL Australia (OCLC 1663 14612)
C/V: WorldCat

Further sources about Martin Dyson:
The papers of Martin Dyson, containing autobiographic notes
(OCLC 6631 58012)
Methodist Hist. Society of Victoria: Heritage (periodical), No. 18,
October 1966: Ministerial index: the Methodist book of chronicles /
Rev. Robert Jackson p3.Martin Dyson (including portrait)

Other publications by Martin Dyson:
My story of Samoan Methodism 1875
Australian / Australasian Methodist ministerial general index 1889,
^{4}1908

WorldCat mentions an earlier anonymous edition:

O le aritemetika o le tusi lea e aoao ai i numela
[Arithmetic: a book teaching numbers]
Samoa: Mission Press 1843

43 p.
L: Auckland L (OCLC 2710 47165)

Tongan

Thomas West

Wesleyan Methodist Reverend
Among the constructors of the chapel in Feltwell, Norfolk, in 1811
Publication: *Ten years in south-central Polynesia* 1865

Koe tohi lau fika faka-Toga, ke fai i he gaahi lautohi i Toga katoa
[The book of Tongan numbers to use in all places of learning in Tonga]
London: Sosaiete Misionale faka-Ueseliana (Wesleyan Mission Society) 1857

47 p.
D: –

L: Canberra NL Australia, Auckland L (OCLC 4519 98964)
C/V: WorldCat

Tahitian

John Davies

Aritemeti: oia te haapao raa o te taio e te faa au raa o te numera
[Arithmetic: That is to say how to count and to do right with numbers]
Huahine: Mission Press (William Ellis) [1]1819

12 p.
D: –
L: Berkeley U, Canberra NL Australia (OCLC 1555 7203)
C/V: WorldCat;
Harding, George L.: The Tahitian imprints of the London Missionary Society, 1810–1834, no. 78 (library comment OCLC 1551 6580)

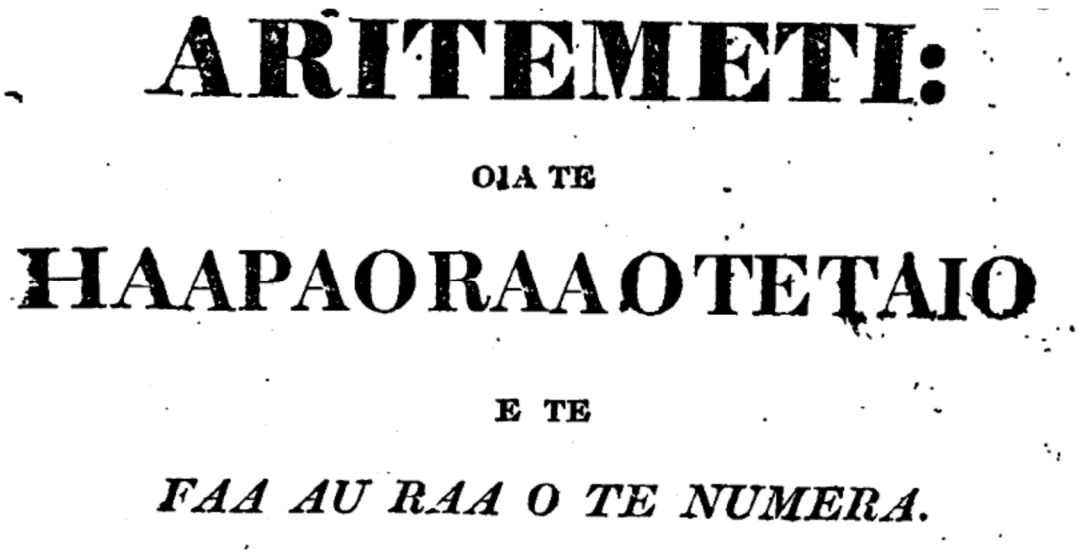
b. 1772 Pendugwm, Montgomeryshire, Wales
d. 1855 Papara, Tahiti
Methodist missionary (London Missionary Society) and school teacher
Publications: Tahitian dictionary and grammar, translations of the Bible and catechisms, History of the Tahitian Mission
(English Wikipedia; Dictionary of Welsh Biography)

Tahitian

John Davies

Aritemeti: oia te haapao raa o te taio e te faa au raa o te numera
[Arithmetic: That is to say how to count and to do right with numbers]
Tahiti: Windward Mission Press
[2]1822

16 p.
D: Google (OCLC 1228 823657)
L: London BL (OCLC 7710 77983); Berkeley U, Canberra NL Australia (OCLC 1551 6580)
C/V: WorldCat;
Harding, George L.: The Tahitian imprints of the London Missionary Society, 1810–1834, no. 78 (library comment)


ARITEMETI:

OIA TE

HAAPAORAAOTETAIO

E TE

FAA AU RAA O TE NUMERA.

A revised reprint of the arithmetic prepared by John Davies and first printed at Huahine in 1819; cf. Harding, George L.: Tahitian imprints of the London Missionary Society, no. 24 (library comment OCLC 1551 6580)

Marquesan

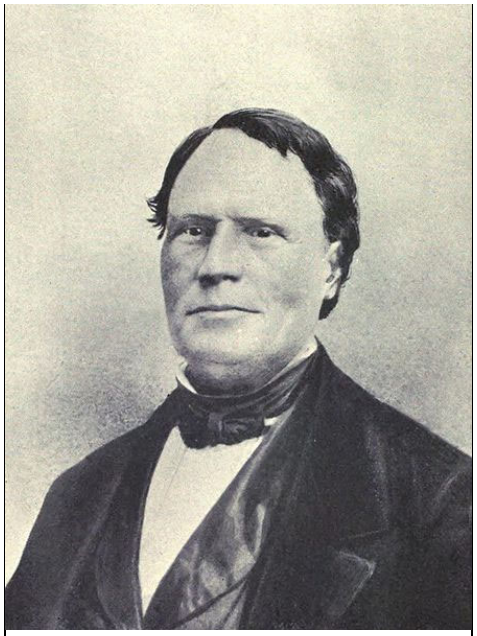
Anonym
Patua e te papa Havaii
[Written by the Hawaii group]

He tetau toii. Oia te mea e hakao atu ai i na toii, ma na ui hakao omua o te aritemetita
[For the children. Here's what to teach the children, we must first teach arithmetic]
Honolulu [Hawaii]:
Paiia e H. M. Wini 1869

46 p.
D: –
L: Cambridge Harvard U, Washington L of Congress, Manoa U Hawaii (OCLC 1099 773256)
C/V: WorldCat

Hawaiian

Artemas Bishop



b. 1795 Pompey NY
d. 1872 Honolulu
Presbyterian reverend (findagrave.com)
Father of Sereno Edwards Bishop
(1827–1909; English Wikipedia)

Aritemetika: oi aka hoike helu

[Arithmetic: That is the explanation of numbers]

[Honolulu?]: [Mission Press] 1828

Later and larger editions in 1838, 1842, 1845, 1873, 1875 together with Warren Colburn

8 p.
D: –
L: Manoa U Hawaii (OCLC 1966 5191)
C/V: WorldCat

Other Austronesian languages

Arithmetic books in these languages are not examined as none of them was published within the temporal focus of this catalog of brief descriptions.

WorldCat records the following year for the earliest arithmetic textbooks in these languages:

Maori 2002 (OCLC 9866 01138)

Reference: WorldCat
Date: May 2021

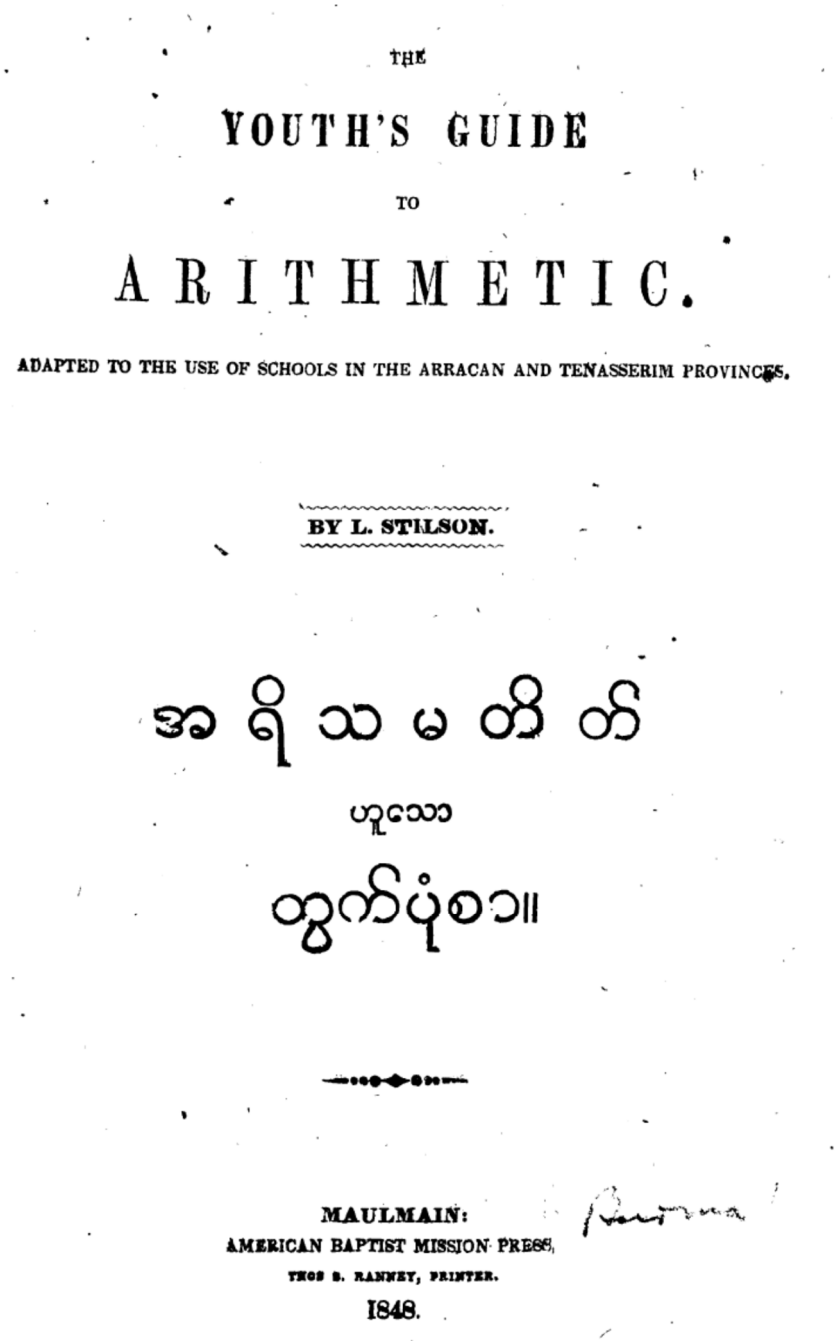
Burmese

Lyman Stilson

b. 1805 Meredith NY, d. 1886 Jefferson IA
Baptist minister and missionary
(findagrave.com; ancestry.com)

The youth's guide to arithmetic, adapted to the use of schools in the Arracan Tenasserim [Tanintharyi] *provinces* Mawlamyine / Maulmain: American Baptist Mission Press 1848
Later editions: Rangoon 1849, 1866, 1876, 1877, 1879, 1884

421 p.
D: Google
L: Paris BNF (FRBNF31408367; OCLC 4590 79085); London BL (OCLC 5004 93486, 1064 483349)
C/V: WorldCat



THE

YOUTH'S GUIDE

TO

ARITHMETIC.

ADAPTED TO THE USE OF SCHOOLS IN THE ARRACAN AND TENASSERIM PROVINCES.

BY L. STILSON.

အာရိသမတိတ်

ဟူသော

တွက်ပုံစာ။

MAULMAIN:
AMERICAN BAPTIST MISSION PRESS,
THOS S. RANNEY, PRINTER.
1848.

Burmese

Lyman Stilson

The youth's guide to arithmetic, adapted to the use of schools in the Arracan Tenasserim provinces
Mawlamyine: American Baptist Mission Press 1848

Transcription and translation of the title page

Digits: ၁ ၆
၂ ၇
၃ ၀
၄ ၈
၅ ၀

The
youth's guide
to
arithmetic.

Adapted to the use of schools in the Arracan Tenasserim provinces.

By L. Stilson.

Book of calculation known as arithmetic

Maulmain [Mawlamyaing, Myanmar]:
American Baptist Mission Press,
Thos S. Ranney, printer.
1848.

Burmese

Lyman Stilson

The youth's guide to arithmetic, adapted to the use of schools in the Arracan Tenasserim provinces
Mawlamyine: American Baptist Mission Press 1848

Content overview
(according to the English section headings)

Numeration, the four species for integers
Definitions: integer, even, odd, prime, greatest common divisor, least common multiple, fractions, arithmetic signs
Definitions for fractions: proper, improper, compound fraction, mixed number, reduction, least common denominator
Four species for common fractions
Four species for decimal fractions
Conversion from common to decimal fractions
Money, weights and measures
Four species for denominate (*compound*) numbers
Reductio descendens, reductio ascendens
Conversion between common / decimal fractions and denominate numbers
Four species for repeating (*circulating*) decimals
Ratio, proportion
Regula de tri
Regula quinque (*compound proportion*), chain rule

Burmese

Lyman Stilson

The youth's guide to arithmetic, adapted to the use of schools in the Arracan Tenasserim provinces
Mawlamyine: American Baptist Mission Press 1848

Content overview
(according to the English section headings)

Percentage, commission, interest, discount, compound interest, banking
Profit and loss, partnership, bankruptcy
Exponentiation (*involution*), extraction of roots (*evolution*), square root, 2-dim. geometry, cube root
Arithmetic progressions (*equidifferent series*)
Geometric progressions (*continual proportionals*)
Annuities at compound interest
Permutations, combinations
Exchange, Great Britain, United States
Mensuration of surfaces, solids and capacities: circle, sphere (*globe*), wedge, prism, cylinder, pyramid, frustum, polygon
Mechanical powers: lever, wheel and axle, pulley, inclined plane, wedge, screw
Miscellaneous questions
Appendix: Burmese method of calculating time, Burmese calendar

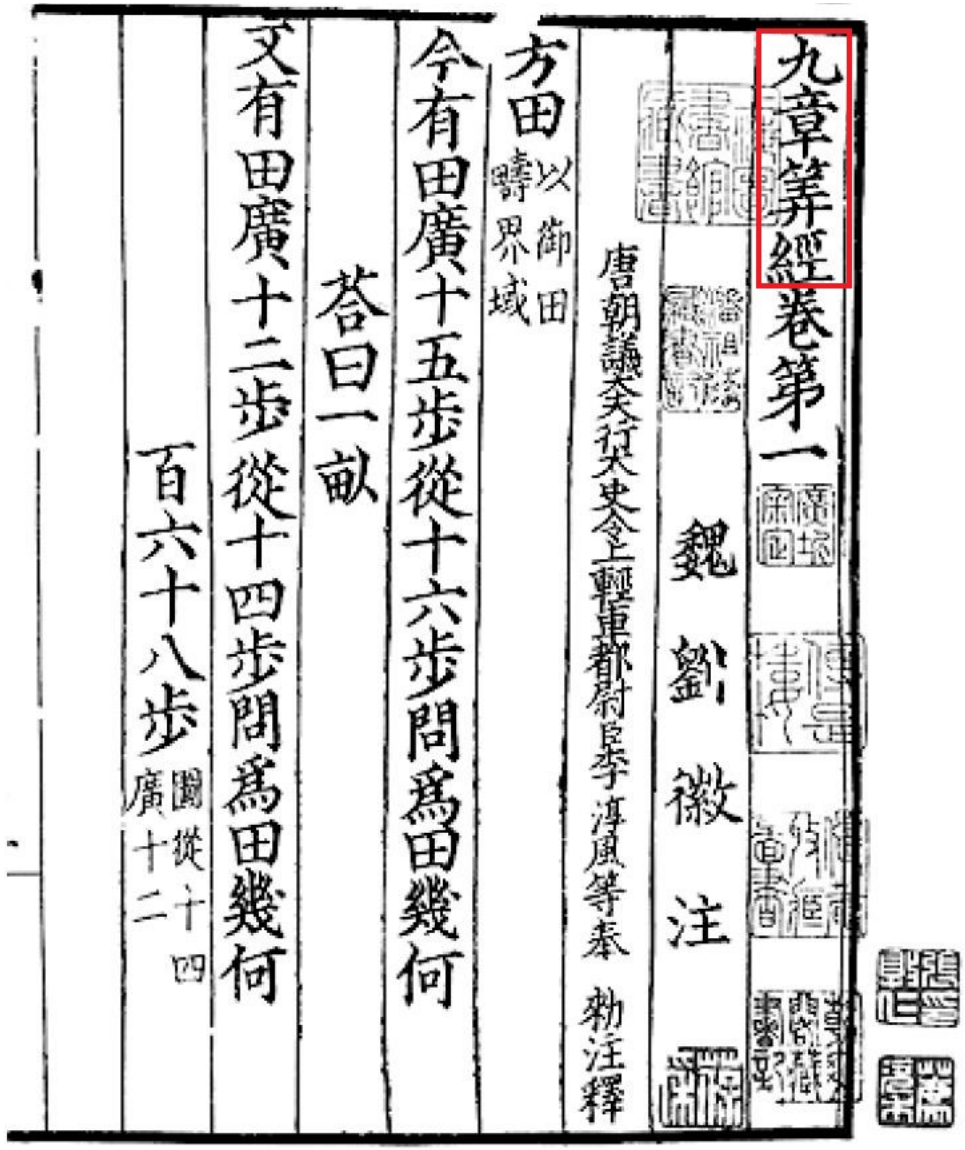
Chinese

Anonym

Chiu Chang Suan Shu / Jiuzhang Suanshu 九章算術 [Nine chapters on arithmetical methods / mathematical art] 1084 (first print in the Northern Song dynasty (Juškevič 1924, p. 23))

Has its origins before the beginning of the Common Era (202 BCE – 9 CE). Comments by Liu Hui 劉徽 in 263 CE. New editions by Dai Zhen 戴震 (1724–1777) 1774, by Qu Zengfa 1776, by Kong Jihan 1777 Weiboxie, *Ripple Pavilion* – standard for modern versions (Dauben 2013, p. 214–216)

No information about number of pages, holding libraries and digital copies


九章筭經卷第一
魏劉徽注
唐朝議大夫行大史令上輕車都尉臣李淳風等奉 勅注釋
方田以御田疇界域
今有田廣十五步從十六步問爲田幾何
荅曰一畝
又有田廣十二步從十四步問爲田幾何
荅曰一百六十八步 圖從十四廣十二

Jiuzhang Suanjing 九章算經 (i.e. *Jiuzhang Suanshu* (Martzloff 1997, p. 47)), first page of Chapter 1 with owner seals, edition from Southern Song dynasty (1127–1279) (Guo 2015, p. 64)

Chinese

Anonym

Jiuzhang Suanshu 九章算術

References

Remark: “One should not forget that, in China itself, autochthonous mathematics was not rediscovered on a large scale prior to the last quarter of the 18th century” (Martzloff 1997, p. 4)

Remark: Movable type (10%) did not replace woodblock printing (90%) due to the expense of producing more than 200,000 individual pieces (English Wikipedia – History of printing)

E in German: Vogel, Kurt. Braunschweig 1968

E in Russian: Berëzkina/Beryozkina, Èl’vira Ivanovna: Matematika v devâti knigah. In: Istor. matem. Issledovanija 10 (1957) 423–584

S/V: Juškevič, Adolf-Andrei Pavlovič: Geschichte der Mathematik im Mittelalter. Leipzig 1924

Lǐ Yǎn; Dù Shíràn: Chinese math. A concise history. Oxford 1987

Martzloff, Jean-Claude: Histoire des mathématiques chinoises. Paris 1987. A history of Chinese math. Berlin 1997, 2006, 127–136

Mikami, Yoshio: Development of mathematics in China and Japan. New York 1913, 8–25

Needham, Joseph: Science and civilization in China. Vol. 3: Math. and the Sciences of the heavens and the earth. Cambridge 1959

S: Chemla, Karine; Guo, Shuchun: Les Neuf Chapitres, Le Classique mathématique de la Chine ancienne et ses commentaries. Paris 2004

Dauben, Joseph W: Jiu zhang suan shu. Appraisal of text, editions, translations. Sudhoffs Archiv 97,2 (2013) 199–235

Guo, Shuchun: The Nine Chapters on the mathematical procedures and Liu Hui’s mathematical theory. In: Knobloch, Eberhard et al. (ed.): Seki, founder of modern mathematics in Japan. Berlin 2015, 63–88

Shen, Kanshen; Crossley, John N; Lun, Anthony W-C: The nine chapters on the mathematical art: companion and commentary. Oxford 1999, 2008

Chinese

Anonym

Jiuzhang Suanshu 九章算術

Content overview
(according to Vogel 1968)

1 Measuring fields (*Fangtian*): measuring rectangular fields, calculation with common fractions, measuring other fields
2 Exchanging crops (*Sumi*): comparison of different types of millet and rice, prices per unit, mixtures of different goods
3 Proportional partition (*Chuifen*): regula societatis, regula de tri, regula quinque
4 Smaller bredth (*Shaoguang*): identifying the length of a rectangle from its surface, square side, square root, circle, cube side, cube root, sphere
5 Work performance (*Shanggong*): volumes of various solids (dam, ditch, rectangular solid, cylinder, pyramid frustum, cone frustum, pyramid, cone, wedge, roof) and the corresponding work, heaps of crops
6 Correct taxation (*Junshu*): proportional partition, transport, finished goods, pursuit, arithmetic progression, encounter, alligation, cistern (shared work), nesting
7 Surplus and deficiency (*Yingbuzu*): various problems to be solved with the double false position method, pursuit
8 Square table (*Fangcheng*): various problems yielding systems of linear equations in three to five unknowns to be solved with matrix calculation
9 Right-angled triangles (*Gougu*): various problems including land survey to be solved with the Theorem of Pythagoras

Japanese

Yoshida Mitsuyoshi / Kōyū
吉田光由

(In Japan, the family names are written first.)

b. 1598 Saga, Kyoto
d. 1672 Saga, Kyoto
Student of Mōri Shigeyoshi / Kambei
毛利 重能
Civil engineer for river conservation
One of the Three honorable mathematicians

Jinkōki *塵劫記*

Kyoto [1]1627, [2]1629, [3]1631,
[4]1634, [5]1641 (June), [6]1641 (November)

Parts based on Chin. *Sanpō Tōsō* (*Suan-fa T'ung-tsung*) *算法統宗* [General source of arithmetic methods] 1593 by Ch'êng Dawei (Tai-wei; Te Taii) 程大位 (1533–1606) (Mikami 1913, p. 110, 157)

First page of Book 1 of some *Shinpen Jinkōki* *新編 塵劫記* with an enlarged detail containing the title

Japanese

Yoshida Mitsuyoshi 吉田光由

Jinkōki *塵劫記*

[Treatise on eternal mathematical truths]

Kyoto [1]1627 etc.

References

220 p. (according to the English edition)

D: National Diet L Digital Collections dl.ndl.go.jp/info:ndljp/pid/3508170/47

R: Tokyo: Iwanami Shoten 1977

L: National Diet L Japan

E of the June 1641 edition in English by Osamu Takenouchi et al. Tokyo: Wasan Institute (Wasan 和算 Kenkyujo) 2000

S/V: Horiuchi, Annick: Les mathématiques japonaises à l'époque d'Edo. Paris 1994

Mikami, Yoshio: Development of mathematics in China and Japan. Leipzig 1913, reprint New York 1974

Mikami, Yoshio; Smith, David Eugene: A history of Japanese mathematics. Chicago 1914, reprint Washington 2019

S: Fischer, Walther L. In: Toepell, Michael (ed.): Mathematik im Wandel. München 1998, 194–216

Isoda, Masami; Olfos, Raimundo: Teaching the multiplication table. In: Isoda; Olfos (ed.): Teaching multiplication with lesson study. Cham 2021, 133–154

Ken'ichi, Sato: The Jinkōki of Yoshida Mitsuyoshi. In: Knobloch, Eberhard et al. (ed.): Seki, founder of modern mathematics in Japan. Berlin 2015, 173–186

Kim, Yong Woon: A comparative study on traditional mathematics of Korea and Japan. In: Knobloch, Eberhard et al. (ed.): Seki, founder of modern mathematics in Japan. Berlin 2015, 93–104

Martzloff, Jean-Claude: Mathematics in Japan. In: Selin, Helaine (ed.): Encyclopedia of the history of science, technology and medicine in non-Western cultures. Dordrecht: Springer 2016

National Diet L ndl.go.jp/math/e/s2/1.html

Japanese

Yoshida Mitsuyoshi 吉田光由

Jinkōki *塵劫記*

Kyoto [1]1627 etc.

Content overview (1627 edition)

(according to Ken'ichi 2015)

The larger table of contents of the June 1641 edition comprising 50 articles is translated in the English edition 2000.

1 The designation of large numbers
2 The designation of numbers smaller than 1
3 Units of capacity
4 Units of area
5 Multiplication table
6 Phrases of the division table (1)
7 Phrases of the division table (2)
8 Multiplication instead of division
9 Trading rice
10 Exchange of gold currency (Edo) and silver currency (Kyoto)
11 Buying and selling the zeni [small currency]
12 Interest on a loan
13 Buying and selling silk
14 Purchasing foreign products
15 Freight by ship
16 The size of a masu (measurement device)
17 Land surveying
18 Amount of yield and tax
19 Trading of gold and silver foils
20 Problem of the volume of lumber
21 River construction
22 Various constructions
23 Estimating the height of a tree
24 Estimating the distance
25 Square root
26 Cube root

Japanese

Yoshida Mitsuyoshi 吉田光由

Jinkōki 塵劫記

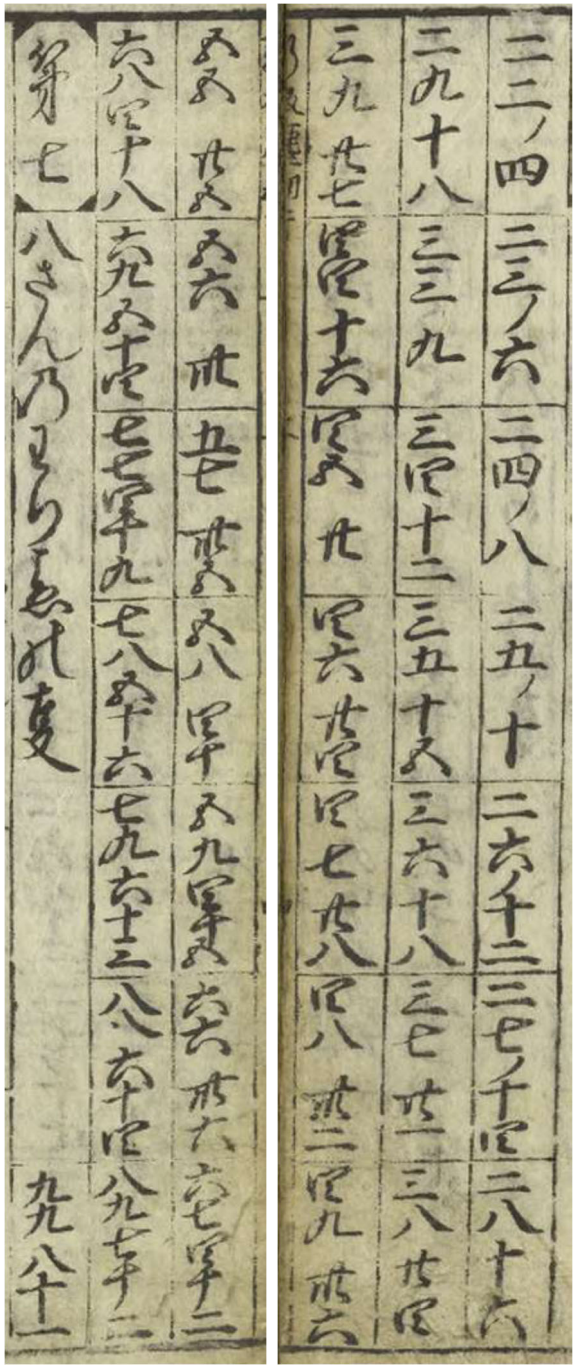
Kyoto [1]1627 etc.

Multiplication rules

Commuted forms are not recorded.
There are two different symbols for 5.
10, 20 and 30 are written with single digit symbols.
40, 50 etc. are written as 4 10, 5 10 etc.

The Japanese abacus (soroban; Chinese suan-pan), here with the rods 10^4 to 10^{-5} representing the value 12345,67890

Third column from the right	Second column from the right	First column from the right
3	2	2
9	9	2
27	18	4
4	3	2
4	3	3
16	9	6
4	3	2
5	4	4
20	12	8
4	3	2
6	5	5
24	15	10
4	3	2
7	6	6
28	18	12
4	3	2
8	7	7
32	21	14
4	3	2
9	8	8
36	24	16



Korean

References

S: Kim, Yong Woon: Mathematics in Korea. In: Selin, Helaine (ed.): Encyclopedia of the history of science, technology and medicine in non-Western cultures. Dordrecht: Springer 2016

Kim, Yong Woon: A comparative study on traditional mathematics of Korea and Japan. In: Knobloch, Eberhard et al. (ed.): Seki, founder of modern mathematics in Japan. Berlin 2015, 93–104

Kim, Yong Woon; Korea Institute of Advanced Study KIAS: Mathematics in the ancient and middle ages of Korea. kias.re.kr

Kim, Yong Woon; Kim, Yong Guk: History of Korean mathematics. Seoul: Salim Math. Pub. Co. 2009 (Kankoku sugakusi – A history of Korean mathematics. Tokyo: Maki Shoten 1978)

Like Japanese arithmetic, Korean arithmetic was – among others – mostly influenced by two Chinese books:

1 *Jiuzhang Suanshu* 九章算術 [Nine Chapters], in Korean called *Gujang* / *Kujang* (Kim; KIAS p. 46)

2 *Sanbup-Tongjong* (*Sanpō Tōsō*, *Suan-fa T'ung-tsung*) 算法統宗 [General source of arithmetic methods] by Ch'êng Dawei 程大位 (Kim 2015, p. 103)

The two books are mentioned in the sections on Chinese and Japanese.

"Korean mathematicians made little effort to change fundamentally the mathematics which originated in China" (Kim 2016)

Writing system: Most of the mathematics books of the Chŏson / Joseon period (1392–1897) were textbooks written in Chinese characters (Kim 2015, p. 99) although King Sejong the Great (1397–1450) had created the Korean alphabet Hangul.

Korean

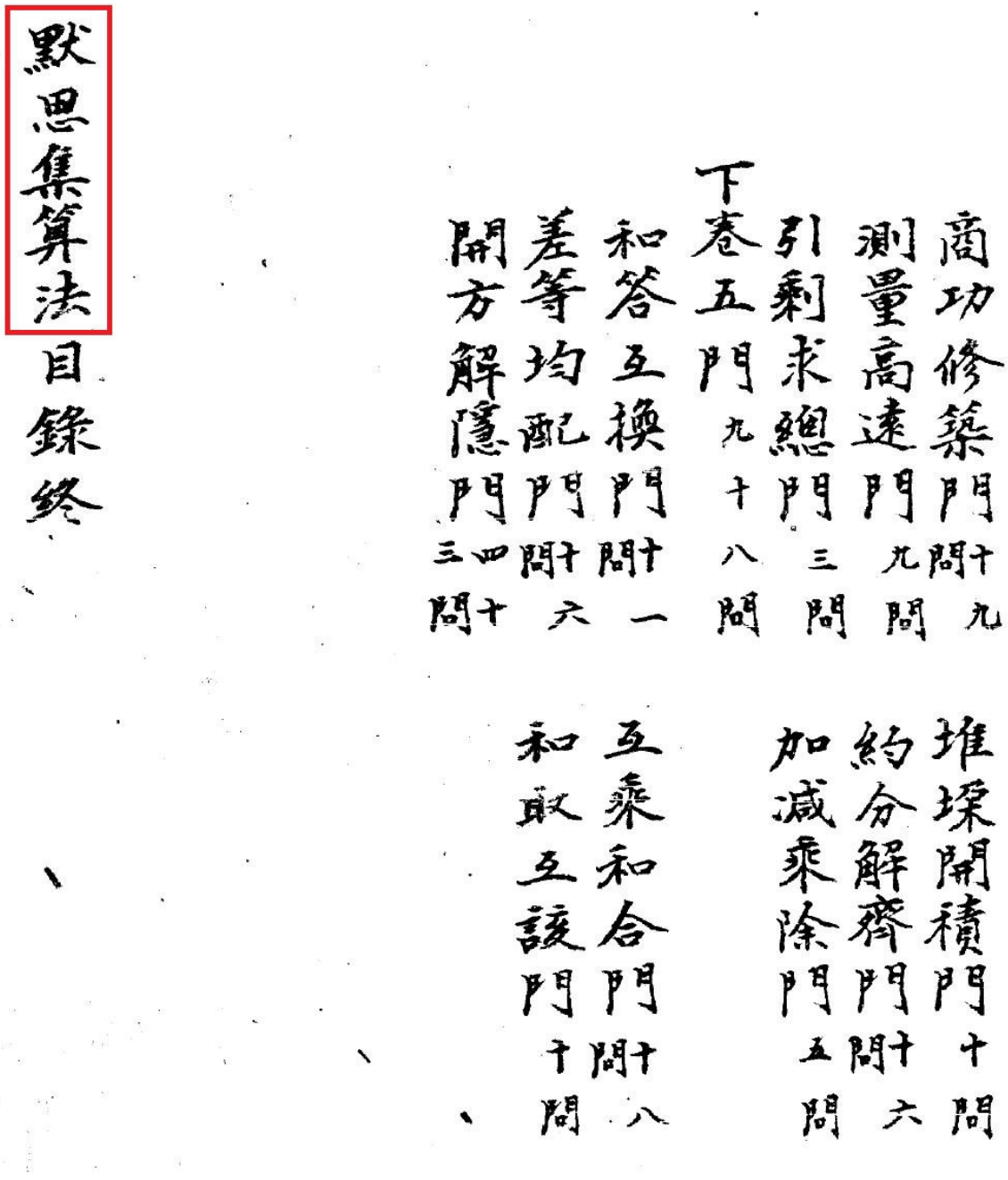
Gyung Sun Jing /
Gyeong Seon Jing 慶善徵

b. 1616

Muk Sa Jib San Bub
默思集算法

Chinese characters

3 vol. 120 p., 130 p., 140 p.
D: jsgimage.aks.ac.kr/view?qCond=bookId&q=K3-414_001
L: Academy of Korean Studies
C/V: Sriraman, Bharath et al.: The first sourcebook on Asian research in mathematics education. Charlotte NC 2015, p. 862



Korean

Ch’êng Dawei 程大位

1533–1606

Sinp'yŏn chikchi supŏp t’ongjong 新編直指數法統宗

[sc. *Suan-fa T’ung-tsung*]

? 1855

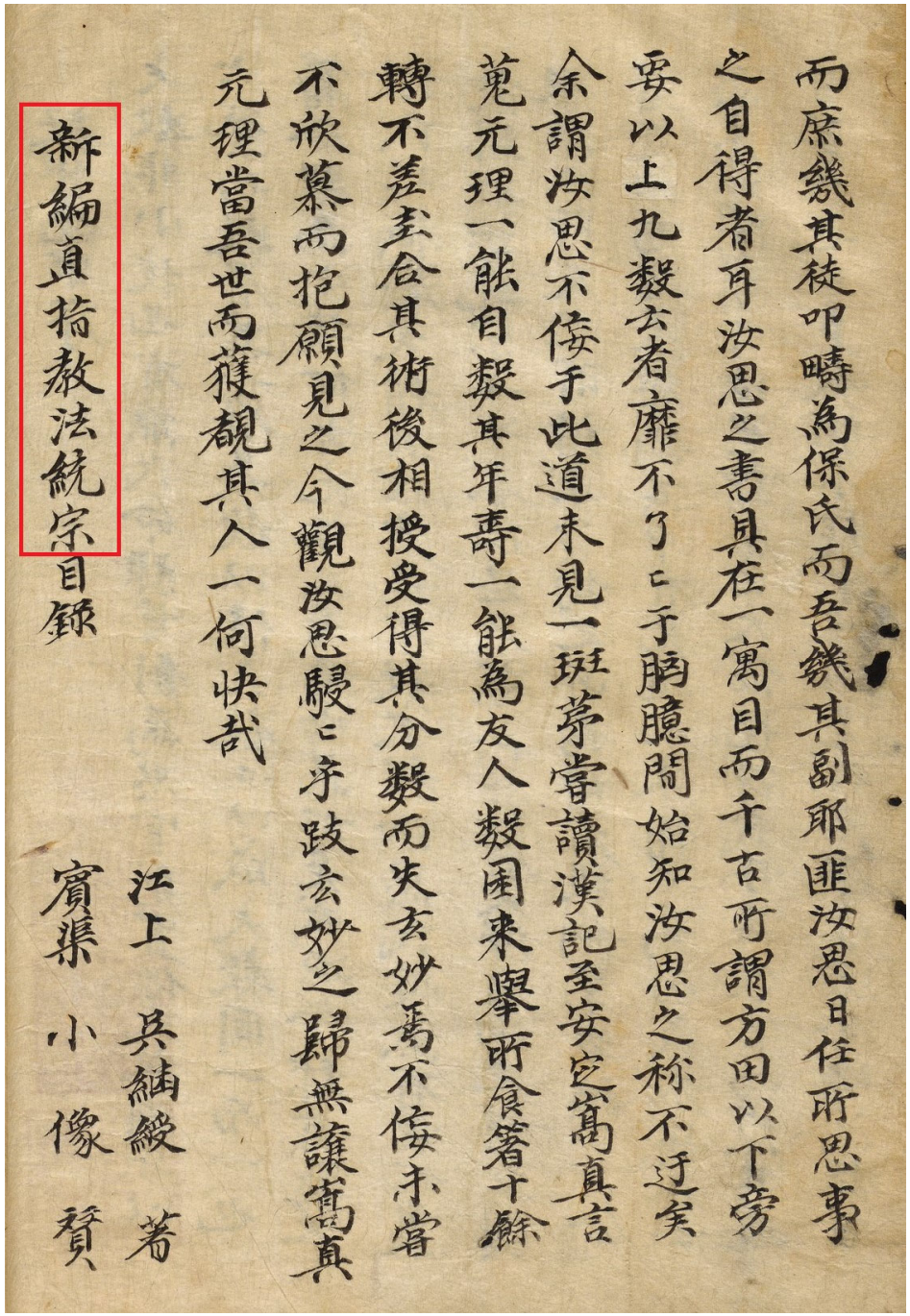
Chinese characters

162 p.

D: Harvard L Viewer nrs.harvard.edu

L: Cambridge Harvard U (OCLC 1252 377075)

C/V: Earliest Korean arithmetic textbook recorded in WorldCat


新編直指數法統宗目錄

而庶幾其徒叩畴為保氏而吾幾其副耶匪汝思日任所思事之自得者耳汝思之書具在一寓目而千古所謂方田以下旁要以上九數云者靡不了了于胸臆間始知汝思之称不迂矣余謂汝思不倭于此道未見一斑蒭嘗讀漢記至安定高真元理一能自數其年壽一能為友人數困来舉所食箸十餘轉不差玄合其術後相授受得其分數而失玄妙焉不倭未嘗不欣慕而抱願見之今觀汝思殿二字跋玄妙之歸無讓高真元理當吾世而獲覩其人一何快哉

江上 吳繼綏 著

賓渠 小像 贊

Part 2

The earliest printed geometry books in European and West Asian languages

Latin

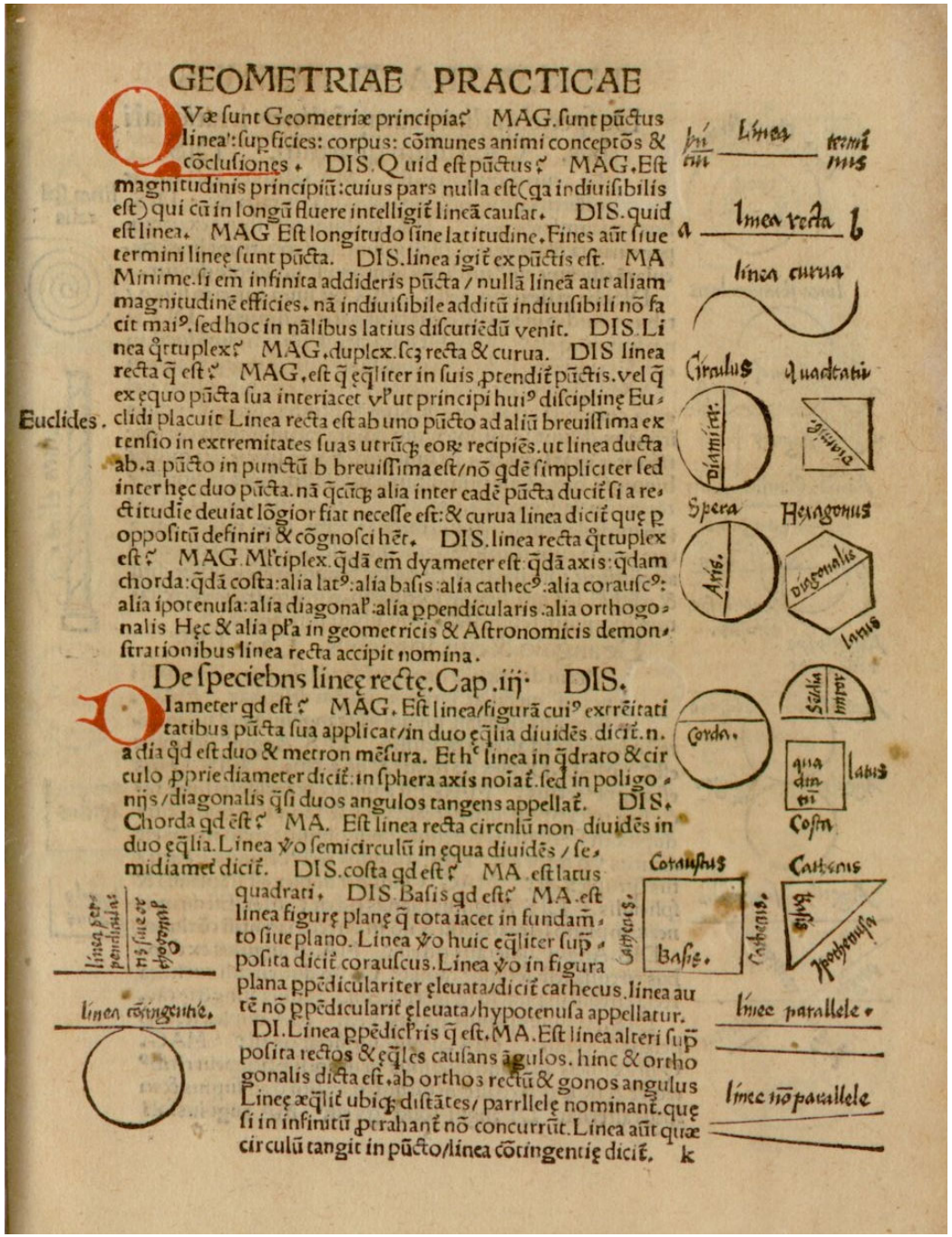
Gregor Reisch

b. ca. 1470 Balingen (Württemberg)
d. 1525 Freiburg/Breisgau
Kartäuser in Freiburg/Breisgau

Margarita philosphica
VI De geometria speculativa
Freiburg: Johann Schott 1503

Tractatus I: De elementis geometriae (22 chapters) point, line, triangle, circle
II: In praxim geometriae (30 chapters) measuring with Jacob's staff, polygon, volume

D: https://daten.digitale-sammlungen.de/0001/bsb00012346/images/index.html?fip=193.174.98.30&id=00012346&seite=1
L: BSB München etc.



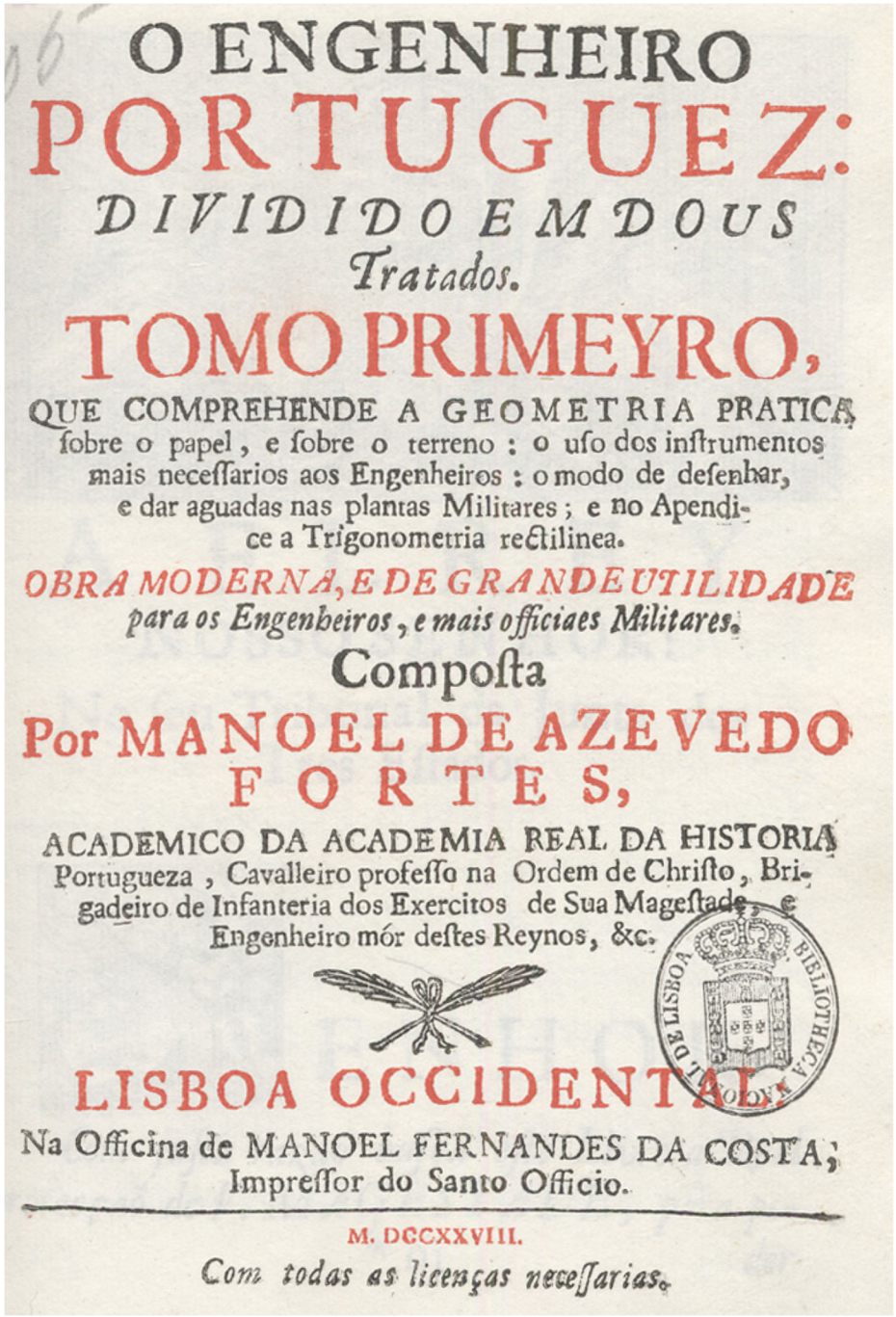
Portuguese

Manoel de Azevedo Fortes

1660–1749 [pt.wikipedia.org]
Professor for mathematics at Portuguese Military Academy of Fortification (1695), chief engineer of the kingdom
Also wrote *Lógica racional, geométrica e analítica* (Lisboa: J. A. Plates 1744)

O engenheiro Portuguez dividido em dous tratados
1. Geometria practica
2. Fortificaçaõ regular, e irregular: o ataque, e defensa das praças; e no appendice o uso das armas de guerra
Lisboa: Manoel Fernandes da Costa 1728

537 p., 11 tables with ca. 250 fig.
D/L: Lisboa BNPort, purl.pt
V: WorldCat



O ENGENHEIRO
PORTUGUEZ:
DIVIDIDO EM DOUS
Tratados.
TOMO PRIMEYRO,
QUE COMPREHENDE A GEOMETRIA PRATICA, ſobre o papel, e ſobre o terreno: o uſo dos inſtrumentos mais neceſſarios aos Engenheiros: o modo de deſenhar, e dar aguadas nas plantas Militares; e no Apendice a Trigonometria rectilinea.
OBRA MODERNA, E DE GRANDE UTILIDADE para os Engenheiros, e mais officiaes Militares.
Compoſta
Por MANOEL DE AZEVEDO FORTES,
ACADEMICO DA ACADEMIA REAL DA HISTORIA Portugueza, Cavalleiro profeſſo na Ordem de Chriſto, Brigadeiro de Infanteria dos Exercitos de Sua Mageſtade, e Engenheiro mór deſtes Reynos, &c.
LISBOA OCCIDENTAL.
Na Officina de MANOEL FERNANDES DA COSTA; Impreſſor do Santo Officio.
M. DCCXXVIII.
Com todas as licenças neceſſarias.

BIBLIOTHECA REAL DE LISBOA

Portuguese

Manoel de Azevedo Fortes

Geometria practica
Lisboa: Da Costa 1728

Transcription of the title page

O Engenheiro
Portuguez:
divido em dous
Tratados.
Tomo primeyro,
que comprehende a Geometria practica
sobre o papel, e sobre o terreno: o uso dos instrumentos
mais necessarios aos Engenheiros: o modo de desenhar,
e dar aguadas nas plantas Militares; e no Apendi-
ce a Trigonometria rectilinea.
Obra moderna, e de grande utilidade
para os Engenheiros, e mais officiaes Militares.
Composta
Por Manoel de Azevedo
Fortes,
Academico da Academia Real da Historia
Portugueza, Cavalleiro professo na Ordem de Christo, Bri-
gadeiro de Infanteria dos Exercitos de Sua Magestade,
Engenheiro mór destes Reynos, &c.
Lisboa Occidental:
Na Officina de Manoel Fernandes da Costa,
Impressor do Santo Officio.
M.DCCXXVIII.
Com todas as licenças necessarias.

Portuguese

Manoel de Azevedo Fortes

Geometria practica
Lisboa: Da Costa 1728

Translation of the title page

The Portuguese
engineer:
divided into two
treatises
First volume
that comprises the practical geometry
on the paper and on the ground; the use of the instruments
that are most necessary to the enigneers; the way of designing
military plants and supplying them with water; and in the
Appendix the rectilinear trigonometry [of right-angled triangles].
Modern and very useful work
for the engineers and further military officers
composed
by Manoel de Azevedo
Fortes,
academic at the Royal Academy of Portuguese History,
professed knight of the Order of Christ,
infantry brigadier of the armies of his majesty,
chief engineer of the kings etc.
Western Lisboa:
In the manufactory of Manoel Fernandes da Costa, printer
of the Santo Officio [Dicastery for the Doctrine of the Faith]
1728
With all necessary approvals

Portuguese

Manoel de Azevedo Fortes

Geometria practica
Lisboa: Da Costa 1728

Content overview
(according to the table of contents (*Indice dos titulos*))

First Portuguese translation of Euclid's *Elements*:
Commandino, Federico; Brunelli, João Angelo: *Elementos de Euclides: dos seis primeiros livros, do undecimo, e duodecimo da versão latina*. Lisboa: Miguel Manescal da Costa 1768, 437 p.

Dedication to the king, preface to the reader
Approvals, table of contents
Book 1 (8 chapters) Length measurement (*Longimetria*): definitions, units (*medida*), calculating with geometric numerical values, basic constructions, measuring straight and curved lines
Book 2 (12 chapters) Geometry of the plane (*Planimetria*): definitions, triangle, parallelogram, trapezoid, trapezium, polygon, flat surfaces with curved (*curvilinear*) and mixed boundaries, concave and convex surfaces, dividing plots of land (*Geodezia*; *campo*), transformation of geometric objects
Book 3 (10 chapters) Geometry of space (*Stereometria*): definitions, solids with planar surfaces, prism, solids with planar and curved surfaces, solids with curved surfaces only, fortifications, regular solids, instruments of engineers, designing military plants
Appendix: Rectilinear trigonometry

Spanish

Juan Pérez de Moya

b. ca. 1512 Santisteban del Puerto, Jaén
d. 1596 Granada
Mathematician, astronomer, priest
Studies at the Univ. of Salamanca
Wrote also *Aritmética práctica y speculativa*, Salamanca 1562 [Sp. Wikip.]

Tratado de Geometria practica, y speculatiua
[= *Tratado de matematicas 2*]
Alcalà de Henares: Juan Gracian 1573
(1st brief edition Salamanca 1568)

255 p., unnumbered fig. on most pages
D: Google books
S: Rodríguez Vidal, R: Diálogos de aritmética práctica. Zaragoza 1987
V: WorldCat

TRATADO DE GEO
metria Practica,y Speculatiua.

POR EL BACHILLER
Iuan Perez de Moya:

NATVRAL DE SANCTE-
STEVAN DEL
PVERTO.

CON LICENCIA, Y PRIVILEGIO REAL
de los Reynos de Caſtilla y Aragon.

EN ALCALA.

POR IVAN GRACIAN.
Año de M. D. LXX. III.

Spanish

Juan Pérez de Moya

Tratado de Geometria practica, y speculatiua
[= *Tratado de matematicas 2*]
Alcalà de Henares: Juan Gracian
1573

Transcription of the title page

Tratado de Geo-
metria Practica, y Speculativa.
Por el Bachiller
Iuan Perez de Moya.
Natural de Sancti-
stevan del
Puerto.

Con licencia, y privilegio real
de los Reynos de Castilla y Aragon.
En Alcala.
Por Iuan Gracian.
Año de M. D. LXX. III.

Spanish

Juan Pérez de Moya

Tratado de Geometria practica, y speculatiua
[= *Tratado de matematicas 2*]
Alcalà de Henares: Juan Gracian
1573

Translation of the title page

Treatise of
practical and speculative geometry.
By the bachelor
Juan Pérez de Moya.
Native of
Santisteban del
Puerto.

With approval and royal privilege
of the Kingdoms of Castile and Aragón.
In Alcalá.
By Juan Gracian.
In the year 1573.

Spanish

Juan Pérez de Moya

Tratado de Geometria practica, y speculatiua
[= *Tratado de matematicas 2*]
Alcalà de Henares: Juan Gracian 1573

Content overview

(according to the table of contents (*Sumario*: 1–4, 91–92, 147–148, 197–198))

First Spanish translation of Euclid's *Elements*:

Zamorano, Rodrigo: *Los seis libros primeros de la geometria de Euclides*. Sevilla: Alonso de la Barrera 1576, 121 p.

Dedication
Table of contents
Book 1 (64 chapters): definitions of basic geometric objects, axioms (*peticiones* or *supposiciones*), basic constructions, trigonometry, circle, angle, triangle, square, parallelogram, diagonal, pentagon, hexagon, circumcircle, incircle, transformations of geometric objects, doubling, tripling (*tresdoblar*), halving (*la mitad*), dividing
Book 2 (7 chapters) Measuring distances (*altimetria*): instruments, units (*partes de la medida*)
Book 3 (27 chapters) Measuring areas (*planimetria*): instruments, square, parallelogram, triangle, rhomb (*Helmuaym*, Arabic *al-muʿayyan*, Hebrew *He-Muayim* (המעוין)), rhomboid, trapezium (*Helmuarife*, Arabic *al-munḥarif*), hexagon, circle, sector, segment, flat and spheric surfaces of various solids
Book 4 (35 chapters) *Stereometria*: regular solids, cube, cuboid, space diagonal, column, pyramid, cone (*pyramida redonda*), frustum (*pyramida curta*), spheric solids, measuring volume with water or sand, wall, clear volume (*macizo*) of a tower, weight of a wall, breadbasket (*panera*), wine, water, hay (*heno*), wood (*leña*), doubling, tripling

French

Charles de Bovelles / Bovilles / Bouvelles / Bouvilles / Bouelles (Carolus Bovillus)

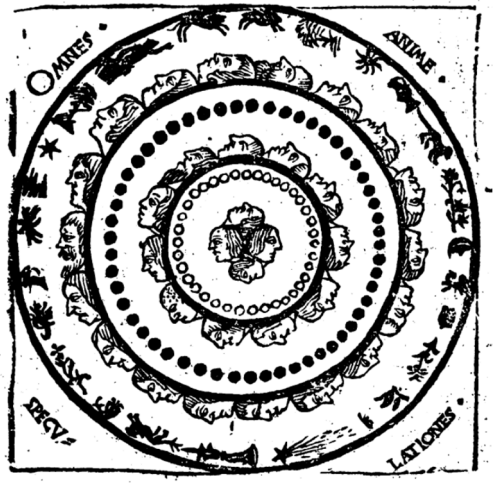
b. 1475/79 Sancourt/St.-Quentin (Picardie)
d. 1567 Ham, Somme (Picardie)
Philosopher, theologian, mathematician, linguist, prof. Collège du Cardinal-Lemoine (Paris), canon of Noyon (Picardie)
Student of Jaques Lefèvre d'Étaples (Jakob Faber Stapulensis, 1450/55–1536)

Géométrie en françoys
Paris: Henri Estienne 1511-09-30

80 p., unnumbered fig. on most pages
D: Google books
L: Gent U; Rouen B Municipale
E: Nicolle, Jean-Marie. La géométrie en français. Rouen: IREM de Rouen 1998, 160 p. (2-86239-080-1)

Geometrie en francoys.

¶ Cy cõmence le Liure de lart et science de Geometrie: auecqs les figures sur chascune rigle au long declarees/par lesquelles on peult entendre et facillemẽt cõprendre ledit art et science de Geometrie. Nouellemẽt Imprime a paris par Henri estiẽne Imprimeur et libraire demourant en la rue saint Jehan de beauvoys: deuãt les grãdes escoles d decret



¶ Carolus bouillus Stephano paruo equiti aurato/ac regio thesaurario. S. P. D.

¶ Cy finit ce present traicte de Geometrie Nouellement Imprime a paris: par Henri estiẽne Imprimeur demourant en la rue saint Jehan de beauuoys: deuãt les grãdes escoles de decret. Le dernier iour de Septẽbre. M. cccc. xi.

French

Charles de Bovelles

Géométrie en françoys
Paris: Henri Estienne 1511-09-30

Transcription of the title page,
of the beginning of the
dedication
and of the colophon

S/V: Chasles, M: Aperçu historique sur … méthods en géométrie. Bruxelles 1837
Maupin, G: Opinions et curiosités touchant la mathématique. Paris 1898

Geometrie en francoys.

Cy commence le Livre de l art et science de Geometrie: avecques les figures sur chascune rigle au long declarees/ par lesquelles on peult entendre et facillement comprendre le dit art et science de Geometrie. Novellement Imprime a paris par Henri estienne Imprimeur et libraire demourant en la rue saint Jehan de beauvoys: devant les grandes escoles de decret

Carolus bovillus Stephano parvo equiti aurato/ ac regio thesaurario. *S*[*alutem*] *P*[*lurimam*] *D*[*icit*]

Cy finit ce present traicte de Geometrie Novellement Imprime a paris: par Henri estienne Imprimeur demourant en la rue saint Jehan de beauvoys: devant les grandes escoles de decret. Le dernier iour de Septembre .M.ccccc.xi.

French

Charles de Bovelles

Géométrie en françoys
Paris: Henri Estienne 1511-09-30

Translation of the title page,
of the beginning of the
dedication
and of the colophon

Geometry in French.

Here begins the book on the art and science of geometry with the exhaustively explained illustrations for every rule by which [sc. illustrations] *one can understand and easily comprehend the mentioned art and science of geometry. Recently printed in Paris by Henri Estienne, printer and bookseller, dwelling in the street Saint John of Beauvois in front of the Grandes Écoles de décret.*
[today Rue Jean de Beauvais perpendicular to Rue des Écoles]

Carolus bovillus for Stephanus [Étienne], *the humble Chevalier d'or* ["golden knight"; French honorary title] *and treasurer of the king* [Louis XII, reigned 1498–1515], *wishes very much well-being.*
[The addressee cannot be identified so far.]

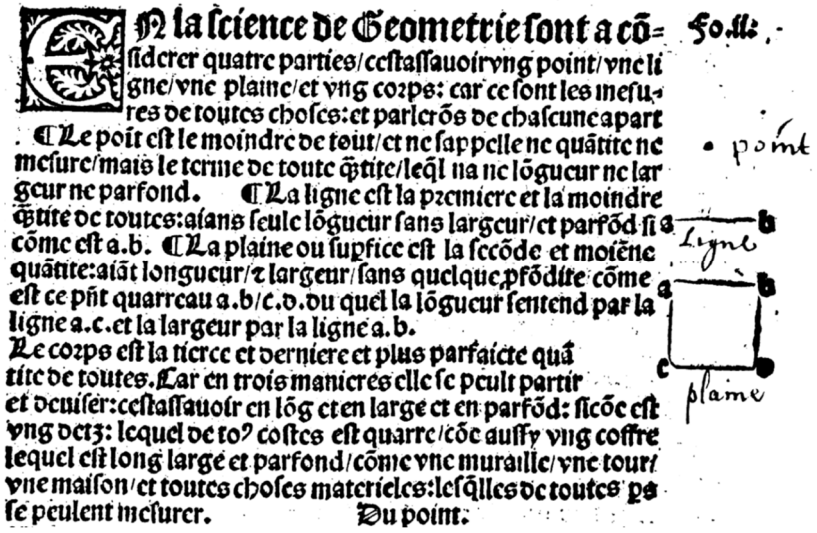
Here finishes this present treatise on geometry recently printed in Paris by Henri Estienne, printer, dwelling in the street Saint John of Beauvois in front of the Grandes Écoles de décret. On the last day of September 1511

French

Charles de Bovelles

Géométrie en françoys
Paris: Henri Estienne 1511-09-30

Content overview



Latin dedication to an unknown Stephanus (pdf 10)

Book 1 (fol. ii^{r}; pdf 11):
basic objects of geometry (*point, ligne droite, ligne ronde, angle, cercle* etc.)

Book 2 (fol. vi^{v}; pdf 20):
two-dimensional objects (*des plaines superfices*)

Book 3 (fol. xxiii^{r}; pdf 53):
three-dimensional objects (*des figures corporelles ayans longueur, largeur et profondeur*)

According to Nicolle 1998 (Présentation), Bovillus's book is based on Thomas Bradwardine (ca. 1300–1349; *Geometria speculativa*, printed in Paris 1495) and mathematical works of Nicholas of Cusa (Nicolaus Cusanus, 1401–1464; printed in Strasbourg).

Nicolle states that the mathematical knowledge of Bovillus was modest compared to contemporary mathematicians; the book was only meant for carpenters and masons.

Nicolle, p. IV, translates Bovillus's mathematical terminology.

French

Charles de Bovelles

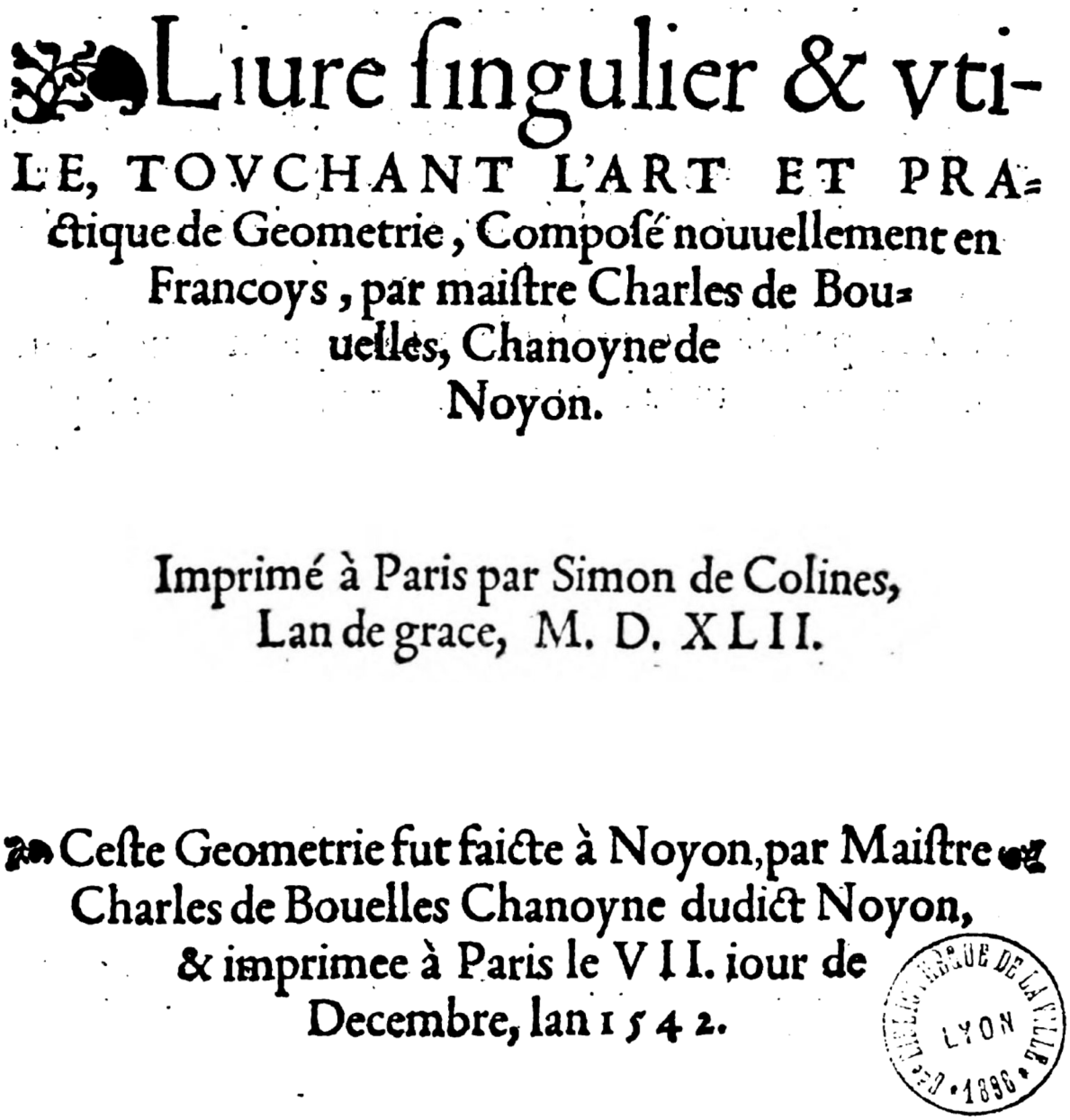
Later French works

L'art et science de Géométrie. 1514 ?

Livre singulier et utile touchant l art et practique de Géométrie [7 chapters]. Paris: Simon de Colines 1542-12-07, 112 p. ► [illustrated by Oronce Fine (1494–1555)]

La Géometrie practique [8 chapters]. Paris: Guillaume de Marnef 1547, 1551, 1555, 1566, 1605, 140 p. [mechanical applications added to *Livre singulier*]

Livre singulier was translated into Dutch: *Een sonderlinghe profytelijck boeck, aenghaende de Conste ende practijcke van Geometrien* [7 chapters]. Antwerpen: Jan Roelants 1547, ca. 1000 p. [approved by Jaspar de Mere (pdf 8) as three other books (among them *warachtighe const*)]



Liure ſingulier & vti-
LE, TOVCHANT L'ART ET PRA-
ctique de Geometrie, Compoſé nouuellement en
Francoys, par maiſtre Charles de Bou-
uelles, Chanoyne de
Noyon.

Imprimé à Paris par Simon de Colines,
Lan de grace, M. D. XLII.

Ceſte Geometrie fut faicte à Noyon, par Maiſtre
Charles de Bouelles Chanoyne dudict Noyon,
& imprimee à Paris le VII. iour de
Decembre, lan 1542.

BIBLIOTHÈQUE DE LA VILLE LYON 1896

French – Supplement

Later than 1511

First French translation of Euclid's *Elements*:

Forcadel, Pierre: *Les six premiers livres des éléments d'Euclide*. Paris: Hiérosme / Jérôme de Marnef, Guillaume Cavellat 1564

Juan de Ortega, Claude Platin:
Oeuure tressubtille et profitable de l art & science de aristmeticque & geometrie translate nouuellement d espaignol en francoys
Lyon: Etienne Baland 1515-10-23; 332 p. [geometry 154^{v}–166^{r}]
C: Hoock I/O6.3
L: Paris BNF (Rés. p.V.369); Harvard (7921 1962); London U

Estienne de La Roche (Villefranche):
L'arismétique nouvellement composée … divisée en deux parties Geometrie applicquee aux ars mechaniques comme aux massons …
Lyon: Guillaume Huyon, Constantin Fradin 1520-06-02; 460 p.
C: Hoock I/L5.1
L: Paris BNF (Rés. V. 899)
(based upon the unpublished manuscript
Nicolas Chuquet: *La géométrie* and *La triparty en la science des nombres*. Lyon 1484, Paris BNF (Fr. 1346),
ed. Marre, Aristide. Bullettino di bibliografia e di storia delle scienze matematiche e fisiche, Roma 1880–1881)

Estienne de la Roche (Villefranche):
L'arismétique et géométrie
Lyon: Huguetan, Gilles & Jacques ^{2}1538; 316 p. [geom. 151^{v}–158^{r}]
C: Hoock I/L5.2
L: Paris Bib Sainte Geneviève (V Fol 21 inv. 28); 8117 492
London BL (8505.h.1); Harvard; Columbia U; München BSB dig.

Other West Romance languages

Galician (nothing known about early geometry books; only after 1980)

Catalan (nothing known about early geometry books; there is a brief introduction into geometry with figures in Joan Ventallol, *Practica mercantivol*, Lyon 1521, fol. 122–133 (pdf 253–276); **see Part 1 Arithmetic books**)
Earliest: Lluís Gonzaga Jordà: Geometria: elemental, intuïtiva i pràctica. Barcelona, Henrich i Cia. 1922

Occitan (there is a geometry chapter in Francés Pellos, *Compendion de lo abaco*, Torino 1492, fol. 72–80, that covers triangle, circle, tower, tent, polygon and contains 39 examples with figures; **see Part 1 Arithmetic books**)
Modern publications start from the 1980s with the foundation of Calandretas (bilingual Occitan-French private schools, first in Pau and Béziers)

Romansh (nothing known about early geometry books; only after 1900) Earliest: Cudesch da geometria. Chur: Lehrmittelverlag Graubünden 1999

Italian

Luca Pacioli

Summa de arithmetica, geometria, proportioni e proportionalità
Venezia: Paganini 1494-11-10/20

See Part 1 Arithmetic books

First Italian translation of Euclid's *Elements*:
Tartaglia, Niccolò: *Euclide Megarense philosopho ... di latino in volgar tradotto.* Venezia: Venturino Roffinelli 1543, 241 fol.

Romanian

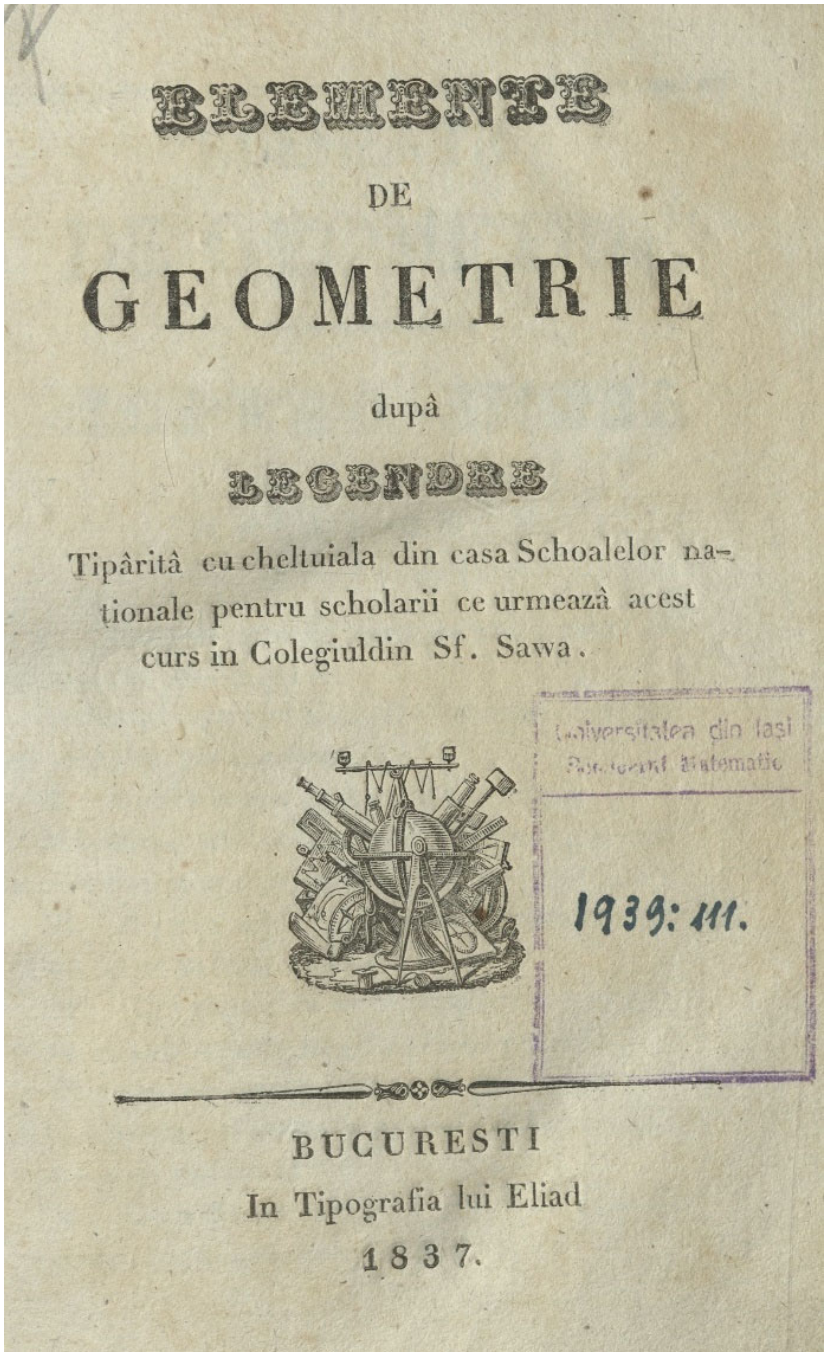
Adrien-Marie Legendre
Petrache / Petru Poenaru

Legendre: Mathematician
1752 Paris
1833 Paris
Poenaru: Mathematician, engineer, teacher
1799 Băneşti, Vâlcea County
1875 Bucureşti

Elemente de geometrie după Legendre
Bucureşti:
Ion Heliade-Rădulescu [1]1837

Later editions: 1865, 1868, 1871 und 1874
French original *Éléments de géométrie*, Paris [1]1794, digital Portal Gallica

336 + XIV (typos), XII tables with 271 fig.
D: https://dspace.bcu-iasi.ro/handle/123456789/33688



Romanian

Adrien-Marie Legendre
Petrache / Petru Poenaru

Elemente de geometrie după Legendre
Bucureşti:
Ion Heliade-Rădulescu [1]1837

Transcription of the title page

Text of the book in Cyrillic script

L: Iași U, Special Collections Dept.
C: Bibliografia românească moderna (BRM) old.biblacad.ro/bnr/brmautori.php? aut=l, author Legendre, no. 32256
S: Țălu, Ștefan: Contribution of Petrache Poenaru. In: NOESIS 37 (2012), p. 143–148, https://noesis.crifst.ro/wp-content/uploads/revista/2012/2012_2_08.pdf

Elemente
de
Geometrie
dupâ
Legendre

Tipâritâ cu cheltuiala din casa Schoalelor nationale pentru scholarii ce urmează acest curs in Colegiuldin Sf[ântul] Sawa.

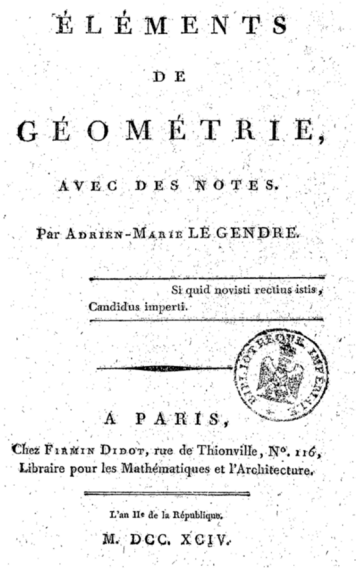
Bucuresti
In Tipografia lui Eliad
1837

Romanian

Adrien-Marie Legendre
Petrache / Petru Poenaru

Elemente de geometrie după Legendre
Bucureşti:
Ion Heliade-Rădulescu [1]1837

Translation of the title page



ÉLÉMENTS

DE

GÉOMÉTRIE,

AVEC DES NOTES.

Par ADRIEN-MARIE LEGENDRE.

Si quid novisti rectius istis,
Candidus imperti.

À PARIS,

Chez FIRMIN DIDOT, rue de Thionville, N°. 116,
Libraire pour les Mathématiques et l'Architecture.

L'an IIe de la République.

M. DCC. XCIV.

Elements
of
geometry
according to
Legendre

Printed at the expense of the National Schools fund
for the students attending this
course at Saint Sava College

Bucureşti
At the printing house of Ion Heliade-Rădulescu
1837

Romanian

Adrien-Marie Legendre
Petrache / Petru Poenaru

Elemente de geometrie după Legendre
Bucureşti:
Ion Heliade-Rădulescu [1]1837

Transcription, romanization and translation of the Cyrillic title page

Елементе де Цеометрие
Традусе дупъ Лежендре пентру Тинеримя Ромѫнѧскъ
Влахіа, Ын Типографія луі И. Еліад, 1837
Суб-инспекціа
Д. Скортело, К. Арістіа ші П. Поенаро
Ын Букурещй, 1837

Elemente de Geometrie
Traduse după Legendre pentru Tinerimea Românească
Vlahia, În Tipografia lui I. Eliad, 1837
Sub-Inspecția
D. Schortelo, C. Aristia și P. Poenaru
În București, 1837

Elements of geometry
Translated from Legendre for the Romanian youth
Wallachia, in the printing house of Ion Heliade Rădulescu, 1837
Under the inspection
D. Schortelo, C. Aristia und P. Poenaru
In București, 1837

Romanian

Adrien-Marie Legendre
Petrache / Petru Poenaru

Elemente de geometrie după Legendre
Bucureşti:
Ion Heliade-Rădulescu 1837

Content overview
(according to the headings;
same structure as in Legendre's book)

1 General principles (straight, perpendicular, parallel lines)
2 The circle and the measurement of angles (*unghi*) (chords, tangents, secants)
3 Proportions of geometric objects (areas, right-angled triangles, similar objects)
4 Regular polygons and the measurement of the circle
5 Planes and solid angles
6 Polyhedrons (prisms, pyramids)
7 Sphere, spheric triangles
8 The three round solids (*trup*) (cylinder, cone, sphere)

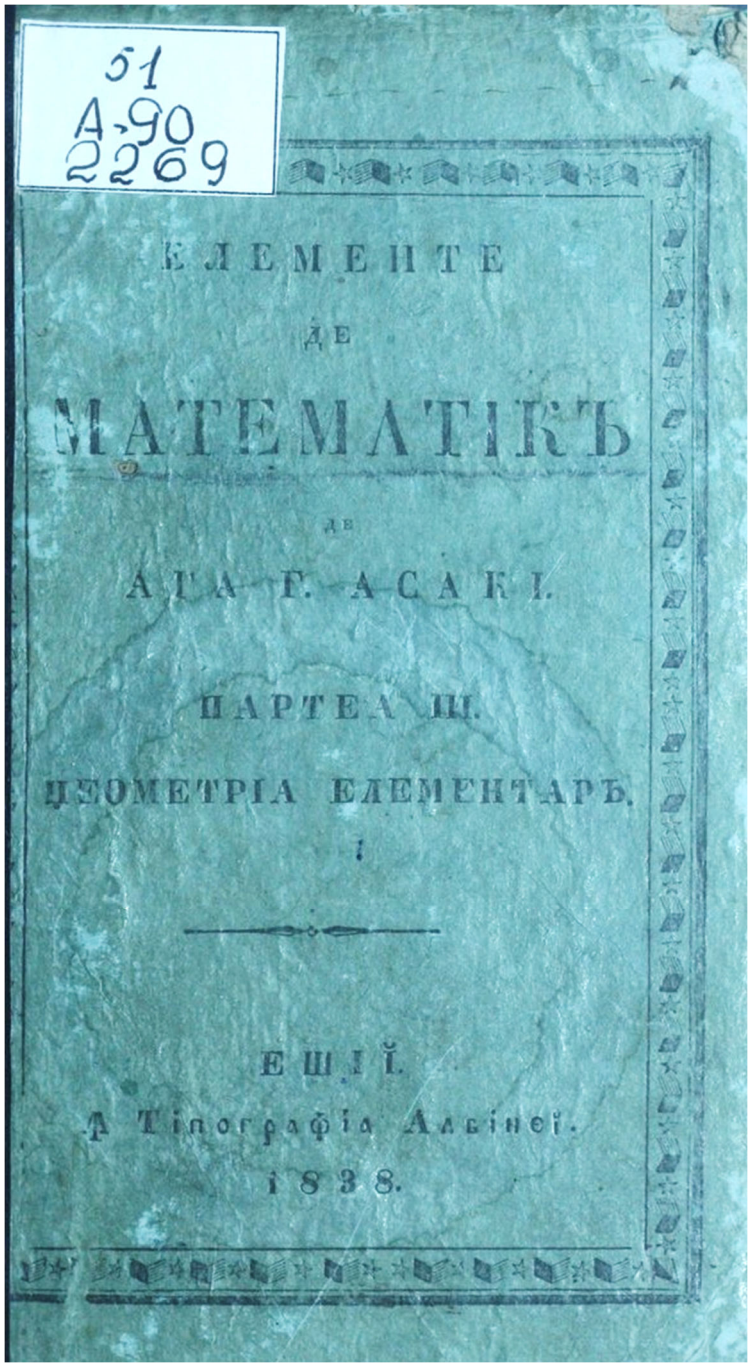
Romanian – Supplement

Gheorghe Asachi

1788–1869
Moldavian scholar, polymath, journalist, politician, civil servant, writer, historian, engineer

Elemente de matematică, Partea 3: Geometria elementară
Iași: Tipografia Albinei
1838

312 p., fig. ?
Scriere chirilică în limba română
[Partea 2: Algebra]
D: moldavica.bnrm.md/biblielmo
L: Biblioteca Naţională Moldavica; Cluj-Napoca U “Lucian Blaga”; OCLC 997463751
V: WorldCat



Romanian – Supplement

Gheorghe Asachi

Elemente de matematică,
Partea 3: Geometria elementară
Iași: Tipografia Albinei 1838

Transcription and translation of the title page

Elemente
de
matematică
de
aga G. Asachi.
Partea III.
Geometria elementară
Eşii.
În Tipografia Albinei.
1838.

Elements
of
mathematics
by
Aga [Boyar rank, Prefect of Police] *G. Asachi*
Part III.
Elementary geometry
Iași
Printing house Albinei
1838

German before 1839

Applications in architecture

Roritzer, Matthäus:
– *Geometria dt.* Nürnberg: Peter Wagner 1472, 12 p.
C: UCatInc –, INKA 27000695
E: Günther 1875
Nürnberg Stadtbib Math. 484.4°, 6 fol. inc. *Aus/Us der geometrey etliche nutzparliche stueck*
[authored by Hans Hösch aus Gmünd?]
– *Geometria deutsch*. Regensburg 1487/88, 12 p.,
C: UCatInc M0248330
– *Geometria dt.* Regensburg 1497,
C: UCatInc M02483, ISTC ig00146000
– *Das Büchlein von der Fialen Gerechtigkeit*. Regensburg 1486-06-28, 18 p.,
C: UCatInc M38863

Hans Schmuttermayer: *Fialenbüchlein*. [Nürnberg: Johann Stuchs] ca. 1490,
C: UCatInc M40870

Widmann, Johannes:
Behend und hübsch Rechnung
Leipzig: K. Kachelofen 1489; Pforzheim: Th. Anshelm 1500
Part on geometry (1 Line, angle, surface, solid; 2 Area, volume, surveying, doliometry): C 2^{v} – G 1^{r} [pdf 409–471, ca. 60 p.]
C: Hoock I/W7; UCatInc M51536–39
E: Gärtner, Barbara. Tübingen 2000, p. 491–510

Köbel, Jacob: *Eyn new geordent Vysirbuch*. Oppenheim 1515, ca. 60 p. (I/K8.3) [doliometry]

Köbel, Jacob: *Von vrsprung der teylung/ Maß vn Messung deß Ertrichs der Ecker*. Oppenheim 1522, 20 fol. [land surveying]

Köbel, Jacob (1462–1533): *Geometrei von künstlichem Messen*. Frankfurt 1535, 56 p.
[height measuring (Jacob's staff), land surveying, doliometry; cf. Gärtner 2000, p. 585]

Dürer, Albrecht: *Underweysung der messung/ mit dem zirckel und richtscheyt*. Nürnberg: Hieronymus Andreae (i.e. Formschneyder) 1525, 178 p. [instructions for beginners of painting in perspective and elementary geometry]

Rodler, Hieronymus: *Eyn schön nützlich büchlin vnd vnderweisung der kunst des Messens/ mit dem Zirckel/ Richtscheidt oder Linial*. Simmern/Hunsrück: Selbstverlag 1531, 90 p. [Dürer simplified]

Stöffler, Johannes (von Justingen): *Von künstlicher Abmessung aller Größe, Ebene etc.* Frankfurt: Egenolff 1536, 34 p [land surveying]

German

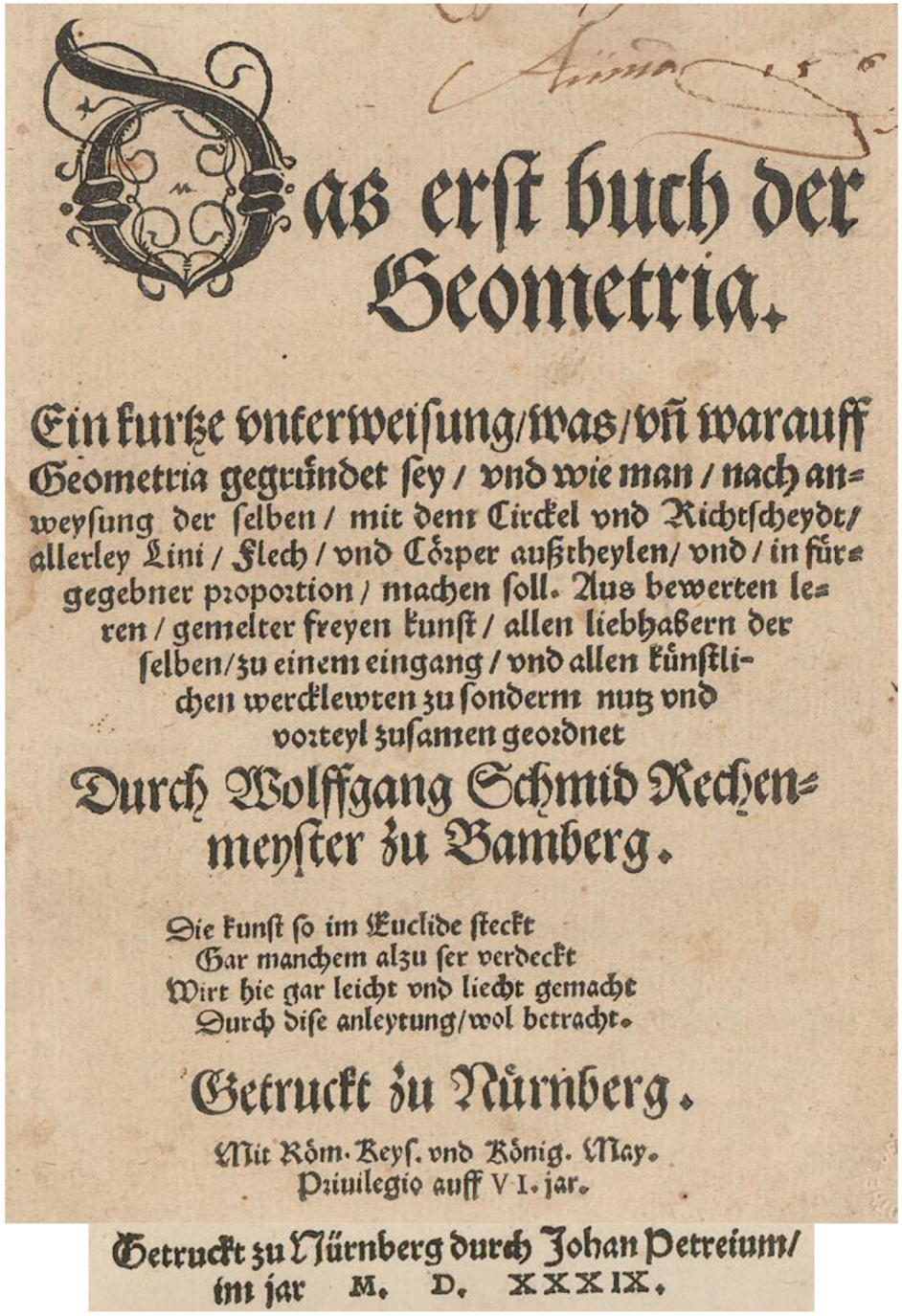
Wolfgang Schmid

Master arithmetician in Bamberg
Flourished < 1485 ? until > 1539
Manuscript *Geometria* < 1539 (Cgm 4151)
[like book; pages missing in 4th part]

Das erst Buch der Geometria
Nürnberg: Johann Petreius 1539

Dedication dated 1539-08-16

8, 127 p., unnumbered fig. on most pages
D: München BSB (4 Math. p. 332)
L: Zürich ETH
S: Holl, Alfred: Ries-Kolloquium 2025
S/V: Špotáková, D: Geometrie und ihre Sprache im 16. Jh. Slowakische Zeitschrift für Germanistik 5 (2013) 3, p. 37–54
Špotáková, D: „Das erst buch der Geometria“ von Wolfgang Schmid. In: Jahrbuch Adam-Ries-Bund 3 (2012) p. 54–60.



Das erst buch der Geometria.

Ein kurtze vnterweisung/was/vñ warauff Geometria gegründet sey / vnd wie man / nach anweysung der selben / mit dem Circkel vnd Richtscheydt/ allerley Lini / Flech / vnd Cörper außtheylen/ vnd / in fürgegebner proportion / machen soll. Aus bewerten leren / gemelter freyen kunst / allen liebhabern der selben/zu einem eingang / vnd allen künstlichen wercklewten zu sonderm nutz vnd vorteyl zusamen geordnet

Durch Wolffgang Schmid Rechenmeyster zu Bamberg.

Die kunst so im Euclide steckt
Gar manchem alzu ser verdeckt
Wirt hie gar leicht vnd liecht gemacht
Durch dise anleytung/wol betracht.

Getruckt zu Nürnberg.

Mit Röm. Keys. vnd König. May. Priuilegio auff VI. jar.

Getruckt zu Nürnberg durch Johan Petreium/ im jar M. D. XXXIX.

German

Wolfgang Schmid

Das erst Buch der Geometria
Nürnberg: Johann Petreius 1539

Transcription of the title page and of the colophon

German *austeiler* ‘feldmesser’, ‘geometer’ [Grimms Wörterbuch, Neubearbeitung, Bd. 3, Sp. 1537], ‘Landvermesser’, ‘land surveyor’

German *austeilen* ‘Felder an Bauern verteilen [nach Maß, das zusteht]’, ‘Erbe [gerecht] verteilen’, ‘vermessen’ [Frühnhd. Wörterbuch (austeilen 3)], ‘to survey’

Privilege by the Holy Roman Emperor Charles V (b. 1500, reigned 1520–1556)

Das erst buch der
Geometria.

Ein kurtze vnterweisung/ was/ vnd warauff
Geometria gegründet sey/ vnd wie man/ nach an-
weysung der selben/ mit dem Circkel vnd Richtscheydt/
allerley Lini/ Flech vnd Cörper außtheylen/ vnd/ in für-
gegebner proportion/ machen soll. Aus bewerten le-
ren/ gemelter freyen kunst/ allen liebhabern der
selben/ zu einem eingang/ vnd allen künstli-
chen wercklewten zu sonderm nutz vnd
vorteyl zusamen geordnet

Durch Wolffgang Schmid Rechen-
meyster zu Bamberg.

Die kunst so im Euclide steckt
Gar manchem alzu ser verdeckt
Wirt hie gar leicht vnd liecht gemacht
Durch dise anleytung/ wol betracht.

Getruckt zu Nürnberg.

Mit Röm. Keys. vnd König. May.
Privilegio auf VI. jar.

Getruckt zu Nürnberg durch Johan Petreium/
im jar M. D. XXXIX.

German

Wolfgang Schmid

Das erst Buch der Geometria
Nürnberg: Johann Petreius 1539

Translation of the title page and of the colophon

The first book of
geometry.

A short instruction on what geometry is and what geometry is based on and how one should – according to this instruction – construct all kinds of lines, surfaces and solids with compass and ruler and construct them in given proportions. Compiled from reliable lessons on the above-mentioned liberal art for all its enthusiasts as an access to it and for all competent craftsmen for their special use and advantage

By Wolfgang Schmid master arithmetician in Bamberg

The art that lies in Euclid
and which is much too obscured for some people
is made easy and transparent
through this instruction if you look at it carefully.

Printed in Nürnberg

With privilege of the Roman imperial and royal majesty for six years

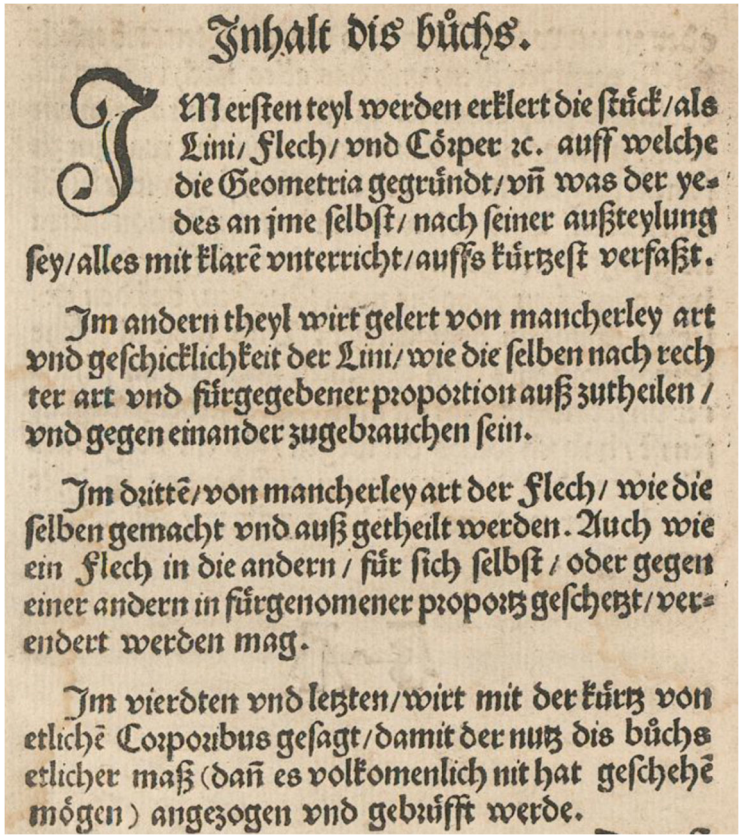
Printed in Nürnberg by Johann Petreius in the year 1539

German

Wolfgang Schmid

Das erst Buch der Geometria
Nürnberg: Johann Petreius 1539

Content overview



Inhalt dis büchs.

Im erſten teyl werden erklert die ſtück/als Lini/ Flech/ vnd Cörper ꝛc. auff welche die Geometria gegründt/ vñ was der yedes an jme ſelbſt/ nach ſeiner außteylung ſey/alles mit klarẽ vnterricht/auffs kürtzeſt verfaßt.

Im andern theyl wirt gelert von mancherley art vnd geſchicklichkeit der Lini/wie die ſelben nach rechter art vnd fürgegebener proportion auß zutheilen/ vnd gegen einander zugebrauchen ſein.

Im dritte/von mancherley art der Flech/ wie die ſelben gemacht vnd auß getheilt werden. Auch wie ein Flech in die andern/ für ſich ſelbſt/ oder gegen einer andern in fürgenomener proportz geſchetzt/ verendert werden mag.

Im vierdten vnd letzten/wirt mit der kürtz von etlichẽ Corporibus geſagt/damit der nutz dis büchs etlicher maß (dañ es volkomenlich nit hat geſchehẽ mögen) angezogen vnd gebrüfft werde.

Dedication to the master arithmetician Johann Neudörffer and the printer Johann Petreius in Nürnberg (dated 1539-08-16)

Preface to the reader (*Vorrede an den leser*)

Table of contents (*Inhalt dis bůchs*)

Part 1: Definitions of one-, two- and three-dimensional objects, including point, lines (straight (*gerad, scheidrecht*), curved (*krumm*)), arc (*circkeltrumm*), spiral (*schnecken lini*), helix (*gewunden lini*), wavy line (*schlangen lini*), angles (*winckel*: right (*rechter winckelhack*), acute (*eng*, *spitzig*), obtuse (*weit*, *stumpf*)), surfaces (*flech*: planar (*eben*, *flach*), curved (*krumm*, *gebogen*)), triangles (*dreyort*: right (*rechtwincklichter triangel*), equilateral (*isopleurus*), isosceles (*equicrurus*), scalene (*inequalium laterum*)), quadrilateral (*vierorth*, *vierung*: square (*recht gevierth*), rhombus (*gleichseytig raute*, *geschrait* [sc. geschrägt] *vierorth*), rectangle (*rechtwincklichte ablange vierung*, *quadrangulum parallelogrammum*), parallelogram (*ablange raute*, *geschrait vberlengte vierung*, *romboides*)), polygons (*vileckete flechen*), solids (*cörper*), five regular solids, cylinder (*runde saul*), prism (*eckichte saul*), cone (*runde feurform*), pyramid (*eckichte feurform*) etc., proportions, similarity.

Euclid used the term *parallelogram* as umbrella term for square, rectangle, rhombus and *rhomboid* (general parallelogram without special cases). The umbrella term for the rest was *trapezion*.

German

Wolfgang Schmid

Das erst Buch der Geometria
Nürnberg: Johann Petreius 1539

Content overview

First German translations of Euclid's *Elements*:

Scheubel, Johann (ca. 1494–1570): *Das sibend, acht vnd neünt Bůch* [Book VII–IX]. Augsburg: Valentin Ottmar 1555, 234 p.

Holzmann/Xylander, Wilhelm (1532–1576): *Die Sechs Erste Bücher Euclidis ... auss Griechischer sprach*. Basel: Jacob Kündig for Johann Oporinus 1562, 185 p.

Hofmann, Heinrich (1576–1652): *Teutscher Euclides*. Jena: self-published 1628, 160 p.

Pirckenstein, Anton Ernst Burkhart v. (1655–1721): *Teutsch-Redender Euclides* [Books I–VI, XI, XII]. Wien: Fievets 1693, 375 p.

Part 2 (29 problems numbered with Roman number symbols): Constructions with a focus on straight and curved lines, including perpendicular (*winckelrecht*) lines (II–VI), line segments with given proportions (VIII–XIV), center of a circle (XV–XVII), approximative geometric transformations from straight line segments to circular lines and conversely following Nicolaus Cusanus (XVIII–XXII), spirals (XXIII–XXV), helix (*schrauben lini*, XXVII), conchoid (*muschel lini*, XXVIII).

Part 3 (37 problems numbered with Roman number symbols): Constructions of two-dimensional objects, including regular polygons with approximative constructions of the non-constructible ones (VII–XXIV: from triangle (VII) through heptagon (*sibenort*, XI) to icosagon (XXIV)), mutual geometric transformations of various types of polygons (XXV–XXXII), similar objects with a certain proportion (XXXIII–XXXV), approximative transformation from circle to rectangle and conversely (XXXVI–XXXVII).

Part 4 (18 problems numbered with Roman number symbols): Constructions of three-dimensional objects, including solid angles (I–IV), similar solids (V), geometric transformations of prisms to other prisms partly with a given proportion (V–IX), approximative geometric transformations (prism to cube (X, XIII, XVI), cube to cube with a given proportion (XI–XII), prism to cylinder and conversely (XIV–XV)), geometric transformation cylinder to cone and conversely (XVII–XVIII).

Dutch

Anonym

Die waerachtige const der Geometrien

Brussel: Thomas van der Noot 1513-04-28

2nd edition:
Die warachtighe const der Geometryen
Antwerpen: Jan Roelants 1547, 60 p.

84 p., unnumbered fig. on most pages
D/L: Gent U (R. 1099)
S/V: Bockstaele, Paul: Het oudst bekende, gedrukte Nederlandse meetkundeboek. In: Tijdschrift voor de Geschiedenis der Geneeskunde, Natuurwetenschappen, Wiskunde en Techniek 7 (1984), 79–92
Struik, Dirk J: Mathematics in the Netherlands during the first half of the sixteenth century. In: Isis 25 (1936) 46–56

Dutch

Anonym

Die waerachtige const der Geometrien
Brussel: van der Noot 1513

Transcription of the title page and of the colophon

Privilege certainly by Margret of Austria (1480–1530), governor-general of the Habsburg Netherlands 1507–1515 and 1519–1530, daughter of emperor Maximilian I and Mary of Burgundy, Duchess of Brabant, Flanders etc.

S: Holl, Alfred: Ries-Kolloquium 2025
List of various geometry books until 1700:
https://www.jphogendijk.nl/list/17meetk.html

DIe waerachtige const der Geometrien leerende hoemen alderhande, breydden, lingden, dicten, ende hooch-den Der velden Beemden Bosschen Berghen Metselrien P[l]*aueyselen Torren Huysen Kercken ende alderhan-de dinghen meten sal. Hoemen oock maken sal die wijnroede, Om daer mede te roeden alderhande Ton-nen Vaten Cuyppen backen ende dier ghelijcke.*

Cum priuilegio amplissimo
Gheprint in de princelijcke stadt van Bruesel In den Zeeridder Bi mi Thomaes van der noot op ten acht en twintichsten dach van April Int iaer .xv^{c}. ende .xiij.

Dutch

Anonym

Die waerachtige const der Geometrien
Brussel: van der Noot 1513

Translation of the title page and of the colophon

The veritable art of geometry that teaches how one shall measure various bredths, lengths, depths and heights of the fields, meadows, groves, mountains, masonries, pavings, towers, houses, churches and all kinds of things. Also how one shall make the wine rod in order to measure with it all kinds of tons, barrels, tubs, bins and the like.

With the greatest privilege
Printed in the princely city of Brussel in the [house] *Zeeridder by me Thomas van der Noot on the 28th day of April in the year 1513.*

zeeridder (sea knight, chevalier marin, Seeritter, zitiron)

Dutch

Anonym

Die waerachtige const der Geometrien
Brussel: van der Noot 1513

Margret of Austria, Mechelen

John's coat of arms – privilege – Stadhuis Antwerpen

Among others, the coat of arms in the privilege contains
a pattern of Burgundy (oblique stripes in blue and gold),
the golden lion (on a black field) of Brabant,
the black lion (on a golden field) of Flanders,
all three from Margret's mother, Mary of Burgundy,
as well as the golden castle of Castile and
the purple lion of León (in the four quarters upper left and lower right) and
the surrounding collar of the Order of the Golden Fleece,
all three from Margret's first father in law Ferdinand II, King of Aragón and Castile (marriage with John, Prince of Asturias and Girona, in 1497)

Dutch

Anonym

Die waerachtige const der Geometrien
Brussel: van der Noot 1513

Content overview

(according to the information
in the heading paragraphs that are
numbered with Dutch numerals and
to Bockstaele 1984)

Main sources (according to Bockstaele 1984, p. 89–91):
Reisch, Gregor: *Margarita philosophica*. Freiburg 1503; Book VI *Geometria speculative et practica*
Widmann, Johann: *Behende und hubsche rechenung*. Leipzig 1489

1 Lines: straight lines (*recht*) (*diameter*, *diagonalis*, *corda*, *costa*, *basis*, *hypotenusa* etc.), curved lines (*cromm*) (*linea circumferentialis*, *spiralis*) (pdf 5)
2 Angles (*hoeck*): acute (*acutus*), obtuse (*obtusus*), angle between intersecting circles (*angulus speralis*) etc. (pdf 8)
3 Surfaces (*superficien*): planar (*recht*), curved (*cromm*) (pdf 10)
4 Circles, segments (*porcio circuli*), sectors (pdf 10)
5 Triangles (*driehoeck*): equilateral (*ysopleurus*), isosceles, scalene etc. (pdf 11)
6 Quadrilaterals (*vierhoeck*) (pdf 12)
7 Pentagon (*vijfhoeck*), hexagon (*seshoeck*), heptagon (*sevenhoeck*) (pdf 12)

At this point, the definitions end and the problems start.

8 Round lines and areas: approximation $\pi = 22/7$ [partly false formulae] (pdf 13)
9 Sides, altitude and area of various types of triangles (pdf 15)
10 Area of various types of quadrilaterals (pdf 19)
11 Area of a regular polygon (pdf 22)

Dutch

Anonym

Die waerachtige const der Geometrien
Brussel: van der Noot 1513

Content overview

(according to the information in the heading paragraphs that are numbered with Dutch numerals and to Bockstaele 1984)

First Dutch translation of Euclid's *Elements*:

Dou, Jan Pieterszoon: *De ses eerste boucken Evclidis*. Leiden: Bouwentz 1606, 164 p.

12 Area of convex polygons (*hoeckeghen dingen*) (pdf 23)
13 Area of not convex polygons (pdf 27)
14 Transformation circle to square; polygons with inscribed and circumscribed circles [partly false formulae] (pdf 28)
15 Volume of the cube (pdf 30)
16 Volume of the sphere (*bol*) (pdf 31)
17 Volume of the cylinder (pdf 32)
18 Volume of the triangular prism (pdf 32)
19 Surface area of mountains (frustum of a cone) (pdf 33)
20 Area of a plot of land (grove; *bosschen*) (pdf 34)
21, 22 Wine rod (*wijnroede*) (pdf 36, 40)
23–25 Measuring heights and breadths with the Jacob's staff (*baculus Jacobi*) (pdf 41, 41, 42)
26–28 Measuring heights with a quadrant (*Scala altimetria*) (pdf 42, 44, 45)
29 Measuring the height of towers with their shadow (pdf 45)
30 Measuring length and bredth of a pond (*viver*) with two sticks one of which is twice as long as the other without going into or over the water (pdf 46)

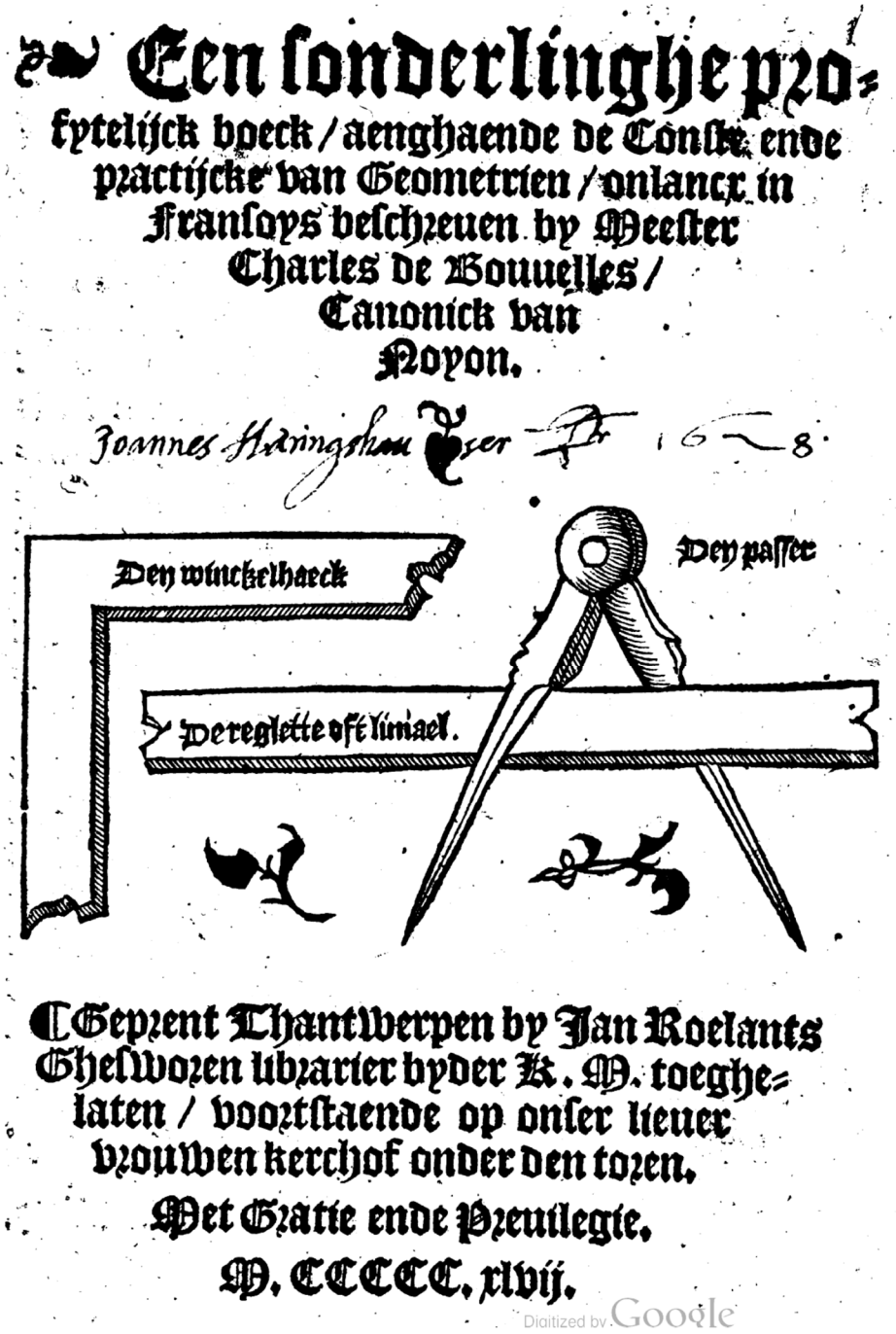
Dutch – Supplement

Carolus Bovillus

Een sonderlinghe profytelijck boeck, aenghaende de Conste ende practijcke van Geometrien
Antwerpen: Jan Roelants 1547

Dutch adaptation of:
Livre singulier et utile touchant l art et practique de Géométrie [7 chapters].
Paris: Simon de Colines 1542-12-07, 112 p.
[illustrated by Oronce Fine (1494–1555)]
first edition 1511

ca. 100 p., unnumbered fig. on most pages
7 chapters
[ends with ill. of a face as Bovillus 1542]


Een sonderlinghe pro-
fytelijck boeck / aenghaende de Conste ende
practijcke van Geometrien / onlancx in
Franſoys beſchreuen by Meeſter
Charles de Bouuelles /
Canonick van
Noyon.

Ioannes Haringhaus Boeser 16 8.

Den winckelhaeck

Den passer

De reglette oft liniael.

Gheprent Thantwerpen by Jan Roelants
Ghelwoonen ubzarier byder K. M. toeghe-
laten / voorſtaende op onſer lieuer
vrouwen kerchof onder den toren.
Met Gratie ende Preuilegie.
M. CCCCC. xlvij.

Digitized by Google

Dutch – Supplement

Carolus Bovillus

Een sonderlinghe profytelijck boeck, aenghaende de Conste ende practijcke van Geometrien
Antwerpen: Jan Roelants 1547

From the two Antwerpen 1547 geometry books (anonym, Bovillus):
references to each other and
to two other books revisited and approved by
Master Jaspar/Gaspard de Mere (de Dieu), licentiate in theology [*godheyt*].
(No reference from *Een suyverlijc tractaet* 1556 to other books)

Calculacye oft sommeringhe van allen den Gouden en Silveren gheualueerden penninghen, cours en ganck hebbende in desen Nederlanden …
[new print of the edition 1500, 22 fol.]
[later edition 1556 *Calculacie* …]

Een suyverlijc tractaet om int corte te handelen ende te genesen alderhande wonden ende quetsuren gedaen met haeckbussen, ende ander vierstocken: ende ooc sulcke als ghedaen worden met flitsen, pijlen, schichten, ende dyerghelijc gheschut: ende oock van verbrantheyt, ende sonderlinge dat door buspoeder by compt: verbetert ende vermeerdert met sonderlinghe goede experte recepten, ende verclaert met schoone figueren.
By Ambroise Paré (ca. 1510–1590; French surgeon)
[later edition 1556: *bi mi Jan Roelants; Men vintse te coope Thantwerpen op onser liever Vrouwen Kerckhof onder den Thoren, Gheprint Thantwerpen (op die Lombaerde Veste in onse lieve Vrouwen Thoren), 1556*]

English

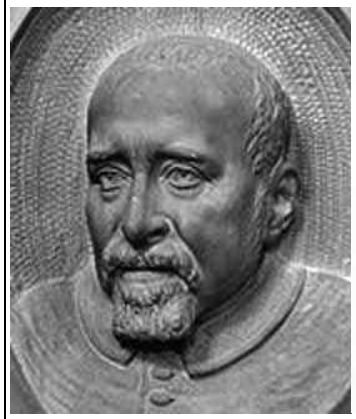
Robert Recorde

b. 1510/12 Tenby, Pembrokeshire, Wales
d. 1558 London
Physician and mathematician
1525–1545 Studies at Oxford, Cambridge
From 1549 Positions in mint and mines
Other works:
Ground of artes (arithmetic) 1543
Castle of knowledge (astronomy) 1556
Whetstone of witte (algebra) 1557

The pathway to knowledge
London: Reynold Wolfe 1551

Later editions:
London: J. Kingston for John Harrison 1574
London: I. J. Harrison for John Harrison 1602

181 p., unnumbered fig. on most pages
R: TGR Renascent Books 2009
L: London BL



The pathway to
KNOWLEDG, CONTAI-
NING THE FIRST PRIN=
ciples of Geometrie, as they
may moſte aptly be applied vn=
to practiſe, bothe for vſe of
inſtrumentes Geome=
tricall, and aſtrono=
micall and
alſo for proiection of plattes in euerye
kinde, and therfore much ne=
ceſſary for all ſortes of
men.

Geometries verdicte

All freſſhe fine wittes by me are filed,
All groſſe dull wittes wiſhe me exiled:
Thoughe no mannes witte reiect will I,
Yet as they be, I wyll them trye.

IMPRINTED at London in Poules churcheyarde, at the ſigne of the Bra= ſen ſerpent, by Reynold Wolfe.

Cum priuilegio ad imprimen= dum ſolum.

ANNO DOMINI M.D.L.I.

English

Robert Recorde

The pathway to knowledge
London: Reynold Wolfe 1551

Transcription of the title page and of the colophon

S: Holl, Alfred: Ries-Kolloquium 2025
Roberts, Gordon: Robert Recorde – Tudor, Scholar and Mathematician. Cardiff 2016
Roberts, Gareth; Smith, Fenny (ed.): Robert Recorde – the life and times of a Tudor mathematician. Cardiff 2012
Williams, Jack: Robert Recorde – Tudor polymath, expositor and practitioner of computation. London 2011
S/V: Introduction to the reprint 2009

The pathway to
knowledg, contai-
ning the first prin-
ciples of Geometrie, as they
may moste aptly be applied vn-
to practice, bothe for vse of
instruments Geome-
tricall, and astrono-
micall and
also for proiection of plattes in euerye
kinde, and therfore much ne-
cessary for all sortes of
men.

Geometries verdict
All fresshe fine wittes by me are filed,
All grosse dull wittes wishe me exiled:
Thoughe no mannes witte reiect will I,
Yet as they be, I wyll them trye.

Imprinted at London in Poules
churcheyarde, at the signe of the Bra-
sen serpent, by Reynold Wolfe.
Cum priuilegio ad imprimen-
dum solum.
Anno Domini M.D.L.I.

English

Robert Recorde

The pathway to knowledge
London: Reynold Wolfe 1551

Translation of the title page and of the colophon

End of Epistle to King Edward VI (reigned 1547–1553)

Your maieſties moſte humble ſer=
uant and obedient ſubiect,
Robert Recorde.

Your Majesties most humble ser-
vant and obedient subject,
Robert Recorde

The pathway to
knowledge, contain-
ing the first prin-
ciples of geometry, as they
may most suitably be applied
to practice, both for the use of
geometric and
astronomic
instruments and
also for the projection of planes in every
way, and therefore very ne-
cessary for all sorts of
men.

Judgment (verdict) of geometry
I register all fresh fine minds (wits),
All gross dull minds (wits) wish me banned:
Though I will reject no man's wit,
Yet I will judge them as they may be.

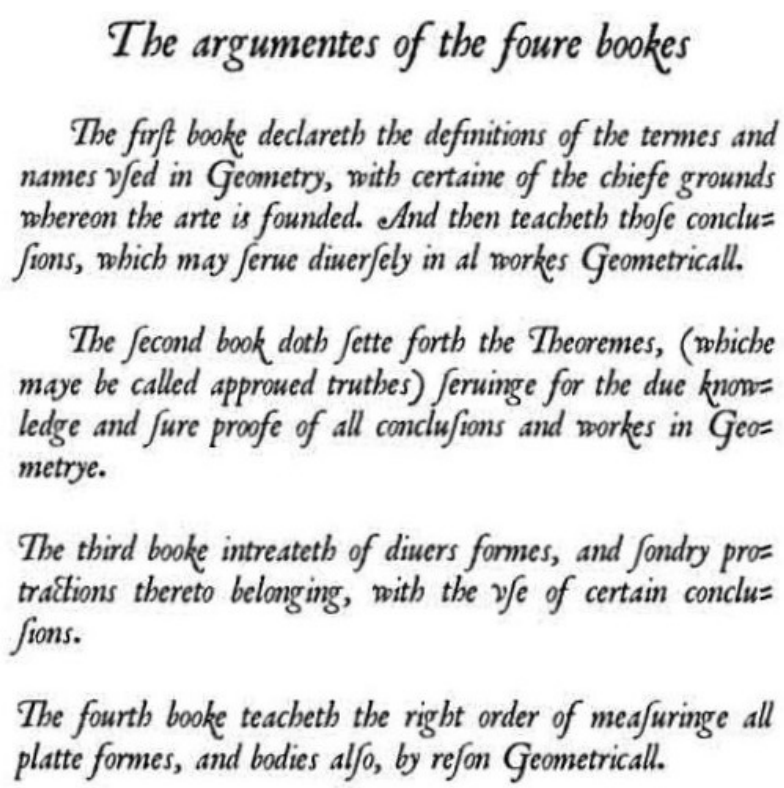
Printed at London in St. Paul's
churchyard, at the sign of the Bra-
zen Serpent, by Reynold Wolfe.
With the privilege
of the only print.
In the year of our lord 1551

English

Robert Recorde

The pathway to knowledge
London: Reynold Wolfe 1551

Content overview



The argumentes of the foure bookes

The firſt booke declareth the definitions of the termes and names vſed in Geometry, with certaine of the chiefe grounds whereon the arte is founded. And then teacheth thoſe conclu= ſions, which may ſerue diuerſely in al workes Geometricall.

The ſecond booke doth ſette forth the Theoremes, (whiche maye be called approued truthes) ſeruinge for the due know= ledge and ſure proofe of all concluſions and workes in Geo= metrye.

The third booke intreateth of diuers formes, and ſondry pro= tractions thereto belonging, with the vſe of certain conclu= ſions.

The fourth booke teacheth the right order of meaſuringe all platte formes, and bodies alſo, by reſon Geometricall.

Brief overview of the contents (*argumentes*)
Brief preface (*To the gentle reader*)
Epistle to King Edward VI (b. 1537, reigned 1547–1553)
Long preface explaining *commodities* and *necessity* of geometry (epistle and preface dated 1551-01-18)

<u>Book 1</u>:
– Definitions of (mostly planar) geometric objects. The terminology is not stable; Recorde partly uses two words in parallel, e.g. *point* and *prick*, partly everyday words that today do not have any mathematical meaning, e.g. for circles *cantle* ‘segment’, *nook* ‘sector’, and partly created new words that did not survive, e.g. *touch line* ‘tangent’, *match corner* ‘opposite angle’, *cinkangle* ‘pentagon’, for triangles *threelike* ‘equilateral’, *twolike* ‘isosceles’, *nolike* ‘scalene’.
– 46 constructions (*conclusions*; numbered with English numerals or Roman number symbols) [almost all of the problems of Euclid, *Elements*, Books I–IV]

English

Robert Recorde

The pathway to knowledge
London: Reynold Wolfe 1551

Content overview

Recorde put Euclid's problems in Book 1 and the theorems in Book 2 and did not give any proofs.

First English translation of Euclid's *Elements*:

Billingsley, Henry: *The elements of geometrie* [Books I–XV]. London: John Daye 1570, 930 p.

Book 2 (*containing certaine Theoremes, whiche may be called Approued truthes*): has a title page and a preface of its own:
– Postulates (*grauntable requestes*)
– 10 axioms (*common sentenses*; numbered with English numerals)
– 77 theorems (numbered with English numerals or Roman number symbols) [all of the theorems of Euclid, *Elements*, Books I–III]

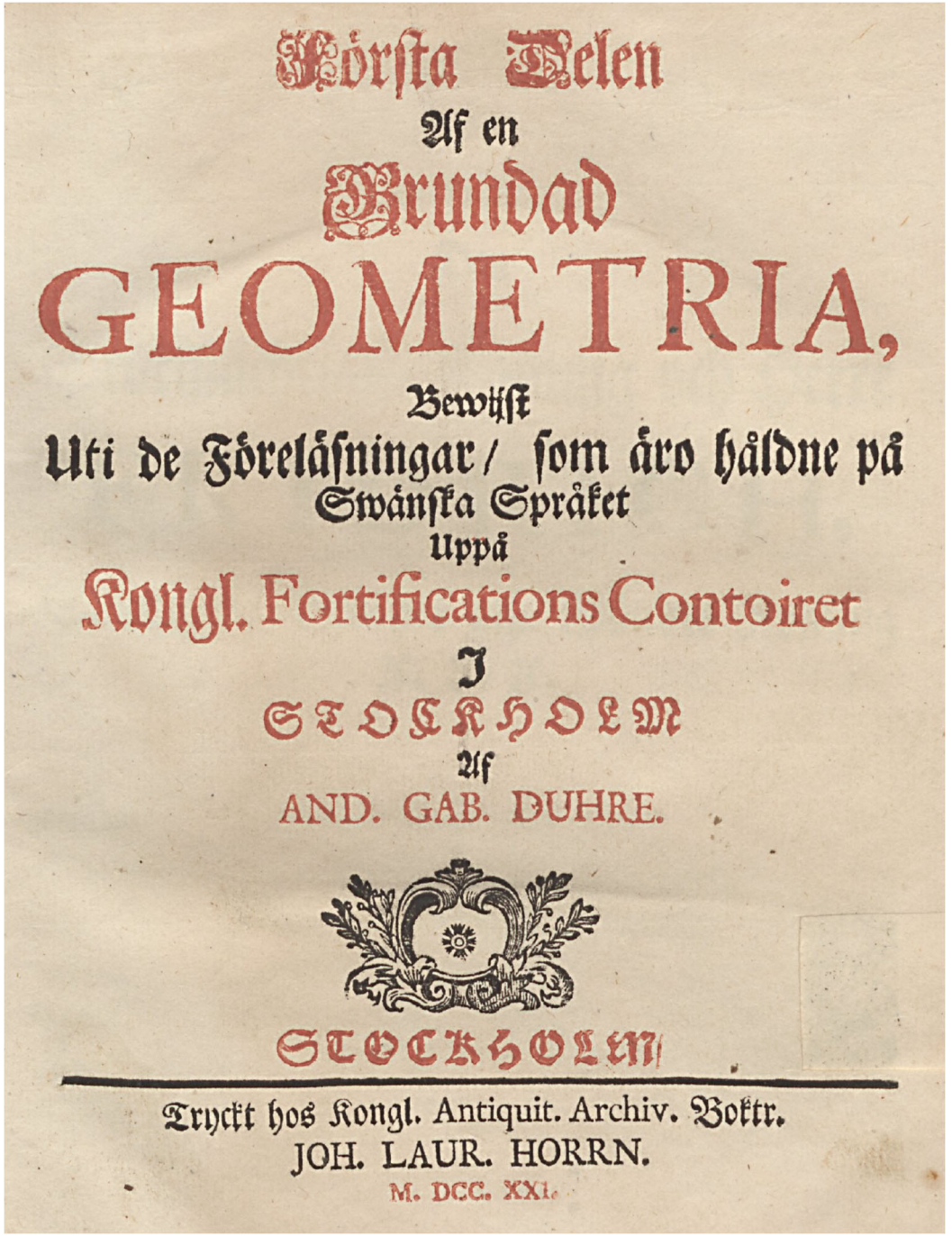
Book 3 and 4 were not published.
Book 3 was originally planned to treat *diuers formes* and Book 4 to deal with measuring two- and three-dimensional objects.
Recorde underlines his continuing intention to publish them (eighth page of the epistle, third page of the preface to Book 2). It seems that the manuscripts had already been completed.

Swedish

Anders Gabriel Duhre

b. ca. 1680
d. 1739 Gnista, Vaksala, Uppsala län
Matematician, economist
Studies at Uppsala univ.
1715 Auskultant (teacher student) at Bergskollegium (Mining Authority)
1717–1723 Lecturer at Fortikationskontoret (Fortifications Authority), Stockholm
1724 Maths lecturer at Uppsala University
1723–1731 Lecturer at a private technical school, Ultuna (royal farm), Uppsala
1717–1731 Scolarship of Bergskollegium
[Sv. Biografiskt Lex., Nord. familjebok]

Grundad Geometria – Första Del
Stockholm: Johan Laurentius Horrn 1721
Only the first part was published.



Första Delen
Af en
Grundad
GEOMETRIA,
Bewijst
Uti de Föreläsningar / som äro hållne på
Swänska Språket
Uppå
Kongl. Fortifications Contoiret
I
STOCKHOLM
Af
AND. GAB. DUHRE.

STOCKHOLM

Tryckt hos Kongl. Antiquit. Archiv. Boktr.
JOH. LAUR. HORRN.
M. DCC. XXI.

Swedish

Anders Gabriel Duhre

Grundad Geometria
Stockholm: Horrn 1721

Transcription of the title page

660 p., XVI tables with 179 fig.
D: digital.ub.umu.se
L: Umeå U, København Royal L
S: Gårding, Lars: Mathematics and mathematicians – mathematics in Sweden before 1950. Providence, London 1998
Holl, Alfred: Ries-Kolloquium 2025
Rodhe, Staffan: Matematikens utveckling i Sverige fram till 1731. Uppsala 2002
V: WorldCat

Första Delen
Af en
Grundad
Geometria,
Bewijst
Uti dem Föreläsningar/ som äro håldne på
Swänska Språket
Uppå
Kongl[iga] *Fortifications Contoiret*
[Fortifikationskontoret, -verket]
I
Stockholm
Af
And[ers] *Gab*[riel] *Duhre.*

Stockholm

Tryckt hos Kongl[iga] *Antiquit*[atis] *Archiv*[i]
[Antikvitetsarkivets] *Boktr*[yckeri]
Joh[an] *Laur*[entius] *Horrn.*
M. DCC. XXI.

Swedish

Anders Gabriel Duhre

Grundad Geometria
Stockholm: Horrn 1721

Translation of the title page

Other works by Duhre:
Wälmenta tanckar ... at ... uppå wårt egit äfwentyr uprätta et laboratorium mathematico-oeconomicum. Stockholm: Henr. C. Merckell 1722, 28 p.
Sweriges högsta wälstånd, bygdt uppå en oeconomisk grundwal. Stockholm: Henr. C. Merckell's widow 1738, 210 p.
Brandt, Georg: *En grundelig anledning til mathesin universalem och algebram, efter herr Anders Gabriel Duhres håldne prælectioner*. Stockholm: Johan Laurentius Horrn 1718, 280 p.

First part
of a
grounded
geometry,
proved
from the lectures that are given in
the Swedish language
at
the Royal Fortifications Authority
in
Stockholm
by
Anders Gabriel Duhre.

Stockholm

Printed at the Royal Antiquity Archive's [antikvitetsarchiv since 1692, former antikvitetskollegium] *Printing House Johan Laurentius Horrn* [1683–1741].
1721

Swedish

Anders Gabriel Duhre

Grundad Geometria
Stockholm: Horrn 1721

Content overview
(according to the table of contents)

Well-structured book with the following structure elements: definitions (*beskrifning*), propositions (*föreställning*) with proofs (*bewijs*), corollaries (*påfölgd*) and problems (*opgift*) with solutions etc. Contains algebraic notations.

First Swedish translation of Euclid's *Elements*:
Strömer, Mårten: *Euclidis elementa* [*de sex första böckerna*]. Uppsala: Gottfried Kiesewetter 1744, 190 p.

Dedication to King Fredrik I of Sweden (Friedrich von Hessen-Kassel; b. 1676, reigned 1720–1751)
Long preface (*företaal*, 22 pages) that among others refers to foreign scientific works (pdf 30, 33)
Very detailed table of contents (*Register*, 33 pages)

1 Straight lines, all sorts of polygons (square, parallelogram, triangle etc.), trigonometry (propositions I–XXXVI)
2 Sines (propositions XXXVII–LI)
3 Tangents (propositions LII–LX)
4 Secants (propositions LXI–LXVIII)
5 The use of tables of sine, tangent and secant (incl. logarithms) (problems I–XIV)
6 Plane trigonometry (calculation of the sides and angles of triangles) (propositions LXIX–LXXIV, problems XV–XXVI)
7 Spherical trigonometry, spherical triangles (propositions LXXV–CIV)
8 Problems regarding spherical triangles (problems XXVII–LIV) [reference to the unpublished vol. 2 for the rest of trigonometry]
9 Surface areas (*utanwidd*) of solids (propositions CV–CX)
10 Volumes (*dryghet*, *fasthet*) of solids; the five regular solids (propositions CXI–CXXV)
11 Applications of algebra within geometry (problems LV–LXXVII)

Danish

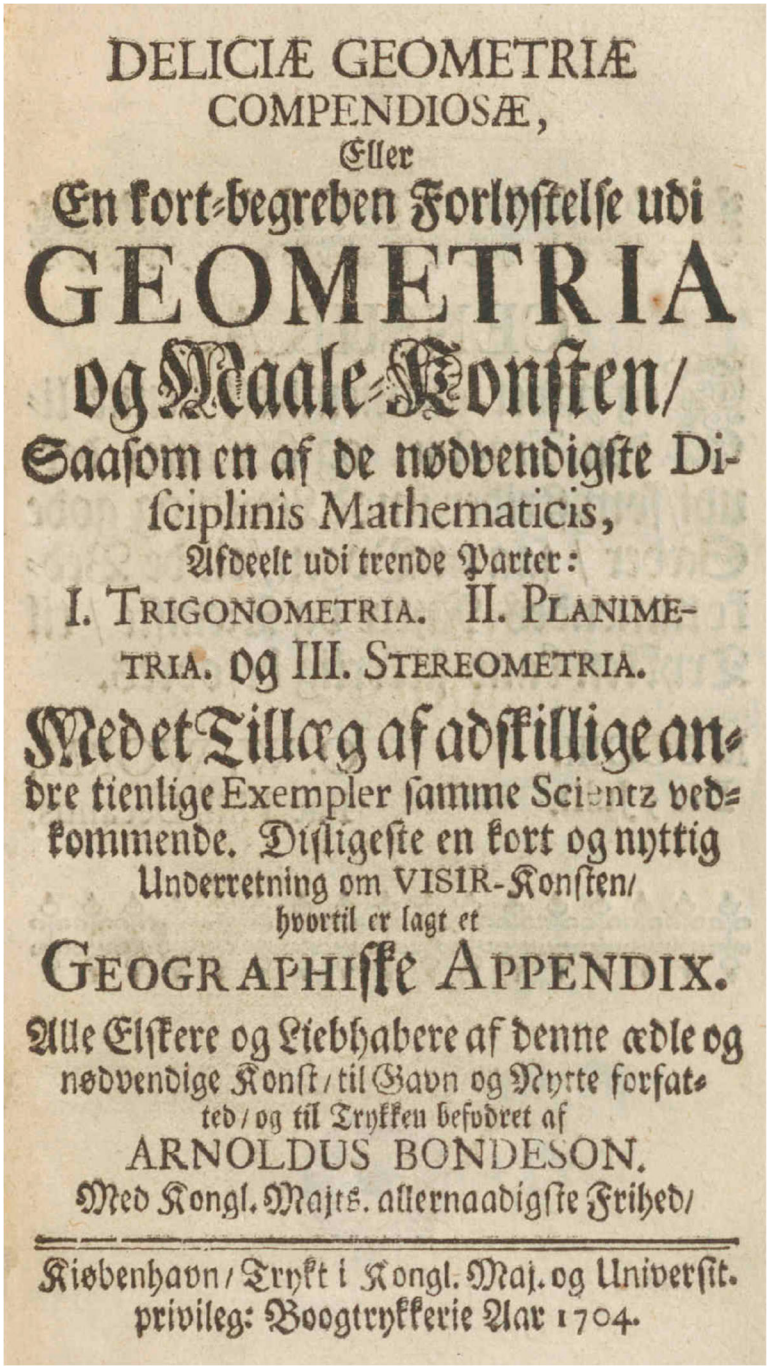
Arnoldus Bondeson/søn/sen

Born in København, “død efter 1728” (Ordbog over det danske Sprog, reg. II 388, Kildefortegnelse see “Geom.(1704)”)
København, Strand Kvarter, Langs Stranden (Kjøbenhavns Indvaanere 1728, no. 1398, www.hist.uib.no/kbh1728/kbh.htm: *Arnoldus Bondesen (Bundesen); Regnemester; 167*)
Lost everything in the Copenhagen fire 1728, then poor citizen, fire victim (*brandlidt*)
Other works:
Arithmetica aurea mercatoria. København: Johan Ph. Bockenhoffer 1695 (Hoock II/B35)

Deliciæ Geometriæ

København: His Royal Majesty’s and the University’s Printing House 1704

200 p. (112 p. geometry, very few fig., 76 p. geography)


DELICIÆ GEOMETRIÆ
COMPENDIOSÆ,
Eller
En kort-begreben Forlyſtelſe udi
GEOMETRIA
og Maale-Konſten/
Saaſom en af de nødvendigſte Diſciplinis Mathematicis,
Afdeelt udi trende Parter:
I. TRIGONOMETRIA. II. PLANIMETRIA. og III. STEREOMETRIA.
Med et Tillæg af adſkillige andre tienlige Exempler ſamme Scientz vedkommende. Diſligeſte en kort og nyttig Underretning om VISIR-Konſten/
hvortil er lagt et
GEOGRAPHIſke APPENDIX.
Alle Elſkere og Liebhabere af denne ædle og nødvendige Konſt/ til Gavn og Nytte forfatted/ og til Trykken befordret af
ARNOLDUS BONDESON.
Med Kongl. Majts. allernaadigſte Frihed/
Kiøbenhavn/ Trykt i Kongl. Maj. og Univerſit. privileg: Boogtrykkerie Aar 1704.

Danish

Arnoldus Bondeson/søn/sen

Deliciæ Geometriæ
København: His Royal Majesty's and the University's Printing House 1704

Transcription of the title page

D/L: København Royal L
S: Holl, Alfred: Ries-Kolloquium 2025
V: WorldCat

Deliciæ Geometriæ
compendiosæ,
Eller
En kort-begreben Forlystelse udi
Geometria
og Maale-Konsten/
Saasom en af de nødvendigste Di-
sciplinis Mathematicis,
Afdeelt udi trende Parter:
I. Trigonometria. II. Planime-
tria. og III. Stereometria.
Med et Tillæg af adskillige an-
dre tienlige Exempler samme Scientz ved-
kommende. Disligeste en kort og nyttig
Underretning om Visir-Konsten/
hvortil er lagt et
Geographiske Appendix.
Alle Elskere og Liebhabere af denne ædle og
nødvendige Konst/ til Gavn og Nytte forfat-
ted/ og til Trykken befodret af
Arnoldus Bondeson.
Med Kongl[ig] *Maj*[estæts] *allernaadigste Frihed/*

Kiøbenhavn/ Trykt i Kongl[ig] *Maj*[estæts] *og Universit*[etets]
privilege[eret] *Boogtrykkerie Aar 1704.*

Danish

Arnoldus Bondeson/søn/sen

Deliciæ Geometriæ
København: His Royal Majesty's and the University's Printing House 1704

Translation of the title page

Privilege by King Frederik IV (b. 1671, reigned 1699–1730)
King Christian VI (b. 1699-11-30, reigned 1730–1746) was crown prince in 1704

Deliciæ Geometriæ compendiosæ
[Concise pleasures/delights in geometry],
or
a concise pleasureful introduction into
geometry
and the art of measuring
as one of the most necessary
mathematical disciplines,
divided into three parts:
I. Trigonometry. II. Geometry of the plane
and III. Geometry of space.
With a supplement of various
other helpful examples applying the same science.
Likewise a short and useful
instruction to the art of barrel measuring
to which is added a
geographical appendix.
For all enthusiasts and lovers of this noble and
necessary art to their advantage and benefit written
and brought into print by
Arnoldus Bondeson
With the most gracious privilege of his royal majesty

København – Printed in the privileged printing house
of his royal majesty and the university in the year 1704.

Danish

Arnoldus Bondeson/søn/sen

Deliciæ Geometriæ
København: His Royal Majesty's and the University's Printing House 1704

Content overview

(according to the section headings)
(no table of contents, no index)

Latin and Danish mathematical terminology is used in parallel.
All of the problems are presented in the form of numeric examples without any proofs.

Dedication to the crown prince, the latter king Christian VI
Preface to the reader (both dated 1703-11-30, Christian's birthday)

Basics
Definitions of 28 two-dimensional objects
1. Objects with the same area (*superficial-indhold*; 12 observations including circle to square)
2. Addition, subtraction, multiplication, division of areas; theorem of Pythagoras (with reference to Euclid I 47, VI 31)
3 Decimal calculation (*Decimal-Regning*): 1 *Rode* = 10 *Skoe/Food* = 100 *Tol/Tumme* = 1000 *Gran* = 10000 *Scrupul*
4. Conversion tables for Danish measures (*maal*) of length and area; measures of other countries

I. Trigonometry (*Triangul-Regning*): Calculating sides of different types of triangles with sine and tangent (11 examples using trigonometrical tables and logarithms for multiplications)

II. Geometry of the plane (*Planimetria*): calculation of areas
Triangle (right-angled, equilateral, isosceles (*aequicrurum*), acute (*oxygonium*), obtuse), square, rectangle (*parallelogrammum*), rhombus, parallelogram (*rhomboides*), trapezium [Brit.] (*trapezium regulare*), irregular quadrilateral (*trapezium irregulare*), regular polygons (5, 6, 7, 8, 9 vertices), circle ($\pi = 22/7$), circle sector, segment, ellipse, irregular polygons (*multi-laterae figurae*)
Land surveying (*Divisio agrorum, Marke- eller Ager-Deling*)

Danish

Arnoldus Bondeson/søn/sen

Deliciæ Geometriæ
København: His Royal Majesty's and the University's Printing House 1704

Content overview
(according to the section headings)

First Danish translations of Euclid's *Elements*:

Mohr, Georg: *Euclides Danicus* [*de Sex Første Bøger*]. Amsterdam: Jacob van Velsen 1672, 36 p.

Ziegenbalg, Ernest Gottlieb: *Euclidis elementa geometriae*. København: Ernst Henrich Berling 1744, 311 p.

III. Geometry of space (*Stereometria*): calculation of volumes (*corporlig indhold*) and surface areas (*extremum solidum*) of solids
Definitions of types of solids (*soliditet*): pyramid, prism, cone, cylinder, sphere, the five regular solids
Construction with compasses (*circul*) and ruler (*lineal*) (reference to oral instruction)
Conversion tables for Danish measures of length and volume
Calculation of volumes: tetrahedron (*trekandted pyramide*), square pyramid (*firekandted pyramide*), triangular prism, rectangular prism (*firekandted parallelepipedum, pille*), cone, cylinder, sphere
Arithmetic transformation of solids to other solids with equal volume, including prism to cone and cylinder and cube to sphere and conversely) (11 types)
Five regular solids (transformation to irregular solids; calculation of volumes; side lengths of regular solids with the same volume)
Addition, subtraction, multiplication, division of volumes

Extra (*Tilgift*): 51 examples (incl. military) with results (*svar*)
Barrel measuring (*Visir-Konst*): 4 examples
Magic square on the year 1701
Final extra (*beslutning*): 5 examples with results

Geographic appendix: Math. and phys. description of the earth; biblical events since the creation of the world; phys. and political description of Europe, Asia, Africa, America; Arabic and Roman number symbols; geographic longitudes and latitudes of important cities

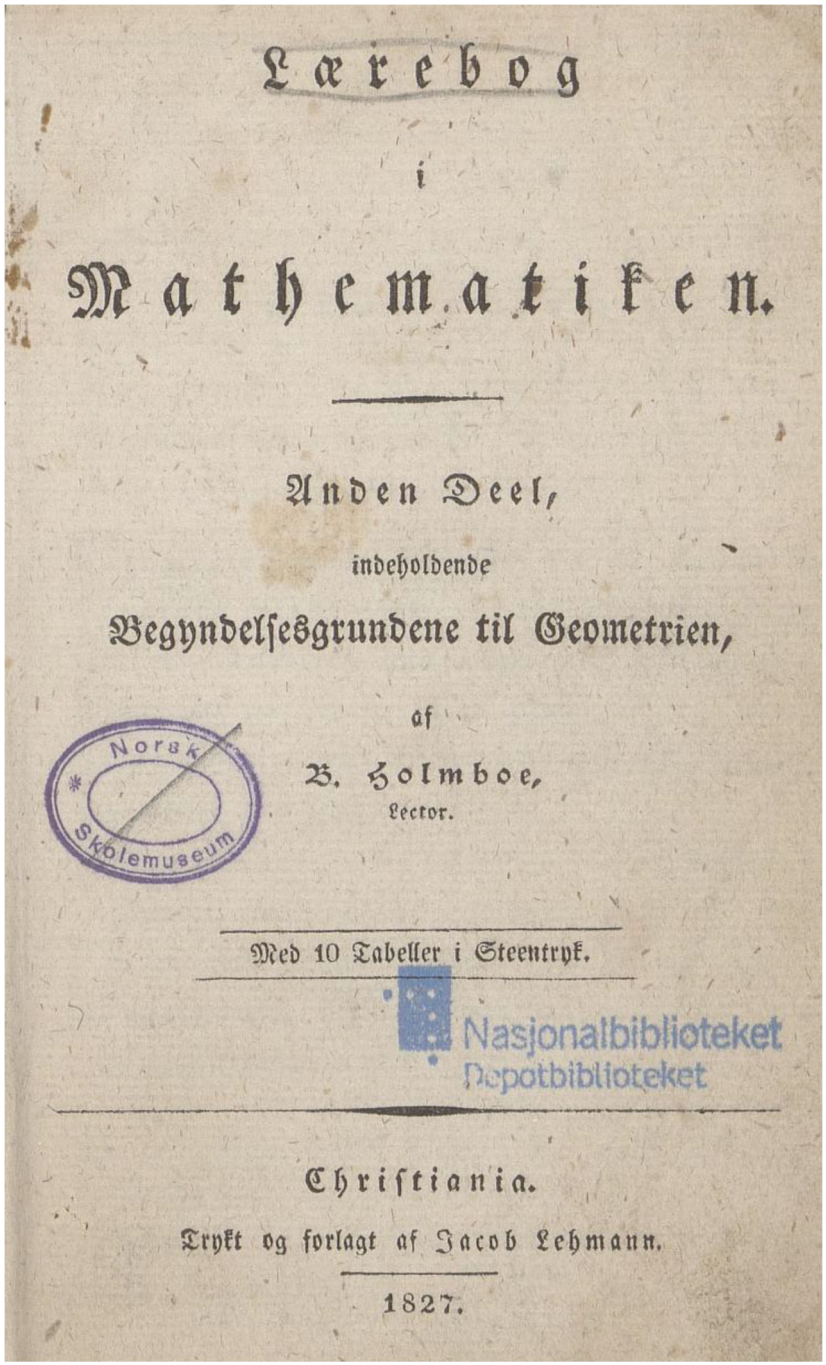
Norwegian

Bernt Michael Holmboe

b. 1795 Vang
d. 1850 Oslo
1815 Assistent with Christopher Hansteen (1784–1873), prof. for applied mathematics
1818 Teacher at cathedral school Oslo
1834 Professor for pure mathematics, teacher of Niels Henrik Abel (1802–1829)
1835 Dispute with Hansteen about textbooks
Author of other mathematical textbooks

Begyndelsesgrundene til geometrien
Christiania: Jacob Lehmann
1st ed. 1827

156 p., 134 fig. on 10 tables
D/L: Oslo NL
V: WorldCat



Lærebog
i
Mathematiken.

Anden Deel,
indeholdende
Begyndelsesgrundene til Geometrien,
af
B. Holmboe,
Lector.

Norsk Skolemuseum

Med 10 Tabeller i Steentryk.

Nasjonalbiblioteket
Depotbiblioteket

Christiania.
Trykt og forlagt af Jacob Lehmann.
1827.

Norwegian

Bernt Michael Holmboe

Begyndelsesgrundene til geometrien
Christiania: Lehmann 1827

Transcription of the title page

S/V: Andersen O: Norges høiere skolevæsen 1814–1914. Kristiania 1914.

Bjarnadóttir, K; Christiansen, A; Lepik, M: Arithmetic textbooks in Estonia, Iceland and Norway. In: Nordic Studies in Mathematics Education 18 (2013) 27–58.

Ribsskog, O K: Litt omkring rekneopplæringa i den danske skolen, fattigskolen, friskolen og folkeskolen i Norge. Oslo 1941.

Solvang, R: Skolematematikken i Norge på Abels tid. In: Nordisk Matematisk Tidsskrift 49 (2001) 111–138.

Lærebog
i
Mathematiken.

Anden Deel,
indeholdende
Begyndelsesgrundene til Geometrien,
af
B. Holmboe,
Lector.

Med 10 Tabeller i Steentryk.

Christiania.
Trykt og forlagt af Jacob Lehmann.
1827.

Norwegian

Bernt Michael Holmboe

Begyndelsesgrundene til geometrien
Christiania: Lehmann 1827

Translation of the title page

No table of contents
123 numbered sections without headings

First Norwegian translation of Euclid's *Elements*:
Does not exist

Textbook
of
mathematics.

Second part,
containing
the elements of geometry,
by
Bernt Holmboe,
teacher.

With 10 tables in lithography.

Christiania.
Printed and published by Jacob Lehmann.
1827.

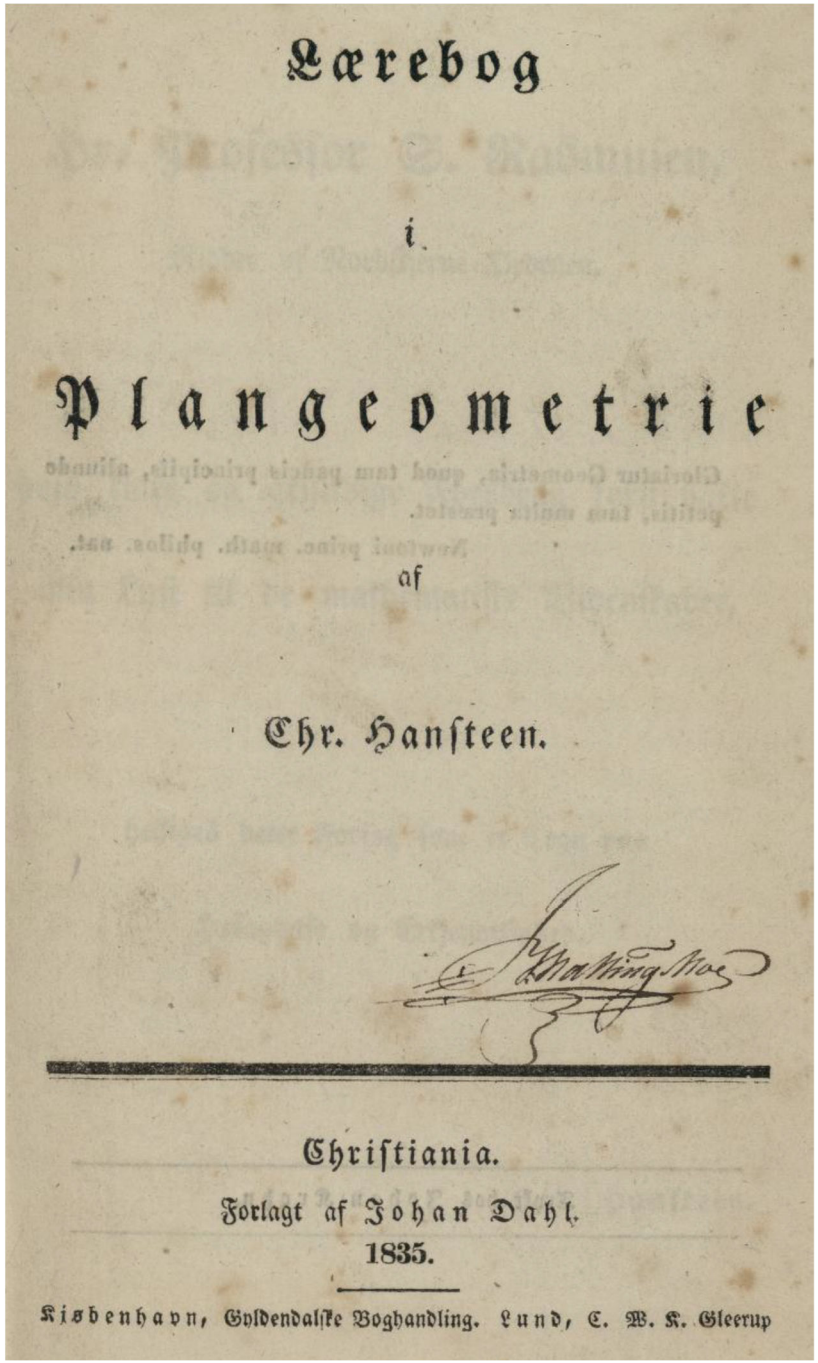
Norwegian – Supplement

Christopher Hansteen

b. 1784 Oslo
d. 1873 Oslo
Professor for applied mathematics, astronomer, land surveyor
1835 Dispute with Holmboe about maths textbooks
Correspondence with Carl Friedrich Gauß (1777 – 1855)

Lærebog i Plangeometrie
Christiania (Oslo): Johan Dahl 1835

280 p., 152 fig. on 4 tables; 12 chapters
D/L: Oslo NL


Lærebog
i
Plangeometrie
af
Chr. Hansteen.
Christiania.
Forlagt af Johan Dahl.
1835.
Kiøbenhavn, Gyldendalske Boghandling. Lund, C. W. K. Gleerup

Icelandic

Halldór Briem

1852–1929
Teacher, pastor, author
(https://vesturfarar.is/uncategorized-is/halldor-briem)

Kennslubók í flatamálsfræði handa alþýðuskólum
Reykjavík: Sigf. Eymundssonar 1889
Kennslubók í þykkvamálsfræði handa alþýðuskólum
Reykjavík: Ísafoldar 1892.

130 p., 62 fig. on tables in the end;
92 p.; 30 fig. on tables in the end
D: Baekur.is

KENNSLUBÓK
Í
FLATAMÁLSFRÆÐI
HANDA ALÞÝÐUSKÓLUM.
EPTIR
HALLDÓR BRIEM.
LANDSBÓKASAFN
REYKJAVÍK.
PRENTUÐ Í PRENTSMIÐJU SIGF. EYMUNDSSONAR.
1889.

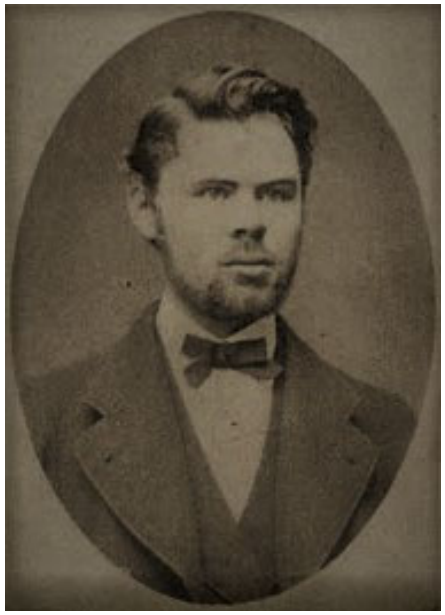
KENNSLUBÓK
Í
ÞYKKVAMÁLSFRÆÐI.
HANDA ALÞÝÐUSKÓLUM.
EPTIR
HALLDÓR BRIEM.
LANDSBÓKASAFN
REYKJAVÍK.
PRENTUÐ Í PRENTSMIÐJU ÍSAFOLDAR.
1892.

Icelandic

Halldór Briem

Kennslubók í flatamálsfræði
Reykjavík: Eymundssonar 1889
Kennslubók í þykkvamálsfræði
Reykjavík: Ísafoldar 1892.

Transcription of the title pages



Kennslubók
í
flatamálsfræði
handa alþýðuskólum.
Eptir
Halldór Briem.
Reykjavík.
Prentuð í prentsmiðju Sigf. Eymundssonar. 1889.

Kennslubók
í
þykkvamálsfræði
handa alþýðuskólum.
Eptir
Halldór Briem.
Reykjavík.
Prentuð í prentsmiðju Ísafoldar. 1892.

Icelandic

Halldór Briem

Kennslubók í flatamálsfræði
Reykjavík: Eymundssonar 1889
Kennslubók í þykkvamálsfræði
Reykjavík: Ísafoldar 1892.

Translation of the title pages

Textbook
of
geometry of the plane
for elementary schools.
By
Halldór Briem.
Reykjavík.
Printed at the printing house of Sigf. Eymundsson. 1889.

Textbook
of
geometry of space
for elementary schools.
By Halldór Briem.
Reykjavík.
Printed at the printing house of Ísafold. 1892.

Icelandic

Halldór Briem

Kennslubók í flatamálsfræði
Reykjavík: Eymundssonar 1889
Kennslubók í þykkvamálsfræði
Reykjavík: Ísafoldar 1892.

Content overview

(according to the tables of contents (*Efnisyfirlit*))

First Icelandic translation of Euclid's *Elements*:

Only parts

Introduction (*Inngangur*)
Geometric objects in the plane
I. Lines and angles (*horn*)
II. Two-dimensional objects (*flatarmyndir*)
III. Congruence and similarity (*aljöfnuður og einslögun*) of two-dimensional objects
Measurements (*mælingar*)
IV. Units of length and area (*einingar í lengdarmáli og flatamáli*)
V. Square root
VI. Area
Ratios and Construction (*hlutföll og dráttur*) of two-dimensional objects
VII. Ratios and proportions (*hlutfallalíkingar*)
VIII. Principal ratios in two-dimensional objects: General ratios, right-angled triangle (*rjetthyrndi þríhyrningurinn*), chords
IX. Construction of lines and two-dimensional objects

General remarks
I. Three-dimensional objects (*líkamir*)
II. Measurement of three-dimensional objects: Prism, pyramid, cylinder (*sívalningur*), cone (*keila*), sphere (*kúla*)
III. Regular (*reglulegir*), irregular three-dimensional objects
IV. Using specific gravity (*efnisþungann*) to find the volume (*rúmmál*) of three-dimensional objects
V. Cube root
Appendices: Metric system (*metramálið*), English measures (*enskt mál*)

Other Germanic languages

Yiddish (nothing known about early geometry books; the first ones appear in the 20th century e. g. William Henry Young:
Der kleyner geometer: ershter kurs fun geometrie (ערשטער קורס פון געאָמעטריע :דער קליינער געאָמעטער).
Dresden / Berlin: Verlag Vostok 1921. Translated from the English original (1905) by Al. Alshwanger)

Low German (nothing known about early geometry books, only a small geometry chapter in Caspar Hützler, *Rekensbock*, Lübeck 1547)

Afrikaans (nothing known about early geometry books; the first ones appear in the 20th century with the title word *meetkunde*). 1920–1925: Sudden emergence of a fully developed specialist literature for schools after Afrikaans became an official language.)

Czech

Václav Jozef/Josef Veselý

b. ca. 1683 Kostelec nad Labem
d. 1736 Praha
Hydraulic engineer and land surveyor
Author of Praha, plán Starého Města
(www.digitalniknihovna.cz)

Gruntownj Počátek mathematického Vměnj: Geometria practica, Trigonometria plana, Stereometria
Praha: Arcibiskupská tiskárna, Matěj Adam Höger 1734

625+xx p., 36 tables with 266+16 fig.
D: Praha NL (catalog KPS Knihopis)
L: Praha NL
S: Holl, A. Symposion 2026
V: Praha NL

Gruntownj Počátek
Mathematického Vměnj
GEOMETRIA
PRACTICA,
TRIGONOMETRIA
PLANA
STEREOMETRIA
Wzjwánj
TABELLARUM, SI[illegible]UM
A
LOGARITHMORUM.
Skrze což:
Wegsſky / Hlaubky / Dýlky / Sſýrky /
Pole / Lesy / Rybníky / Louky / Zahrady /
Města / Krage / a Corpora, wyměřit se mohau.
S připogeným Nivilirowánjm /
Neb
Wodným Měřením /
S některýma nowýma Problematy rozmnožená / a poneyprw w Czeſkém Gazyku wydána /
Od
Wáclawa Jozeffa Weſelýho / Přiſeznjho Zemſkeho Mlynáře / a Geometra.
Wytiſtěno w Praze w Králowém Dwoře / u Matěge Adama Högra Arcy-Biſkupſkeho Impreſſora 1734.

Czech

Václav Jozef Veselý

Gruntownj Počátek mathematického Vměnj: Geometria practica, Trigonometria plana, Stereometria
Praha: Matěj Adam Höger 1734

Transcription of the title page

Gruntownj Počátek
mathematického Vměnj
Geometria practica,
Trigonometria
plana
Stereometria
Vžjwánj
Tabellarum, Sinuum,
A
Logarithmorum.
Skrze což:
Wegssky [výšky]/ *Hlaubky/ Dýlky* [délky]/ *Ssýřky* [šířky]/
Pole/ Lesy/ Rybnjky/ Lauky/ Zahrady/
Města/ Krage/ a Corpora, wyměřit se mohau.
S připogeným Nivilirowánjm/
Neb
Wodným Měřenjm/
Z některýma nowýma Problematy rozmno-
žená/ a poneyprw w Českém Gazyku wydána/
Od
Wácslawa Jozeffa Weselýho/ Při-
seznjho Zemského Mljnáře/ a Geometra.
Wytisstěno w Praze w Královým Dwoře/ v Ma-
těge Adama Högra Arcý:Biskupského Impressora 1734.

Czech

Václav Jozef Veselý

Gruntownj Počátek
mathematického Vměnj:
Geometria practica,
Trigonometria plana,
Stereometria
Praha: Matěj Adam Höger 1734

Translation of the title page

Foundations [*rudiments*; German: *Anfangsgründe*]
of the art of mathematics:
practical geometry,
plane trigonometry,
geometry of space (stereometry),
the use of
tables of sines
and
logarithms.
With the help of which,
heights, depths, lengths, breadths,
fields, forests, ponds, meadows, gardens,
cities, districts and solids can be measured.
With a supplement on leveling
or
hydrographic surveying.
Extended with some new problems
and published for the first time in the Czech language
by
Václav Jozef Veselý,
sworn land miller and geometer.
Printed in Praha at the Royal Court by
Matěj Adam Höger, archiepiscopal printer, in 1734.

Czech

Václav Jozef Veselý

Gruntownj Počátek mathematického Vměnj: Geometria practica, Trigonometria plana, Stereometria
Praha: Matěj Adam Höger 1734

Content overview

(according to the section headings and the table of contents [do not coincide])

Dedication to the *Vladyka* (lower nobility class of free and armed land owners) and their mayor (*burgmistr*, *primátor*) of the city of Praha
Preface (*předmluwa*)

First part
Definitions (short explanations of some objects that occur in geometry)
1 Overview (*rejsovanie* 'cruise') of various lines
2 Division (*dělenj*) of [straight] lines
3 Division of curved [circular] lines
4 Overview of regular polygonal (*mnoho-hraný, mnoho-straný*) objects
5 Arithmetical geometry; the use of decimal numbers
6 Extraction of square roots (*kořen*)
7 Extraction of cube roots
8 Geometric proportions between line segments
9 Angles (*kout*)
10 Preceding proofs necessary for the geometry of the plane
11 Numbers and properties of triangles
12 Quadrilateral (*čtyrhranatý*) objects
13 Transformation (*proměnováni*) of two-dimensional (*plocha* 'area') objects

Czech

Václav Jozef Veselý

Gruntownj Počátek mathematického Vměnj: Geometria practica, Trigonometria plana, Stereometria
Praha: Matěj Adam Höger 1734

Content overview

(according to the section headings and the table of contents [do not coincide])

14 Transformation of circular objects
15 Geometry of the plane (planimetry), that is calculation of the area (*zavírat* 'include') of two-dimensional objects according to given measures
16 Designation and differences of solids (*tělo* 'body')
17 Geometry of space (stereometry) or measuring the volume (*obsahovat* 'contain', *zavírat* 'include') of solids
18 Measuring barrels (special stereometry) with *Visir-Sstab*
19 Transformation of solids
20 Addition, subtraction, multiplication and division of all two- and three-dimensional objects
21 Trigonometry or calculation of triangles
22 Establishing tables of sine, tangent and secant and their logarithms etc. and using them
23 Calculation of triangles with straight sides (*rowno-linysky*)

Second part [land surveying]
1 Measuring fields (*pole*),
2 Measuring various lines and angles of fields; transfer from land to paper, from paper to land
3 Measuring various inaccessible (*nepřistupný*) lines
4 Instruments; leveling or the bubble level (*vodná váha*)

Table of contents (*registřjk*)

First Czech translation of Euclid's *Elements*:

František Servít 1907

Polish

Stanisław Grzepski

b. 1524 Grzebsk near Mława
d. 1570 Kraków
Prominent Renaissance scholar
Professor at univ. of Kraków
1568 *De multiplici siclo et talento hebraico*

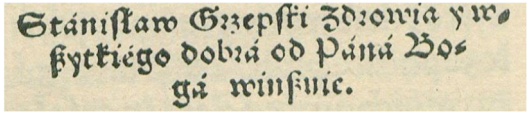
Geometria to iest miernicka náuká
Kraków: Łazarz Andrysowic 1556

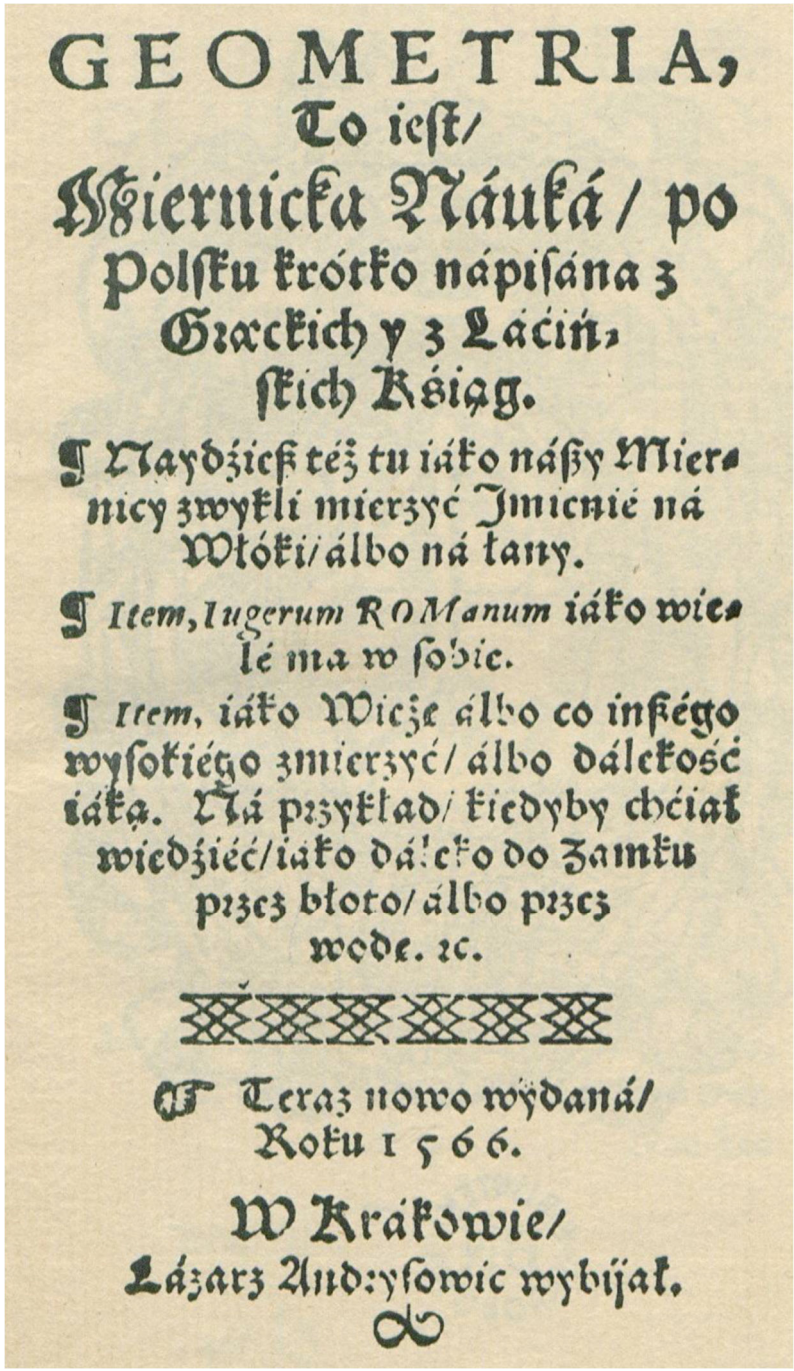
Preface dated 1555-10-20
2nd edition 1566

128 p., 42 of which with unnumbered fig.
D: https://polona.pl (1566)
L: Warszawa NL
E: Warszawa 2024, with introduction by J. Kurkowski and biography by W. Linke
S/V: Biniewicz, Jerzy: Szesnastowieczne podręczniki matematyki. Wrocław 2021
S: Rusiecki, A. M.: Geometria St. G. In: Parametr 1930, no. 3, p. 99–104

(muzeumkochanowski.pl)

Name of the author
on Aiii[r] (pdf 12)
at the end
of the heading
of the preface
to Stánisław Miłoszewski


Stánisław Grzepski Zdrowia y wſzytkiego dobrá od Páná Bogá winſuic.


GEOMETRIA,
To ieſt/
Mierníckа Náuká / po Polſku krótko nápiſána z Greckich y z Láciń- ſkich Ksiąg.

¶ Naydźieſz téż tu iáko náſzy Mier- nicy zwykli mierzyć Jmienie ná Włóki/ álbo ná łany.

¶ Item, Iugerum ROMANum iáko wie- lé ma w ſobie.

¶ Item, iáko Wieżę álbo co inſzégo wyſokiégo zmierzyć/ álbo dálekość iáką. Má przykład/ kiedyby chciał wiedźieć/ iáko dáleko do Zamku przez błoto/ álbo przez wodę. ꝛc.

¶ Teraz nowo wydaná/ Roku 1566.

W Krákowie/ Łázarz Andrysowic wybijał.

Polish

Stanisław Grzepski

Geometria to iest miernicka náuká
Kraków: Andrysowic 1556

Transcription
of the title page 1566
with modern diacritic marks

S: Żywiecki, B.: Stanisław Grzepski. In: Notatky Płockie 1969, 14/3-52, p. 51–54
Five papers in Przegląd Geodezyjny 39 (1967), no. 5, Dodatek (Biuletyn Instytutu Geodezji i Kartografii)
Biography on https://mlawianin.pl/
Holl, A. Symposion 2026

Geometria,
To jest/
Miernicka Nauka/ po
Polsku krótko napisana z
Græckich i z Łaciń-
skich Ksiąg.
Znajdziesz też tu jako naszy Mier-
nicy zwykli mierzyć Imienie na
Włóki/ albo na łany.
Item, Iugerum Romanum jako wie-
le ma w sobie.
Item, jako Wieżę albo co innego
wysokiego zmierzyć/ albo dalekość
jaką. Na przyklad/ kiedyby chciał
wiedzieć/ jako daleko do Zamku
przez błoto/ albo przez
wodę. etc.
Teraz nowo wydana/
Roku 1566.
W Krakowie/
Łazarz Andrysowic wybijał.

—

Stanisław Grzepski zdrowia y w-
szytkiego dobra od Pana Bo-
ga winszuje.

Polish

Stanisław Grzepski

Geometria to iest miernicka náuká
Kraków: Andrysowic 1556

Translation of the title page 1566

włóka (Lithuanian *valakas*) and *łan* (German *Hufe*, perhaps derived from German *Lehen* ‘fief’) are old Polish area measures (*miara powierzchni*); details in Polish Wikipedia.
Iugerum Romanum ‘Roman acre’

Geometry,
that is
the science of measuring, in
Polish briefly written from
Greek and Latin
books.
Here you will also find how our land surveyors
used to measure estates in
włóki or in łany.
Item, the Iugerum Romanum, how
much it contains [*how many things it has in itself*].
Item, how to measure a tower
or something else high or some distance
For example, when one wanted
to know how far [*it is*] *to the castle*
through mud or through
water etc.
Now newly published
in the year 1566.
In Kraków,
Łazarz Andrysowic printed [*it*].

—

Stanisław Grzepski wishes
health and all good things
from the Lord God.

Polish

Stanisław Grzepski

Geometria to iest miernicka náuká
Kraków: Andrysowic 1556

Content overview
(according to the section headings (unterlined) and the text itself)
Partly Latin terminology

First Polish translation of Euclid's *Elements*
Józef Czech 1807 (based on Greek, Latin and English editions)

Prefaces (*przedmowa*, 1555-10-02) to Stánisław Miłoszewski, to the reader
Point (*punkt*), line (*linea*), surface (*superficies*), solid (*corpus*) 24
Parallel lines (*aequidistantes*), angle (*angulus*) 27
Perpendicular lines (*kathetos*) 30
Objects (*figury*): triangle (*klin* 'wedge'; *isopleuros*, *-skeles*, *skalenos*) 32
Quadrilateral (*quadrangulus*; *kwádrat* 'square', *kwádrat długi* 'rectangle', *rombos*, *romboides* 'parallelogram', *trapezium*, pentagon, hexagon 34
Circle (*koło* 'wheel'; *circumferentia* 'circumference', *centrum*, *diameter*) incircle, circumcircle 36
Objects and lines, parallel lines, circumcircle of triangle and square 40
Area (*plác*): square, rectangle, parallelogram, rhombus, triangle (57, 62, 65–68), general quadrilateral (68), circle (69), area units (75) 50
Measure unit *Łan* 86
Latin text: *Mansus (Laneus Franconicus), ulna* (*łókćia*), *palma, stadium* 90
Latin text: *ulna, virga, corda, mansus* 93
Latin text: *virga, iugerum, mansus* 95
Measure unit *Sznur* 96
Latin text: *corulus, cubitus, Wiértel, virga (Pręt), Laneus Theutonicus* 98
Pret on four quarters 102
Iugerum romanum or *Roman Morgen* (*pes*, *scrupulum*, *actus*) 104
Measuring height (*wysokość*), distance (*dalekość*), depth (*głębokość*) 107
Measuring a tower (*Wieże*) or something else high with diopter 108
Measuring distance with diopter 113
Measuring without diopter 116
Measuring depth (*głębokość*) 127
[references to the pdf pages]

Russian

Anton Ernst Burkhard von Birckenstein (Baron/Freiherr)

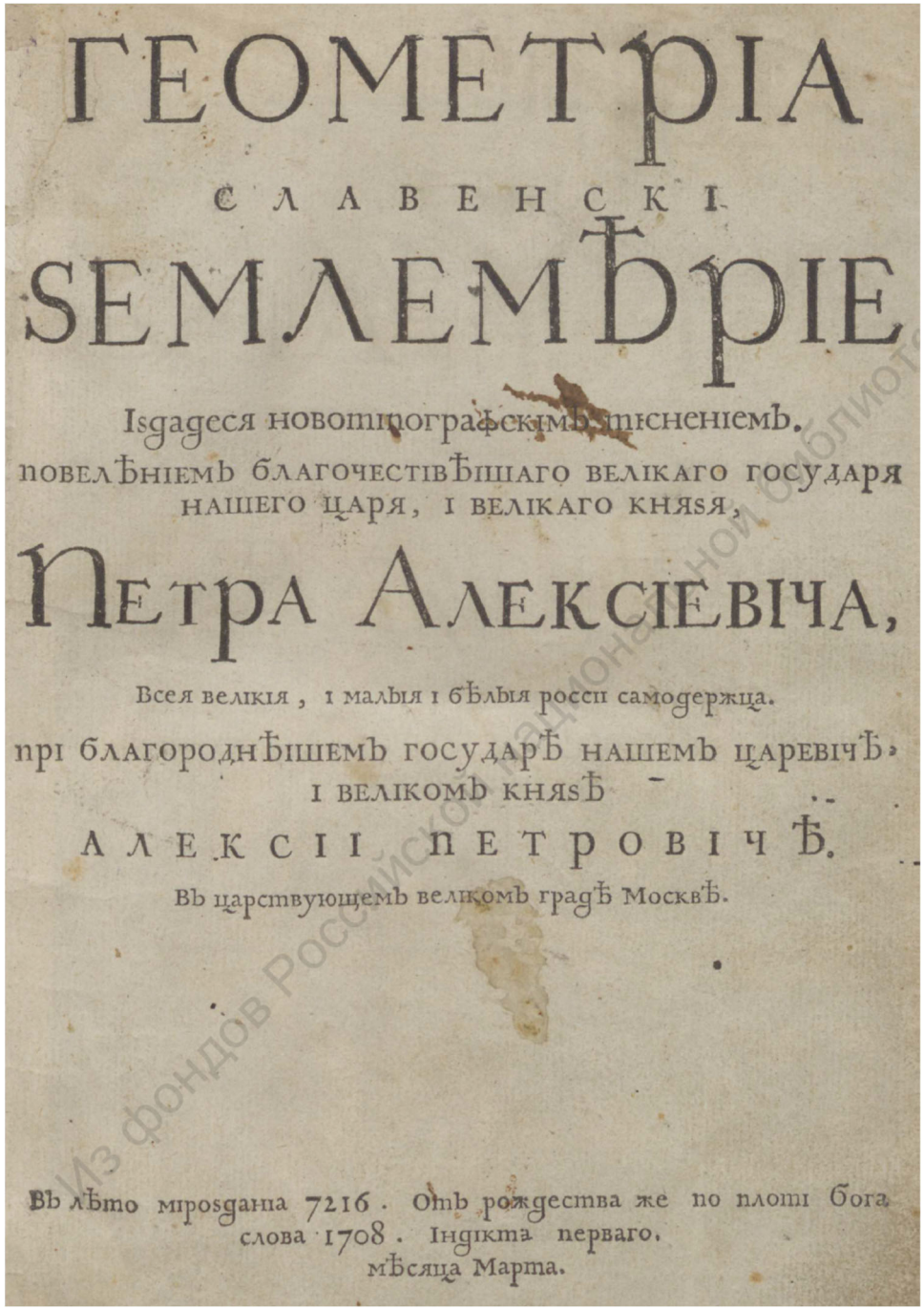
1655–1721 military engineer, imperial mathematician and war counselor
1685/86 teacher in warefare of Joseph I (1678–1711, archduke of Austria, 1687 King of Hungary, 1705 Roman Emperor)
Teutsch-redender Euclides, Wien 1694

Geometria slavenski zemlemerie

Moskva 1708 (March)

Приемы циркуля и линеики …
Moskva [2]1709 (February)
St. Peterburg [3]1725 (June)

243 p. and 142 tables (Hungarian cities)
365 p. (1709), 364 p. (1725)
D: https://vivaldi.nlr.ru/bx000016743
https://vivaldi.nlr.ru/bx000017326 (1709)
L: Moskva NL
S: Roussanova, Elena. Symposion 2026



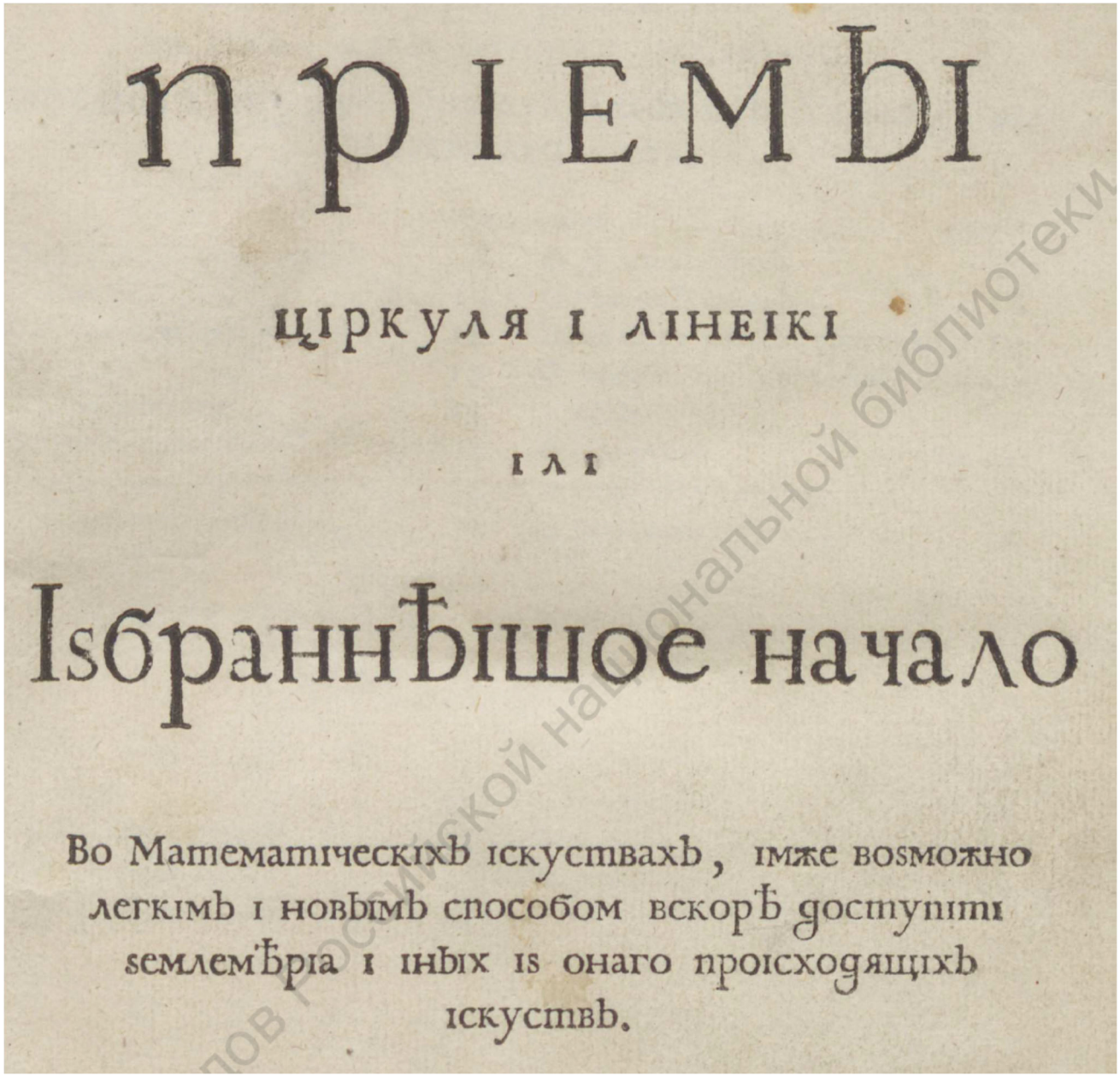
ГЕОМЕТРІА
СЛАВЕНСКІ
SEMLEMѢPIE
Isgadeся новотипографскимъ тисненіемъ.
повелѣніемъ благочестивѣйшаго великаго государя
нашего царя, і великаго князя,
Петра Алексіевіча,
Всея великія, і малыя і бѣлыя россіи самодержца.
при благороднѣйшемъ государѣ нашемъ царевічѣ,
і великомъ князѣ
Алексіі петровічѣ.
Въ царствующемъ великомъ градѣ Москвѣ.
Въ лѣто мірозданна 7216. Отъ рождества же по плоті бога
слова 1708. Індікта перваго.
мѣсяца Марта.

Из фондов Российской национальной библиотеки

Russian

A. E. Burkhard von Birckenstein

Geometria slavenski zemlemerie
Геометріа славенскі
семлемѣріе –
Пріемы ціркуля і лінеікі
Геометриа славенски
землемерие –
Приемы циркуля и линеики
Moskva 1708



ПРІЕМЫ

ЦІРКУЛЯ І ЛІНЕІКІ

ІЛІ

Ізбраннѣйшое начало

Во Математическихъ искуствахъ, имже возможно легкимъ і новымъ способом вскорѣ доступити семлемѣріа і инъіх із онаго происходящихъ искуствъ.

ов Российской национальной библиотеки

[second title page 1708]

Russian

A. E. Burkhard von Birckenstein

Geometria slavenski zemlemerie
Moskva 1708

Transcription of the title pages

Геометріа
славенскі
землемѣріе.
Издадеся новотипографскимъ тисненіемъ,
повелѣніемъ благочестивѣйшаго великаго государя
нашего царя, і великаго князя,
Петра Алексіевича,
Всея великія, і малыя і бѣлыя россіи самодержца,
при благороднѣйшемъ государѣ нашемъ царевичѣ
і великомъ князѣ
Алексіи Петровичѣ.
Въ царствующемъ великомъ градѣ Москвѣ.
Въ лѣто мирозданія 7216. Отъ рождества же по плоти бога
слова 1708. Индікта перваго,
мѣсяца Марта.

Пріемы
циркуля і лінеікі
или
isбраннѣйшое начало
во математическіхъ искуствахъ, імже возможно
легкімъ і новымъ способомъ вскорѣ доступіті
землемѣріа і іныхъ is онаго проісходящихъ
искуствъ.

Russian

A. E. Burkhard von Birckenstein

Geometria slavenski zemlemerie
Moskva 1708

Romanization of the title pages

Geometrịa,
slavenskị
zemleměrịe
Ịzdadesâ novotịpografskịm’ tịsnenịem’,
povelěnịem’ blagočestịvějšago velịkago gosudarâ
naševo carâ, ị velịkago knâzâ,
Petra Aleksịevịča,
Vseâ velịkịâ, ị malyâ ị bělyâ rossịị samoderžca,
prị blagorodnějšem’ gosudarě našem’ carevịčě
ị velịkom’ knâzě
Aleksịị Petrovịčě.
V’ carstvuûšem’ velịkom’ gradě Moskvě.
V’ lěto mịrozdanịa 7216. Ot’ roždestva že po plotị boga
slova 1708. Ịndịkta pervago,
měsâca Marta.

Prịemy
cịrkulâ ị lịneịkị
ịlị
Ịzbrannějšoe načalo
vo Matematịčeskịh’ ịskustvah’ ịmže vozmožno
legkịm’ ị novym’ sposobom vskorě dostupịtị
zemleměrịâ, ị ịnyh ịz onago proịsḥodâšịh
ịskustv’

Russian

A. E. Burkhard von Birckenstein

Geometria slavenski zemlemerie
Moskva 1708

Translation of the title pages

Tsar Peter the Great (1672–1725) and
his son Tsarevich Alexej (1690–1718)

In the Byzantine calendar, the years were counted from the creation of the world on Sept. 1st, 5509 BC

Indiction:
(year + 3) mod 15

Geometry,
Slavic
land surveying
Published in the new typographic style,
by order of the most pious and great sovereign,
our Tsar and Grand Duke
Peter Alekseevič,
the ruler over the entire of Great and Little and White Russia,
with the noblest sovereign, our Tsarevich
and Grand Duke
Aleksej Petrovič
In the tsarist great city Moskva
In the year of the universe 7216, since the birth of Christ, that is,
after the incarnation of the word of God, in 1708,
in the first year of the indiction, in the month of March

Techniques ("Handgriffe")
of compass and ruler
or
selected introduction
into the mathematical sciences that makes it possible
to – in an easy and new way – quickly access
land surveying and
other sciences that arise from it

Russian

A. E. Burkhard von Birckenstein

Geometria slavenski zemlemerie
Moskva 1708

Content overview
(according to the comprehensive Russian table of contents)

First Russian translation of Euclid's *Elements*:
Эвклидовы элементы. Санкт-Петербург: Морской кадетский корпус 1738
https://vivaldi.nlr.ru/bx000074873/view/?#page=7
Translator:
Сатаров, Иван Петрович (-1749)
Compiler:
Фарварсон, Андрей Данилович (Henry Farwharson)
Basis: Tacquet, André (1612-1660)

Table of contents (only Russian)

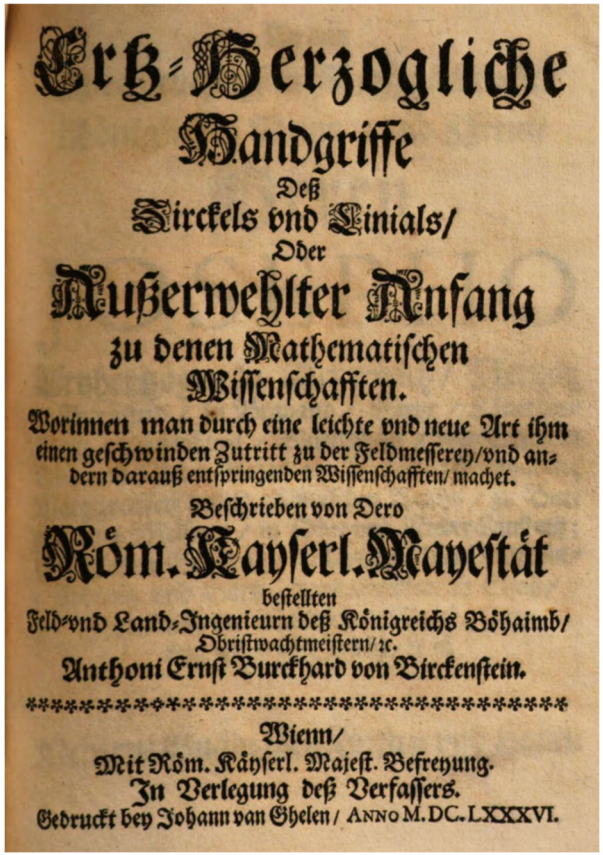
Geometry in general 3
The benefit of the science of land surveying 6
The origin of the science of land surveying 8
Definitions of the usual technical terms 9|7
General theorems or axioms 37|23
Statements or postulates 43|27
1st book: [22] Problems regarding lines 49|31
2nd book: [24 problems regarding] Planar objects 87|55
3rd book: [19 problems regarding] Inscribed objects 129|81
4th book: [9 problems regarding] Circumscribed objects 161|101
5th book: [17 problems regarding the] Division of line segments according to certain proportions 177|111
6th book: [13 problems regarding] Solids 213|129
Terminological index (only Russian) 234|143

Russian

A. E. Burkhard von Birckenstein

Geometria slavenski zemlemerie
Moskva 1708

German Original



Ertz-Hertzogliche
Handgriffe
Deß
Zirckels vnd Linials/
Oder
Außerwehlter Anfang
zu denen Mathematischen
Wissenschaften.
Worinnen man durch eine leichte vnd neue Art ihm
einen geschwinden Zutritt zu der Feldmesserey/ vnd andern
darauß entspringenden Wissenschafften/ machet.
Beschrieben von Dero
Röm. Kayserl. Mayestät
bestellten
Feld- vnd Land-Ingenieurn deß Königreichs Böhaimb/
Obristwachtmeistern/ &c.
Anthoni Ernst Burckhard von Birckenstein.
Wienn/
Mit Röm. Käyserl. Majest. Befreyung.
In Verlegung deß Verfassers.
Gedruckt bey Johann van Ghelen/ Anno M.DC.LXXXVI.

At first *Auserwählter Anfang*, later *Auserlesener Anfang*
142 coppar engravings of Hungarian cities by Justus van der/n Nypoort (b. 1646/49 Utrecht, d. after 1698)
Wien: self-published, Johann van Ghelen 1686, 1687 (184 p., 142 tables)
Augsburg: Jacob Koppmayer 1689, 1697, 1698, 1699; Walders 1713; Mertz/Mayer 1731; Christoph Andreas Nilson, Augsburg 1803

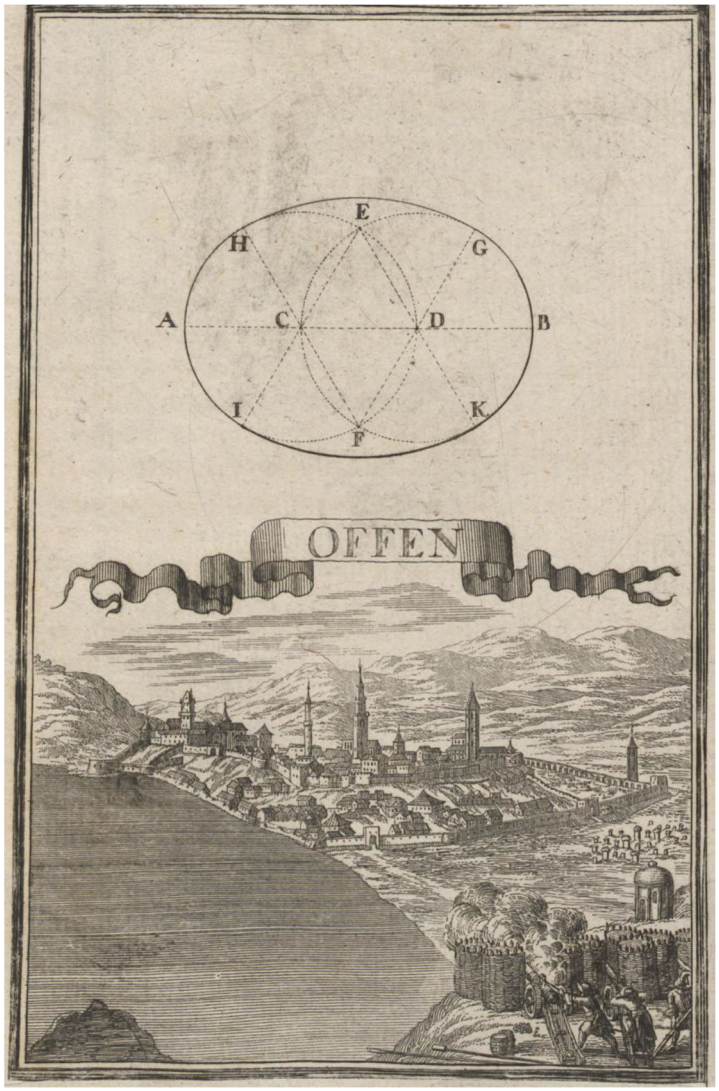
Digital: https://viewer.onb.ac.at/109D1F34 (1686)
https://www.digitale-sammlungen.de/de/view/bsb10805513 (1686)
https://gdz.sub.uni-goettingen.de/id/PPN809000547 (1687)
https://digital.slub-dresden.de/werkansicht/dlf/7088/1 (1698)

Russian

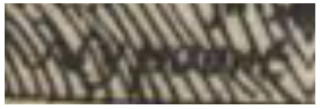
A. E. Burkhard von Birckenstein

Geometria slavenski zemlemerie
Moskva 1708

Justus van der Nypoort
b. ca. 1625 Utrecht; d. after 1692
Etcher (Radierer)



Buda(pest)



Bottom left on the view of the castle of Ugod after p. 62

Slovene

Ivan/Janez Lapajne

b. 1849 Vojsko, Idrija
d. 1931 Krško (Gurkfeld), Unterkrain
1869 Teacher in Idrija, founded the first Slovene library
1871 Exam as first Slovene teacher
1878– Superintendent
1878–1906 Head of the Bürgerschule (general vocational school) in Krško
[Österr. Biogr. Lex.]

Geometrija ali merstvo
Ljubljana: Rud. Milic 1872

85 p., 95 fig.
D: www.dlib.si
L: Ljubljana
V:
S: Razpet, N. Symposion 2026

Geometrija ali merstvo.

Za

slovenske ljudske šole.

K. K. LYCEAL BIBLIOTHEK LAIBACH

Spisal

Janez Lapajne,

nadučitelj v Ljutoméru.

S 95 v les vrezanimi slikami.

V Ljubljani, 1872.

Založil in tiskal Rud. Milic.

Slovene

Ivan/Janez Lapajne

Geometrija ali merstvo
Ljubljana: Rud. Milic 1872

Transcription of the title page

Geometrija ali merstvo.

Za
slovenske ljudske šole.

Spisal
Janez Lapajne,
nadučitelj v Ljutoméru.
[Spodnja Štajerska; Luttenberg, Untersteiermark]

S 95 v les vrezanimi slikami.

V Ljubljani, 1872.
Založil in tiskal Rud. Milic.

Slovene

Ivan/Janez Lapajne

Geometrija ali merstvo
Ljubljana: Rud. Milic 1872

Translation of the title page

First Slovenian translation of Euclid's *Elements*:
Only modest attempts have been made. On the website https://sl.wikipedia.org/wiki/Elementi_(Euclid) one can find the beginning of the *Elements* in Slovenian at the end under "Zunanje povezave – Arhivirano" and the whole thing in Croatian.

Geometry or [science of] *measuring*

For
Slovenian folk schools

He wrote [it]*:*
Janez Lapajne,
senior teacher in Ljutomer
[Lower Styria; Luttenberg, Untersteiermark]

With 95 pictures carved in wood

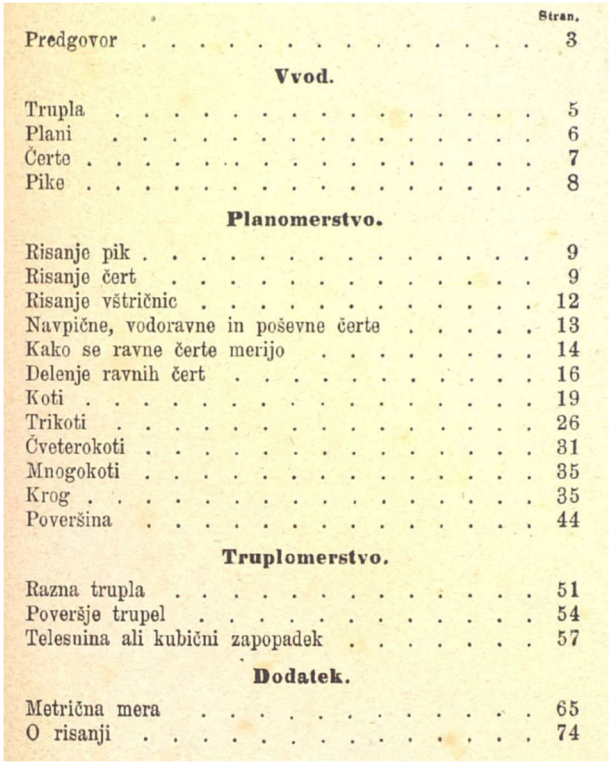
In Ljubljana, 1872.
Rud. Milic published and printed [it]

Slovene

Ivan/Janez Lapajne

Geometrija ali merstvo
Ljubljana: Rud. Milic 1872

Content overview
(according to the table of contents)



Stran.

Predgovor 3

Vvod.

Trupla 5
Plani 6
Čerte 7
Pike 8

Planomerstvo.

Risanje pik 9
Risanje čert 9
Risanje vštričnic 12
Navpične, vodoravne in poševne čerte 13
Kako se ravne čerte merijo 14
Delenje ravnih čert 16
Koti 19
Trikoti 26
Čveterokoti 31
Mnogokoti 35
Krog 35
Poveršina 44

Truplomerstvo.

Razna trupla 51
Poveršje trupel 54
Telesnina ali kubični zapopadek 57

Dodatek.

Metrična mera 65
O risanji 74

Preface
Introduction
- Solid objects
- Planar objects
- Lines
- Points

Geometry of the plane (planimetry)
- Drawing points
- Drawing lines
- Drawing parallels
- Vertical, horizontal and oblique lines
- How straight lines are measured
- Dividing straight lines
- Angles
- Triangles
- Quadrilaterals
- Polygons
- Circle
- Area

Geometry of space (stereometry)
- Various solid objects
- Surface areas of solids
- Volume or cubic content

Appendix
- Metric measure
- About drawing

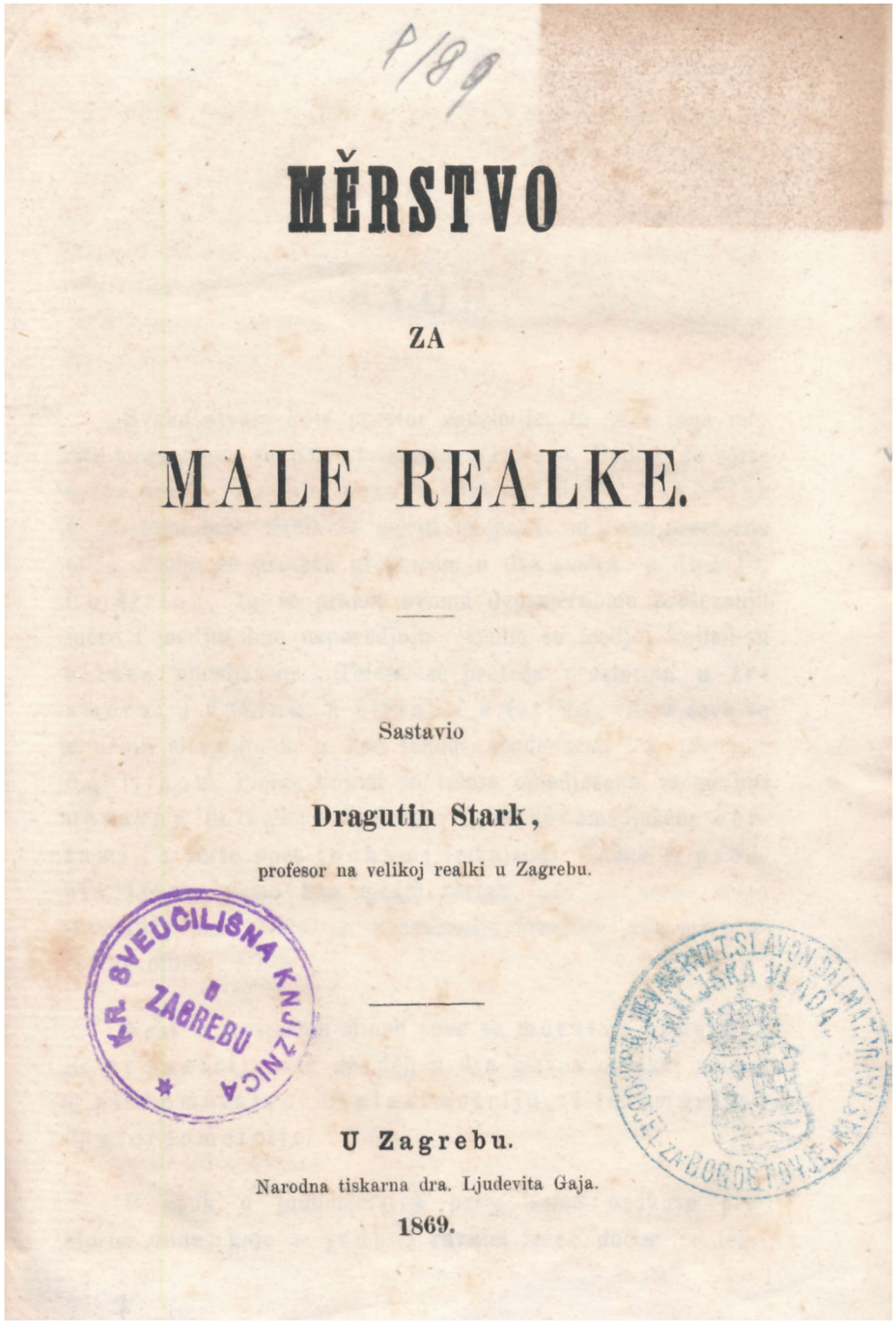
Croatian

Dragutin Stark

b. 1822 Praha
d. 1877 Zagreb
Studies in Praha and Wien
1849– Teacher at Zagreb real gymnasium
Painter (Biedermeier style)

Měrstvo za male realke
Zagreb: National printing house
1869

123 p., 135 fig. (white on black)
D: no digital copy
L: Croatia NL (151.664)
V: Croatia NL (2024-06-21)
S: Razpet, N. Symposion 2026



Croatian

Dragutin Stark

Měrstvo za male realke
Zagreb: National printing house
1869

Transcription of the title page

Měrstvo
za
male realke.

Sastavio
Dragutin Stark,
professor na velikoj realki u Zagrebu.

U Zagrebu.
Narodna tiskarna dr[užb]a. Ljudevita Gaja.
1869.

Croatian

Dragutin Stark

Měrstvo za male realke
Zagreb: National printing house
1869

Translation of the title page

Geometry [*measuring*]
for
small secondary schools
[Realschule, Realgymnasium]

He composed [it]*:*
Dragutin Stark,
professor at the big secondary school in Zagreb

Zagreb
National printing house company,
Ljudevit Gaj street
1869

Croatian

Dragutin Stark

Měrstvo za male realke
Zagreb: National printing house
1869

Content overview

(according to the section headings)
The Croatian terms in this content overview are quoted in singular.
The book contains a list of mixed Croatian-German and German-Croatian translations (p. 119–123).

First Croatian translation of Euclid's *Elements*:

Maja Hudoletnjak Grgić 1999 (Book I-VI)

Introduction (*uvod*)
Chapter 1
1 The point (*točka*) and its meaning
2 The origin of lines (*cèrta*) and their types (*vèrst*)
3 Measuring straight (*upravan*) lines
4 Leveling
5 Angles (*kût*)
6 Measuring angles
7 Objects (*lîk*) in general, and triangles (*trokut*) in particular
8 Properties of triangles
9 Congruence (*sukladnost*), similarity (*sličnost*) and equality (*jednakost*) in general and in particular in triangles
10 Similarity of triangles
11 Applications of rules of congruence and similarity
12 Measuring with the measuring table
13 Quadrilaterals (*četverokut*)
14 Polygons (*višekut*)
15 Circle (*okrug*)
16 Measuring the length (*dužina*) of the circumference (*obod*)
Chapter 2
17 Calculating the area of a planar object with a right angle (*upravnostran*)
18 The area (*povèršina*) of parallelograms (*uzporednik*)
19 The area of a triangle
20 The area of trapezium [Brit.] (*trapez*) and general quadrilateral (*trapezoid*)
21 The area of polygons
22 The area of the circle

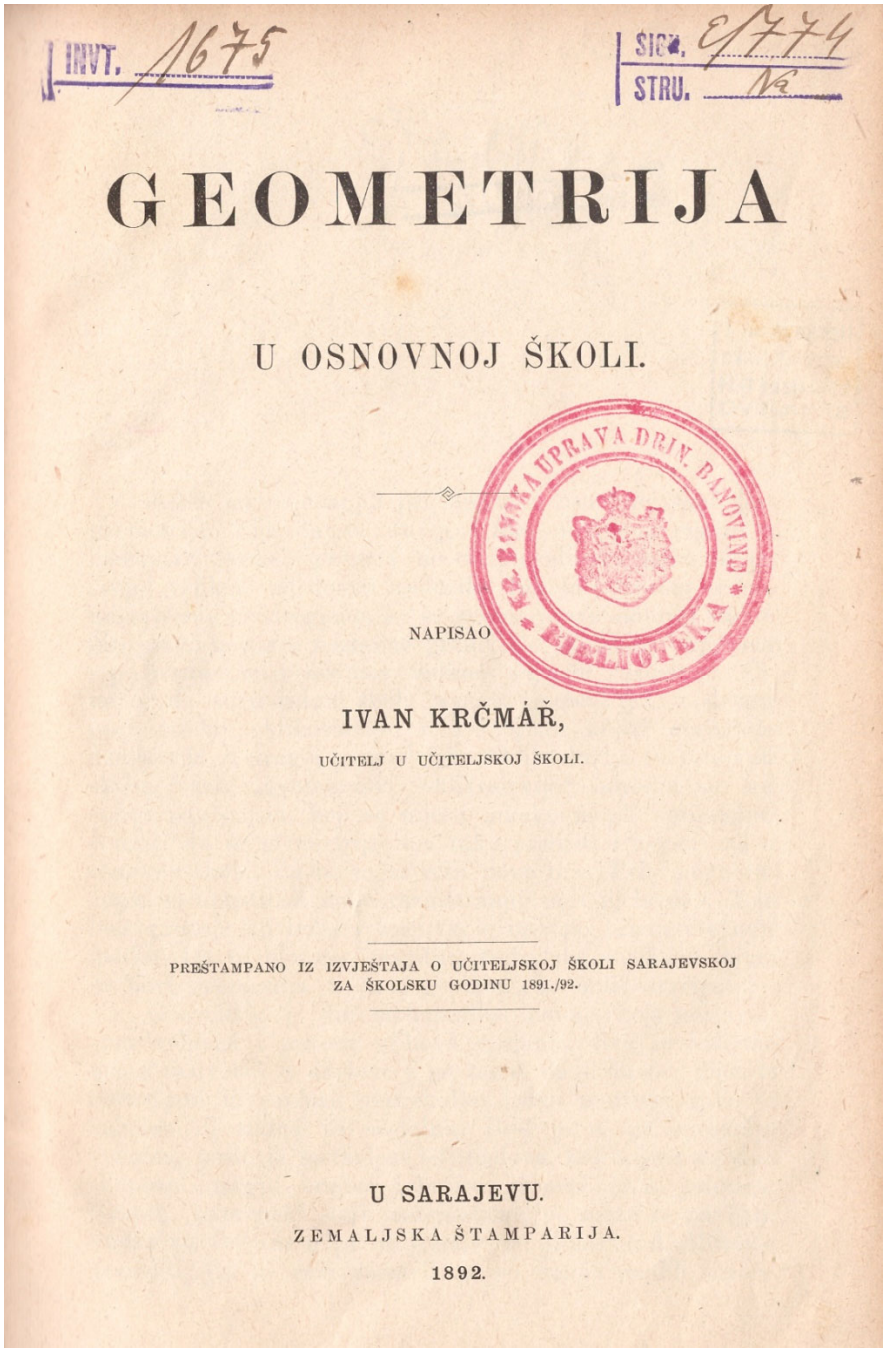
Bosnian

Ivan Krčmář

Professor at the Teacher Training Institute in Sarajevo
Active until at least 1912 (substitution of August grof Tartaglia)

Geometrija u osnovnoj školi
Sarajevo: Zemaljska štamparija
1892

D: No digital copy
L: Nacionalna i sveučilišna knjižnica u Zagrebu (NSK); Nacionalna i univerzitetska biblioteka BiH (Sarajevo)
https://plus.cobiss.net/cobiss/bh/bs/data/cobib/3031558 (catalog entry)



Bosnian

Ivan Krčmář

Geometrija u osnovnoj školi
Sarajevo: Zemaljska štamparija
1892

Transcription of the title page

S: Papić, Mitar: Školstvo u Bosni i Hercegovini za vrijeme austrougarske okupacije: 1878–1918. Sarajevo 1972, digital: https://www.cidom.org/wp-content/uploads/2015/12/Mitar-Papi%C4%87-%C5%A0kolstvo-u-BiH-za-vrijeme-Austrougarske_opt.pdf

Glasnik Hemičara i Tehnologa Bosne i Hercegovine (Bulletin of the Chemists and Technologists of Bosnia and Herze-govina), Faculty of Science, University of Sarajevo, (27–28) 1981, p. 128, digital: ttps://hemija.pmf.unsa.ba/glasnik/files/Arhiva/27-28.pdf

Geometrija
u osnovnoj školi.

Napisao
Ivan Krčmar,
učitelj u učiteljskoj školi.

Preštampano iz izvještaja o učiteljskoj školi sarajevskoj za školsku godinu 1891/92.

U Sarajevu.
Zemaljska štamparija.
1892.

Bosnian

Ivan Krčmář

Geometrija u osnovnoj školi
Sarajevo: Zemaljska štamparija
1892

Translation of the title page

There is a list of 12 German and Slavic references on the verso of the title page

Geometry
in elementary school

He wrote [it]:
Ivan Krčmar,
teacher at the teacher training school

Reprinted from the report of the Sarajevo teacher training school for the school year 1891/92

In Sarajevo
National printing house
1892

Bosnian

Ivan Krčmář

Geometrija u osnovnoj školi
Sarajevo: Zemaljska štamparija
1892

Content overview

1 Basics of geometry
2 Straight lines and angles
3 Straight-sided geometric objects
4 Curved geometric objects

A large part of the book addresses the methodology of teaching geometry: history, guidelines, procedures etc.

Course design rationale: Grade 1, Grade 2
New course content
The connection between geometry and other elementary school subjects

First Bosnian translation of Euclid's *Elements*:
Does not exist

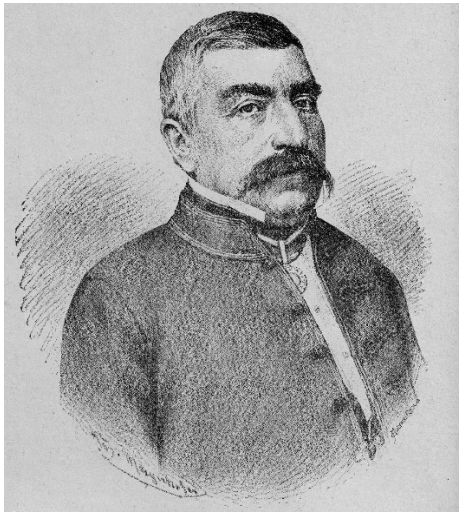
Serbian

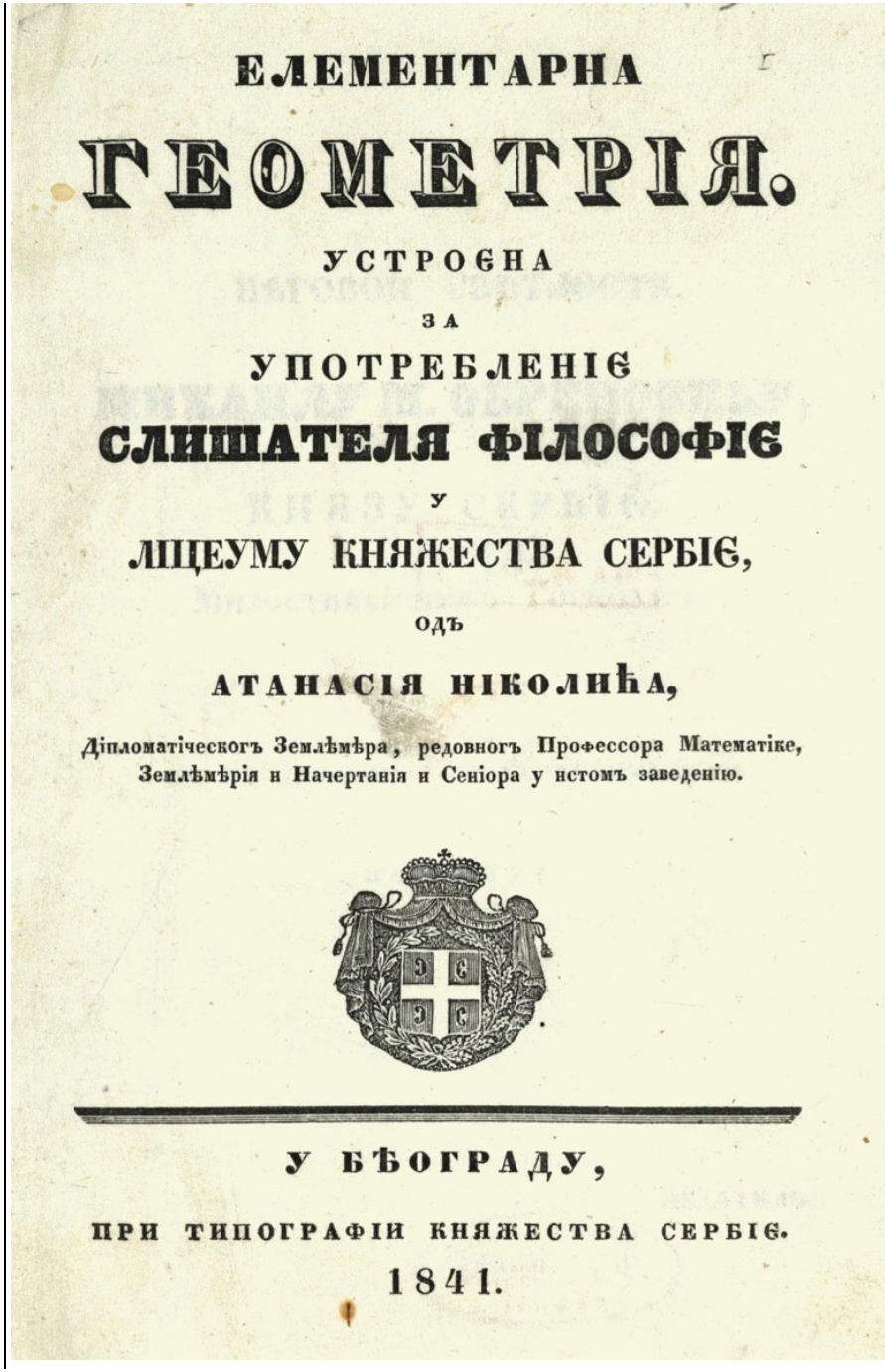
Atanasije Nikolić
Атанасије Николић

b. 1803 Bački Brestovac, Vojvodina
d. 1882 Beograd
Engineer, man of letters, teacher, prof. math. at Lyceum in Kragujevac, architect
Studies in Györ, Wien and Pest
[Österr. Biogr. Lex., English wikipedia]

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

XII, 215 p., 5 tables with 139 fig.
D: Digital library of Matica Srpska in Novi Sad: http://digital.bms.rs/ebiblioteka/publications/view/3567 [contains only single pages, no complete pdf]
L: Beograd NL (COBISS.SR-ID – 141815815)
V: Beograd NL (2024-08-15)
S: Razpet, M. Symposion 2026





ЕЛЕМЕНТАРНА

ГЕОМЕТРІЯ.

УСТРОЄНА

ЗА

УПОТРЕБЛЕНІЄ

СЛИШАТЕЛЯ ФІЛОСОФІЄ

У

ЛИЦЕУМУ КНЯЖЕСТВА СЕРБІЄ,

ОДЪ

АТАНАСІЯ НИКОЛИЋА,

Діпломатическогъ Землѣмѣра, редовногъ Професcора Математике, Землѣмѣрія и Начертанія и Сеніора у истомъ заведенію.

У БѢОГРАДУ,

ПРИ ТИПОГРАФІИ КНЯЖЕСТВА СЕРБІЄ.

1841.

Serbian

Atanasije Nikolić

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

Transcription of the title page

Елементарна
геометрія.
Устроєна
за
употребленіє
слишателя філософіє
у
Ліцеуму Княжества Сербіє,
одъ
Атанасія Николића,
діпломатіческогъ Землемѣра, редовногъ Професcора
Математіке,
Землемѣрія и Начертанія и Сеніора у истомъ заведенію.

У Бѣограду,
при Тіпографіи Княжества Сербіє.
1841.

Serbian

Atanasije Nikolić

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

Romanization of the title page

Elementarna
geometrịâ.
Ustroêna
za
upotrebleniê
slišatelâ fịlosofiê
u
Lịceumu Knâžestva Serbịê,
od”
Atanasịâ Nikolịća,
Dịplomatịčeskog” Zemlěměra, redovnog” Professora Matematịke,
Zemlěměrịâ i Načertanịâ i Senịora u istom” zavedenịû.

U Běogradu,
pri Tipografịi Knâžestva Serbịê.
1841.

Serbian

Atanasije Nikolić

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

Translation of the title page

Elementary
geometry.
Arranged
for
the use
of the student of philosophy
at
the Lyceum of the Principality of Serbia,
by
Atanasije Nikolić,
diplomatic land surveyor, regular professor of mathematics,
land surveying and drawing and senior at the same institution.

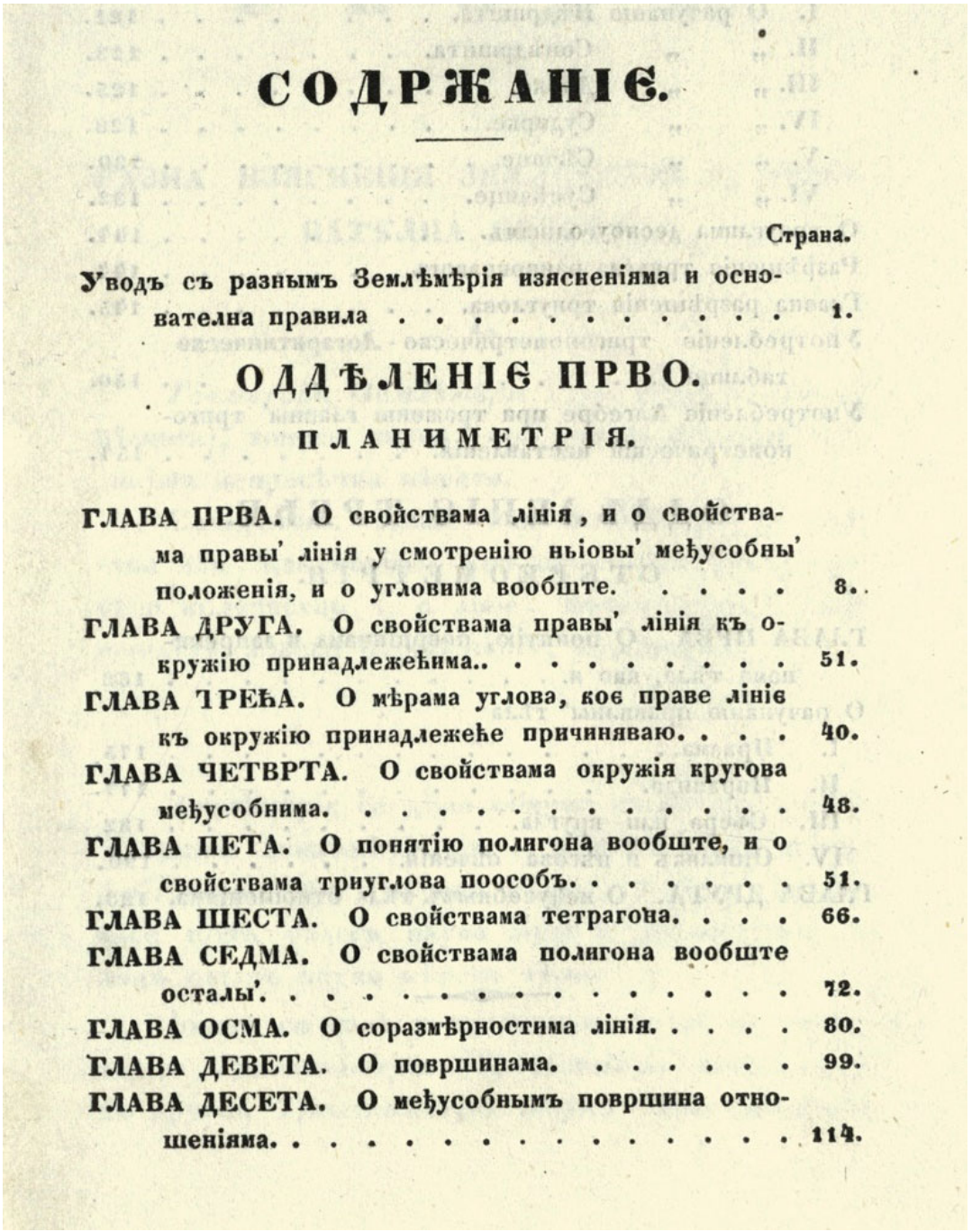
In Beograd,
at the Printing House of the Principality of Serbia
1841

Serbian

Atanasije Nikolić

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

Content overview
(according to the table of contents)



СОДРЖАНІЄ.

Страна.

Уводъ съ разнымъ Землѣмѣрія изясненіяма и основателна правила . . . . . 1.

ОДДѢЛЕНІЄ ПРВО.

ПЛАНИМЕТРІЯ.

ГЛАВА ПРВА. О свойствама лінія, и о свойствама правы' лінія у смотренію ньіовы' међусобны' положенія, и о угловима вообште. . . . . 8.

ГЛАВА ДРУГА. О свойствама правы' лінія къ окружію принадлежећима.. . . . . 51.

ГЛАВА ТРЕЋА. О мѣрама углова, коє праве лініе къ окружію принадлежеће причињаваю. . . . 40.

ГЛАВА ЧЕТВРТА. О свойствама окружія кругова међусобнима. . . . . 48.

ГЛАВА ПЕТА. О понятію полигона вообште, и о свойствама триуглова поособъ. . . . . 51.

ГЛАВА ШЕСТА. О свойствама тетрагона. . . . 66.

ГЛАВА СЕДМА. О свойствама полигона вообште осталы'. . . . . 72.

ГЛАВА ОСМА. О соразмѣрностима лінія. . . . . 80.

ГЛАВА ДЕВЕТА. О површинама. . . . . 99.

ГЛАВА ДЕСЕТА. О међусобнымъ површина отношеніяма. . . . . 114.

Serbian

Atanasije Nikolić

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

Content overview

(according to the table of contents)
The Serbian terms in this content overview are quoted in singular.

Dedication to Mihailo Obrenović (1823–1868), Prince of Serbia 1839–1842 and 1860–1868
Preface
Table of contents
Introduction with various explanations of land surveying and basic rules
1 Geometry of the plane (planimetry)
1.1 Properties of lines and properties of straight (*pravi*) lines with respect to their position to each other; angles (*ugao*) in general (fig. 1–22)
1.2 Properties of straight lines belonging to a circle (*peripheria*, *okružiê*, §20) (fig. 23–30)
1.3 Measures (*měra*) of angles that straight lines form at the circle they belong to (fig. 31–40)
1.4 Mutual properties of circles (fig. 41–42)
1.5 Concept of polygons in general; properties of individual triangles (*triugao*) (fig. 43–56)
1.6 Properties of tetragons (fig. 57–67)
1.7 Properties of polygons in general (fig. 68–76)
1.8 Proportionality of lines (fig. 77–91)
1.9 Surfaces (*superficies*, *površina*, §5) (fig. 92–96)
1.10 Mutual relationships of surfaces (fig. 97–100)

Serbian

Atanasije Nikolić

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

Content overview
(according to the table of contents)

ОДДѢЛЕНІЄ ДРУГО.

ТРИГОНОМЕТРІЯ ПОВРШНА.

Страна.

О тригонометрическимъ лініяма (или дѣйствіяма). . 119.
I. О рачунаню Нѣдришта. . . . . 121.
II. „ „ Сонѣдришта. . . . . 123.
III. „ „ Дирке. . . . . 125.
IV. „ „ Судирке. . . . . 128.
V. „ „ Сѣчице. . . . . 130.
VI. „ „ Сусѣчице. . . . . 132.
О триуглима десноуголнымъ. . . . . 144.
Разрѣшеніе триугла равнокракогъ. . . . . 144.
Главна разрѣшенія триуглова. . . . . 145.
Употребленіе тригонометрическо-Логаритмическе таблице. . . . . 150.
Употребленіе Алгебре при траженю главны' тригонометрическій наставленія. . . . . 154.

ОДДѢЛЕНІЄ ТРЕЋЕ.

СТЕРЕОМЕТРІЯ.

ГЛАВА ПРВА. О понятію, површинама и запремінама тѣла, као и. . . . . 168.
О рачунаню правилны' тѣла
I. Призма. . . . . 175.
II. Пирамида. . . . . 177.
III. Сфера или кругла. . . . . 182.
IV. Ошилякъ и нѣгова сѣченія. . . . . 190.
ГЛАВА ДРУГА. О међусобнымъ тѣла отношеніяма. 198.

Serbian

Atanasije Nikolić

Elementarna geometrịâ
Beograd: Printing House of the Principality of Serbia 1841

Content overview

(according to the table of contents)
The Serbian terms in this content overview are quoted in singular.

First Serbian translation of Euclid's *Elements*:

Еуклидови елементи, књ. 1–6, 11–13.
Београд: Српска академија наука 1949–1957

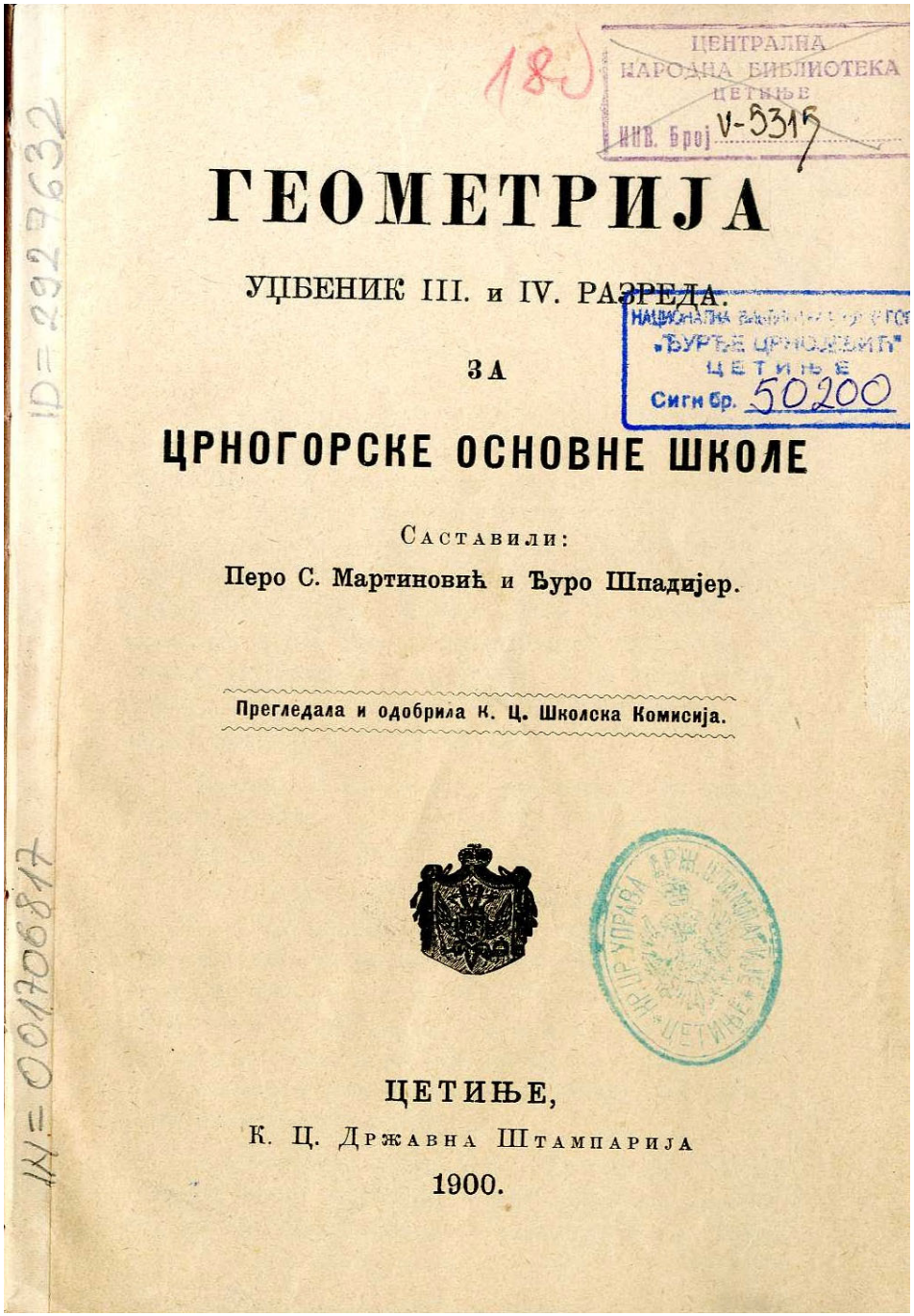
2 Plane trigonometry
Trigonometric lines (fig. 101–104):
Calculation of I. Sine (*nědrište*), II. Cosine (*sonědrište*), III. Tangent (*dirka*), IV. Cotangent (*sudirka*), V. Secant (*sěčica*), VI. Cosecant (*suseč̌ica*)
Right-angled (*desnougolni*) triangles (fig. 105)
Solving of isosceles (*ravnokraki*) triangles (fig. 106)
Main solvings of triangles (fig. 107–111)
The use of trigonometric-logarithmic tables (fig. 112–113)
The use of algebra for solving the main trigonometric problems (*theorema*, *nastavlenieˆ*, §10) (fig. 114)
3 Geometry of space (stereometry)
3.1 Shapes, surfaces and volumes (*zapremina*, §4) of solids
Calculation of regular solids (*pravilno tělo*) (fig. 115–129):
I. Prism, II. Pyramid (fig. 128–129), III. Sphere (*sfera*, *krugla*) (fig. 130–133), IV. Cone (*ošilâk"*) and its sections (fig. 134–139)
3.2 Mutual relationships of solids (fig. 124)
Tables of trigonometric functions

Montenegrin-Serbian

Pero Stevov Martinović
Перо С. Мартиновић
Đuro Špadijer
Ђуро Шпадијер
1868–1916 resp. 1871–1953; teachers

Geometrija. Udžbenik 3 i 4 razreda za crnogorske osnovne škole
Cetinje: Princely Montenegrin National Printing House 1900

The book is written in Serbian.
The Montenegrin language was only defined after the breakup of Yugoslavia.
78 p.
V: Information from National Library of Montenegro (2025)
S: Razpet, M. Symposion 2026



Montenegrin-Serbian

Pero S. Martinović
Đuro Špadijer

Geometrija. Udžbenik 3 i 4 razreda za crnogorske osnovne škole
Cetinje: Princely Montenegrin National Printing House 1900

Transcription of the title page

Геометрија
Уџбеник III. и IV. разреда.

За
црногорске основне школе

Саставили:
Перо С. Мартиновић и Ђуро Шпадијер.
Прегледала и одобрила К. Ц. Школска Комисија.

Цетиње,
К. Ц. Државна Штампарија 1900.

Montenegrin-Serbian

Pero S. Martinović
Đuro Špadijer

Geometrija. Udžbenik 3 i 4 razreda za crnogorske osnovne škole
Cetinje: Princely Montenegrin National Printing House 1900

Romanization of the title page

Geometrija
Udžbenik III. i IV. razreda.

Za
crnogorske osnovne škole

Sastavili:
Pero S. Martinović i Đuro Špadijer.
Pregledala i odobrila K[neževska] C[rnogorska]
Školska Komisija.

Cetin'e,
K[neževska] C[rnogorska] Državna Štamparija
1900

Montenegrin-Serbian

Pero S. Martinović
Đuro Špadijer

Geometrija. Udžbenik 3 i 4 razreda za crnogorske osnovne škole
Cetinje: Princely Montenegrin National Printing House 1900

Translation of the title page

Geometry
Textbook 3rd and 4th classes.

For
Montenegrin elementary schools

They composed [it]:
Pero S. Martinović i Đuro Špadijer.

The Princely Montenegrin School Commission reviewed and approved [it].

Cetinje,
Princely Montenegrin National Printing House
1900

Montenegrin-Serbian

Pero S. Martinović
Đuro Špadijer

Geometrija. Udžbenik 3 i 4 razreda za crnogorske osnovne škole
Cetinje: Princely Montenegrin National Printing House 1900

Content overview
(according to the section headings)

Basic terminology (*osnovni pojmovi*)
I. Solid (*tijelo*)
II. Surface (*površina*)
III. Line (*linija*)
IV. Point (*tačka*)
V. Angle (*ugao*)
VI. Vertex (*rogalj*)
VII. Objects (*slike*)
VIII. Geometry and its subdivisions (*Geometrija i njena podjela*)

Objects in the plane (*oblici u ravnini*): planimetry
1. Point (*tačka*)
2. Straight line (*prava linija*)
3. Two straight lines (*dvije prave*)
4. Angle (*ugao*)
5. Classification of angles (*podjela uglova*)
6. Triangle (*trougao*)
7. Classification of triangles (*podjela trouglova*)
8. Quadrilateral (*četvorougao*)
9. Angles of a quadrilateral (*uglovi četvorougla*)
10. Polygon (*mnogougao*)
11. Kreis (*krug*)
12. Calculation of areas (*iznalaženje površina*)

Objects in the space (*oblici u prostoru*): stereometry
1. Cube (*kocka*)
2. Prism (*prizma*)
3. Pyramid (*piramida*)
4. Cylinder (*valjak*)
5. Cone (*kupa*)
6. Sphere (*kugla*)

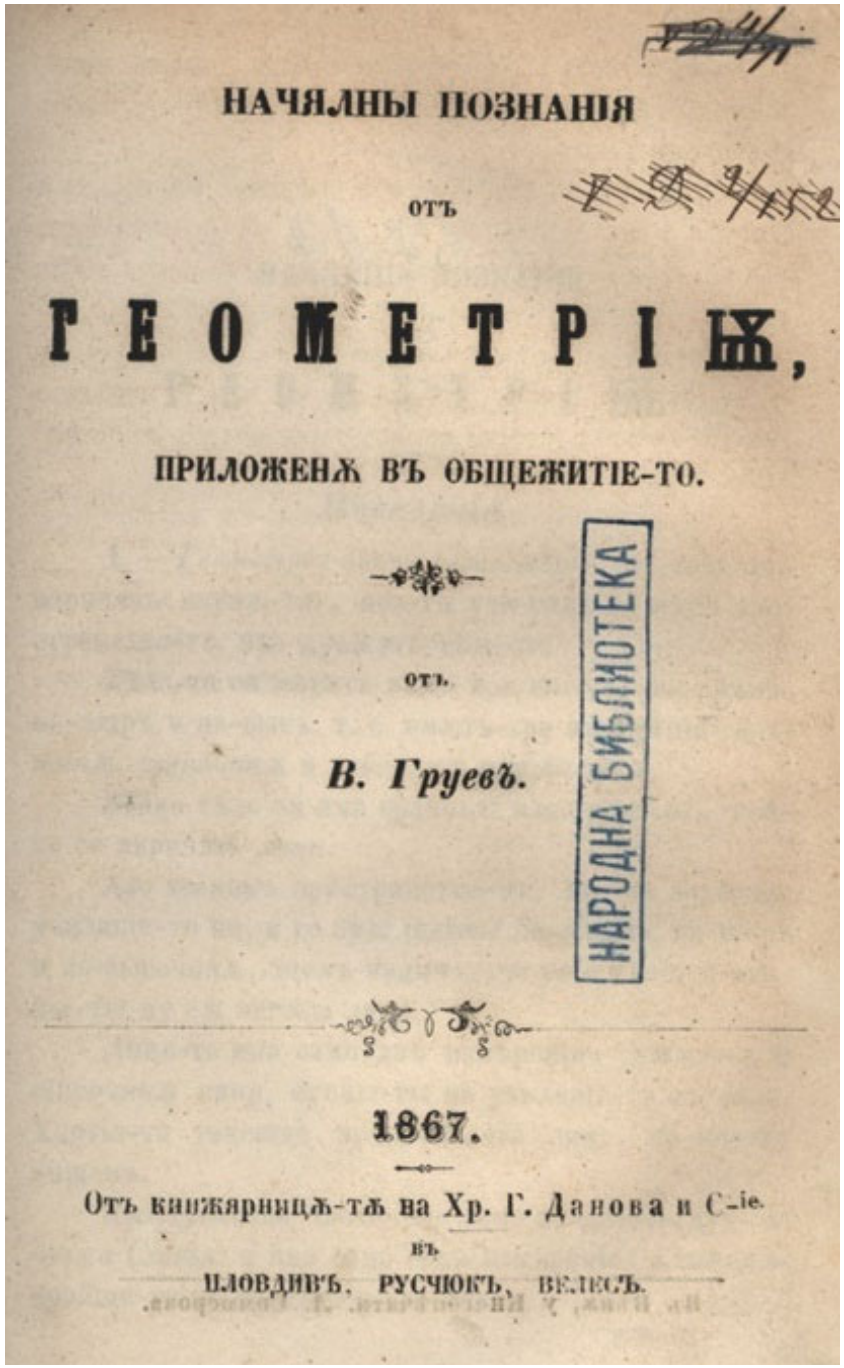
Bulgarian

Veselin Gruev
Веселин Груев

Bulgarian revival teacher
1838–1867

Načâlny poznaniâ ot geometriiǫ
Plovdiv: Chr. G. Danov 1867

72 p., 78 fig. (white on black)
D: http://digilib.nationallibrary.bg:8082/show-sk?id=858 [contains only single pages, no complete pdf]
L: Bulgaria NL (Digital library)
S/V: Kamisheva, Ganka: Bulgarian math. culture in the 19th century. Sofia 2006. www.researchgate.net/publication/215971443
S: Boneva, Vera: Възрожденският учител Веселин Груев. Педагогика 91(2019) 463–477
S: Razpet, M. Symposion 2026



НАЧѦЛНЫ ПОЗНАНІЯ

ОТЪ

ГЕОМЕТРІЯ,

ПРИЛОЖЕНѪ ВЪ ОБЩЕЖИТІЕ-ТО.

ОТЪ

В. Груевъ.

НАРОДНА БИБЛИОТЕКА

1867.

Отъ книжарницѧ-тѧ на Хр. Г. Данова и С-ie

ВЪ

ПЛОВДИВЪ, РУСЧЮКЪ, ВЕЛЕСЪ.

Bulgarian

Veselin Gruev

Načâlny poznaniâ ot geometrìiǫ
Plovdiv: Chr. G. Danov 1867

Transcription of the title page

Начялны познанія
отъ
геометріѫ,
приложенѫ въ общежитіе-то.

Отъ
В. Груевъ.

1867.

Отъ книжарницѣ-тѣ на Хр. Г. Данова и С-ie.
въ
Пловдивъ, Русчюкъ, Велесъ.

Bulgarian

Veselin Gruev

Načâlny poznaniâ ot geometriiǫ
Plovdiv: Chr. G. Danov 1867

Romanization of the title page

Načâlny poznaniâ
ot”
geometriiǫ,
priloženǫ v” obŝežitie-to.

Ot”
V. Gruev”.

1867.
Ot” knižârnicǫ-tǫ va Ḥr. G. Danova i C-ie.
v”
Plovdiv”, Ruscûk”, Veles”.

Bulgarian

Veselin Gruev

Načâlny poznaṇiâ ot geometrịịǫ
Plovdiv: Chr. G. Danov 1867

Translation of the title page

Basic knowledge
of
geometry,
applied to practical everyday life.

By
V[eselin] *Gruev*

1867
At the bookstore of Chr. G. Danov and company
in
Plovdiv, Ruse, Veles [North Macedonia]

Bulgarian

Veselin Gruev

Načâlny poznaniâ ot geometriiǫ
Plovdiv: Chr. G. Danov 1867

Content overview
(according to the section headings)

Introduction (*v”vedeniẹ*)
Line (*čr’ta*)
Angle (*ǫg”l*)
Triangle (*treǫglenika*)
Polygon (*mnogoǫglenika*)
Circle (*krjǫg*)
Measuring angles (*izměreniẹ na ǫgly*)
Lateral (sur)face (*lice, povr’ḥnosti*)
Area (*ploŝ*)
Measuring areas (*izměreniẹ na ploŝ*)
Position of lines and areas in relation to each other (*vzaimno položeniẹ na čr’ty kamu ploŝti*)
Angles in two and three dimensions (*dvoestěnny i mnogostěnny ǫgly*)
Solid, polyhedron (*mnogogrannik*)
Prism, pyramid
Regular solids (*pravilny mnogogrannicy*)
Round solids (*obly těla*): cylinder, cone, sphere (*klǫbo*)
Measuring surface areas of solids (*izměreniẹ lica na těla*)
Measuring the volume of solids (*izměreniẹ obemy na těla*)
Specific gravity (*věs”*)
The main instruments necessary for measuring (*po-glavny orǫdiâ koi-to sǫ potrěbny za měreniẹ*)
Metric scale or reducible measure (*metričeska lěstvica ili namalâema měra*)
Review questions (*pytaniâ za povtarâniẹ*)

First Bulgarian translation of Euclid’s *Elements*:
Vladimir Chukanov (Владимир Чуканов):
Елементи. Sofia 1972–1974

Other Slavic languages

Ukrainian (nothing known about early geometry books; the first one is: Savytskyi (Савицький), Omelian Mykhailovych: Геометрія для висших кляс гімназіяльних (Geometry for the upper grades of high schools). Lwiw: Scientific Schewtschenko Society 1908)

Belarusian (nothing known about early geometry books; the first one is: Ф. Г. Мікельсар (F. G. Mikelsar / Friedrich Vollrad Mikelsar; 1886–1930): Пачатковая геаметрыя. Minsk 1924)

First Slovak translation of Euclid's *Elements*:
Ján Čižmár 2022

Slovak (nothing known about early geometry books; the first ones appear in the 20th century after the founding of the First Czechoslovak Republic in 1918)

Sorbian (nothing known about early geometry books; the first ones appear only after 1950)

Macedonian (nothing known about early geometry books; the first one appear only after 1940, see Marko Razpet, Symposion 2026)

Latvian

Gustavs Vilhelms Zigmunds Braše/Braže (German: Gustav Wilhelm Sigmund Brasche)

1802–1883
Baltic German pastor in Nīca and Bārta (Latvian Wikipedia)

Mērīšanas mācība ļaužu skolām
Jelgava (Mitau) 1862
publisher Gustav Adolf Reyher,
printer A. Th. Engelhardt in Leipzig

49 p., 4 tables with 79 fig.
Printer on the bottom of p. 48
D/L: Latvia NL: https://lnb.gov.lv (catalog), database for rare books (Reto grāmatu un rokrakstu nodaļa)
S: Daina Taimina, Daina: History of mathematics. Riga 1990 (in Latvian)

Latvian

Gustavs Vilhelms Zigmunds Braše/Braže (German: Gustav Wilhelm Sigmund Brasche)

Mērīšanas mācība ļaužu skolām
Jelgava (Mitau) 1862
publisher Gustav Adolf Reyher,
printer A. Th. Engelhardt in Leipzig

Transcription of the title page

Braše wrote in the preface that this knowledge was “pie arāja būšanas daudz vietās ļoti vajadzīga” (‘highly necessary in many places for the farmer’s existence’).

It was not until the 1860s – in the course of the national awakening (‘Young Latvians’ (jaunlatvieši)) – that Latvian authors began to publish their own specialist literature.

Mehrişchanas mahziba

Ļaušu şkohlahm şarakstita
no
G. Brasche,
Nihzes un Bartes mahzitaja.

Jelgawâ.
Apgahdahts un dabbujams pee G. A. Reyhera,
grahmatu apgahdataja pee tirģus platscha.
1862.

Leipziģes pilşatâ driķķehts pee A. Th. Engelhardta.

Latvian

Gustavs Vilhelms Zigmunds Braše/Braže (German: Gustav Wilhelm Sigmund Brasche)

Mērīšanas mācība ļaužu skolām
Jelgava (Mitau) 1862
publisher Gustav Adolf Reyher,
printer A. Th. Engelhardt in Leipzig

Translation of the title page

No table of contents
66 numbered sections without headings

The science of measuring/geometry

Written for elementary/parish schools
by
G. Brasche,
pastor of Nīca and Barta

In Jelgava
Published and available at G. A. Reyher,
book publisher at the market square
1862

Printed in the city of Leipzig by A. Th. Engelhardt

Latvian – Supplement

Kaspars Biezbārdis

1806–1886
Latvian teacher and writer

Ģeometrija jeb ārumu zinātnība
Riga: self-published 1874

D: no digital copy
L: Latvia NL: https://lnb.gov.lv (catalog),
Rare books collection (Retumu kolekcija)

First Latvian translation of Euclid's *Elements*:
Does not exist

Translation of the title:
Geometry or the science of space

Since Braše, as a non-native speaker, had largely derived his geometrical terminology from German, the ethnically Latvian teacher Biezbārdis wrote another geometry book where he systematically attempted to introduce purely Latvian terminology.
In the title, he chose the word *ārums* ('field') for space.

Lithuanian

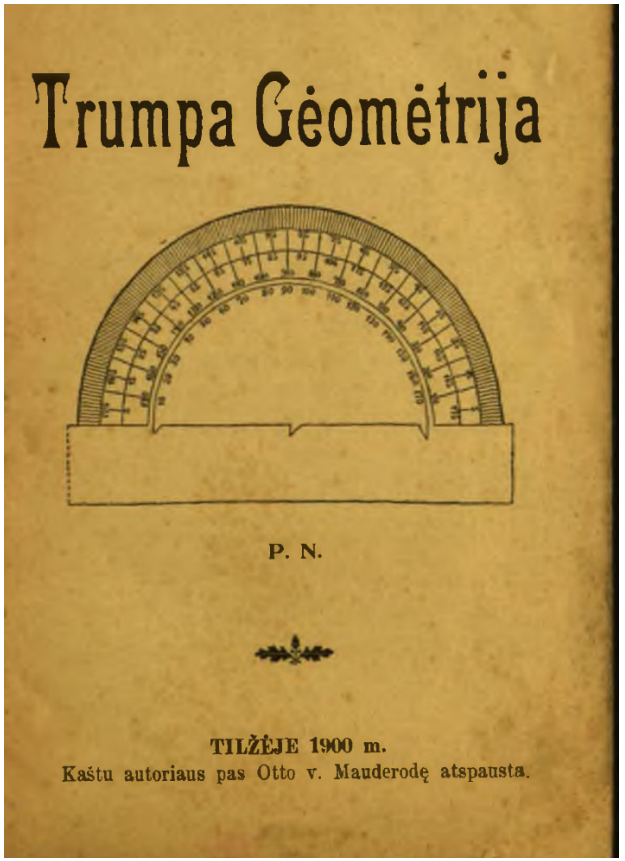
Petras Vileišis,
pen name Petras Nēris (P. N.)

1851–1926
Engineer, politician, author of the second Latvian arithmetic 1886
(Lithuanian Wikipedia)

Trumpa Gėomėtrija
Tilsit/Tilžė/Sovietsk: Otto von Mauderode 1900

73 p. with 147 numbered figures
D: https://www.epaveldas.lt/preview?id=C1B0002994689
L: Martynas Mažvydas NL of Lithuania (lnb.libis.lt), Rare books

Transcription of the title page



Trumpa Gėomėtrija
P. N.
Tilžėje 1900 m.
Kaštu autoriaus pas Otto v. Mauderode atspausta.

Lithuanian

Petras Vileišis,
pen name Petras Nēris (P. N.)

Trumpa Gėomėtrija
Tilsit/Sovietsk: Mauderode 1900

Translation of the title page

S: Banionis, Juozas: P. Vileišis. In: Liet. mat. rink. LMD darbai 50 (2009) 145–148 (journals.vu.lt/LMR/article/view/17918/17081)
S: Jonas Duoba, P. Vileisio „Trumpos geometrijos" terminai, In: Matematikos istorija Alpha + Omega 2003, 76–78, https://web.vu.lt/mif/v.stakenas/a+o/2003-1/2003-1-76-78.pdf

Brief geometry
Petras Nēris
In Tilsit in the year 1900.
Printed by Otto v. Mauderode at the author's expense

The textbook covered elementary geometry for the first four years of secondary school. Vileišis designed it specifically for secret Lithuanian underground schools (daraktorių mokyklos) and self-study. His goal was to provide education in the mother tongue to the rural population, despite the Russification policy.

The book was published near the end of the Lithuanian press ban (1865–1904), which had been imposed by the Russian Empire. For this reason, it was printed in East Prussia and had to be smuggled into Lithuania by book smugglers (knygnešiai).

Lithuanian

Petras Vileišis,
pen name Petras Nėris (P. N.)

Trumpa Gėomėtrija
Tilsit/Sovietsk: Mauderode 1900

Content overview
(according to the table of contents (*rodyklė*))

Introduction (*iženga*):
Three-dimensional objects (*kunas*)
Surface, area, line, point (*paviršis*, *plokštis*, *lynija*, *taškas*)
I Straight (*tiesi*) line, angle (*kertys*),
parallel (*lygatstogi*) lines
II Two-dimensional objects (*pavidalas*):
Triangle (*trikertainis*)
Quadrangle (*ketvirtainis*)
Measurement (*mieravimas*) of areas
Circle (*ratas*)
Similarity (*panašumas*) of two-dimensional objects
Land surveying (*pliano nujėmimas*)
III Measurement of surface and volume (*ruimos*) of three-dimensional objects

Contains several problems (*užduotys*) at the end of each section.

First Lithuanian translation of Euclid's *Elements*:
Does not exist

Celtic languages

Breton

(nothing known about early geometry books; from the 1980s and 1990s onward, educational associations such as TES (Ti-Embann ar Skolioù Brezhonek) printed the first purely Breton workbooks and textbooks for geometry (*Geometriezh*))

Irish

(nothing known about early geometry books; the first textbook was the adaptation of an English textbook by Joseph Browne (*First Lessons in Geometry*, 1907):
Eoghan Ó Neachtain (1867–1957): *Tús na Céimseata* (Elements of geometry). Dublin: Conradh na Gaeilge (The Gaelic League) 1923; textbook for primary schools.
By the same author: Irish translation (*Céimseata Eúclid*) of Book 1 and 2 of Euclid's *Elementa*, 1908–1913)

Scottish Gaelic

(nothing known about early geometry books; the first ones were published only after 1990)

Welsh

(nothing known about early geometry books; from the 1950s and 1960s onward, university specialist committees and Welsh publishers (such as Gwasg Gomer) systematically began printing geometry textbooks for schools)

(Modern) Greek

Nikephoros Theotokis
Νικηφόρος Θεοτόκης

b. 1731 Corfu
d. 1800 Moscow
Studies in mathematics in Bologna, Padua
1758 School in Corfu for Western physics
1779 Archbishop: Cherson and Astrakhan; after Evgenios Voulgaris (1716–1806)
1792 Danilov Monastery, Moscow, retired
(English Wikipedia)

Στοιχεία Γεωμετρίας
Moscow: Printing House of the Community 1798/1799

3 vol.

12 books till p. 258, 26 tables with figures
D: Digital L of modern Greek studies
https://anemi.lib.uoc.gr/metadata/1/4/0/metadata-04-0000013.tkl

ΣΤΟΙΧΕΙΩΝ ΜΑΘΗΜΑΤΙΚΩΝ
ΕΚ
ΠΑΛΑΙΩΝ ϗ ΝΕΩΤΕΡΩΝ
Συνερανισθέντων
ΥΠΟ ΤΟΥ ΠΑΝΙΕΡΩΤΑΤΟΥ
ΑΡΧΙΕΠΙΣΚΟΠΟΥ
ΠΡΩΗΝ ΑΣΤΡΑΧΑΝΙΟΥ
ΚΥΡΙΟΥ ΝΙΚΗΦΟΡΟΥ,
Φιλοτίμῳ δὲ δαπάνῃ ἐκδοθέντων,
Ὅπως δωρεὰν διανέμωνται τοῖς ἐν τοῖς
Ἑλληνομουσείοις Φοιτῶσιν,
ΥΠΟ ΤΩΝ ΤΙΜΙΩΤΑΤΩΝ ϗ ΦΙΛΟΓΕΝΩΝ
ΑΥΤΑΔΕΛΦΩΝ
ΖΩΣΙΜΑ
ΤΟΜΟΣ ΠΡΩΤΟΣ,
περιέχων
ΤΗΝ ΓΕΩΜΕΤΡΙΑΝ
καὶ
ΤΗΝ ΑΡΙΘΜΗΤΙΚΗΝ.

ΕΝ ΜΟΣΧΑ,
Ἐν τῷ τῆς Κοινότητος Τυπογραφείῳ παρὰ
Γεδεωνίῳ ϗ Κλαυδίῳ.
Ἔτει 1798.

Greek

Nikephoros Theotokis

Στοιχεία Γεωμετρίας
Moscow: Printing House of the Community 1798/1799

Transcription of the title page

S: Phili, Christine: A Corfiot Scientist in the Russian Empire: The Case of Nikephoros Theotokis. In: Borgato, M T; Phili, Ch (ed.): In Foreign Lands. The Migration of Scientists for Political or Economic Reasons. Cham (CH) 2022, p. 85–105

Στοιχείων μαθηματικῶν
ἐκ
παλαιῶν καὶ νεωτέρων
Συνερανισθέντων
ὑπὸ τοῦ πανιερωτάτου
ἀρχιεπισκόπου
πρώην Ἀστραχανίου
κυρίου Νικηφόρου,
Φιλοτίμῳ δὲ δαπάνῃ ἐκδοθέντων,
Ὅπως δωρεὰν διανέμωνται τοῖς ἐν τοῖς
Ἑλληνομουσείοις Φοιτώσιν,
ὑπὸ τῶν τιμιωτάτων καὶ φιλογενῶν
ἀνταδέλφων
Ζωσιμᾶ
Τόμος πρῶτος,
περιέχων
τὴν γεωμετρίαν
καὶ
τὴν ἀριθμητικήν.
Ἐν Μόσχᾳ.
Ἐν τῷ τῆς Κοινότητος Τυπογραφείῳ παρὰ
Ῥηδηγέρῳ καὶ Κλαυδίῳ.
Ἔτει 1798.

Greek

Nikephoros Theotokis

Στοιχεία Γεωμετρίας
Moscow: Printing House of the Community 1798/1799

Translation of the title page

Of the mathematical elements
from
ancient and modern sources,
compiled
by the most reverend
archbishop,
formerly of Astrakhan,
lord Nikephoros
and published at the generous expense –
so that they may be distributed for free to those
studying in the Greek academies –
by the most honorable and nation-loving
brothers
Zosimas
volume one,
containing
geometry
and
arithmetic.
In Moscow.
In the Printing House of the Community, by
Ridiger and Klaudios.
In the year 1798.

Greek

Nikephoros Theotokis

Στοιχεία Γεωμετρίας
Moscow: Printing House of the Community 1798/1799

Content overview
(Google Gemini from Phili, Christine)

In the Protheoria, Theotokis defines his core pedagogical aim through four concise principles:
From Tradition to Calculus: Moving students systematically from strict Euclidean proofs to modern European calculus.
Abstract Proofs Over Practice: Rejecting basic commercial math to focus entirely on logical and philosophical thinking.
Scientific Modernization: Integrating Western Newtonian and Leibnizian science into the Greek educational system.
National Intellectual Uplift: Providing an encyclopedic textbook in Greek to make students independent of Western academies.

Volume 1: Geometry (12 books) and Arithmetic (3 books)
Geometry Book 1: Foundations of Planar Geometry: Definitional elements of points, lines, angles, and foundational theorems on triangles, parallels, and area equivalence.
Book 2: Geometric Algebra: Geometric demonstration of algebraic identities via rectangles and squares constructed on subdivided line segments.
Book 3: Theory of the Circle: Intersecting chords, central and inscribed angles, tangents, and secants.
Book 4: Inscribed and Circumscribed Figures: Euclidean construction of regular polygons inside and around circles.
Book 5: General Proportions: Abstract Eudoxian theory of proportions applied to continuous magnitudes.
Book 6: Proportions in Planar Geometry: Proportionality of figures, geometric similarity, scale factors, and Thales' theorem.
Book 7: Foundations of Stereometry: Geometry of space, lines and planes in three-dimensional space, perpendicularity, and solid angles.
Book 8: Polyhedrons (Prisms and Pyramids): Properties of solids, surface relations, and foundational volume ratios of prisms and pyramids.
Book 9: The Regular Polyhedrons: Systematic mathematical analysis, construction, and limits of the five Platonic Solids.
Book 10: Curved Solids of Revolution: Advanced geometry and measurement of cylinders, cones, and their inscribed counterparts.
Book 11: Spherical Geometry: Great and small circles on a sphere, spherical angles, and spherical segments (essential for astronomy).
Book 12: The Method of Exhaustion: Pre-calculus limiting procedures used to determine the exact volume formulas for pyramids, cones, and spheres.
Arithmetic: Book 1: Theoretical Number Theory: Properties of integers, divisibility criteria, prime number distribution, and prime factorization.
Book 2: Numerical Progressions: Arithmetic, geometric, and harmonic progressions and numerical continuous ratios.
Book 3: Incommensurable Magnitudes: Systematic classification and operations with irrational numbers (modeled closely after Euclid's Book X).

Greek

Nikephoros Theotokis

Στοιχεία Γεωμετρίας
Moscow: Printing House of the Community 1798/1799

Content overview
(Google Gemini from Phili, Christine)

Edition of the Ancient Greek original of Euclid's *Elements*:
Basel: Simon Grynaeus, 1533

First Modern Greek translation of Euclid's *Elements*:
Benjamin of Lesbos. Wien 1820

Volume 2: Trigonometry, Conic Sections, and Archimedean Geometry

Treatise 1 (Trigonometria): Plane and Spherical Trigonometry: Analytical calculation of trigonometric ratios, circular functions, table of chords, and the resolution of rectilinear and spherical triangles (essential for astronomy and navigation).

Treatise 2 (Conica): Conic Sections: Complete geometric and analytical taxonomy of the Parabola, Ellipse, and Hyperbola.

Treatise 3 (Advanced Mensuration): Archimedean Theorems: Higher geometry focusing on the rectification of the circle, the quadrature of the parabola, and the calculation of surface areas and volumes of curved solids (including the 2:3 ratio of the cylinder to the sphere).

Volume 3: Algebra and Infinitesimal Calculus

Part I (Algebra): Elementary and Advanced Algebra: Transition from literal notation and variables to polynomial operations; systematic methodology for solving linear, quadratic, cubic, and quartic equations.

Part II: Chapter 1 (Introduction): Analysis of Infinite Quantities: Philosophical and mathematical foundation of variables, vanishing quantities, limits, and the nature of the mathematical continuum.

Part II: Chapter 2 (Calculus I): Foundations of Differential Calculus: Introduction to Newtonian fluxions and Leibnizian differentials, analytical differentiation of standard functions, and tangent determinations to locate Maxima and Minima.

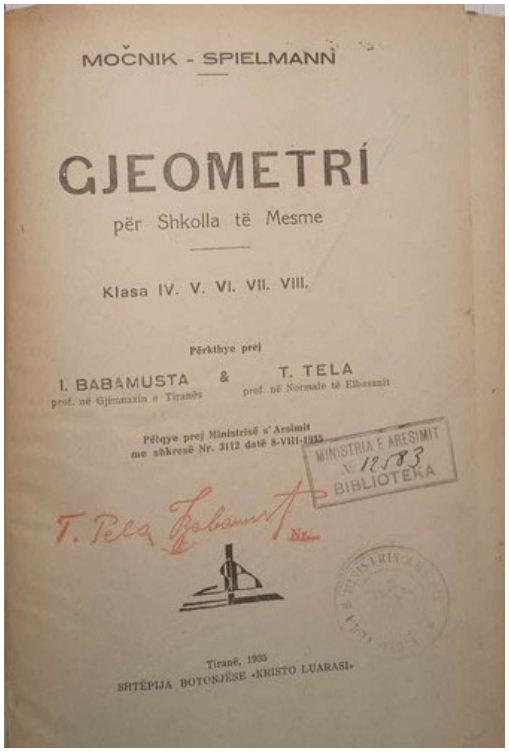
Part II: Chapter 3 (Calculus II): Foundations of Integral Calculus: The inverse method of fluxions (anti-differentiation), methods of integration, summation of infinite series, and advanced quadratures and rectifications under algebraic curves.

Albanian

L: Albania NL (Biblioteka Kombëtare e Shqipërisë – BKSH)
S: Mitrushi, Ilia: Zhvillimi i matematikës në Shqipëri (The development of mathematics in Albania). Tirana 1996
V: Libri Shqip 1555–1912, https://www.bksh.al/bksh/Libri%201555-1912.pdf
Bibliografi e Librit Shqip 1913–1944, https://www.bksh.al/bksh/LibriShqip1913.pdf

The Albanian arithmetic book (1886) author Jani Vreto created the Albanian neologism *Dhemasa* or *Dhemasëtore*, a literal translation of the Greek *geometria*.

Nothing known about early geometry books.
No such books by the scholars Naim and Sami Frashëri.
The first Albanian geometry book is obviously:
Ndoc Injac Saraçi: *Dhematje*. Shkodër: Shtypshkroja e së Paperlyemes (Printing House of the Immaculate Conception) 1922, 128 p. Tubë librash për shkollë gymnazike e tregtare botue prej Etnëve Jezuit (Collection of books for high schools and commercial schools published by the Jesuit Fathers) V. (Bibliografi e Librit Shqip (1913–1944), p. 202, no. 1015)


MOČNIK - SPIELMANN

GJEOMETRÍ

për Shkolla të Mesme

Klasa IV. V. VI. VII. VIII.

Përkthye prej

I. BABAMUSTA & T. TELA

MINISTRIA E ARSIMIT
BIBLIOTEKA

Tiranë, 1935
SHTËPIJA BOTONJËSE «KRISTO LUARASI»

Other geometry books followed.
The translation by I. Babamusta and T. Tela of an Austrian geometry book by Franz Ritter von Močnik and Johann Spielmann was published 13 years later:
Gjeometri për shkolla të mesme (for secondary schools). Tirana Shtëpija Botonjëse “Kristo Luarasi” 1935.

Finnish

Henrik Heikel

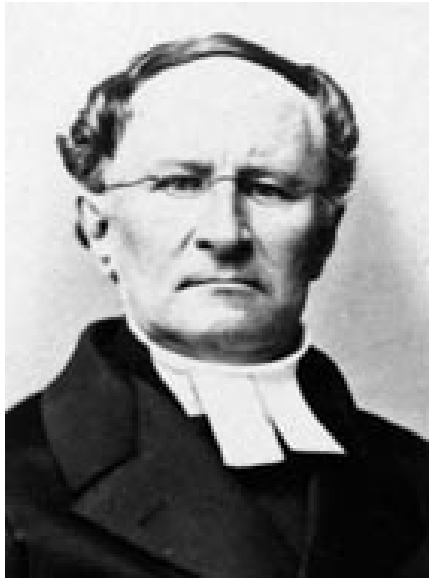
b. 1808 Oulu/Uleåborg
d. 1867 Helsinki
1832 Master's degree in philosophy
Lecturer at Turku/Åbo Academy
1861 Lutheran vicar in Pedersöre
(Nordisk familjebok, English Wikipedia)

Mittauden oppi-kirja

Helsinki: A. C. Öhman 1847

Translated by the Finnish linguist David Emanuel Daniel Europaeus (1820–1884) from Heikels Swedish original *Lärobok i geometrin*, Åbo: J. C. Frenckell 1842

112 p., unnumbered fig. on 90 p.
C/L/V: National Library of Finland
https://kansalliskirjasto.finna.fi/Record/fikka.3884220 [catalog entry]
D: Digital copy of the Finnish book available; not of the Swedish original



Mittauden

Oppi-Kirja,

josta löytyy

Enſimäinen Kirja Eukliideksen Alkeista

enennetty

Muistutuksilla ja liſäyksillä kuin myös ſowittamiſilla kaikellaiſiin toimituksiin,

antanut

Henrik Heikel,
Lehtori Tur'un Opistossa.

D. E. D. Europæus
Kääntänyt Suomeksi

Kolmannesta Ruotsalaisesta painosta.

Helſingissä,
Painettu J. Simeliuksen perillisen Kirjapainossa
1847.

A. C. Öhmanin kostannuksella.

Finnish

Henrik Heikel

Mittauden oppi-kirja
Helsinki: A. C. Öhman 1847

Transcription of the title page

Mittauden
Oppi-Kirja
jossa löytyy
Ensimäinen Kirja Eukliideksen Alkeista [:]
enennetty
Muistutuksilla ja lisäyksillä kuin myös
sowittamisilla kaikellaisiin
toimituksiin,
antanut
Henrik Heikel,
lehtori Tur'un Opistossa.

D. E. D. Europaeus
Kääntänyt Suomeksi
Kolmannesta Ruotsalaisesta painosta.

Helsingissä,
Painettu J. Simeliuksen perillisten Kirjapainossa
1847.

A. C. Öhmanin kostannuksella.

Finnish

Henrik Heikel

Mittauden oppi-kirja
Helsinki: A. C. Öhman 1847

Translation of the title page

Textbook
of geometry [literally (the science of) *measuring*]
in which you can find
the first book of Euclid's Elements
extended with
comments and additions as well as
corrections to all
editions,
authored by
Henrik Heikel,
lecturer at Turku [Åbo] *Academy*

David Emanuel Daniel Europaeus
translated it into Finnish
from the third Swedish edition

In Helsinki,
printed in the printing house of the heirs of J. Simelius
1847

At the expense of Alexander Constantin Öhman

Finnish

Henrik Heikel

Mittauden oppi-kirja
Helsinki: A. C. Öhman 1847

Content overwiew
(according to the section headings)

First Finnish translation
of Euclid's *Elements*:
Pekka Aschan: *Euklideen alkeista kuusi ensimäistä kirjaa eli Tasapinta-mitannon oppi* [The first six books of Euclid's Elements, i.e. the science of planimetry]. Kuopio 1859

Preface
Translation table Finnish – Swedish
Introduction
The 1st book of Euclid's *Elements*:
  definitions (*määrintö*; Greek ὅρος),
  postulates *waatimus*; Greek αἴτημα) and
  axioms (*peruslause*; Greek κοινὴ ἔννοια)
48 sections: theorems (*opettama*) and constructions (*tehtämä*)
Index to [the subjects from] Euclid's 1st book
Appendix 1: Land surveying
Appendix 2: 36 geometrical problems

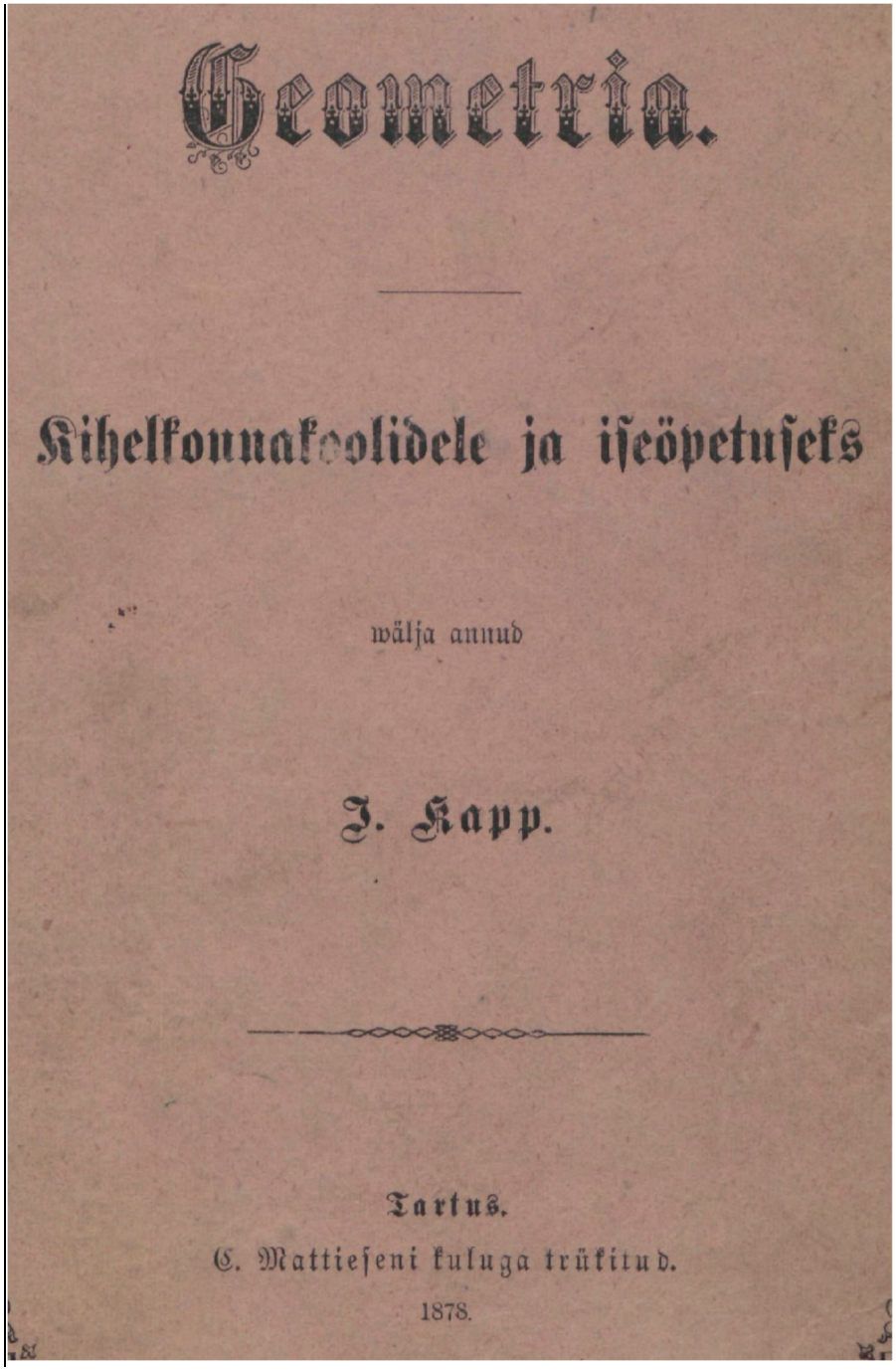
Estonian

Joosep Kapp

b. 1832 Rutikvere
d. 1894 Suure-Jaani
Teacher and musician
1853– Parish school in Suure-Jaani
(Estonian Wikipedia)

Geometria
Tartu: C. Mattiesen 1878

104 p., fig. (white on black) on many pages
D: http://www.digar.ee/id/nlib-digar:100295
S: Prinits, O: Eestikeelse geomeetria-õpetuse rajajad Joosep Kapp ja Jakob Tülk. Akadeemia (1997) 1, 3–33; https://www.digar.ee/arhiiv/nlib-digar:101582
V: Bjarnadottir/Christiansen/Lepik 2013, p. 37


Geometria.

Kihelkonnakoolidele ja iseõpetuseks

wälja annud

J. Kapp.

Tartus.
C. Mattieseni kuluga trükitud.
1878.

Estonian

Joosep Kapp

Geometria
Tartu: C. Mattiesen 1878

Transcription of the title page

The next Estonian geometry textbook was:
Jakob Tülk: *Kerged ja lühikesed Geometria õpetused* [Easy and short Geometry lessons]. Tartu 1879
http://www.digar.ee/id/nlib-digar:101204
[catalog entry]

Geometria.

Kihelkonnakoolidele ja iseöpetuseks

wälsa annud

J. Kapp.

Tartus.
C. Mattieseni kuluga trükitud.
1878.

Estonian

Joosep Kapp

Geometria
Tartu: C. Mattiesen 1878

Translation of the title page

Geometry

For parish schools and autodidactic learning

published it

Joosep Kapp

In Tartu
Printed at the expense of C. Mattiesen
1878

Estonian

Joosep Kapp

Geometria
Tartu: C. Mattiesen 1878

Content overview
(according to the section headings)

First Estonian translation of Euclid's *Elements*:
Does not exist

Preface (*eeskône*), dated 1877-06-04
I love geometry and teaching geometry (*Möni söna geometriast ja geometria öpetamisest*)

A. Geometry of the plane (*planimetria*)
1 Cube, cylinder, surface (field), line, point (*täring*, *ümargune sammas* [round pillar], *pind (lagendik)*, *joon*, *punkt (täpp)*)
2 Point (*punkt*)
3 Straight lines and angles (*sirged joonid ja winklid*)
4 Triangles (*kolmnurgad*)
5 Quadrilaterals (*nelinurgad*)
6 Area calculation (*Pinnasuuruse arwamine*)
7 Pythagorean theorem (*Pytagoräuse öpetustükk*)
8 Circle (*ring*)
9 Similar (uniform) objects (*ühenäulised kujud*)
B. Geometry of space (*stereometria* (measuring solids (*kehade möötmine*))
– Calculating the volume (*ruumi arwamine*) of:
1 Cube (*täringi*)
2 Square prism (*serwposti (kandilise samba)* [square pillar])
3 Cylinder (*ümarguse samba* [round pillar] *(toru)* [tube])
4 Pyramid (*terawposti* [pointed post])
5 Cone (*kuhja (trehtre)* [funnel])
6 Sphere (*kuuli*)

Appendix (*lisa*): Practical problems (*ülesanded harjutamiseks*)
1 Drawing objects (*kujude walmistamine*) geometrically (*geometrialikul kombel*)
2 Calculations (*wäljarehkendamine*)

Hungarian

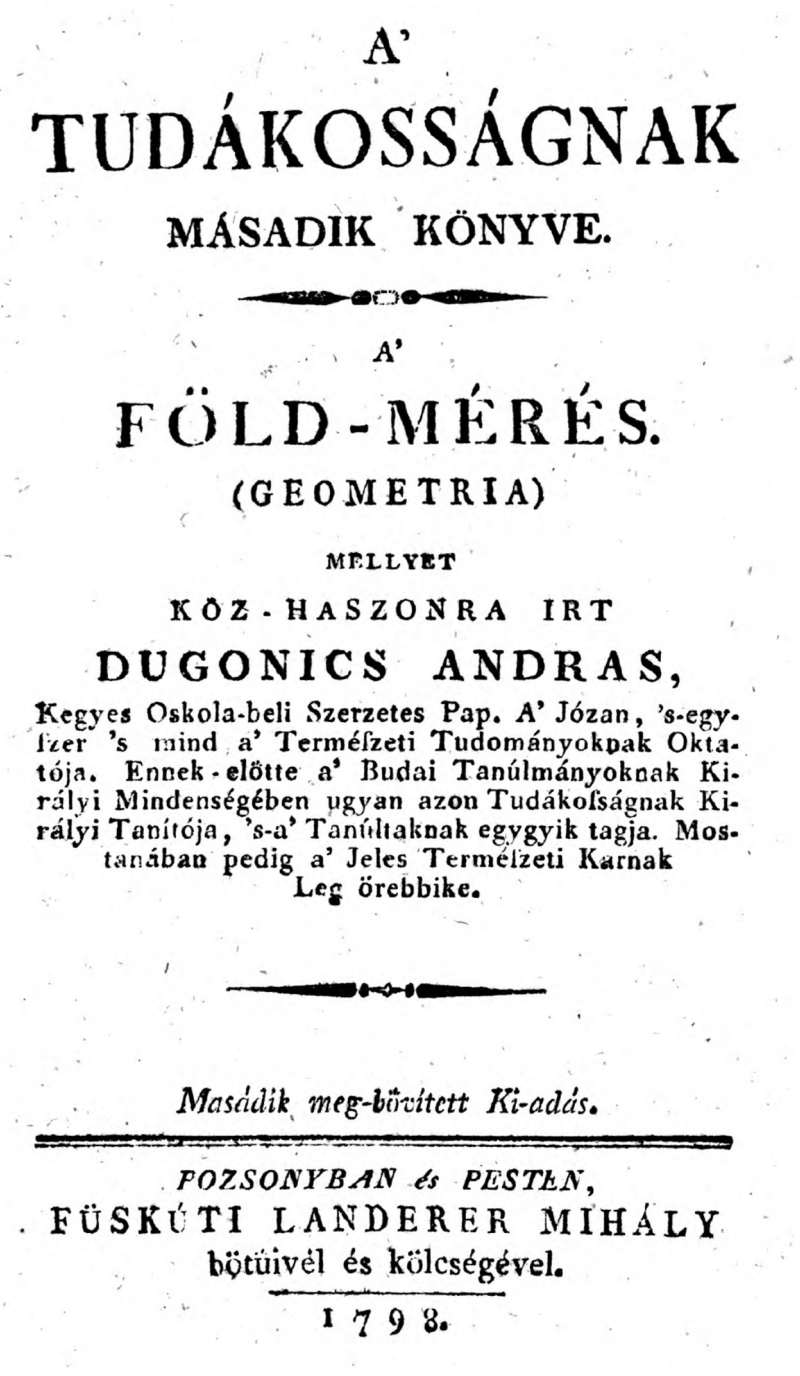
András Dugonics

1740–1818
Prof. at Budapest U (Jelitai 1937, p. 129)

A tudákosságnak másadik könyve mellyben foglaltatik a föld-mérés: geometria
Pest [Budapest]: Mihály Landerer [1]1784, [2]1798

188 p., 5 tables with 108 fig.;
([2]1798) 154 p.
D ([2]1798): BSB München, Google
L: Hungarian Academy of Sciences; BNF, BL

Further volumes:
1. A bötü-vetés <Algebra>
3. A három szögellések <Trigonometria>
4. Csúcsos szelések <Sectiones conicae>



A'

TUDÁKOSSÁGNAK

MÁSADIK KÖNYVE.

A'

FÖLD-MÉRÉS.

(GEOMETRIA)

MELLYET

KÖZ-HASZONRA IRT

DUGONICS ANDRAS,

Kegyes Oskola-beli Szerzetes Pap. A' Józan, 's-egyízer 's mind a' Természeti Tudományokpak Oktatója. Ennek-előtte a' Budai Tanúlmányoknak Királyi Mindenségében ugyan azon Tudákoſságnak Királyi Tanítója, 's-a' Tanúltaknak egygyik tagja. Mostanában pedig a' Jeles Természeti Karnak Leg örebbike.

Masádik meg-bövített Ki-adás.

POZSONYBAN és PESTEN,
FÜSKÚTI LANDERER MIHÁLY
bötüivél és kölcségével.

1798.

Hungarian

András Dugonics

A tudákosságnak másadik könyve mellyben foglaltatik a föld-mérés: geometria
Pest: Landerer [1]1784, [2]1798

Transcription of the title page [2]1798

Translated using Új magyar etimológiai szótár UESz (https://uesz.nytud.hu) and Google Gemini

A'
tudákosságnak
másadik könyve.

A'
föld-mérés.
(Geometria)
Mellyet
köz-haszonra irt
Dugonics András,
Kegyes Oskola-beli Szerzetes Pap. A' Józan [ész[nek]], '[é]s-egy-szer '[é]s mind a' Természeti Tudományoknak Okta-tója. Ennek-előtte a' Budai Tanúlmányoknak Ki-rályi Mindenségében ugyan azon Tudákosságnak Ki-rályi Tanitója, '[é]s-a' Tanúltaknak egygyik tagja. Mos-tanában pedig a' Jeles Természeti Karnak
Leg örebbike.

Másadik meg-bövített Ki-adás.

Pozsonyban és Pesten,
Füskúti Landerer Mihály
bötűivél és kölcségével.
1798.

Hungarian

András Dugonics

A tudákosságnak másadik könyve mellyben foglaltatik a föld-mérés: geometria
[This is the second book of science in which land surveying is contained]
Pest: Landerer [1]1784, [2]1798

Translation of the title page [2]1798

Kegyes-iskola 'Piarist order'

This is the
second book
of science:

The
land surveying
(Geometry)
which [*he*] *wrote for the public benefit:*
András Dugonics,
monastic Piarist priest. Of the logical science and
at the same time of the natural sciences an instructor.
Before that, in the Royal University of Studies at Buda,
of the very same science [*he was*] *royal teacher,*
and of the learned [*society*] [*he was*] *one member.*
And now– of the distinguished faculty of natural sciences –
[*he is*] *the longest-serving* [*member*].

Second extended edition.

In Bratislava [Pressburg] *and Pest* [Budapest],
with the types ['printed by'] *and at the expense*
of Michael Landerer von Fűskút [Fiscut, Romania].
1798

Hungarian

András Dugonics

A tudákosságnak másadik könyve mellyben foglaltatik a föld-mérés: geometria

Pest: Landerer [1]1784, [2]1798

Content overview

(according to the section headings)
Hungarian-Latin definitions

Poem for János Molnár [(1728–1804), Societas Jesu, abbot of Bélakút (Béla-forrás, Belae fons) in Petrovaradin (French Wikipedia), outstanding personality of Hungarian educational literature]

Understanding of land surveying

1 Line (*hosz*): point (*punt*) p. 5

1.1 Line in general (*közönségessen*): straight line (*egyenes*), curved line (*horgas*); surface (*hosz-szél*), planar surface (*lap*), curved surface (*kül*), plane (*tér*, spatium), object (*kertelet*), perimeter (*párkány*), area (*udvar*), perpendicular line (*függő hosz*), angle (*szög*), crura, vertex, right angle (*derék*), obliquus, acutus, obtusus, adjacent (deinceps positi, contigui), circle (*kerek*), periphery (*kör*), center (*szék*), radius (*súgár*), chord (*húr*), diameter (*öreg-húrja*), arcus, sector, segmentum; p. 7 (fig. 1-11)

1.2 Lines in relation to each other (*egy-máshoz alkalmaztatott hoszszak*): right angle (*kereszt-szög*), parallel lines (*egy-közű*), various pairs of angles; p. 20 (fig. 12-20)

1.3 Lines in relation to circles (*a kerekekhez alkalmaztatott hoszszak*): tangens, secans, angles in a circle; p. 34 (fig. 21-40)

1.4 Lines enclosing [parts of] the plane (*a tért bé-foglaló hoszszak*): side (*oldal*), triangle (*három-szög*) and its types and sides, similar objects (*hasonló kerteletek*), quadrilateral (*négy-szög*) and its types, parallelogram (*köz-arány*), square (*derek*), rhombus, polygon (*több-szög*); p. 49 (fig. 41-55)

Hungarian

András Dugonics

A tudákosságnak másadik könyve mellyben foglaltatik a föld-mérés: geometria
Pest: Landerer [1]1784, [2]1798

Content overview
(according to the section headings)

1.5 Proportions of lines [line segments] (*a hoszszak szereik*): area of the triangle (*a három-szögnek udvara*), basic proportionality theorem [Strahlensatz], norm (*szögellő*), mean proportional (*koz-szélekre vágás*), decagon (*tiz-szög*) p. 71 (fig. 56-73)
2 Surface (*hosz-szél*) p. 96
2.1 Measuring the area of an object (*a kertelet udvara meg-mérés*) p. 97 (fig. 74)
2.2 Transformation of objects (*a kerteletek változ-tatása*) p. 101 (fig. 75-77)
2.3 Partition of objects (*a kerteletek el-osztása*) p. 109 (fig. 78-86)
2.4 Relationships / proportions between objects (*a kerteletek tekinteteik / szám-tartása*) p. 115 (fig. 87-91)
3 Solid (*temérdek*, corpus) p. 124 (fig. 92)
3.1 Rotunda (*gombolyag*, rotundatum), (regular) polyhedron ((*rendes*) *több-lap*), angulus solidus (*temérdekes-szög*) p. 125 (fig. 93-94)
3.2 Prism (*általag*), triangular prism (*hasáb*), parallelepiped (*téglány*), cube (*köb*), cylinder (*henger*) p. 128 (fig. 95)
3.3 Pyramid (*czövek*), frustum (*csonka czövek*), cone (*csúcs*) p. 132 (fig. 96-98)
3.4 Sphere (*gömb*) p. 139 (fig. 99-100)
3.5 Relationships between solids (*a temérdekek tekinteteik*), similar solids (*hasonló temérdekek*) p. 145 (fig. 92)

Section headings in general

szakasz: section (higher level), segment
rész: section (lower level), part

Hungarian

András Dugonics

A tudákosságnak másadik könyve mellyben foglaltatik a föld-mérés: geometria
Pest: Landerer [1]1784, [2]1798

Section headings in a geometric context
(Google Gemini)

First Hungarian translation of Euclid's *Elements*:
Sámuel Brassai 1865

államány (állomány) §: construction / Figure execution (the specific setup of the geometric figure; Latin: constructio).
fel-osztás §: division, partition (Latin: divisio). Refers to the geometric process of dividing an object (such as an angle or a line segment) into several parts (e.g., bisection or trisection).
folyadék §: corollary (a proposition that follows directly from a proven theorem; Latin: corollarium).
jegyzet §: scholium, note, remark (Latin: scholium or nota).
kéremény §: postulate (a fundamental mathematical requirement assumed without proof; Latin: postulatum).
magyarázat §: explanation, definition (Latin: explicatio or definitio).
meg-fejtés: solution, construction of a geometric problem (Latin: solutio).
művelés: operation, execution, calculation (the practical mathematical development or working-out; Latin: operatio).
tétel: theorem, proposition (Latin: propositio or theorema).
tudtom: axiom, basic principle (literally 'my knowledge, what is known'; a self-evident principle that requires no proof; Latin: axioma).
vétel §: assumption, given (the part of a proposition that defines the prerequisites; Latin: hypothesis or datum).
vittatás (vitatás): proof, demonstration (Latin: demonstratio).

Armenian

Sahak Prunian

1743–1821
Highly educated Armenian Catholic monk

Erkrach'ap'ut'iwn
Երկրաչափութիւն
[Geometry]
Venezia, San Lazzaro: Mechitarist congregation printing house 1794

413 p., tables with at least 118 fig.
D: https://haygirk.nla.am/upload/1512-1940/1512-1800/erkrachaputin1794.pdf (without tables)
S: Baghdasarian, Edic: History of Mathematics in Armenia. Toronto 2015 https://edic-baghdasarian.com/Edic%20-%20New/img/Books/82-History%20of%20Mathematics%20in%20Armenia-E.pdf

ԵՐԿՐԱՉԱՓՈՒԹՒՆ

Յերիս գիրս քաջ-անհաս, յերկայնաչափութեէն. ՚ի մակերեսաչափութէ. և ՚ի հատուածս չափութէն:

Յօրինեալ ՚ի հայր Սահակ վարդապետէ Բէրբէռցոյ կրօնեան, ՚ի դաբանատէ Վենետկոյ ՚ի ննիւթեան Ղազ. աբբայէ:

Եւ տպագրեալ հրամանաւ Գերապատիւ ՚ի Մեսրովբոսի Աբբայի Նորին յաջորդի:

Եկ թղեանէ և ծանիւ զանգրնանեանց երկուց եղբարց Բարթ. ղաւիան յովհէփ և պետրի.

՚ի հայրապետութէ ՚ի ՊՈՒՀԱՏԱՒ ՀԱՅՈՑ կաթուղիկոսի:

Յամի տեառն. 1794. ՚ի տպին. 26:
Ե՛ի Ծովանկանէս հայոց. ուխտէ:

՚Ի ՎԵՆԵՏԻԿ

՚ի վանս սրբոյն ղազարու:

ՀՐԱՄԱՆԱՒ ՄԵԾԱՒՈՐԱՑ.

Armenian

Sahak Prunian

Erkrach'ap'ut'iwn
Երկրաչափութիւն
[*Geometry*]
Venezia, San Lazzaro: Mechitarist congregation printing house 1794

Translation of the title page
(Google Gemini)

Geometry
Divided into three books: Longitudiometry (Linear measurement), Planimetry (Surface measurement), and Stereometry (Solid measurement).
Composed by Father Sahak Vardapet Prunian of Aleppo, member of the congregation of the supreme Lord Mekhitar, the Great Abbot.
And printed by order of the Most Reverend Lord Stepannos, Abbot and successor to the same.
At the expense and patronage of the two Shahrimanian brothers: Joseph (Hovsep) and Zachary (Zakaria), sons of Baragham.
During the patriarchate of Lord Lucas, Catholicos of all Armenians.
In the year of our Lord 1794, on March 26; and in the Armenian calendar, 1243.

In Venice
At the Monastery of Saint Lazarus.
By order of the superiors.

Armenian

Sahak Prunian

Erkrach'ap'ut'iwn
Երկրաչափութիւն
[*Geometry*]
Venezia, San Lazzaro: Mechitarist congregation printing house 1794

Content overview

(according to the table of contents)
(Google Gemini)

First Armenian translation of Euclid's *Elements*:

Edition of the Old Armenian translation by Grigor Magistros (11th c.):
Nerses Akinean: "*Ewklideay girk' yaghags tarerats' erkrach'ap'ut'ean*" ('*Euclid's Book on the Elements of Geometry*'). Vienna 1960 (= Azgayin matenadaran 187)

Preparatory discourse
Book 1: Lines or longimetry
1.1 Geometrical definitions and axioms
1.2 Lines in general and their various positions
1.3 Angles
1.4 Composite lines or geometric objects
1.5 Proportions
Appendix: Practical applications of the established principles:
The leveling line or the level.Construction and use of the geometric quadrant. Description of the leveling instrument.Description of the surveyor's cross
Book 2: Surfaces or planimetry
2.1 Quadrilaterals
2.2 Comparison of surfaces
2.3 Division of surfaces
Appendix: Practical applications of planimetry:
Description of the pantograph. Description of the instrument for measuring the graphometer or mapping terrain
Book 3: Solids or stereometry
3.1 Definition of solid bodies, the main examples
3.2 Similarity and equal composition of solids
3.3 Measuring the surfaces and volumes of solids
3.4 Comparison of solids
Appendix: Practical applications of stereometry.

Georgian

Mikhail Kipiani
(მიხეილ ყიფიანი)

b. 1833; d. 1891 Tbilisi
Translator, educator, publicist
(http://www.nplg.gov.ge/bios/ka/00005859/)
See Part 1 Arithmetic books

Geometria გეომეტრია
Tbilisi: Ekmvtime Kheladze
Vol. 1: 1888, Vol. 2: 1891

Volume 1 (1888): 211 p.
Part 1: Planimetry (geometry of the plane)

Volume 2 (1891): p. 205–466
Part 2: Stereometry (geometry of space)
Part 3: Trigonometry
Part 4: Geodesy (Surveying)
Part 5: Logarithms

D: no digital copy of the National Parliamentary Library of Georgia, perhaps later

S: In the scientific proceedings of the International Conference on Terminology (published, among others, by Tbilisi State University, TSU, 2018, 2020), there are English-language papers such as ‘Development of Mathematical Terminology in Georgia’.

First Georgian translation of Euclid’s *Elements*:
Duschan Zchakaja, Georgi Tschogoschwili:
Ewklides Sazqisebi. Tbilisi 1990

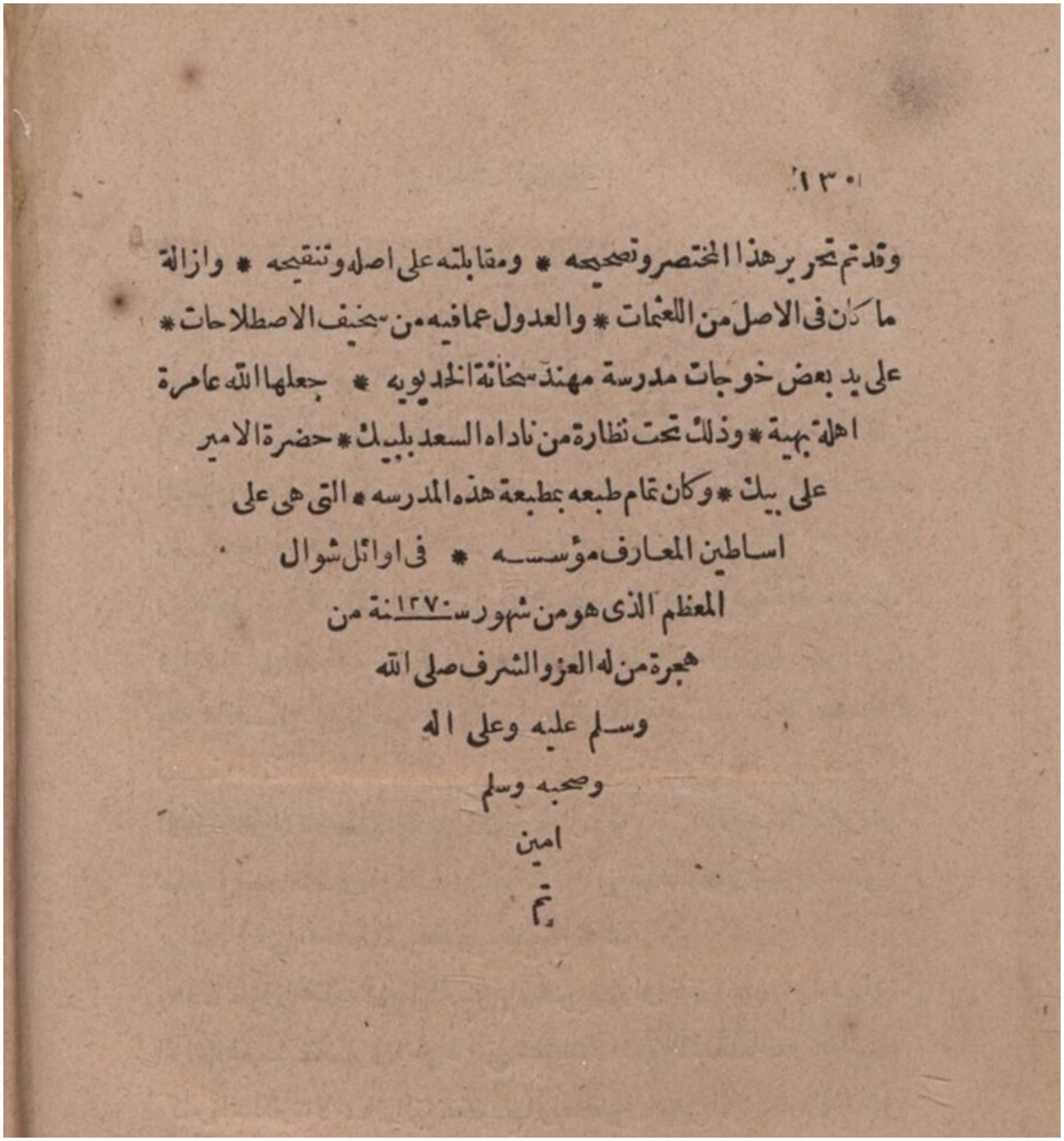
Arabic

Adrien-Marie Legendre
Rifāʿa rāfiʿ aṭ-Ṭahṭāwī
رفاعة رافع الطهطاوي

Mabâdi' al-Handasah
مبادئ الهندسة
[*Elements of geometry*]
Cairo (Al-Qāhira), Būlāq: Al-Maṭbaʿah al-Amīriyyah (The Government Press)
1842/43 (1258 AH)
Translated and adapted from Adrien-Marie Legendre: *Éléments de géométrie*. Paris 1794

154 p., 5 tables with figures

Colophon of the edition 1270 AH ►

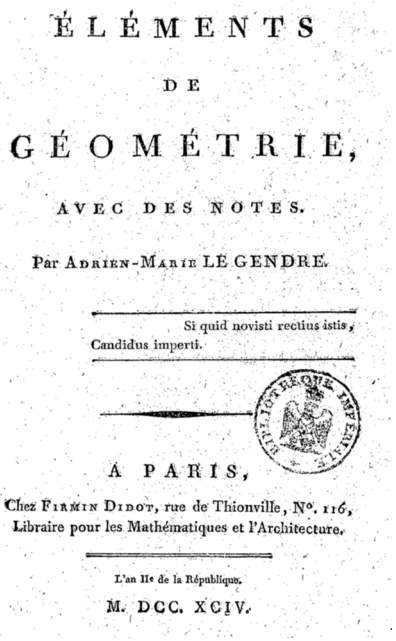

١٣٠١

وقد تم تحرير هذا المختصر وتصحيحه * ومقابلته على اصله وتنقيحه * وازالة
ما كان في الاصل من اللغمات * والعدول عما فيه من سخيف الاصطلاحات *
على يد بعض خوجات مدرسة مهندسخانة الخديويه * جعلها الله عامرة
اهلة بهية * وذلك تحت نظارة من ناداه السعد بلبيك * حضرة الامير
علي بيك * وكان تمام طبعه بمطبعة هذه المدرسه * التي هي على
اساطين المعارف مؤسسه * في اوائل شوال
المعظم الذي هو من شهور سنة ١٢٧٠ من
هجرة من له العز والشرف صلى الله
وسلم عليه وعلى اله
وصحبه وسلم
امين
تم

Arabic

Adrien-Marie Legendre
Rifāʿa rāfiʿ aṭ-Ṭahṭāwī

Mabâdi' al-Handasah
[*Elements of geometry*]
Cairo (Al-Qāhira), Būlāq:
The Government Press
1842/43 AD



ÉLÉMENTS
DE
GÉOMÉTRIE,
AVEC DES NOTES.
Par ADRIEN-MARIE LE GENDRE.

Si quid novisti rectius istis,
Candidus imperti.

A PARIS,
Chez FIRMIN DIDOT, rue de Thionville, N°. 116,
Libraire pour les Mathématiques et l'Architecture.

L'an IIe de la République.
M. DCC. XCIV.

Adrien-Marie Legendre
b. 1752 Paris
d. 1833 Paris
French mathematician
Cf. the earliest Romanian geometry book

Rifāʿa rāfiʿ aṭ-Ṭahṭāwī
b. 1801 Tahta, Egypt
d. 1873 Cairo, Egypt
1817–1824 Student at Al-Azhar
1826–1831 Mission to Paris
1835–1849 Director, School of Languages
1841–1849 Head, Bulaq Translation Bureau
1854–1861 Director, Military Academy
1863–1873 Director, Translation Bureau
(https://www.britannica.com/biography/Rifaah-Rafi-al-Tahtawi)

D: https://commons.wikimedia.org/wiki/File:%D9%85%D8%A8%D8%A7%D8%AF%D8%A6_%D8%A7%D9%84%D9%87%D9%86%D8%AF%D8%B3%D8%A9_(1854)_-_%D8%B1%D9%81%D8%A7%D8%B9%D8%A9_%D8%A7%D9%84%D8%B7%D9%87%D8%B7%D8%A7%D9%88%D9%8A.pdf (1854 edition)
S: Heyworth-Dunne, James. An Introduction to the History of Education in Modern Egypt. London: Luzac & Co., 1939.

Arabic

Adrien-Marie Legendre
Rifāʿa rāfiʿ aṭ-Ṭahṭāwī

Mabâdi’ al-Handasah
[*Elements of geometry*]
Cairo (Al-Qāhira), Būlāq:
The Government Press
1842/43 AD

Translation of the colophon (khātima)
(Google Gemini)

The printing and production of this valuable textbook,
entitled Mabādiʾ al-Handasah,
translated by the servant of the state,
Rifāʿa Rāfiʿ al-Ṭahṭāwī,
has been successfully completed.
This was accomplished
by the supreme command and high decree
of His Highness,
the Viceroy of Egypt, Muhammad Ali Pasha,
to advance the training of students
at the Military and Engineering Schools.
It was executed under the supervision
of the administration of the Amiri Press in Bulaq
(Maṭbaʿat al-Muhandiskhana).
Concluded in the Islamic year 1258 AH.

Arabic

Adrien-Marie Legendre
Rifāʿa rāfiʿ aṭ-Ṭahṭāwī

Mabâdi' al-Handasah
[*Elements of geometry*]
Cairo (Al-Qāhira), Būlāq:
The Government Press
1842/43 AD

Table of contents
(Google Gemini from Heyworth-Dunne)

First Arabic translation
of Euclid's *Elements*:
Naṣīr ad-Dīn aṭ-Ṭūsī (نصير الدين الطوسي)
(1201–1274): Kitāb Taḥrīr Uṣūl al-
Handasa li-Uqlīdis“
(كتاب تحرير أصول الهندسة لإقليدس). Rom:
Typographia Medicea 1594 [BSB digital]

I. The Theoretical Main Text: Elementary Geometry of the Plane (Adapted from Legendre with a different structure)
The First Treatise (al-Maqālah al-Ūlā): Principles of Geometry and Planar Objects
Chapter 1 (al-Faṣl al-Awwal): Fundamentals of planar objects, lines, triangles, parallels, and polygons.
Chapter 2 (al-Faṣl al-Thānī): Proportional lines, similarity of triangles, and properties of the circle.
Chapter 3 (al-Faṣl al-Thālith): Calculation of areas of polygons and the area of a circle.
Chapter 4 (al-Faṣl al-Rābiʿ): Proportions and comparison of areas between similar geometric figures.
Chapter 5 (al-Faṣl al-Khāmis): Practical geometric constructions and problems.

II. The Practical Section: Applied Surveying and Geodesy (Al-Ṭahṭāwī's Expansion)
Practical Field Measurement Methods (Masāḥat al-Arāḍī): Technical guidelines for surveying, instrumentation, and layout on open terrain.
Technical Drawing and Scale Modification (al-Faṣl al-Thālith): Methods for transferring, reducing, and enlarging military and topographic maps.

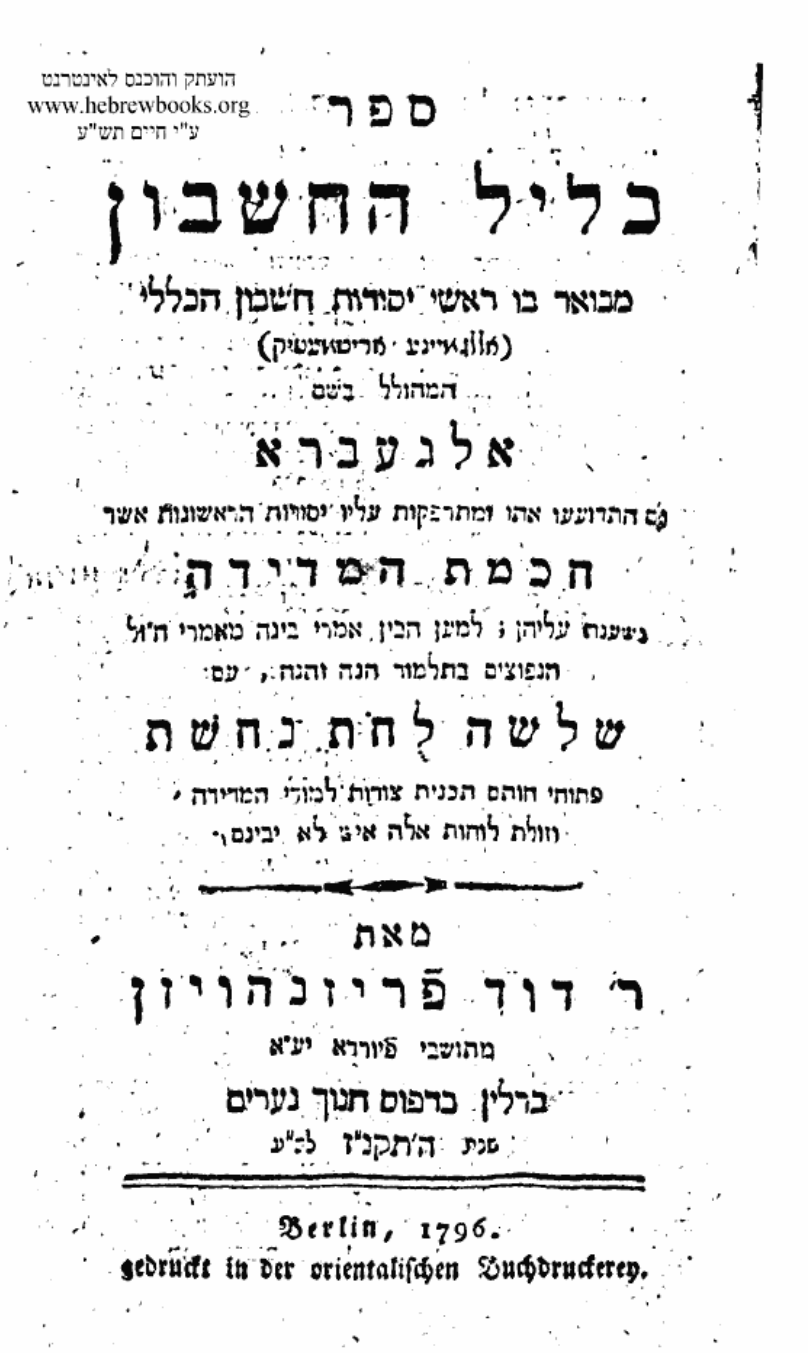
Hebrew

David ben Meir Cohen Friesenhausen

b. 1750/58 Friesenhausen (part of Aidhausen, district Haßberge, Lower Franconia)
d. 1828 Alba Iulia, Transylvania, Romania
Mathematician and astronomer
1756–1788 Torah studies in Fürth, Franc.
1788–1796 Research in math in Berlin
1796–1808 Private tutoring in Huncovce, Slovakia
1808–1820 Rabbinical judge (Dayan) in Sátoraljaújhely, Hungary
1820–1828 Author and teacher in Alba Iulia, Romania

Sēfer Kelil ha-ḥešbon
Berlin: Oriental book printing house 1796, 2nd ed. 1835

128 fol. (256 p.), 3 tables with 41 figures
D: https://www.hebrewbooks.org/43661


הועתק והוכנס לאינטרנט
www.hebrewbooks.org
ע"י חיים תש"ע
ספר
כלי החשבון
מבואר בו ראשי יסודות חשבון הכללי
(אלגעבראישע מריטאטיק)
המהולל בשם
אלגעברא
עם התדושעו אהו ומתרבקות עליו יסודות הראשונות אשר
חכמת המדידה
נשענת עליהן ; למען הבין אמרי בינה מאמרי ח"ל
הנפוצים בתלמוד הנה והנה, עם
שלשה לחת נחשת
פתוחי חותם תכנית צורות למודי המדידה,
וזולת לחות אלה איני לא יבינם,
מאת
ר' דוד פרידנהויזן
מהושבי פיורא יע"א
ברלין כרפוס חנוך נערים
שנת ה'תקנ"ז לפ"ע
Berlin, 1796.
gedruckt in der orientaliſchen Buchdruckerey.

Hebrew

David Friesenhausen

Sēfer Kelil ha-ḥešbon
Berlin: Oriental book printing house 1796

Transcription of the title page
(Google Gemini)

Before Friesenhausen:
1 Embedding of geometry in theology and calendar calculation: Math was published mostly as auxiliary science to calculate the Jewish calendar, understand the celestial spheres (as in Issac Israeli: Sefer Yesod Olam. Berlin 1777; Lattes: Sefer Ma'aseh Choshev. Frankfurt/Main 1721; Delmedigo, Sefer Elim. Amsterdam 1629) or explain God's creation.
2 Application of geometry: Practical use for land surveying and field measurement.
3 Translation of geometry books: directly from Euclid‘s Elements.

ספר
כליל החשבון
מבואר בו ראשי יסודות חשבון הכללי
(וולגארע אריטמעטיק)
המהולל בשם
אלגעברא
גם התרועעו אתו ומתרפקות עליו יסודות הראשונות אשר
חכמת המדידה
נשענת עליהן; למען הבין אמרי בינה מאמרי חז"ל
הנפוצים בתלמוד הנה והנה, עם
שלשה לוחות נחשת
פתוחי חותם תכנית צורות למודי המדידה,
וזולת לוחות אלה איש לא יבינם
–
מאת
ר' דוד פריזנהויזן
מתושבי פיורדא יע"א
ברלין, בדפוס חנוך נערים
שנת ה'תקנ"ז לב"ע
–
Berlin, 1796.
gedruckt in der orientalischen Buchdruckerey.

Hebrew

David Friesenhausen

Sēfer Kelil ha-ḥešbon
Berlin: Oriental book printing house 1796

Translation of the title page
(Google Gemini)

Book (about)
The Perfection of Arithmetic
Which explains the main principles of general arithmetic
(vulgare arithmetik – common arithmetic)
renowned by the name
Algebra
It also introduces the first principles upon which
The Science of Measurement (Geometry)
is based; in order to understand the words of wisdom and the teachings of our Sages
scattered here and there throughout the Talmud, along with:
Three Copper Plates
Engraved with diagrams of shapes for the study of geometry,
and without these plates, no one can understand them.

–

By
Rabbi David Friesenhausen
Resident of Fürth (may God protect them)
Berlin, printed by Chanoch Neʿarim
In the year **5556** (since the creation of the world)

–

Berlin 1796
printed in the oriental book printing house

Hebrew

David Friesenhausen

Sēfer Kelil ha-ḥešbon
Berlin: Oriental book printing house 1796

Content overview
(Google Gemini)

1. Introduction and Prefaces (*Haqdamah & Petichah*)
   - Contains religious and scientific justifications on why mathematics is important for observant Jews
2. Main Part 1: Arithmetic (*Cheshbon Ha-Klali*)
   - Chapter (Pereq) 1 (pdf 17): addition, subtraction with integers
   - Chapter 2 (pdf 48): multiplication, division with integers
   - Chapter 3 (pdf 80): fractions, operations with fractions
3. Main Part 2: Algebra (*Algebra* / אלגעברא)
   - Chapter 4 (pdf 93): symbolic variables, algebraic equations
4. Main Part 3: Geometry and science of measurement (*Chachmat/Chokmat Ha-Medida*)
   - Chapter 5 (pdf 136, 68v): geometric objects, area calculations
   - 72 small sections, no other structure
   - Refers to the three copper plates with 41 figures at the end of the book
5. Appendix
   - Chapter 6 (pdf 199): merchant companies, heritages
   - Chapter 7 (pdf 231): connection to Talmud measure units

First printed Hebrew translation of Euclid's *Elements*:
Baruch Schick of Shklov:
Sefer Uklidus Den Haag 1780;
https://hebrewbooks.org/42234

Friesenhausen provides a very systematic presentation:
distinction between definitions, explanations, theorems, axioms
Orientation towards Christian Wolff (1679–1754)

(Ottoman) Turkish

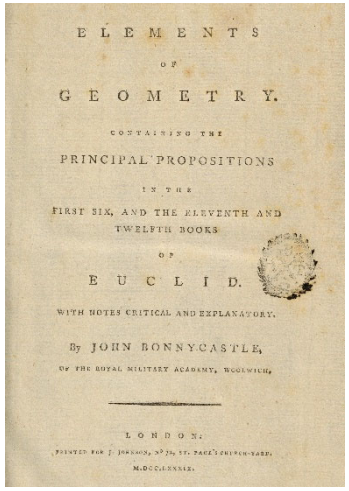
John Bonnycastle
Hüseyin Rıfkı Efendi (Tamani)
Mühendis Selim Efendi
(William Richmond)

Usûl-i Hendese
اصول هندسه
[*Principles of Geometry*]
Istanbul: Mühendishâne-i Hümâyun Matbaası (Imperial Military Engineering School Press) 1797-10-12 1212 AH)

Translated and adapted from John Bonnycastle: *Elements of Geometry*. London 1789; appendix on trigonometry

272 p., 14 tables with figures
L: Istanbul Teknik Üniversitesi (İTÜ) Sayısal Koleksiyon

John Bonnycastle
b. ca. 1750 Buckinghamshire
d. 1821 Woolwich, London
Professor of mathematics at the Royal Military Academy, Woolwich
See Part 1 Arithmetic books


ELEMENTS
OF
GEOMETRY.
CONTAINING THE
PRINCIPAL PROPOSITIONS
IN THE
FIRST SIX, AND THE ELEVENTH AND
TWELFTH BOOKS
OF
EUCLID.
WITH NOTES CRITICAL AND EXPLANATORY.
By JOHN BONNYCASTLE,
OF THE ROYAL MILITARY ACADEMY, WOOLWICH.
LONDON:

Hüseyin Rıfkı Efendi (Tamani)
b. ca. 1750 Taman in the Crimea
d. 1817 Medina
He was appointed chief instructor (Başhoca) of the Imperial Military Engineering School (Mühendishâne-i Berrî-i Hümâyûn) in 1801/1806. (The word Mühendishane is compounded from Arabic muhandis ‘engineer’ and the Persian suffix khana ‘house/school’). Years later, he was succeeded in this position by the prominent modernizer Hoca İshak Efendi (ca. 1774–1836).
(https://turkmaarifansiklopedisi.org.tr/huseyin-rifki-tamani)

Mühendis Selim (born William Richmond)
English convert and engineer

D: https://dijitalkoleksiyonlar.kutuphane.itu.edu.tr/cdm/compoundobject/collection/nadireserko/id/180402/rec/9 (restricted files)
S: İhsanoğlu, Ekmeleddin: Science, Technology and Learning in the Ottoman Empire. Aldershot 2004
Erdem, Yahya: Hüseyin Rıfkı Tamanî’nin İngilizce’den Çevirdiği Usûl-i Hendese Kitabı. Müteferrika 55 (2019) p. 55–87

(Ottoman) Turkish

John Bonnycastle
Hüseyin Rıfkı Efendi (Tamani)
Mühendis Selim Efendi

Usûl-i Hendese
[*Principles of Geometry*]
Istanbul 1797-10-12

Romanization and translation
of the colophon (hâtme, ketebe)
(Google Gemini)

Translation
of the library catalog note
(Google Gemini)

Usûl-i Hendese nâm risâle-i şerîfe
bu def'a Sultân Selîm Hân-ı Sâlis efendimiz hazretlerinin emr ü fermânı üzere
Mühendishâne-i Humâyûn matba'asında tab' u temsîl olunmuşdur
fî şehr-i Rebî'ü'l-evvel sene 1212

The noble treatise named 'Principles of Geometry' has been printed and reproduced this time in the Imperial Engineering School Press (Mühendishâne-i Hümâyun Matbaası), by the imperial command and decree of His Majesty our Master, Sultan Selim Khan III. In the month of Rabi' al-Awwal in the year 1212 AH [August–September 1797 AD]

It is the Euclidean Geometry translated from Bonnycastle by Hüseyin Rıfkı Efendi, the second deputy (halife) of the Mühendishane, together with Selim, a converted engineer of English origin. The date of publication is not explicitly stated. However, the official administrative memorandum (Tezkire) issued regarding its printing is dated 6 Jumada al-Awwal 1212 / 27 October 1797.

(Ottoman) Turkish

John Bonnycastle
Hüseyin Rıfkı Efendi (Tamani)
Mühendis Selim Efendi

Usûl-i Hendese
[*Principles of Geometry*]
Istanbul 1797-10-12

Content overview

(Google Gemini from Erdem, Yahya)

Turkish is the only language known
to have printed its first book on geometry
before its first one on arithmetic:
Supporting the military was more important
than supporting the economy.

I. Main Text: Elementary and Solid Geometry (Adapted from John Bonnycastle with the same structure)

Book 1 (Birinci Makale): Fundamentals of the geometry of the plane — Lines, angles, triangles, and parallelograms.

Book 2 (İkinci Makale): The geometric relationships of rectangles and squares, and the division of lines.

Book 3 (Üçüncü Makale): The geometry of the circle, including tangents, chords, and inscribed angles.

Book 4 (Dördüncü Makale): Inscribed and circumscribed regular polygons.

Book 5 (Beşinci Makale): The geometric theory of proportion and magnitudes.

Book 6 (Altıncı Makale): Application of proportions to planar objects and similar triangles.

Book 7 (Yedinci Makale): Geometry of space (Stereometry) — Properties of lines and planes in three-dimensional space.

Book 8 (Sekizinci Makale): Geometry of solid bodies — Pyramids, prisms, cylinders, cones, and spheres.

II. The Original Appendix by Hüseyin Rıfkı Tamani

Appendix to the Principles of Geometry (Zeyl-i Usûl-i Hendese)

A systematic treatise on Plane Trigonometry (Düzlemsel Trigonometri).

Proofs, functions, and calculations of angles for practical military applications (ballistics, surveying, and fortification design).

Turkish – Supplement

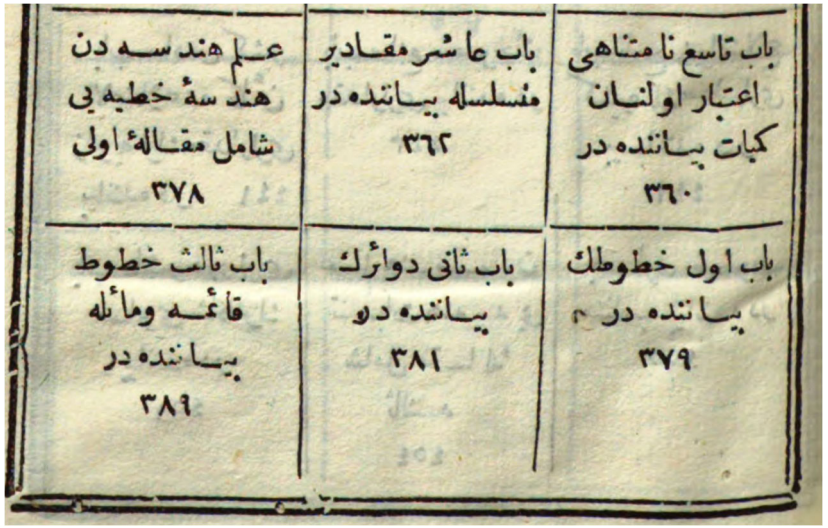
Hoca İshak Efendi

Mecmua-i ulûm-u riyaziye
Istanbul [1]1831–1834

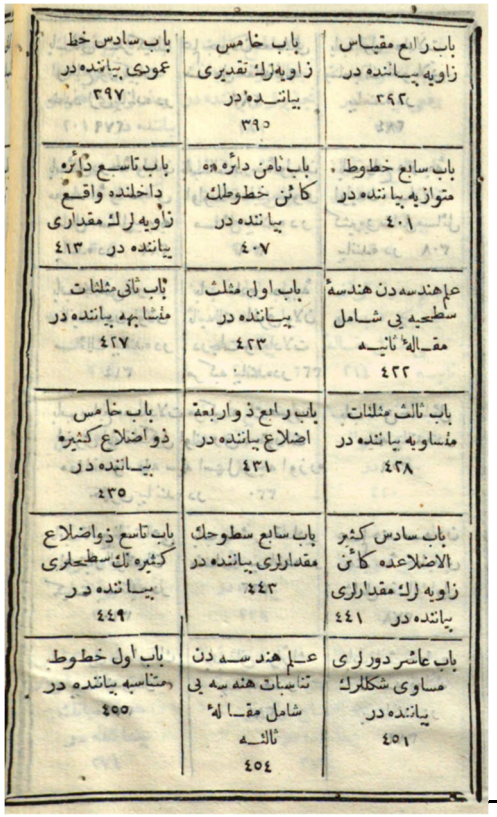
Vol. 1 contains a chapter on geometry:
3 Geometry (*'İlm-i hendese*) (p. 378)
3.1 Geometry of lines (p. 378)
3.2 Geometry of the plane (p. 422)
3.3 Geometric proportions (p. 454)
3.4 Geometry of solids (p. 494)

See Part 1 Arithmetic books

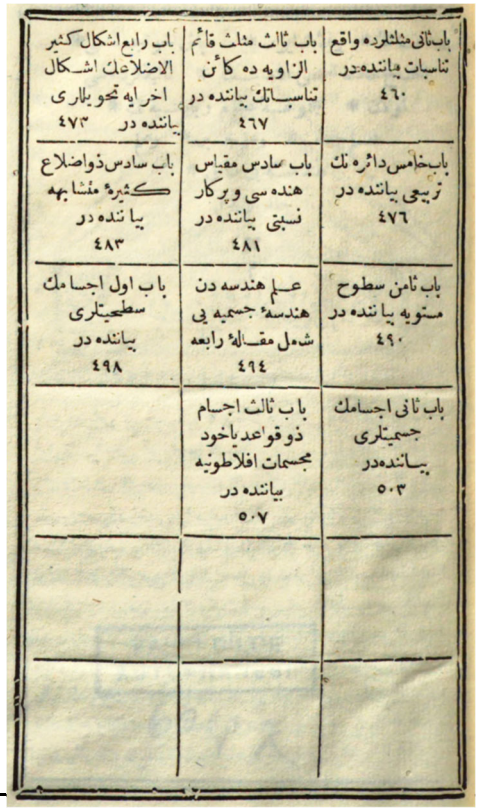
First Turkish translation of Euclid's *Elements*:
Ali Sinan Sertöz (Professor mathematics Bilkent University, Ankara): *Öklid'in Elemanları*. Ankara: TÜBİTAK 2019 (XIII + 691 p.)



باب تاسع نا متناهی اعتبار اولنان کمیات بیانندہ در ۳۶۰
باب عاشر مقادیر منسلسله بیانندہ در ۳۶۲
علم هندسه دن هندسهٔ خطیه یی شامل مقالهٔ اولی ۳۷۸
باب اول خطوطك بیانندہ در ۳۷۹
باب ثانی دوائرك بیانندہ دو ۳۸۱
باب ثالث خطوط قائمه ومائله بیانندہ در ۳۸۹



باب رابع مقیاس زاویه بیانندہ در ۳۹۲
باب خامس زاویه‌لرك تقدیری بیانندہ در ۳۹۵
باب سادس خط عمودی بیانندہ در ۳۹۷
باب سابع خطوط متوازیه یانندہ در ۴۰۱
باب ثامن دائره ده کائن خطوطك یانندہ در ۴۰۷
باب تاسع دائره داخلنده واقع زاویه‌لرك مقداری بیانندہ در ۴۱۳
علم هندسه دن هندسهٔ سطحیه یی شامل مقالهٔ ثانیه ۴۲۲
باب اول مثلث بیانندہ در ۴۲۳
باب ثانی مثلثات مشابهه بیانندہ در ۴۲۷
باب ثالث مثلثات متساویه یانندہ در ۴۲۸
باب رابع ذو اربعة اضلاع بیانندہ در ۴۳۱
باب خامس ذو اضلاع کثیره بیانندہ در ۴۳۵
باب سادس کثیر الاضلاعده کائن زاویه‌لرك مقدارلری یانندہ در ۴۴۱
باب سابع سطوحك مقدارلری بیانندہ در ۴۴۳
باب تاسع ذو اضلاع کثیره‌لرك سطحلری بیانندہ در ۴۴۹
باب عاشر دور لری مساوی شکللرك یانندہ در ۴۵۱
علم هندسه دن تناسبات هندسه یی شامل مقالهٔ ثالثه ۴۵۴
باب اول خطوط متناسبه بیانندہ در ۴۵۵



باب ثانی مثلثلرده واقع تناسبات بیانندہ در ۴۶۰
باب ثالث مثلث قائم الزاویه ده کائن تناسباتك بیانندہ در ۴۶۷
باب رابع اشکال کثیر الاضلاعك اشکال اخرایه تحویلاری یانندہ در ۴۷۳
باب خامس دائره‌نك ترسیمی بیانندہ در ۴۷۶
باب سادس مقیاس هنده سی وپرکار نسبتی بیانندہ در ۴۸۱
باب سادس ذو اضلاع کثیرهٔ مشابهه یانندہ در ۴۸۳
باب ثامن سطوح مستویه یانندہ در ۴۹۰
علم هندسه دن هندسهٔ جسمیه یی شامل مقالهٔ رابعه ۴۹۴
باب اول اجسامك سطحیلری بیانندہ در ۴۹۸
باب ثانی اجسامك جسمیلری بیانندہ در ۵۰۳
باب ثالث اجسام ذو قواعد یاخود مجسمات افلاطونیه بیانندہ در ۵۰۷