Cotrugli: Mercatura del mercader perfecte

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LA RIEGOLA DE LIBRO

Bookkeeping instructions
from the mid-fifteenth century

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Introduction

The purpose of this paper is to call attention to the oldest testimony of bookkeeping lessons in the 15th century that is known so far. In the history of accounting it is a generally accepted fact that Benedetto Cotrugli (1458) was the first who wrote something about double-entry bookkeeping and that Luca Pacioli's Dist. 9, Tract. 11 (1494) is the oldest didactic text. With the presentation of "La Riegola de Libro" the history of accounting in the 15th century will have to be revised.

It so happened that Pacioli and Cotrugli of all people guided us to this text. Johanna, in 1998 preparing an article about the 1996 edition of Luca Pacioli's manuscript Tractatus mathematicus ad discipulos perusinos (1478, Perugia) found out that the first part of the chapter "Tariffa mercantesca" is identical with Cotrugli, Book I, Chapter 11 "De cambi". Because Pacioli wrote his Tractatus in 1478 (so before the oldest known Cotrugli copy by Strozzi from 1484), this could mean he had at his disposal either an older manuscript edition of Cotrugli, or a text he and Cotrugli both used. We started looking for an older Cotrugli. Much to our surprise we noticed that in his Iter Italicum (1989) P.O. Kristeller mentioned a Naples 1475 Cotrugli manuscript by copyist Marino de Raphaeli de Ragusa (Dubrovnik). This book is in the National Library of Malta, Valletta. As far as we knew at that moment, literature had not yet paid attention to this manuscript. Neither Ugo Tucci in his 1990 edition of the 1484 Cotrugli copy, nor Pierre Jouanique (1994) or Libero Mario Mari (1997), mention the 1475 manuscript in their reviews of the Tucci edition, so we thought we were the first. An even more interesting fact was that Kristeller in his short description of the 1475 codex wrote that the Cotrugli text was followed by "Financial records, dated 1475". We ordered a microfilm, made photocopies and began to study the text. What Kristeller described as "Financial records" turned out to be a bookkeeping instruction with a lot of examples of journal entries, appended to the Cotrugli text.

4 April 1998 we had the opportunity of a first, short, presentation of the appendix in Coimbra, Portugal (1st Congress of Accounting Historians of the APOTEC). Afterwards we became acquainted with the fact that Croatian scholars knew of the existence of the 1475 manuscript. Buzadzic, Habek and Stipetic presented a paper about the text in Book I, Ch. 13 (about bookkeeping) in Antwerp, 6-8 April, 1998, but paid no attention to the appendix. We mutually agreed that we would continue studying the appendix more closely.

This paper is an interim result of a multidisciplinary study. Only in the second chapter accounting aspects will be discussed. First we will give a description of the text, emphasizing its copied character. In the third chapter evidence will be given to date (parts of) the text. The follow-up will be an annotated edition of this oldest known bookkeeping instruction.

1. Description of the codex and its appendix

In this chapter we will give a short description of the codex as a whole, with closer consideration to the appendix. From the incipit "Questa siè la riegola de libro ..." we take "La Riegola de Libro" as our title. After some material and historical facts concerning the codex, a characterization of the contents of this appendix will follow. The copied and miscellaneous character will be emphasized, as yet without assigning a date to the example or examples.

1.1 Codex Malta XV as a whole

1.1.1 Description

Codex XV in the National Library of Malta consists of two main parts which were both transcribed in Naples in 1475 in a single hand, a fine 'mercantesca', by Marino de Raphaeli from Ragusa. The rather small booklet, in quarto, consists of 122 consecutively foliated sheets. Cotrugli's text ends on folio 98 verso; after a few blank pages the appendix starts on folio 101 verso. This part consists of 36 pages, continuing up to folio 121 recto. Folios 117 and 118 are missing. On folio 122 verso a short treatise on the four cardinal virtues is written in Latin, in another hand (cancellaresca), which is probably from the fifteenth century as well.

The first main part, Cotrugli's complete "Libro de l'arte dela mercatura", is a carefully written manuscript. It has five painted initials in four colours with gold leaf and lombard letters in blue with red penwork. From the fact that some guide letters are still visible, we must conclude that Marino engaged a professional to do the decoration. Apart from a few minor corrections and details, both main parts are written in the same brown ink. Regrettably the Cotrugli text is blotted several times by black underlinings. There are no further traces of usage. There is no evidence that the book was dedicated to or commissioned by someone: apparently, the book was intended for his own library.

A remarkable difference, however, is the paper. Up to folio 99 (Cotrugli's text) the paper dates back to Naples around 1470 or somewhat later, as we can deduce from the watermark (Briquet 12145). The paper of the second part, the appendix, beginning with blank folio 100, is much older, that is from the first half of the fifteenth century, and from Northern Italy, with the oldest dated document from 1425 (Briquet 11752). Because the foliation in the entire codex is consecutive, we must conclude that both parts always have been bound together. The present cover is from circa 1900 and was broken at the time of our inspection. The codex was rebound at least twice. Because of this fact it is very difficult to examine the gathering structure of the appendix. Without taking the book apart it is not possible to determine whether the folios 117 and 118 have been removed, or are just misnumbered. Traces of removal have not been found and there is no clear lacuna with respect to the contents. The red and white marbled cutting indicates an earlier rebinding in the 18th century.

1.1.2 History

Unfortunately the complete history of the book since 1475 cannot be described. We know that it was in Malta in 1756 already. The oldest known description, written by Ignatio Xaverio Mifsud, dates from this year. I.X. Mifsud, a jurist and theologian, and, among other things, active as an advisor to the inquisitors, laid the foundations for a literary history of Malta. His great model was Tafuri, who had done the same for Naples. It is Tafuri to whom he dedicates his article on Cotrugli, assuming that Cotrugli was a Neapolitan. His "Succinte Notizie Dello Scrittore Napolitano Benedetto di Cotrugli ...", recorded in Volume IX of his 24 collection manuscripts called Stromata Melitense (pp. 111-121), mainly consists of quotations from Cotrugli, from which he tries to construct his biography. The quotations largely correspond to the underlined passages mentioned above. Not a single word is devoted to the appendix. It is quite probable that Mifsud personally wrote the present title page, given the resemblance in handwriting.

In 1856 the librarian Vassallo mentions the book in his catalogue. In 1989 it was inspected and described a little more comprehensive by P.O. Kristeller. Then it took until 1993 before the linguist T. Zanato gave an elaborate description, in an article as a result of the Cotrugli edition by Ugo Tucci. Since 1995 a series of publications have come out by Z. Muljacic and other Croatian scholars.

The appendix is not mentioned in Vassallo's catalogue; Kristeller reproduces the incipit, followed by "Financial records, dated 1475". Zanato only mentions "examples of accounting" in a footnote; the Croatians, finally, thought the appendix was the real bookkeeping of an early owner, as reported by Buzadzic and confirmed to us in a personal letter.

1.2 The appendix

1.2.1 Contents and structure

"La Riegola de Libro" consists of 36 pages, containing a total of 266 journal entries and 50 lines of theoretical instruction in all. The journal entries do not form a whole; they are a collection of several disconnected groups.

The fragments of theory are the following: on folio 101 verso there are 20 lines of general instruction concerning journal (entry) and ledger; on 120 recto 6 lines concern a bill of exchange protest; on 121 recto there are 16 lines about the entries to be made if a voyage by sea with merchandise insured has been brought to a good end, c.q. if the ship has been lost, 4 lines about the ultimate act when closing a ledger, and 4 lines about what to do when you forgot to enter expenses during the voyage and the voyage 'in persona' account has been balanced already.

Although the ledger is brought up in the opening, there are no indications of its existence. The journal entries are not

crossed out and there are no numbers in the left margin referring to ledger pages. Moreover, it seems that no attention has been paid to an univocal naming of ledger accounts.

The text is clearly subdivided. The groups of journal entries are distinguished by various means:

there are drawn hands with index finger at every new theme;
7 sections start with a clear incipit and/or invocation;
7 sections end with a clear explicit (the most striking one is the FINIS in Cyrillic script in the first section);
except for one case, every new month starts with KL (Kalendae), a usage only found in the Caboga journal and in Casanova;
except for one case, every section starts on a new page.

On the basis of contents and structure the journal entries can be divided into 13 sections. A certain composition has been realized: from simple to more complicated up to very specialized (see Annex I for a complete survey). The first sections contain elementary bookkeeping. Then other sections follow, such as four different voyages, trading in government bonds and collecting their interest, letting out houses, trading in bills of exchange, and marine insurance. These all are more or less usual themes, which also appear in later textbooks. However, two sections are unique. Firstly there is section IX about the silk industry, including the full cycle from renting and equipping a shop, and buying raw materials, to manufacturing and selling the finished goods. We do not find a similar full cycle until Moschetti (1610). Another unique section is section X, which is about the building of a house or palace. This part is more interesting from a cultural-historical point of view than to the accountant.

The 13 sections vary in length: some give a complete treatment, but most are incomplete. In contrast to the textbooks written since Luca Pacioli (1494), private expenditures are not discussed.

1.2.2 The appendix as a copy from different sources

The basis for Marino de Raphaeli's copy, which he produced in Naples at the end of 1475, must have been a collection of Venetian texts, which he tried to combine into a kind of unity - especially chronological, but also didactical. It is a reflection of bookkeeping lessons by at least two different schoolmasters and written down by four or five different pupils. It is out of the question that there was one single original source; the dates of origin also vary. It is even very well possible that the texts, or some of them, had been copied several times before they reached Marino.

These claims, of course, need explanation. Various facts prove that we have a copy. The text is thoroughly Venetian with regard to contents, details and language (even the only Neapolitan mentioned, Luigi Coppola, is called Alvise in Venetian). In addition, there are different first- person narrators: a Rafael de Nicolo (I), a Rafael de Marin (VI), a Rafael (II and III), a Marin de Rafael (VIII) and a Zuan de Domenego (IX and XIII). The remaining sections do not have a first-person narrator. In only one case we find a name corresponding to the copyist's name. It seems usual that every pupil in a classroom or private lessons chooses his own name for the protagonist in his examples.

Variations in style in comparable journal entries also prove that there is more than one source. Two examples are:

When buying merchandise the seller's part of the messetteria (a tax on sales made through brokers) is deducted. In section II the formulation is: "abatto per la sua parte ... resta netto", with minor variants. In section IX "che io i retegno" is added.

The sections IV and VII concern voyages commissioned to someone. The phrasing before mentioning the free on board price differs. In section IV the order is: "mandi per la galia capetanio ... monta con tutte spese etc.", while in section VII the name of the captain is mentioned at the end of the entry.

Furthermore, the market price of governments bonds in section I is 25% of the par value, while in section V it is 20%. This is also an indication that the two sections have different dates of origin.

The strongest evidence for the fact that we have a transcription here is the great number of errors. Especially in section II, which is very logically structured, it is this logic which makes it possible to discover the many omissions. The tight composition is still visible behind the careless copy, so we can reconstruct this part. Some of the omissions are obvious 'jump-overs'; sometimes we can assume that Marino took the wrong page after a pause. The many errors and inaccuracies of a different nature (an Antonio da Como is called Antonio da Jacomo a few entries later, wax becomes cinnamon etc.) make it likely that Marino also had a corrupted text (and did not have the intention to emend it).

There are also mistakes which are the result of lack of knowledge: in section IX, on the silk industry, there is an expression 'callo de testoi', which is loss of weft. In the following entries Marino writes 'callo de testori' (loss of weavers), which makes no sense at all. However, in the same section Marino also makes a conscious intervention. He intended to make a chronologically continuous whole of his collection of texts. Apparently his example was dated March, and Marino replaces March by September. However, he does not completely succeed in these attempts, which makes it possible for us to prove that this section originates from another source.

Moreover, we also find many miscalculations in entries. Some examples: while the calculation (in ducats) in the body of the entry is correct, the lira amount in the money column is incorrect; but there are also correct amounts in lira, although there are miscalculations in the body of the entry; there are even miscalculations in the body of the entry, with a lira amount which corresponds to the wrong ducat amount. Copied errors or copying errors? Marino de Raphaeli did not verify the calculations and did not make corrections.

So we have to conclude that Marino de Raphaeli was an inaccurate copyist. In the first part, Cotrugli's text, he also made many mistakes that indicate his mechanical approach: just copying without thinking too much. This also explains the many miscalculations: he did not verify the calculations he was writing down, so unquestioningly he transcribed existing errors and perhaps made new ones too.

However, these shortcomings do not alter the fact that the manuscript is of great historical importance. Before giving it a place in the history of accounting, we will discuss some subjects from the appendix.

2. The appendix as a bookkeeping instruction: some analytical remarks

After the general characterization in Chapter 1, section 2, now some parts of the contents of the appendix will be considered more closely. First we will pay attention to the instructions on folio 101 verso, and then some subjects from the collection of 266 journal entries will be discussed.

2.1 General instructions

2.1.1 Didactic situation

The incipit states "Questa siè la riegola de libro laqual siè fondamento de ogni quardernier etc.", which could be translated with "This is the [whole of] rule[s] for the ledger, which is [of] fundamental [importance] for every bookkeeper etc.". The text contains instructions with regard to:

form and phrasing of the journal entry;
how to enter into the ledger;
the order of the accounting process;
some questions concerning the entries in journal and ledger.

The waste book is not mentioned.

The text calls up associations with a classroom. It seems as if you attend a lecture. The students have their feather and paper ready, so the teacher can begin and starts with the word 'notta' (note, or: keep in mind), which the students write down, because it is the first word in the text. The teacher continues and the students continue writing down whatever he says, even if he says "I bring to your notice.....", "To make you understand better .....", or "Then you place ....". In some sections, after the entries, an additional instruction follows, which also starts with 'notta', as if it was dictated. It is imaginable that the appendix, at least the text on folio 101 recto, came into being this way.

Do we still hear an echo of this text when we read Tagliente? He also starts his textbook Considerando ... nostri magnifici, or Libro doppio, with "La Regola del quaderno .....", whereupon "Nota" follows. His general instructions are very similar to our text with regard to order, phrasing and contents. A direct address is missing because it is a printed book and not a report of a first lesson in bookkeeping. Tagliente does not mention the waste book either.

2.1.2 The journal entry

In his Accounting Evolution to 1900 in Chapter VIII, A.C. Littleton writes about the "Evolution of the Journal entry". His opinion is that three types of entries can be distinguished. He qualifies the first type as "quite technical in form and phrasing" (p.107), and therefore difficult to understand for uninitiated readers. He gives examples from 1430, such as examples from Barbarigo's account books and from Luca Pacioli's De computis et scripturis from 1494. In his view the typical form is: "By A -----, To B ------". Exactly this form is described in our instruction, resulting in the example: "Per ser Piero A Cloths". The 266 entries in the appendix all have this form. What also applies to our text, is what Littleton writes on page 109: "The writers [of old textbooks] do not explain how 'per' and 'a' came to be associated with 'debtor' and 'creditor' respectively". His observation "thus a rule explains the usage but not the significance" is not refuted by our text.

Directly after the above-mentioned entry "Per ser Piero A Cloths" the instruction states that after the 'creditor' follow: quantity, price a piece, total amount [in ducats] and the lira amount, outside the body of the entry, in the money column. It is striking that in some sections of the appendix (the building of a palace, bills of exchange and marine insurance) the ducat amount is mentioned immediately after the 'creditor', whereupon the rest of the text follows. In the entries concerning the silk shop the ducat amount is sometimes mentioned after the 'creditor', and sometimes at the end of the entry. This could either mean that there were different sources or that there was some freedom of action in formulating the second part of the entry.

The instruction ends with the 'rule' that the date should be posted above the entry and the folio numbers of the ledger accounts in front of the entry. The former can be found in the 266 entries, but the latter is missing because the appendix does not contain a ledger.

2.1.3 The ledger

The instruction is very brief. The text starts with: "of each entry in the journal two will be made in the ledger: one 'per el dar' (in debit) and the other 'per l'aver' (in credit)" and continues with "in the ledger debit entries are written on the left side and credit entries on the right side". It is interesting to observe that our Marino, when he transcribed Cotrugli's text earlier in 1475, wrote: "dala banda dextra (right side] del libro lo de dare (must give) e dela sinistra (left side) lo de havere (must have)" (Book I, Chapter 13, folio 94, lines 15/16). Is this other evidence that Marino, without knowledge of bookkeeping, merely mechanically transcribed a text? Anyhow, the same sentence can be found in the Strozzi 1484 Cotrugli manuscript.

The instruction goes on to say that after posting into the ledger the names of the ledger accounts should be noted in the alphabet. Finally, there are instructions concerning the place of the date (inside the entry, between the debtor and creditor) and of the folio number of the opposite account (at the end of the entry). The text is silent on 'form and phrasing' of the entry. Maybe this was the subject of another semester. A manuscript from the time of our appendix, which deals with this subject has not yet been found.

2.2 Analysis of some subjects

2.2.1 Elementary bookkeeping

Like in most textbooks since Luca Pacioli the 'course' starts with an inventory, dated "the 19th day of December 1475" (folio 101 verso) and the seven journal entries derived from it (folio 102 recto). Accounts for five kinds of assets are debited, accounts for two kinds of liabilities are credited and an account "capital, belonging to me, Rafael de Nicolo", is both credited and debited. However, this inventory is not the starting point for a further explanation. For that purpose another ten journal entries, of an inventory which is not given, on folio 102 verso are used. Now the date is: "the first day of March 1475" and the merchant's name is Rafael. He owns ready money and nine types of imported merchandise. Here we started our numbering of the entries.

The text continues with the entries of:

the purchase (on credit) of four types of merchandise and the related direct costs/messetteria;
the selling (on credit) of the first nine items of the inventory and the related brokerage (the order corresponds with the inventory);
bank deposits;
payments made to creditors and received from debtors.

Purchases

To give the reader an idea of the entry we chose entry (011):

_____

On the 8th day of March

_____

Per honey from Le Marche A ser Zuan from Rimini,
for 80 casks, net weight 9780 libbre, at duc 20
per miaro, amounting duc 195 g 14 p 12.
I deduct 1 %, duc 1 g 22 p 30, for his share
of the messetteria, remaining net duc 193 g 17 p 13.
Broker A. Rosso ---------- £ 19 s 7 d 5 p 13

_____

The merchandise accounts are debited for purchase price and the related direct expenses/messetteria and the accounts 'merchandise expenses' and 'The Office of the Messetteria' are credited. There are no entries for the cash payments of the merchandise expenses and we do not get instruction about what has to be done with the (total) amount on the merchandise expenses account.

The entry meets all requirements mentioned in the general instructions. The reader cannot fail to notice that the merchant (or his bookkeeper) should be, to quote Luca Pacioli (Ch.1), a "buon ragioneri: e prompto computista" (a good reckoner and a quick calculator). In this first entry of a purchase a miscalculation can be found already. It is to the reader to find it.

Selling

In the case of a sale the relevant merchandise accounts (mixed accounts) are credited and debited for brokerage. Unfortunately there are no entries for the transfer of the balances of the merchandise accounts to the profit and loss account.

Bank deposits

Three entries for depositing money in a bank are given.

Payments made to creditors and received from debtors

Payments, whether in part or for the balance, are made in cash, by bank transfer and with promissory notes made out by a third person. Twice an account receivable is credited in this last way. An example is entry (052), which reads as follows:

_____

Per ser Francesco da Leze A ser Nicolo de Marin,
for a promissory note the former made out
for me for the latter, for a part of the brazilwood
duc 100 ---------- £ 10 s - d - p -

_____

Ser Francesco da Leze takes the debt of Nicolo de Marin, possibly because he owes him £ 10.-.-.-

2.2.2 Partnership

In three sections of the appendix the partnership is found as a type of enterprise. In two of them the subject is a

commercial voyage 'in persona' (i.e. one of the partners travels with the merchandise). In the third the partners run a 'botega de setta', a silk shop. Here we will only pay attention to the entries which concern this type of enterprise. Voyages and the 'botega' are the subjects of the next paragraphs.

The three sections start with entries of the capital contribution of the partners (only once in another form than money: in kind). Because the entries in the three sections are strikingly similar, here we only give the first entry in section VI:

Per	cash in hand A partnership of myself, Rafael de Marin, and ser Anzolo Zon and ser Antonio Soranzo, I invest in ditto duc 500, for my share in profit and loss ----------	£ 50. -. -. -

It seems that the first-person narrator, Rafael de Marin, keeps the accounts of the partnership. In the sections on voyages we find entries which report that the protagonist, after the purchase of merchandise by the partnership, takes along with him the remainder of the money "to carry on business on the [voyage] mentioned".

In the entries concerning the purchase and shipping of the goods we find accounts with and without the additional words "for the account of the partnership". This makes it difficult to determine whether these are entries in separate account books (that is, of the partnership, because in that case the addition 'of the partnership' is not required), or entries in the books of the managing partner.

In the section 'Botega de setta' we find the same ambiguity. One would be inclined to think that when starting an enterprise like this - which is quite something else than a partnership for one voyage - separate books should be kept. It is notable that the additional words "for account of the partnership" are not found in the accounts for expenses, such as rents and wages, repairs, in those concerning the various manufacturing stages, and in the shop account. On the other hand the addition is found often, but not always, in entries concerning raw materials and finished products. So it is unclear whether the entries are from separate books or from the protagonist's books. We are inclined to accept the first interpretation.

A lot of questions are not answered in the three sections. For instance: what entry do the partners make of the investment in their account books? What entries should be made in the books of the partners and in those of the partnership when the partnership is liquidated? Pacioli, in his Chapter 21 on partnership, does not answer these questions either. In our annotated edition of "La Riegola de Libro" we will pursue this matter in greater depth, with references to the account books of Badoer and other textbooks after Pacioli.

2.2.3 Voyage accounting

Introduction

It was to be expected that the appendix would pay attention to the subject 'voyage accounting', also called 'shipment accounting'. Even before the time our collection of entries dates a process had started in the course of which the travelling merchant increasingly became 'resident'. By land or by sea he sent merchandise to his agent elsewhere, commissioning him to sell the goods for his (the principal) account and to buy goods in situ to be sent back. In our text the agents live in Beirut and in Alexandria. Not only in our appendix but also in 15th-century account books (for instance Badoer) such voyages were called 'viazzi rechomandatti a ser ...' (voyages commissioned to ser ...).

Commercial voyages with the intention of visiting several seaports to sell/buy/barter etc. also existed. However, in some parts of the Mediterranean this was an adventure (pirates). So, to share the risks, merchants started a partnership for such voyages. If one of the partners attended the merchandise and did business for account of the partnership it was called a 'voyage in persona'. In our text we find such voyages to the Levant and to the Ponente (the Western Mediterranean), where seaports in Puglia, in all probability in North Africa, and Syracusa were put in.

Both forms of voyages are brought up two times in the appendix, with a total of 53 entries, viz:

the sections IV and VII : voyages commissioned to someone;
the sections VI and VIII: voyages 'in persona'.

2.2.3.1 Voyages commissioned to someone

The shipping, receipt, selling etc. of the merchandise give rise to entries in the books of the principal and/or the agent. We have to go to section III to see which entries the agent makes. On receipt of the goods he only journalizes his expenses for freight, flatboats, porters and custom duties, charging both 'wool for account of Nicolo de Zorzi' and 'silk for account of Nicolo de Zorzi'. After selling the wool and the silk the accounts are credited for the proceeds and charged for expenses (brokerage) and his commission. There are no entries to balance the wool and silk accounts and to credit his principal's account. In the second part of this section entries are given which the agent makes when he buys 'cloths from Vicenza' for account of Nicolo de Zorzi. The purchase price and a lot of expenses (for messetteria, shearing, dyeing, stretching and carrying to the warehouse) are debited on 'cloths from Vicenza purchased for account of Nicolo de Zorzi'. After the last entry about packing costs the text breaks off. There is no entry to balance the cloths account etc.

Now let us return to the principal. Which entries does he make? For a better understanding of the accounting process we will start with section VII. The entries can be divided in four groups, viz.:

1)
the purchase of merchandise: various merchandise accounts are charged for purchase price and related direct purchase expenses (such as expenses for packing and transport to the galley). So, for the various goods a price 'con tutte spese fin posto in galea' (our translation: free on board price) is calculated.

2)
the shipment of the goods: an account 'voyage to Alexandria commissioned to ser Alvise Rinoldi' is charged for the several F.O.B. prices of the goods and the merchandise accounts are credited. So, the latter accounts are balanced.

3)
the selling of the goods by the agent: after receipt of his statement, mentioning the net revenues from sale, the voyage account is credited and the agent's account is debited.

4)
the receipt of the goods bought by the agent: new merchandise accounts are charged and the agent's account is credited for amounts "with all expenses as appears from his written statement", as the text of the entry says.

In section IV the entries concerning the purchase of goods are missing. The text starts with the shipping of the goods. However, here we find an entry for balancing the voyage account into the profit and loss account. Neither of the two sections gives information about the way a remainder on the agent's account is settled.

2.2.3.2 Voyages 'in persona'

The first treatment (section VI) is very poor: there are only eight entries, three of which concern our subject. The first five entries discuss the formation of the partnership and the purchase of the merchandise. Then there are two entries in which the account 'voyage to the Levant in persona' is charged and the goods accounts are credited for the F.O.B. price. One of the partners, Rafael de Marin, takes the remainder out of the partnership's cash and leaves the harbour of Venice with merchandise and money. The entry of the money Rafael takes with him raises a question we will try to answer when we discuss the other section about this kind of voyage, where the same entry is found. In section VI the entry reads as follows:

Per	Cash in hand for ditto Voyage A Partnership account ('raxon de la compagnia') for ducats 300

I find I have in ditto to carry on business on
the [voyage] mentioned ---------- £ 30.-.-.-.

This section does not contain any information about the voyage itself. However, such is the case in section VIII.

But first the 'story' behind the entries in section VIII. After the formation of the partnership three kinds of goods are bought and expenses are paid, and these amounts are charged to the merchandise accounts. One of the partners, Marin de Rafael, leaves Venice with the merchandise and the remainder in cash. When he arrives in Puglia he pays for unloading the goods and barters the goods for wheat, which is shipped again. In another seaport he barters the wheat for slaves ('teste negre'). Then the entries end. After the last entry the following is written: "I remark that at arriving in Syracusa I have bartered all these slaves for sugar etc. and from there I departed with the mentioned [sugar] and headed for Venice".

The 31 entries can be divided into two groups, viz. those concerning the formation of the partnership up to and including the shipping of the goods and those concerning the voyage. The first group of entries can of course be found in the account books of the partnership, or, in the books of the managing partner. But in which book the second group (about the voyage) can be found? Maybe Luca Pacioli can help us to answer this question. In his treatise De Computis et scripturis (1494), in Chapter 26, he discusses the subject of voyages. He writes that voyages require two sets of account books, viz. the books that stay at home and the books that are kept during the journey. To the latter books the same rules apply as he taught earlier in the treatise. So you have to start making an inventory of the goods and money you take with you. In the voyage books accounts should be opened for the goods and money and the principal (in our case the partnership) should be credited.

Keeping this in mind it is evident that the first group of entries can be found in the books that stay at home. After shipping the merchandise accounts are credited and the voyage account is charged for F.O.B. prices. When the voyage is over, the latter account will be balanced. The second group, however, does not start with entries (à la Pacioli) of an inventory of the goods and money taken along, but with expenses in Puglia, and after this entries about barter transactions in two places follow. We learn that of every barter two entries are made: one for the goods given (debtor charged and goods accounts credited) and one for the goods received (goods accounts charged and debtor credited). This means that after the first barter on the accounts of the goods given only a credit amount is recorded, viz. the proceeds obtained in the barter. This is in contrast to the following barters, which show debit and credit entries on the goods accounts.

The question is whether it is necessary (as Pacioli says) to make entries of the goods the traveller took with him in the voyage account books. After all, on the voyage account in the books that stay at home it was sufficiently recorded which goods (and of what value) were shipped. It is up to the travelling partner to record his business activities during the journey correctly. On return he can give account to his partners by presenting his books to them. Unfortunately the appendix does not inform us about the entries to be made when the travelling partner comes home.

Finally, there is the entry concerning the remainder of the cash the travelling partner took along, which reads:

Per cash in hand for the voyage to the Ponente
'in persona' A account of the partnership, for
duc 524 d 12, I find I have in ready money in
the [cash] mentioned to do business on the way ------- £ 52 s 9 d - p -

---

In which books this entry should be recorded? The partnership's or the traveller's?

Because the money is out of the partnership's cash, in its books an entry should be made, which could read:

Per cash in hand for the voyage to the Ponente
'in persona' A cash in hand ---------- £ 52 s 9 d - p -

The capital contribution of the partners (in cash) is debited on the account 'cash in hand'. Just like the shipped goods, which are transferred to the voyage account, the money taken along should be transferred from the cash in hand

account to another account to show that it is now in the voyage cash. However, 'raxon de la compagnia' is credited, which we do not understand.

The entry in the appendix would not be out of place in the voyage books, thinking back to Pacioli. Amounts credited on 'partnership account' represent the debt the travelling first-person narrator owes to the partnership. However, entries of the same kind concerning the merchandise are missing. On the other hand, when it is an entry in the voyage books, a necessary entry is missing in the partnership's books. Taking these arguments in consideration we are inclined to believe it is an entry in the books that stay at home. Then we can also understand that this entry is the last in section VI, after which the text ends. In section VIII this is even clearer. After the statement (on folio 115):

On the 8th day of August

Here the voyage to the Ponente starts with the above-mentioned

merchandise and the remainder of the ready money

the entries concerning the remainder of the ready money and the (three) transfers from 'the above-mentioned merchandise' to the voyage account follow. The next entry concerns expenses in Puglia.

Yet one question remains: we do not understand the meaning of the name of the account 'raxon de la compagnia'. Could it be that Marino made an error (although he did it two times), and forgot something in copying the text, or that he copied an incorrect text? Given the many corruptions in the appendix it is quite possible that this is the case. In other sections we even find entries in which the account to be credited is missing! As it should be, we are willing to reconsider our opinion on the basis of well-founded arguments.

2.2.4 Silk shop

The medieval textile industry was organized according to the so-called 'putting-out' or 'wholesale handicraft' system. The botega purchases the raw materials, but the various stages of manufacturing were put out to self-employed artisans. The botega is used as a storage room for raw materials, semi-finished products (between two stages of manufacturing) and finished goods, and for selling the goods. A separate book is kept for every stage in order to keep supervision and to calculate the wages of the various artisans. In these books quantities delivered and received back are recorded. Afterwards these data enable the bookkeeper to make the required journal entries.

This section of the appendix contains as much as 55 entries and this makes it the largest section (well over 20%). Unfortunately only eight entries are related to the actual production process. The remaining 47 entries concern the formation of the botega (a partnership of three partners), expenses for rent and equipment of the shop, payment of wages, buying raw materials, selling finished products (also in barter), payments to suppliers and by customers, etc. Many of these subjects are also treated elsewhere in the appendix.

The botega purchases three kinds of raw silk. The entries show that separate accounts are opened for each lot. On these accounts the purchase prices and additional expenses (messetteria, weighers, porters and barge) are debited. One kind of raw silk needs a preparatory treatment (unwinding); then the silk goes through three working stages: throwing, dyeing and weaving. Four entries are related to the four stages of the production process. The expenses are paid in cash and debited on an account that bears the name of the stage involved. Thus we find an account for 'spinners', for throwsters, for dyers and for weavers. In every entry there is a reference to the above-mentioned specific book, in which the information necessary to calculate the wages is written down. The entry concerning the weavers also mentions that 155 braza (unit of length) of velvets have been woven. The entries 171-174 show that four (more or less precious) kinds of velvets have been made, with a total length of 265 braza. The 155 braza in the weavers entry must be a copy error or copied error by Marino.

An intriguing question is: can we reconstruct the product costing method applied to the valuation of finished products? The only thing we could discover is that the total of the value attached to the finished products is equal to the total prime costs (messetteria and additional expenses included) of the raw silk. Attempts to find the distributive formula from the total amount to the four kinds of finished products were without results so far. Corruptions in the text complicate the search for this formula. However, it is clear that in the value of the finished products the expenses for the several working stages and the overheads are not included. It also seems that we have to do with a simple form of 'variable

costing', although the individual finished products do not prove this.

We will conclude this part with some other remarks regarding the style of accounting. The value of the four kinds of finished products is debited on separate accounts and a silk account is credited, but not the accounts for raw silk. It seems reasonable that the silk account is used as a so-called suspense account. Unfortunately there are no entries in which the silk account is debited and the four raw silk accounts are credited.

When the goods are sold (one sale is a barter) the shop account is credited, but not the corresponding goods accounts. However, the goods received in barter, on the other hand, are not debited on the shop account, but on separate accounts, which in turn are credited for the sales proceeds.

The silk fabrics, which are brought in by one of the partners as an investment "for his share in profit and loss" and are initially entered into the account 'silk fabrics', are transferred to the shop account, which is credited for the sale of the silk fabrics. The indebted brokerages are also debited on the shop account.

It has already been pointed out that several sections of the appendix show an incomplete treatment of the subject. In the section "Silk shop" this is clearly visible. Many things still keep us guessing. It is regrettable that - when it was not our Marino who made a selection - the composer of the instruction did not finish his work. Finally, again: in our annotated edition we will compare this section with facts that are known about 15th-century textile industries and with the little that has been written about this subject in other textbooks.

3 Dating the appendix

3.1 Method

The most important thing for the history of accounting is to determine the age of the examples that Marino de Raphaeli transcribed in Naples in 1475. Because we only have one version of the text at our disposal, there is only one method to determine the age: we must look for historical facts within the text. This leads to the following question: what is the proportion of historicity to fiction in bookkeeping models or model bookkeepings?

A real account book is an historical document: prices, personal names and other facts give accurate historical information, which the historian can use as a source without reservation. Bookkeeping models, on the other hand, are designed to be used as a didactic resource or as material for private study. This does not imply that all the facts they contain are fictitious; actually, bookkeeping models have been designed in a determinable space and time. But how can we distinguish the historical elements from the fictitious? After we have identified the fictitious elements we can proceed to assess the - ratio of - historical reliability. Then we will roughly date a few sections. Finally, of two sections (I and XII) the date of origin can be established almost exactly.

3.2 Fictitious elements

Our present text is, like a real bookkeeping, explicitly dated. In a real bookkeeping year and events correspond; in a bookkeeping model the year usually reflects the time of writing and/or printing. Domenico Manzoni, one of the very few whose book went through a number of reprints, adapts the year every time, even though the contents continue to be mostly the same. The same goes for the anonymous 1536 pirate edition of Tagliente's Libro ugnolo from 1525, in which only the year has been adapted. The year 1475 can therefore be considered as a fictitious element, an adaptation by the copyist. In this adaptation he even makes errors. Unfortunately, although he was a mechanical transcriber he left no traces of the original year or years.

What is usually fictitious in a bookkeeping model, is the chronology: a long journey is completed within a few weeks, or a 50 yard piece of velvet is manufactured within a month, whereas in reality this took six months. (Edler 246). Moschetti observes on this matter: "It may happen that in the following books you will find accelerated periods, like : ... Voyages, exchange operations, Shops [...] and other events, which are humanly impossible to complete in such a short time: do not get confused by that [....], because I did thus in order to proceed in orderly fashion [....]. In this treatise it is not the practices of commerce that are to be taught, but the method to report them 'in partita' (in entries)" (Ch. 28 "Excursion on the acceleration of time adopted in the following books", p. 23).

3.3 Historical elements

As we said, space and time are historically determinable. After a short digression on the obviousness of the location, we

will draw some conclusions concerning this appendix. Then we will take a close look at the historical dimensions.

3.3.1 Location

Every model of bookkeeping takes place in a real city, the residence of the author. The reader or the student has a need for a familiar setting. What else would have made Wolfgang Schweicker, who almost literally translates Manzoni's book, situate his example in a totally different world, the world of his readers? For the acquisition of technical skills it is all the same whether an example takes place in Venice, Antwerp, Augsburg or Utopia.

The anonymous booklet Opera che insegna from 1526 turns out to be nothing else but an adaptation of Tagliente's Libro ugnolo transposed to Naples. The banker is no longer Capello and Vendramin, but Spanocchi; furthermore the boat - indispensable in Venice - has been left out and the servant does not get a warm fur coat as part of his salary, but a pair of boots. The unknown plagiarist also adapts the language.

Our appendix "La Riegola de Libro", transcribed in Naples, is a remarkable exception from this point of view. Its world is thoroughly Venetian, so we are compelled to conclude that:

Marino did not get his example from a bookkeeping teacher in Naples;
Marino did not compose this text to teach from it in Naples;
Marino consequently composed the text from Venetian material and intended it for personal use (his copy of Cotrugli was probably also for personal use, at least it was not dedicated to someone).

3.3.2 Dates of origin

In Chapter 1 we already drew the conclusion that, in all probability, the appendix was not created as a whole. As a consequence sections can date from different periods. In any case, terminus ante quem is 1475. In this part we will first determine the proportion of historical reality in general. Then we will discuss a few facts and sections that are historically verifiable but not exactly datable. After a discussion of the exactly datable section on bills of exchange, we will evaluate our method by means of comparison with other bookkeeping examples.

3.3.2.1 Historical reality in general

Most prices did not change very much between 1400 and 1475, so they give us little to go on. What we can ascertain is the fact that the prices mentioned in the appendix are very real. This does not only apply to the prices of spices and fabrics. A striking example can also be found in section X, on the building of a house. In the entries 207 and 209-217 repeated references are made to a 'vachetta', a notebook in which contracts and deliveries were written down. Parts of the notebook of Marino Contarini, who built his Cà' d'Oro between 1424 and 1437, have been preserved (Goy). From this document we know that salaries and building materials were not calculated in 'Lire di grossi', but in ' Lire di piccoli'. For formal bookkeeping conversion to ducats was necessary. The prices of our building materials correspond almost exactly to those of Marino Contarini.

Names of institutions and persons do not always lead us to an exact date, but can also help us ascertain the extent of historical reality. A difficult problem is caused by the many names of Venetian patricians, who had extensive families with many branches. For example: an Antonio Contarini is mentioned three times in our text, but there were many persons with this name at the same time. In order to identify personal names we are thrown back on less frequent names, mainly of common citizens, as well as on remarkable combinations of names and activities. To give an impression: out of the 107 personal names we could identify 20 with certainty and 14 in general; that is to say, only by means of available published sources and secondary literature.

We also gathered personal names from other textbooks on bookkeeping. The 31,8% we could identify in the appendix are in comparison with: Matthäus Schwarz 50% (the same as Weitnauer); Tagliente 15,4%; Manzoni 12,7%; Schweicker 15,8%; and Casanova well over 20% (everything exclusively from publications). The percentage for the appendix seems to be relatively high, but of course we did much more research into this text.

Now we will mention some examples of personal names that prove the historical reality of the text, although they do not facilitate an exact dating.

Section II, entry 18:
Rafael purchases soaps from Nicolo Vendramin. Cotrugli Book I, Ch. 17, mentions Vendramin's soap, which is of such a good quality that you can buy it sight unseen. Unfortunately no Nicolo is mentioned in literature, but only Andrea and Luca Vendramin (among others Ashtor VI, 45).

Section II, entry 30:
part of the brazilwood (a dye-stuff) is bought by a Nicodemo Spinelli. He is not a Venetian, but comes from Florence. He is the elder brother of the more famous Tomaso Spinelli. The family owns silk shops in Florence. We know that Nicodemo was born at the end of the 14th century and died before 1471 (Caferro 422).

Section VII, entry 103:
cloths are bought from Alvise Carloni. This draper family is already known in the 14th century (Mueller 1977, 184)

Section VIII, entry 121:
cloths are bought from a B. Toxon. The drapery of a Jacomo Toxon was unable to make profit in 1454-57 (Mueller 1996, 213n).

Sextion IX, entries 175/6:
precious velvets are sold to an Antelmi and a Peruzi. Both are names of Lucchese families who emigrated to Venice in the 14th century. These families were initially active in the silk industry, and went over to the silk trade in the 15th century (Molà, passim).

Section IX, entry 184:
the flock and floss silk, of no use for weaving, was, among other things, used for tassels on berets. Well then, it is bought by a Biasio Schiavon, whose family name already occurs in the 'estimo' of 1379 as 'bereter', maker of berets (Luzzatto 1929, 161).

Section X, entry 202:
Alvise da Bruolo delivers timber; a Constantino da Bruolo is mentioned as a timber merchant (Connell, 160).

So far we do not have many exactly datable facts, but we can certainly conclude that the proportion of reality is very high, also in details of minor importance. Research in archives will certainly uncover much more.

3.3.2.2 Sections roughly datable

In section XIII on marine insurance we find the only Neapolitan in the text (entry 252): Alvise (Luigi) Coppola. The date of his birth is unknown, but he has been active since the fourth decade of the 15th century. In 1438 he is mentioned as one of the defenders in the siege of Naples (DBI); the first evidence of him as a merchant is a document from 1452 (Silvestri, 105). He dies in 1483.

In the same entry Jeronimo Raffa is mentioned as an insurance broker. In June 1460 he is one of the candidates for a post of admiral of the galleys (Thiriet II 330: "Hieronymous Raffa, civis originarius Ven. solitus esse patronus navis"). We do not know whether an experienced shipmaster could be an insurance broker at the same time, or whether this was perhaps a function for retired shipmasters.

Alvise Coppola is active as a merchant on the fair of Salerno as late as 1478. It seems that this section does not date from before 1450 and maybe even from after 1460.

In the same 1460 document one of the other candidates is "Anthonius Ottobono, solitus esse patronus navis et homo consilii galiarum et navium", that is, a very experienced seaman. He is the father of Stefano Ottobon (Litta, vol. 9), who is killed in a naval battle against the Turkish in 1499. This Stefano Ottobon is shipmaster of our voyage company in

section VIII. This company consists of three Ragusans: Marin di Rafael (our copyist?), maestro Zorzi Orese and Zuan de Florio. Quite a lot is known about Zorzi Orese, whose real name is Giorgio de Allegretis. In 1460 he is granted the full citizenship of Venice, which means that he must have lived there for 25 years, so from 1435 (Mueller 1996, 231-3). He is a famous goldsmith and in 1472 he is visited by Cosimo Tura. He is commissioned to make a precious silver set, designed by Tura, on the occasion of Ercole I d'Este's wedding with Eleonora of Aragon (Chledowsky 490/1). Moreover, he is known as one of the leading bullion dealers and refiners in Venice. In 1491 he fails and dies shortly after. In a notarial document from 17 May 1457, a Giovanni or Johannis de Florio is mentioned in connection with a conflict on a letter of exchange. At that moment he is staying in Naples (Arch. Dubrovnik, Div.Not. 41, 161v-162).

We must assume that the story of this company, this bookkeeping exercise, originates from Venice. We base this assumption on the language and the above-mentioned draper Toxon. If the three protagonists have ever been together in the 'classroom', this must have taken place between 1435 and 1457. Then we have a problem with Stefano Ottobon: he must have been very old when he took part in a sea battle. But it could also be that our Stefano is not the son, but the father of the above-mentioned Antonio.

3.3.2.3 Sections exactly datable

Prices that did fluctuate are those of pepper and of government bonds. In Section I the combination of boths prices, 60 ducats a cargo of pepper and a 25% market rate for government bonds, leads us to 1439, and certainly not later, because both prices, especially the pepper price, dropped shortly after (Lane 289, Luzatto 1929, CCLVXXV). In section V there is a 20% rate for government bonds; this part could have a somewhat later origin.

One section in the appendix is relatively easily datable, namely section XII on bills of exchange. We could trace five out of nine personal names with rather detailed information, viz. Zecho de Tomaso da Londra, Zuan de Marcanova, Domenigo Michiel, Jeronimo Badoer and Marchio di Colti. Furthermore, the history of the Medici Bank is well known.

Zecho de Tomaso, originating from Siena, founded a bank in Venice in 1430, together with his brothers (Biscaro 75n). In October 1436 Zecho di Tomaso & fradelli are mentioned in Andrea Barbarigo's ledger account: "Ser Vetor Capelo e compagni per conto de Londra" (Alfieri 78). As from the second six months of 1437 they act as agents of the Borromei in London (Biscaro 75), mostly in connection with exchange operations, but also selling on commission (Biscaro 94). This relation is bilateral: in London the Borromei also act as agents of the Tomasi (Biscaro 107). This relationship continues at least until January 1440 (Biscaro 122). Furthermore, we know of exchange operations with Vielmo Quirini in 1438/9 (Luzzatto 1954, 186) and with Antonio Quirini in 1439 (Biscaro 299). In 1446 the bank finds itself in liquidation. The question is: when and/or why did he get the epithet "da Londra"? Maybe he already got it before 1436: an indication is given in Mueller (1996, 274), where he states that "in the 1430s Nicolo Tomasi had been the Venetian factor of "Zecho & fradelli"; in other words that Zecho had been out of the city for some time. But it is also possible that the surname "da Londra" originates from a later period: in Melis (416) it seems that in 1441 he was in Bruges as a correspondent of the Medici. A third possibility is that the epithet does not point to a - temporary - place of residence, but to his specialization, transactions with London.

Zuan de Marcanova certainly stayed in London: he is mentioned there in 1436 (Biscano 285). In 1438 he is replaced by his brother Lorenzo (Biscaro 64). His stay there is confirmed by the fact that Jacopo Campora, a Genuese Dominican studying in Oxford, dedicates his early work De immortalitate anime in modum dialogi vulgariter (on the immortality of the soul in form of a dialogue in vernacular) to "Johanni de Marcanuovo mercatante in Londra" (Kristeller IV, 90). In 1440 this Campora is nominated for the position of bishop of Caffa and he is appointed in 1441 (DBI). In any case, in 1439 Zuan de Marcanova is back in Venice, where Jeronimo Badoer must pay him for cloths (Badoer 330). Lane states that Giovanni and Lorenzo di Marcanova stay in London from June 1440 up to 1445, acting as agents for Andrea Barbarigo (1967, 130/1). But Zuan's presence there is disputed (viz. Fryde XV, 349).

In 1436 Domenigo Michiel had a business relationship with Giacomo Badoer (Badoer 2, 10/1, 64). Andrea Barbarigo in 1436 writes about him as a rival (letter printed in Lane 1967, 125/6). Probably he fails shortly before 1440 (Biscaro 302n).

Jeronimo Badoer (born in 1398) is most likely the brother and business partner of Giacomo, who lives in Constantinople from 1436 to 1440.

Marcho/Marchio di Colti (Marchio is Venetian for Melchior (Sallach 245)) is a member of a family of immigrants from Pisa. In 1441 he opens a bank on the Rialto (Mueller 1996, 196).

Since 1420 the Venetian branch of the Medici Bank operates under the name of 'Cosimo e Lorenzo de Medici & Co',

and after Lorenzo's death (23 September 1440) as 'Cosimo de Medici'. From 1451 to April 1455 all Florentines are banished from Venice because of wartime conditions. Shortly after its coming-back the branch is named 'Pierfrancesco di Lorenzo de Medici & Co'.

Thus far all facts seem to indicate that this section dates from circa 1440. Then we have a problem: in entry 233 the Gueruzzi Bank is mentioned. The Gueruzzi (Guerucci, Veruzzi, Verutius), like the Garzoni family, belong to the large group of Lucchese immigrants who were initially chiefly active in the silk industry. The oldest documentary evidence of the Gueruzzi as bankers dates from 1459 (Mueller 1996, 223/4). But on the basis of a recent study (Bratchel, 69) Mueller supposes that the bank could have existed some years before that date. However, there is a considerable difference between 1440 and the late 1450s. The Gueruzzi Bank also occurs in sections I and II. The 25% rate for government bonds could be a indication for a dating in 1444 or even 1451; but this is impossible given the pepper prices, which in those years just bottomed out. So we must hold to our dating of 1439 for section I.

3.4 Discussion: value as a historical document

Now the crucial question is: are we allowed to conclude that the Gueruzzi Bank existed long before its first documentary evidence? In other words: can we consider the appendix as a historical evidence of its early existance? To what extent can we look upon this text as a historical document?

It has already been stated that in other bookkeeping examples historical facts and personal names evidently exist. This does not only apply to the 16-century textbooks, but also to Pacioli's work. Let us give some examples. In his Summa, on folio 167v, he gives a model of a letter of exchange. The subscriber is his printer Paganino de Paganinis. We could not trace Lodovico da Fabriano, but he is surely the paper supplier. The two other persons mentioned, Alfano de Alfanis and Donato da Lezze, are known from biographies (DBI). The last one has just started his career in 1494 (among other jobs he has been an official at the Messetteria), and in 1508 we see him again, as a prominent diplomate among Pacioli's audience in the San Bartolomeo.

Manzoni's journal entry 127 is about the expenses made on the occasion of cardinal Contarini's entrance into Cividale de Belluno. This takes place in 1536. Some accounting historians suppose an earlier edition from 1534 of Manzoni's book. The above-mentioned entry makes this implausible. In later reprints this entry is still present, even after Gasparo Contarini's date of death. However, Manzoni does make some changes to bring his work up to date (the father of his principal, Zaccaria Vallaresso, apparently does not live anymore in 1564), but he fails to substitute the Cornaro Bank for the Priulli Bank, which is dissolved by then.

In Casanova, finally, we can find complete networks of Flemish and German merchants historically traceable. In all books we examined we - surprisingly - found a substantial amount of real historical persons in supporting roles like notaries, transporters, brokers and artisans.

The conclusion must be that bookkeeping examples/models contain a certain proportion of historical reality. This proportion of course varies: in his Musterbuchhaltung Matthäus Schwarz reconstructs such a realistic bookkeeping of the Venetian Fugger branch, that this probably prevented its publication. Another extreme case is the work of Simon Stevin: the few persons he mentions all have obviously invented names. Most textbooks of bookkeeping find themselves somewhere between these extremes, and are partly based on reality.

We can also argue the other way around: for example, suppose that Tagliente's, Manzoni's, Casanova's books were undated. From their contents we could still deduce that:

Tagliente's Libro doppio came into being after 1507 (foundation of the Capello & Vendramin Bank);
Tagliente's Libro ugnolo came into being before 1527 (death of Luca Vendramin).

In Manzoni's book the instalment of Gasparo Contarini that is mentioned gives us a clue. Casanova's Specchio Lucchidissimo can probably be used as a historical source without many restrictions. The international trading community described in this book consists of 193 personal names; from these we could already identify 40, without many efforts and without archival research.

The general conclusion that, also on the basis of isolated facts and names, texts such as the appendix can be dated - at least approximately - seems justifiable. We did not have another method at our disposal, but testing this method against comparable texts, verifies the statement that bookkeeping models have a value as historical documents.

Conclusion: "La Riegola de Libro" in the history of accounting

The history of accounting has always been divided into two periods:

the 'documentary' period: before (Benedetto Cotrugli and) Luca Pacioli we have to rely on remaining account books of, among others, merchants;
the 'literary' period: with (Cotrugli and) Pacioli a tradition of texts about bookkeeping begins (Perrone 2).

The discovery of "La Riegola de Libro" sets the boundary between the two periods back in time, but we do not yet know exactly how far. The sections which can be dated circa 1440 are after all not necessarily the oldest.

Although it is the oldest text, it is not the least developed one. Compared with, for example, the poor pages in Joannes Franciscus's manuscript (1516) the quality of "La Riegola de Libro" is much higher. Even if we dare to make a comparison with Manzoni we have to conclude that our text is more miscellaneous and more varied with regard to subjects. Manzoni does not discuss: agent's bookkeeping, voyages commissioned to someone and 'in persona', partnership, and bills of exchange. In his preface he only announces that these subjects will be discussed in a next treatise.

As always when investigating something new, more questions are raised than can be answered. Although we have more facts, historical data, etc, at our disposal than we can discuss within the scope of this paper many questions remain unanswered. That is the reason why we hope that others will complete our research. The appendix is not our 'possession'! Such an important text in the history of accounting calls for the co-operation of many scholars from many disciplines: historical linguistics, economic and social history (concerning Ragusa, Venice and Napels), history of education (especially concerning accounting) and, of course, accounting history. Unfortunately most writers about accounting history are more accountants than historians!

Apart from that it is against all probability that 'our' appendix is the only one in its kind: archivists could help to look for additional or comparable documents. It seems to be a foregone conclusion that bookkeeping instructions and examples are generally not enclosed in abacus manuscripts which have been examined (among others by Van Egmond). Joannes Franciscus probably is an exception. Strozzi's 1484 copy of Cotrugli also has a very short 'appendix' with some bookkeeping instructions. Moreover, instructions of this kind are not always identified as such, but are often described as fillers in catalogues. It is necessary to have a keen eye for all these 'financial records'.

ANNEX I: Survey of the sections

Number sectionFolio numbersContents

I
101v-102r
general instructions, inventory and its journal entries

II
102v-105v
entries of another inventory, purchases, sales

III
105v-106v
buying/selling for account of another

IV
107r
voyage to Beirut, commissioned to someone

V
107v
Camera d'Imprestedi (Government Bonds)

VI
108r
partnership, with voyage 'in persona' to the Levant

VII
108v-109r
voyage to Alexandria, commissioned to someone
108v purchases etc.
109r shipping

VIII
109v-111v
partnership, with voyage 'in persona'
109v-110v purchases etc.
110v-111v shipping, conduct business by barter in several seaports

IX
112r-115r
partnership of a 'silk shop', with complete cycle from formation to selling the finished products

X
115v-116r
building of a 'palazzo'

XI
116v
let of houses, bad debts and the 'Tenth'

117 and 118
are missing

XII
119r-120r
bills of exchange (with 'protesto') and some instruction

XIII
120v-121r
marine insurance and some additional instructions regarding marine insurance, voyages and balancing the ledger

ANNEX II: Identification of the copyist and his family: a hypothesis

Nowhere in the manuscript a family name is mentioned. This could mean that the copyist does not belong to the social

class of patricians. However, starting from the idea that he does belong to this class, we did some research.

Fifteenth-century Ragusa has a limited number of patrician families (Soloviev) and in only one of them the name Rafael occurs, namely in the De Gozze family. Krekic's index (1961) also mentions this first name in connection with this family only.

The assumption is reinforced by the following facts: firstly, the family has contacts in Naples (around 1450 a Bartolo de Gozze is ambassador over there); secondly, Cotrugli has business relations with this Bartolo in 1452 (Mari 9).

The little mark Marino de Raphaeli puts down in the explicit of his Cotrugli transcription could mean something like 'fecit' (then it would be an unusual form of abbreviation), but could also be DG in Cyrillic alphabet.

Our research in the Dubrovnik archives revealed more details about this family, by means of which we were able to construct a part of the family tree. Rafael de Nicolo (section I), Rafael de Marin (section VI) and Marin de Rafael (section VIII) fit in quite well, also with regard to the dating. But again we emphazise: this still is a hypothesis.

a)
For Rafael de Nicolo (section I) there is only one candidate: Rafael de Nicolo de Marin, born between 1405 and 1409. In 1465 he makes his testament and at that moment he has six sons, all of them less than 24 years old. The fifth one is named Marin (Test.not.18,144v-145r).

b)
Assuming that section VI dates approximately from the same period (around 1439), Rafael de Marin in this section is most likely Rafael de Marin de Rafael, a great-nephew of the first mentioned, born in 1420 or somewhat earlier. In 1475 he is the executor of Sigismondo de Rafael, together with, among others, Bartolus Jo. de Gozze, the Bartolo who was active in Naples around 1450 (Distr.test.18, 353r).

c)
Marin de Rafael (section VIII, also the copyist's name) is more problematic. Of course the name in the section can be a conscious or Freudian writing error; he could be the father of the one mentioned in b) (but in that case he is rather old, compared to his partners in the company); he could also be the son of the same, but then he seems to be too young. A writing error is the most plausible solution.

d)
Marin de Rafael, the copyist, can be the son of Rafael de Marin de Rafael (mentioned in b), or Marin de Rafael de Nicolo (the fifth son of the person mentioned in a). In the latter case he must have been born between 1445 and 1463.

Finally, a Zuan de Domenego remains intraceable so far. Only Krekic (1997, 10) mentions an Ivan Dimkovich, already grown up in 1404. This name does not occur in the patrician families of Ragusa. We do not even know if he is a Ragusan as well!

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