

Georgius of Hungaria [1422?-1502]

Georgeij de Hungaria
 Georgius de Hungaria
 Georgius Ungarus (?)

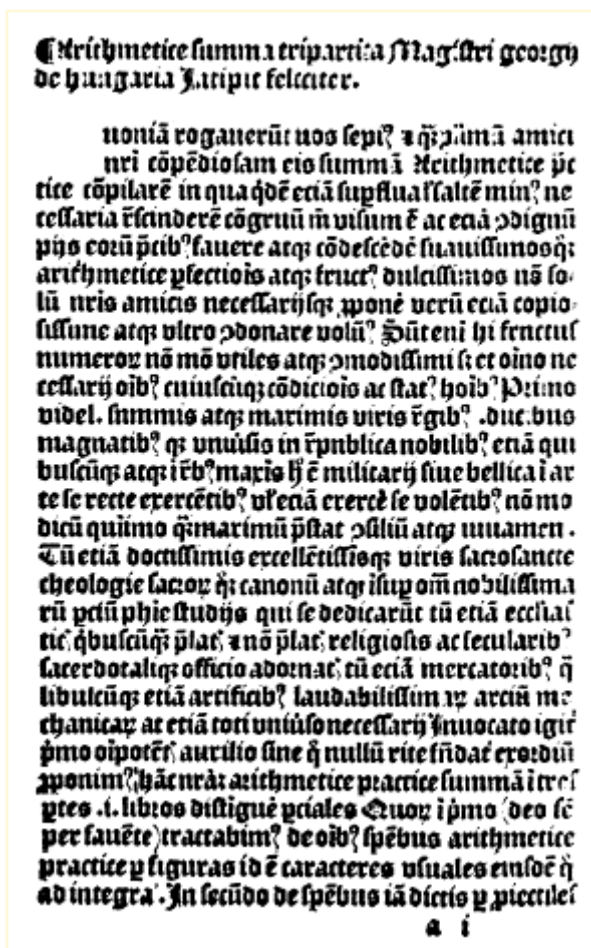
1499 *Georgii de Hungaria Arithmeticae Summa Tripartita*

[Schonhoviaae, fratres s. Michaelis]

In-4°

FR BNF RES-V-897

This is the first arithmetic book printed in the Netherlands. It was probably printed by the friars at Schoonhoven for their confrators in Zwolle or Deventer. Six copies are known to exist.



First page of the *Arithmeticae Summa Tripartita*
 From Smeur, 1965

Problem	Rule	Description
AST01	Regula aurea	8 ells of some material costs 11 guilders; what is the price of 97 ells? (solution: $133 \frac{3}{8}$)
AST02	Secunda regula	8 ells cost 11 guilders; how many ells can you buy for 97 guilders?

AST03	Regula de aromatario	For 6 guilders, equal weights of ginger, pepper, almonds and incense have to be bought; these articles cost 4, 6, 5 and 9 stuivers a pound. How much can be bought of each of these? [1 guilder equals 31 stuyvers]
AST04	Regula de societate	Three merchants have to divide their joint profits according to the ratio of the deposits of each of them, these being 24, 32 and 40 respectively.
AST06	Regula de tempore et societate	Same as above, but accounting for duration.
AST07	Regule de divite reliquente	A legacy of 3000 guilders has to be divided among five sons according to the ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4} : \frac{1}{5} : \frac{1}{6}$
AST08	Regula de lepore fugiente	A greyhound running at 19 stadia a day is chasing a hare running at 14 stadia a day. When does the greyhound gets to the hare when his headstart is 45 stadia?
AST09	Regula de solutione incerta	Divide an amount of $28 \frac{1}{2}$ stuivers according to the ratio 600:400.
AST10	Regula de agozinante	A legacy of 1000 guilders has to be divided according to the ratio 1 : 2 : 4 (mother, daughter, son).
AST11	Regula de cambio	Change 7 guilders in equal numbers of ignilia, stuferi, butginae, placcae novae, placca antiqua, duytmari and braminci.
AST12	Regula de situ	A third part of a tower is in the earth, a quarter in water and the rest of the tower, a height of 100 feet is above the water. The question is to figure out the length of the whole tower.
AST13	Regula de numeris associatis	20 canons and 24 chaplains divide 4000 guilders in such a way that for every 3 guilders a canon receives, a chaplain gets 2.
AST14	Regula de societa numerorum distincte	An amount of 600 guilders has to be divided according to the ratio $\frac{1}{3} : \frac{1}{4} : \frac{1}{2}$.
AST15	Regula edificandi	
AST16	Regula de quantitate abdita	Same as AST12

Remarks

- The fifth rule is missing in the text.
- Baumgartner (1913, p120-121) gives the exchange rates of the currencies in problem AST09:
 - 1 aureus = $12 \frac{2}{3}$ ignilis
 - 1 ignilis = $2 \frac{1}{2}$ stuferus
 - 1 stuferus = 2 but
 - 1 but = 4 placca nova

1 placca nova = 2 placca antiqua
 1 placca antiqua = 2 duytmarius
 1 duytmarius = 2 bramincus

Index in the Singmaster's classification

Sec.	Ref.	Problem	Details
7.G.1	AST07	Inheritance problem	$\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6}$
	AST14		$\frac{1}{2} + \frac{1}{3} + \frac{1}{4}$
7.G.2	AST10	Posthumous twins	1000; 4 : 2 : 1
10.A	AST08	Overtaking problem	O-(14,19) D=45

Possible sources

Probl.	Rule	Source	Ref.	Details
AST01	Regula aurea	Algorismus Ratisbonensis	AR002	6 ells, 10 guilders, 24 ells
AST03	Regula aromatario	Algorismus Ratisbonensis		
AST07				
AST08	Regula de lepore fugiente	Arte Numerandi	B 8v	Same numbers
AST10		Arte Numerandi	B 8v	Same numbers
AST12		Algorismus Ratisbonensis	AR069	Same ratio's
AST14	Regula de societa numerorum distincte	Arte Numerandi	C1r	Same numbers
		Algorismus Ratisbonensis	AR204	365 guilders : $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$
AST16				

Anonymous (1480-1484) *De arte numerandi sive arithmeticae summa quadripartita incipit feliciter*

Gerhart Friedrich (c 1450) *Algorismus Ratisbonensis*

From the twelfth to fifteenth centuries, many treatises had titles or incipits that were variations on *De arte numerandi algoristica*, while the abacus treatises might be called *Practica aritmetica cum denariis proiectilibus* or *Algorithmus linealis*.

Cited or used in later works

Probl.	Rule	Works	Reference	Values
AST01	Regula aurea	Enclen De Cusa	B 2r	6 ells, 24 guilders
		Johannes Huswirt	C 5v	6 ells, 24 cruciferi
		Gemma Frisius	Xv	7 ells, 13 guilders
AST03	Regula de aromatario	Johannes Huswirt	C 6r	
		Georgius Peurbach	A 8r	
		Gemma Frisius	XIXr and v	

AST07	Regule de divite reliquente	Huswirt	C 6r	Same numbers
		Tonstall	AS17	4350: same ratio's
			AS18	60: same ratio's
AST08	Regula de lepore fugiente	Huswirt	C 6r	Same numbers
AST10	Regula de agozinante	Huswirt	C 6v	Same numbers
		Enclen De Cusa	B 3r	800 ; same ratio's
AST16		Huswirt	B 4	Same numbers

Enclen De Cusa Johannes (1502) *Algorismus proiectilium de integris novus* Zwolle.

Huswirt Johannes (1502) *Enchiridion novus algorismi*. Cologne.

Frisius Gemma (1540) *Arithmeticae practicae methodus facilis* G. de Bonte, Antwerpen.

Tonstall Cuthbert (1522) *De Arte Supputandi Libri Quattuor*

References

Baumgartner, Alajos (1912–1913) Magister Georgius de Hungaria arithmetikája, *Középiskolai Ma-tematikai Lapok*

Gábor, Szabó Péter (2002) „Magyarországi György mester alakja a hazai matematikatörténetben” *Magyar Tudomány*

Smeur, A.J.E.M. (1965) *Georgius de Hungaria, Arithmeticae summa tripartita, 1499*. Facsimile of the first arithmetic printed in The Netherlands with an introduction by A. J. E. M. Smeur, *Dutch Classics on the History of Sciences*, 14, Nieuwkoop, B. de Graaf .

Smeur, A.J.E.M. (1962) “Johannes Enclen de Cusa en zijn Algorismus Proiectilium” *Zwolle 1502, Scientiarum Historia* 4 (1962), pp. 63-75.

Vogel, Kurt (1954) *Die Practica des Algorismus Ratisbonensis*. Ein Rechenbuch des Benediktinerklosters St. Emmeram aus der Mitte des 15. Jahrhunderts, nach Handschriften der Münchner Staatsbibliothek und der Stiftsbibliothek St. Florian herausgegeben und erläutert. *Schriftenreihe zur bayerischen Landesgeschichte* 50. C.H. Beck'sche Verlagsbuchhandlung, München