

MICHELE DA COLLE'S ACCOUNT BOOKS (1462-63): THE FIRST EXAMPLE OF DOUBLE ENTRY IN PORTUGAL?¹

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Abstract: The title of this article puts forward the research question: can the books of the merchant Michele Da Colle be considered as the oldest example of the use of the double entry method in Portugal? Michele was a Tuscan merchant and agent to the Pisan Salviati-Da Colle firm, established in Lisbon as of the second half of the fifteenth century. The first years of his business activity in Portugal are recorded in two account books that are kept today at the Salviati Archive, in the *Scuola Normale Superiore* of Pisa. To answer the research question, this article thoroughly examines the characteristics of these documents. The aim is to determine if these records follow the general principles of double entry bookkeeping proposed by different scholars. This investigation thus seeks to contribute to the debate on the introduction of double entry in Portugal via Italian influence.

The preliminary analysis of these books shows that we are, indeed, in the presence of double entry records. The example does contain formal imperfections, but it has strong similarities with the context of Tuscan accounting of the time, which can arguably mean that it represents a stage of evolution and development of the double entry method. Since we do not have any other examples, Michele Da Colle's account books can be considered the earliest records in double entry in Portugal.

Evidence also suggests that Italian merchants exerted influence on Portuguese merchants for the adoption of this method, although it didn't last in the centuries to come. This explains why several Portuguese works on arithmetic from the sixteenth century fail to mention the double entry system, which was only regularly applied in Portugal as of the mid-eighteenth century.

Keywords: *Accountability. Double entry bookkeeping. Ledger. Italians. Lisbon. Renaissance.*

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LOS LIBROS DE CUENTAS DEL MERCADER MICHELE DA COLLE (1462-63): ¿EL MÁS ANTIGUO EJEMPLO DE PARTIDA DOBLE EN PORTUGAL?

Resumen: El título introduce la pregunta de la que partimos: los libros del mercader Michele Da Colle ¿pueden ser considerados el más antiguo ejemplo de la aplicación del método digráfico en Portugal? Michele fue un comerciante toscano, agente de la compañía Saviati-Da Colle de Pisa, que se estableció en Lisboa en la segunda mitad del siglo XV. El registro de los datos contables de los dos primeros años de su actividad en Portugal se conservan en dos libros, hoy custodiados en el Archivo Salviati, en la *Scuola Normale Superiore* de Pisa. Para responder al enunciado, procederemos a realizar un análisis detallado de las características de estas fuentes documentales, de manera que podamos percibir hasta qué punto cumplen los principios generales del método digráfico defendido por diferentes autores. Con este estudio de caso pretendemos contribuir al debate sobre la posible influencia italiana en la introducción del método de la partida doble en Portugal.

Analizadas las características de los libros, puede concluirse que estamos ante un ejemplo de partida doble que, aunque no sea perfecto, se encuadra en el contexto de producción contable toscana de la época, que consiste en una fase de evolución y perfeccionamiento del método digráfico. Ante la falta de otros ejemplos, los libros de Michele pueden ser considerados los más antiguos registros de partidas dobles hechos en Portugal.

Algunos indicios documentales que recogemos sugieren también la posibilidad de que los mercaderes italianos hubieran ejercido alguna influencia sobre los comerciantes portugueses en la adopción de este método. Sin embargo, aunque esa influencia se hubiera producido, no fructificó, ya que los diversos tratados portugueses de aritmética del siglo XVI no hacen mención al método de la partida doble, que solo comenzaría a ser empleado en Portugal de forma sistemática a mitad del siglo XVIII.

Palabras clave: Contabilidad. Partida doble. Libro Mayor. Italianos. Lisboa. Renacimiento.

OS LIVROS DE CONTAS DO MERCADOR MICHELE DA COLLE (1462-63): O MAIS ANTIGO EXEMPLO DE PARTIDAS DOBRADAS EM PORTUGAL?

Resumo: O título deste artigo introduz a questão de partida: poderão os livros do mercador Michele Da Colle ser considerados o mais antigo exemplo de aplicação do método digráfico em Portugal? Michele foi um mercador toscano, agente da companhia pisana Salviati-Da Colle, que se estabeleceu em Lisboa na segunda metade do século XV. Registrou os dados contabilísticos dos primeiros anos da sua atividade em Portugal em dois livros, que estão hoje depositados no Arquivo Salviati, na *Scuola Normale Superiore* de Pisa. Para responder à questão enunciada, procedemos a uma análise detalhada das características destes exemplos documentais. O objetivo é determinar se essas características cumprem os princípios gerais do método digráfico apresentados por diferentes autores. Com este estudo de caso, pretendemos ainda contribuir para o debate sobre a possível influência italiana na introdução das partidas dobradas em Portugal.

Depois de analisadas as características dos livros, podemos concluir que estamos perante um exemplo de partidas dobradas. Embora não seja um exemplo perfeito, enquadra-se no contexto de produção contabilística toscana da época, que consiste numa fase de evolução e aperfeiçoamento do método digráfico. Face à ausência de outros exemplos, os livros de Michele podem ser considerados os mais antigos registos em partidas dobradas feitos em Portugal.

Alguns indícios documentais recolhidos sugerem ainda a possibilidade de os mercadores italianos terem exercido alguma influência sobre os mercadores portugueses na adoção deste método. No entanto, ainda que essa influência tenha sido exercida, não frutificou. Os diversos tratados portugueses de aritmética do século XVI não fazem qualquer referência ao sistema das partidas dobradas e só a partir de meados do século XVIII é que o método seria regularmente utilizado em Portugal.

Palavras chave: Contabilidade. Partidas dobradas. Livro de Razão. Italianos. Lisboa. Renascimento.

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Introduction²

The title of this article puts forward the research question: can the books of the merchant Michele Da Colle be considered as the oldest example of the use of the double entry method in Portugal? Michele was a Tuscan merchant and agent of the Pisan Salviati-Da Colle firm, established in Lisbon as of the second half of the fifteenth century. The first years of his business activity in Portugal are recorded in two account books that are kept today at the Salviati Archive, in the *Scuola Normale Superiore* of Pisa. To answer the research question, this article thoroughly examines the characteristics of these documents. The aim is to determine if these records follow the general principles of double entry bookkeeping proposed by different scholars. This investigation thus seeks to contribute to the debate on the introduction of double entry in Portugal via Italian influence.

In order to gain an understanding of the context in which the accounting books by Michele Da Colle were produced, we begin by giving an account of how the double entry method appeared and then relate it to the strong presence of Italian merchants in Portugal in the late Middle Ages and with the establishment of the Salviati-Da Colle firm in Lisbon. We will then look closely at the characteristics of the books, discussing, on a case-by-case basis, whether the principles of the double entry method are verified. Finally, we also analyse new evidence on the possible use of the double entry method by the Portuguese in the 15th and 16th centuries.

1. The origin of double entry in Italy and the “culture of accounting” in Tuscany

As an art of keeping accounting records, bookkeeping is not a simple issue of applying the double entry method, that is, the double posting of the same transaction (as a debit and a credit). Nevertheless, it cannot be denied that the introduction of this system was one of the most noteworthy moments in the history of accounting (De Roover, 1937: 182).

According to Basil Yamey (1947: 272), the probings into the origins of double entry bookkeeping lead from one speculation to another. The view of various researchers dedicated to study of this subject is that this form of bookkeeping developed almost at the same time in different Italian cities between the late 13th century and the early 15th century (Sangster, 2016: 301-302; Hernández Esteve, 2005: 116-117; De Roover, 1956: 115, 139). The earliest known evidence of the beginnings of a move away from simple bookkeeping dates from 1211³ and the city of Florence has been identified as where this technique first developed (Sangster, 2016) and where there emerged, on a large scale, an awareness of financial record keeping based on a specific method of organising, not just merchants accounting records, but also those of families (Goldthwaite, 2015: 611-2).

The growing development of trade together with the sedentarism of merchants who conducted their business through decentralised agencies with their own equity and a common denominator – the large commercial company – led to the development of instruments and solutions that would allow them to ensure the management and pursuit of their businesses (De Roover 1956: 116; Le Goff, 1990: 18-20). Indeed, the organisation of Florentines into

² The authors would like to thank the anonymous reviewers for their thoughtful comments received on 22 February 2020 and for proofreading the first English version of the manuscript. Many thanks to Maria Barrigón for translating the abstract into Castilian. The authors would also like to thank all the Accounting and History of Accounting professionals/intellectuals who assisted them in drafting this work during the last years, in particular Hernâni Carqueja, Carlos Ferraz, Alan Sangster, Miguel Gonçalves and Francesco Guidi Bruscoli.

³ Note that in the article by De Roover (1937: 176) on double entry, the author addressed the relevance of this documentary evidence from 1211.

commercial companies, which were divided into branches, taking part in the most important European markets and acting as the Pope's bankers was one of the drivers for the development of new instruments and techniques, such as bills of exchange, maritime insurance, and adoption of double entry bookkeeping (Dini, 2001: 105). By the late 15th century, this method of organising and posting transactions in accounting books was already widespread in Italy and had reached a high degree of standardisation, albeit with regional variations. In all cases, the bilateral or tabular format (in the form of a "T"), with debits on the left side and credits on the right side, was used in various places at the same time (Goldthwaite, 2015: 615-6).

This is an evolution and consolidation process generally taking place in Tuscany, which leads several authors to acknowledge that there was a "culture of accounting" and to include the double entry method in the great legacy of the Renaissance (Goldthwaite, 2015: 639-43). As the art of doing business evolved and the trade and financial activity became more specialised, account books used by merchants multiplied (De Roover, 1956: 122-3), among which the ledger (*mastro* or *debitori e creditori*) is especially relevant. According to Goldthwaite (2011: 91-2), the originality of the bookkeeping system developed by the Italians does not only lie in the double entry, but in two other aspects: the articulation between the different accounts relating to the firm's various businesses and in the hierarchy between the various account books, which separates the more detailed record books – *giornale* (journal), cash book, merchandise book, other specialist record books – from the ledgers into which entries from these other account books were made.

Young merchants learned the basics of arithmetic in *abacco* schools, but they developed and improved accounting techniques mainly in a professional context (Goldthwaite, 2011: 91; 2015: 620-621). Handbooks written by merchants also circulated within large commercial companies. It is known, for example, that in the first half of the 15th century a copy of the book by Giovanni da Uzzano – *La Pratica della mercatura*⁴ – considered one of the principal handbooks for merchants at that time, was kept in the premises of the Salviati commercial firm (Scherman, 2014). This handbook, dating from 1440-42, was written by Giovanni di Antonio da Uzzano, a member of a family of Florentine merchants. It included the information considered to be essential for the development of business of these trading firms with a strong international presence. Its aim was to provide merchants with broad knowledge of the trading markets with which they interacted: data on taxes levied on trade, information on raw materials and goods that could be purchased, advice on weights and measurements and their equivalences, as well as currencies and the exchange rates thereof.

Uzzano was not the first to produce such a work. In fact, his book was largely the result of information gathered from a previous work. In the first half of the 14th century, Balducci Pegolotti, a merchant of the Florentine Bardi firm and director of the firm's branch in London (1321)⁵, produced a *corpus merceologico* of Florentine economic activity at the time (Hoschino, 1980: 65).

There is no doubt that these handbooks were important for merchants. Economic operators interacted with complex and distinct realities, something that would require comprehensive knowledge (Dini, 1980: 65-66). However, it took until the second half of the

⁴ Ventura, G. F. P. (ed.) (1765-66), *La Pratica della Mercatura scritta de Giovanni di Antonio da Uzzano nel 1442*, vol. IV, Lisbon-Lucca. The book can be consulted in Google Books.

⁵ Allan, E. (ed.) (1936), *Francesco Balducci Pegolotti: La pratica della mercatura*, Cambridge: The Mediaeval Academy of America.

15th century for the first manual to appear containing information on the organisation of account books, and on how entries should be recorded. This manual was written in 1458 by Benedetto Cotrugli, a member of a family of merchants established in Ragusa (today Dubrovnik). It was called *Della mercatura et del mercante perfetto*.⁶ The chapter within it dedicated to bookkeeping is considered the earliest known written description of the double entry method (Hernández Esteve, 1992: 87-90). At the end of that century (1494), Luca Pacioli, one of the most prominent abacus masters of his time, published the broadest and most complete definition of the double entry method, earning him the title of father of modern accounting: the chapter *De Computis et Scripturis*, in his book *Summa de Arithmetica, Geometria, Proportioni et Proportionalità* (Hernández Esteve, 1994a: *passim*).⁷

The documentary records of Tuscan trading firms from the 14th and 15th centuries show us the introduction, application and development of double entry. Two of the largest of these firms, both family-owned businesses, went bankrupt before the end of the first half of the 14th century: the Bardi, whose surviving records show incipient traces of the application of the double entry method, and the Peruzzi, where the introduction of this method could already be found (De Roover, 1956: 128-30; Goldthwaite, 2011: 453-4).

The Datini firm (1360-1410) was one of the most prominent of its time. Its extensive documentary collection gives us an excellent perspective on the transition from simple entry to double entry bookkeeping (De Roover, 1956: 139). Governed by one man, Francesco di Marco Datini, the firm had branches in several European commercial cities that worked closely with the head-office in Prato. This type of structure influenced its accounting organisation, especially as regards the importance attached to balance accounts and inventories of the firm's various branches (Houssaye Michienzi, 2016: 124). The Datini firm used double entry from no later than the early 1380s. As was the custom in Tuscany, it did not have a journal of the Venetian type dedicated solely to recording entries to be made in the ledger. Instead, entries were posted to the ledger from various account books, principally the *memoriale* (day book) but also others including the *ricordanze*, *entrata e uscita* (cash book), and the *mercanzia* (merchandise book), (see, for example, Kuter et al., 2017).

The documentary collection of the Salviati trading group, active from the 14th to the 17th century in Italy and abroad, adopted a different structure. Its many account books do not solely concern one single trading firm with branches in the major European markets, but also refer to personal accounting records of private individuals and other trading firms set up by different members of the Salviati family. However, despite this difference, from the point of view of the organisation of account records, these are similar business organisations in which the use of the double entry method is evident (Houssaye Michienzi, 2016: 124). In the case of the Salviati, this was not only the case in the ledgers of its banks in Pisa (since 1440) and Florence (since 1441), it was also implemented a few decades earlier in the family's woollen business (*bottega della lana*) (Carlomagno, 2009, I: 430-2).

The Medici Bank (1397-1494) and the Cambini Bank (1400-1494) are two other important Florentine family businesses worthy of note. The oldest Medici double entry account book dates back to 1395 but it belongs to a member of another branch of the Medici family,

⁶ Alan Sangster published a facsimile edition of the copy of the Cotrugli treatise kept in the national Library of Malta: Sangster, A. (ed.) (2014), *Libr. XV: Cotrugli and de Raphaeli on business and bookkeeping in the Renaissance*, Stirling: Lomax Press.

⁷ The chapter *De Computis et Scripturis* is translated into Castilian and published in this study by Hernández Esteve.

different from that associated with the Medici Bank (De Roover, 1970: 141). However, the documentation available indicates that the Medici Bank was using double entry in 1427 (De Roover, 1970: 141). To maintain control over their extensive network of businesses and branches, as was the case in the Datini organisation, the managers of the Medici Bank's branches had to send to the head-office an annual balance account of their activity, making it necessary to record the transactions in the books according to the double entry method (De Roover, 1970: 144-5, 151). These balance accounts were used by the Medici to have more financial control of their branches (De Roover, 1956: 151). As regards the Cambini Bank's activity, we find a clear demonstration of its business records prepared according to the double entry system as far back as 1427 (Tognetti, 1999: 9-11).

In both companies we find transactions posted in double entries, organised into debits and credits, as well as a hierarchical and articulated system of multiple account books, including the primary account book, the ledger – *mastro* or *libro di debitori e creditori* – and preparatory record books, such as the cash book, receipts and payments book, exchange book, etc.

We can see that between the late 14th century and throughout the 15th century the use of the double entry method was a common practice in Tuscan trading firms, though the way in which it was maintained was still developing and varied between them as innovations were attempted and improvements made.

2. The Italian presence in Portugal in the late Middle Ages

The strong presence of Italian merchants in Portugal in the late Middle Ages and the important role they played in the economic development associated with the times of the Iberian expansion is well known. Although the Genoese first arrived in the 13th century, the Italian community increased considerably in the 14th and 15th centuries.

In 1338, King Afonso IV granted a safe conduct to the agents of the Bardi, applicable by extension to all Florentine merchants established in Portugal. This safe conduct ensured their goods were secured, gave them authorisation to enter and leave the kingdom, and gave them the right to elect a consul to rule on their cases (Alessandrini, 2003: 63-4). This privilege constitutes an important testimony of the beginning of the relations between Portugal and the city of Florence, which would bear fruit in the following century (D'Arienzo, 2003: 515). It also demonstrates the more noticeable presence of this community in Portuguese territory.

Although Florentines settled in Portugal later than the Genoese, they sought from the outset to have correspondents or agents in the markets that were beginning to stand out during this period of European maritime expansion: Lisbon and Seville (D'Arienzo, 2003: 550). Relations between Portugal and Florence became increasingly closer with the granting of privileges by Duarte, the Portuguese king, in the 1430s, which Florence thanked him for in a letter sent to the Portuguese monarch. According to Luisa D'Arienzo, this document reflects the good relations that Portugal and Florence maintained at both political and economic levels and, also, at a cultural level (2003: 550-1). The exchange of correspondence between the two states intensified in the 15th century, especially when Cardinal D. Jaime, a member of the Portuguese royal family, stayed in Florence, where he died at the home of the Cambini merchant-bankers on 28 August 1459 (Alessandrini, 2003: 65; Costa-Gomes, 2017).

Italian merchants were attracted to Portugal for its abundant food supply (wine, olive oil, honey, salt, fish) and raw materials essentials for the development of Tuscan industries (hides and dyeing products). From 1470 onwards, a new product was added to the traditional mix: sugar from Madeira. Moreover, Portugal was also an important consumer market for

luxury goods, thanks to the expansionist endeavours that led to newly acquired wealth by aristocrats and the bourgeoisie (Sequeira, 2014: 153-60).

One of the firms that established important trading activities with Portugal between 1444 and 1481 was the already mentioned Cambini (D'Arienzo, 2003: 555; Tognetti, 1999). Bartolomeo di Iacopo di Ser Vanni, Giovanni Guidetti and Bartolomeo Marchionni were their main correspondents in Lisbon throughout the 15th century (Bruscoli, 2014; Rau, 1971, 1974; Tognetti, 1999). In addition to trading in food products and raw materials, the firm bought slaves in Lisbon (Tognetti, 1999: *passim*; Bruscoli, 2014: 111-23), while supplying the Portuguese city with Italian products: wool and silk fabrics, gold thread, jewellery, law books (bought in Bologna), spades, steel, glasses, relics, and breviaries, etc (D'Arienzo, 2003: 560-1; Tognetti, 1999: 184, 243). For these reasons, the Cambini were favoured by the Portuguese political and ecclesiastical elites, who often used its banking services (Rau, 1971: 101-4; Tognetti, 1999: 293-4).

Products were not the only thing that attracted foreign merchants. The conditions offered in Portugal were actually quite attractive. Throughout the 15th century, the Portuguese Crown initiated a policy of granting trading rights to merchants outside the kingdom, especially to German and Italian merchants (Rau, 1968). These rights included some tax exemptions and the granting of monopolies to exploit and/or trade some more profitable goods. This policy enabled the Crown to have immediate access to funds to support ongoing military operations in Northern Africa and expeditions in the Atlantic (Sequeira and Miranda, 2019: 343; Rau, 1968). According to Virgínia Rau (1968: 16), the granting of privileges was a form of attracting foreigners and, consequently, promoting the marketing of local produce.

Several Italian merchants achieved a prominent role in Portuguese society, earning the trust of the king and heading some of the country's most profitable expansion-related businesses, as was the case, for example, of Bartolomeo Marchionni who even obtained a letter of denization⁸ (D'Arienzo, 2003: 567-8; Bruscoli, 2014: 11, 201-2).

This context of economic growth and expansion of the Florentine community in Lisbon was the background in which the Salviati-Da Colle firm made its first dealings in Portugal.

3. The Salviati - Da Colle firm and the opening of its branch in Lisbon

The Salviati-Da Colle firm was part of the large Salviati group. It opened its business in Pisa in 1445 (Table 1) as a small trading company led by brothers Iacopo and Giovanni Da Colle, both from the Colle di Val d'Elsa region of Tuscany, where they owned a paper production plant. The trading of this product was the seed for their international businesses. Little by little, they began trading in other goods. In 1450, they established their first commercial contact with Portugal by taking part in a Florentine silk fabric export business together with other merchants established in Lisbon. In 1452, the brothers split their assets and Iacopo remained alone at the helm of the firm. A few years later he was joined by his sons Michele di Lippo Da Colle and Girolamo di Lippo Da Colle. It is at this time that relations with Portugal intensified. The Da Colle brothers used Italian correspondents settled in Lisbon to import Portuguese and Irish hides, *kermes vermilio* (red dye), salt and tallow, and to export paper and silk fabric (Berti,

⁸ Denization was a process by which an alien became a denizen through letters patent. This legal instrument allowed the alien to obtain certain rights normally enjoyed only by the king's subjects. In the case of Marchionni, the Portuguese king granted him the same rights that the naturals benefited from and these were extensive to his person and merchandise (Bruscoli, 2014: 11).

1994: 57-75; Sequeira 2015b: 48-49; Cardoso, 2016: 45).

The firm then expanded towards the Iberian market, and one of its members, Michele Da Colle, left Pisa to settle in one of the Iberian trading markets, thereby doing away with the need for correspondents. Sending young agents temporarily abroad was a common practice at the time, serving as a kind of “traineeship” to perfect negotiating skills (Tognetti, 2013: 15). The young merchant Michele settled in Valencia around 1457, where he remained for about five years (Sequeira, 2015b: 48-9; Cardoso, 2016: 216). During that time, he worked as an agent for the Da Colle and the Neroni and worked to consolidate a trading network to support his business in future years. In late 1461, Michele left Valencia and headed to Lisbon, strategically stopping over in Seville, Cadiz and Tavira to secure important contacts (Sequeira, 2016: 175; Cardoso, 2016: 46). He finally arrived in Lisbon in February 1462, the year in which he opened a branch of the Da Colle firm in Portugal. We know this was an inauguration of a new business because Michele labelled his account books with the letter “A”, which indicates that this was the first set of account books and, therefore, the beginning of the business (Sequeira, 2015a: 26).⁹ Three years later, his father Iacopo also moved to Lisbon to jointly manage the branch with Michele, while Michele’s brother, Girolamo Da Colle, ran the business from Pisa (Berti, 1994: 98-104).

During his stay in Portugal, Michele, first on his own and then joined by his father, dedicated himself to trading in Lisbon in Florentine wool and silk fabrics and Aragonese silk, and exporting hides and *kermes vermilio* (red dye) to Italy (Sequeira, 2015b and 2018: *passim*; Cardoso, 2016: *passim*). At the same time, he was actively engaged in financial activities, as evidenced by a significant flow of bills of exchange that are recorded in his account books, which mention the names of high-profile members of the Portuguese aristocracy and of the high clergy (Cardoso, 2016: 113-33). His accounting records also provide us with details of his presence in Lisbon: his house, his servants, his staff and his personal expenses.

We know that Michele returned to Pisa in 1475 and that his father Iacopo had died in Portugal (Berti, 1994: 98-104). Thus ended 13 years of continuous activity in the Lisbon market. Table 1 shows the timeline for the firm’s activities.

Table 1 – Chronology of the Da Colle firm (1445-1475)	
1445	First news about the Da Colle firm (partners: brothers Iacopo and Giovanni Da Colle).
1450	First contact of the Da Colle firm with Portugal.
1452	End of the partnership between Iacopo and Giovanni Da Colle. Iacopo kept the Da Colle firm with his sons Michele and Girolamo.
1457	Michele establishes himself in Valencia as an agent of the Da Colle firm and of the Nerone firm of Pisa.
1461	Michele Da Colle leaves Valencia to travel to Lisbon.
1462	Michele establishes the branch of the Da Colle firm in Lisbon.
c. 1464-5	Iacopo Da Colle joins Michele in Lisbon. Girolamo now runs the agency in Pisa.
c. 1475	After the death of his father in Portugal, Michele Da Colle returns to Pisa and closes the Da Colle business.

⁹ Benedetto Cotrugli recommended that merchants should catalogue their books sequentially with the letters of the alphabet, to make it easier to identify the period of activity to which they related (Hernández Esteve, 1992: 96).

Although the turnover of the Da Colle cannot be compared to that of other Tuscan firms operating in Portugal at the same time, such as the Cambini, one unique feature for modern scholars is that many of its account books survived, two of which were maintained by the Lisbon branch, having been written in Portugal. This study focuses precisely on these two books.

4. Michele Da Colle's account books and the double entry method¹⁰

Michele recorded his accounts in three books between February 1462 and November 1463: the *debitori e creditori* (or *mastro*= ledger), the *ricordanze*, and the *quaderno*, but only the first two have survived (Figure 1).¹¹ These books correspond precisely to the period in which Michele settled in Lisbon, before the arrival of his father Iacopo. These are truly exceptional documents since no other account books of Portuguese merchants from the Middle Ages, or even of foreign merchants operating in Portugal, are known to have survived.

The opening folio of the two surviving account books bear the wording *IN LISBONA* in the heading preceded by a reference to the year. Written by Michele himself in a type of lettering identified as *merchantesca*, these books are 28 centimetres long and 22 wide, both bound in parchment (Sequeira, 2015a: 27). The ledger has 167 folios, while the *ricordanze* has 122 folios¹². While the physical characteristics of the latter are the same as those of other similar books in the Salviati archive, the same cannot be said of the ledger, in particular as to its size and type of binding. The size of the other ledgers of the Salviati-Da Colle documentary collection is considerably larger (c. 40x29 cm) and their bindings in leather are thicker and more rigid. It can therefore be assumed that Michele's books had these specific characteristics so that they could easily accompany the merchant on his travels along the Iberian southern coast.

¹⁰ The analysis of whether the double entry method characteristics are present in Michele Da Colle's account books results from an investigation work conducted by the authors and perfected over several years. Joana Sequeira has stated that Michele Da Colle's books could be considered the earliest example of double entry bookkeeping in Portugal (2015a: 27-28), but has not given sufficient details to support this statement. Ana Clarinda Cardoso, in her unpublished Master's thesis (2016: 57-64) on this merchant's trading activity, made an exploratory approach to some of the characteristics of the double entry method in this merchant's books, albeit incomplete and with some errors of analysis. These first approaches were negatively influenced by the fact that the authors are historians with very superficial knowledge in the scientific field of Accounting. Thereafter, the authors committed themselves to study reference works in the field of the History of Accounting and engaged in a systematic and thorough analysis of the records so as to fully understand how it works and to identify the correspondence of values between the *Debit* and *Credit* columns. The analysis presented herein results from this arduous research, which enabled the definite, rigorous and erudite identification of how the different characteristics of the double entry method were applied in these account books of 1462-1463.

¹¹ Archivio Salviati (AS), *Serie I - Libri di Commercio, Da Colle e Salviati. Giovanni da Colle e Averardo di Alamano Salviati, di Banco in Lisbonna*, reg. 7 and reg. 8.

¹² The book *debitori creditori* (reg. 7) is filled in up to sheet 59, whereas the *Ricordanze* (reg. 8) is filled in between folios 1 to 18v and 60 to 80v.

Figure 1 – Account books of Michele Da Colle (1462-1463)

Archivio Salviati (AS), Serie I, Libri di Commercio, Da Colle e Salviati. Giovanni Da Colle e Averardo di Alamano Salviati, di Banco in Lisbonna, reg. 7 and reg. 8. On the left, the *debitori e creditor* book (ledger), and on the right the *ricordanze* book (with the “giornale” included).

It is quite probable that the paper used in these books was produced by Da Colle itself or by another partner firm in the Colle di Val d’Elsa region (Sequeira, 2015a: 27). In the opening folio of each of the books the merchant also explains to whom they belong (*questo libro e di me Michele Da Cholle* = this book belongs to me, Michele Da Colle) and he also adds his merchant symbol (*segno*) in the *ricordanze*. As regards its internal organisation, the *debitori e creditor* records the debit and credit entries to 68 current accounts (50 personal, 11 for expenses, 5 for merchandise, one for cash, and one for profit and loss) between February 1462 and November 1463. The *ricordanze* book, directly related with the *debitori e creditor*, is divided into four parts: the first one corresponds to the “giornale”; the second part contains copies of bills of exchange; the third part contains groups of various notes and copies of accounts; and the fourth part contains records of commissions charged. Let us now examine the characteristics of the account books from the perspective of the use of the double entry method. We begin by stating the requirements of the double entry method, in line with the proposals by various authors, in order to compare each one of them with Michele Da Colle’s records. Table 2, in the Appendix, presents a summary of the characteristics of the double entry method and marks as positive, partial or negative if they have been verified in the mentioned merchant’s books.

The main characteristic, considered as the basic principle, of double entry bookkeeping is that entries are made twice in the ledger: once to debit and once to credit, that is, each record under debit must correspond to a credit (Besta, 1922, t. III: 328-29; De Roover, 1937: 270 and 1956: 114; Melis, 1950: 435; Hernández Esteve, 2005: 95, 120; Antinori, 2004: 18; Goldthwaite, 2015: 614-15). Given that each debit corresponds to a credit, each entry must indicate the reference to its corresponding entry (Besta, 1922, t. III: 328-29; Hernández Esteve, 2005: 121; Goldthwaite, 2015: 614-15). This record, in turn, must mention the date of the transaction, the amount in full and in numbers, and a brief description of the transaction (Antinori, 2004: 18; Hernández Esteve, 2005: 121; Goldthwaite, 2015: 615). All these characteristics are undoubtedly present in Michele's account books, as can be seen, for example, from the record in the ledger of the sale of silk fabric to Rui Galvão (Figure 2, in the Appendix), which we transcribe below:

[Ledger, c. 48 left]
[Dare]

*Rui Galvon de[ve] dare a dì XXVIII^o di
gen(n)aio R^a mille cinquecento e sono
p(er) covod(i) III d(i) domaschin(n)o
nero avuto da noi a R^a 500 covodo fino
a d(i) XIII^o di magio posto drapi di seta
avere in q(uest)o a c(arta) 19*

R^a I^m D¹³

[Ledger, c. 19]
[Avere]

*Drapi di seta di ragio(n)e di Neroni di Pisa
c(on)segnato mi Francesco Giuntini
de(von)o av(er)e [...]
(3) E a d(i) XXVIII^o di gen(n)aio R^a mille
cinquecento p(er) loro da Rui Galvon p(er)
covod(i) III di domaschino nero a R^a 500
covodo posto lui dare in q(uest)o a 48*

R^a I^m D¹⁴

As we can see, the transaction is recorded twice: in the personal account of Rui Galvão (as a debit) and in the account of silk fabric merchandise of the Nerone company of Pisa (as a credit). All the form requirements are also fulfilled: date (28th January), amount in full and in numbers, and a brief description (sale of 3 *covodi* of black damask at 500 *reais* per *covodo*¹⁵), and a cross reference to the contra entry.

The columns *Debit* and *Credit* must be perfectly differentiated, arranged in two opposing sections (Besta, 1922, III: 328-29; De Roover, 1937: 270; Melis; 1950: 435, 444; Antinori, 2004: 18; Hernández Esteve, 2005: 117-18, 121; Goldthwaite, 2015: 616), in the form of a “T”, with the debits on the left side and the credits on the right side and the references to the contra entries included, all of which is present in Michele's ledger (Figure 3 in the Appendix).

In addition, the sum of the *debits* and *credits* must match (De Roover, 1937: 270-71; Hernández Esteve, 2005: 121). This is the case in Michele's ledger: when we, the authors of this article, added-up the amounts of all the entries under the *Debit* column and all the entries

¹³ Reproduced in Figure 2 (2nd fragment). AS, *Serie I – Libri di Commercio, Da Colle e Salviati...* reg. 7, c. 21. “Rui Galvão, debit on the 28th day of January, one thousand five hundred *reais* for 3 *covodi* of black damask at 500 *reais* per *covodo* that he received from us, until 14th day of May, posted to the account for silk fabric belonging to Nerone di Pisa as a credit in this book on page 19” (our translation).

¹⁴ Reproduced in Figure 2 (3rd fragment) AS, *Serie I – Libri di Commercio, Da Colle e Salviati...*, reg. 7, c. 19. “Silk fabric belonging to Nerone di Pisa delivered to me by Francesco Giuntini credit (...) And on 28th day of January one thousand five hundred *reais* from Rui Galvão for 3 *covodi* of black damask at 500 *reais* per *covodo*, posted to debit in his account in this book on page 48” (our translation).

¹⁵ *Covodo* is *côvado*, in Portuguese, and it was a measure used for fabrics, equivalent to 66 cm. *Real* was the Portuguese coin at the time.

under the *Credit* column, both totalled 1,875,667 *reais*.¹⁶

The existence of double entry alone is not sufficient to confirm the existence of a firm-wide double entry accounting system. An articulated set of books is required (De Roover, 1956: 128-9; Goldthwaite, 2011: 91-2; Houssaye Michienzi, 2016: 124-5), including (1) a summary accounting record (*libro mastro, debitori e creditori, libro grande*, that is, a ledger) and (2) an analytical or preparatory record, the *giornale*, that is, the *journal* (De Roover, 1937: 270; Antinori, 2004: 18; Hernández Esteve, 2005: 121) in Venetian double entry; or, in Tuscan double entry, a day book (*memoriale, ricordanze*), a cash book (*entrata e uscita*), or any other book(s) that, together, act as the sources for entries in the ledger. Michele's books includes a summary accounting record, which he calls *debitori e creditori* (ledger) and a *ricordanze*. He labels the first of the four sections of his *ricordanze* as "giornale". Although it cannot be considered a *journal* in the Venetian sense, it was a book to record each day's transactions, a day book. We will use here the designation of "giornale" since it is the term applied by the merchant:

*Da charte c. 1 a charte LX si fara richo(r)do dele p(ar)tite si fara ala gio(r)nata che si dice gio(r)nale*¹⁷

The analysis of the "giornale" shows that transactions were recorded in chronological order, including a reference to the day of the month and of the week, as we can see in Figure 4 (in the Appendix). In this "giornale", Michele uses the terms *a* for credits and *da* for debits. He also uses other words like *trattamo, vendemo, scrivemo, ricevemo, disomi e compramo*, in the beginning of the entries, which not only help to identify the accounts to be debited or credited but also helped to distinguish the different type of transactions.¹⁸

Trading involves an exchange of goods or services for something. This information is included in the entry made in the journal/source book from which two entries are then posted to the ledger (De Roover, 1937: 270; Melis, 1950: 435; Antinori, 2004: 18; Hernández Esteve, 2005: 111). In other words, for each transaction in the source book ("giornale") there must be two in the ledger. All but two transactions recorded by the merchant in the "giornale" were posted as a debit and a credit to the ledger (see, for example, the entries for the transaction shown in Figure 2 in the Appendix). Michele also noted the pages of the entries in the ledger on the left side of each entry in his "giornale" (see Figure 4, in the Appendix)

For the two transactions recorded in the "giornale" that do not appear in the ledger, no indication was given in the *ricordanze* of where any subsequent entry was made. One of them is for alms of 450 *reais* given to a Dominican friar.¹⁹ This entry is highlighted in Figure 4 in the Appendix. The other entry concerns merchant Marco Lomellini, who paid 2,372 *reais* to a "man of *Dom Gratia*".²⁰ The record is somewhat unclear and we cannot determine to what it refers

¹⁶ This amount in Portuguese *reais* was equivalent to c. 8931 to 9378 florins from Florence. For more detailed information on exchange rates please check footnote nr. 24.

¹⁷ "From sheet 1 to sheet 60 we shall record the transactions made on each day and this is called journal" (our translation). AS, *Serie I – Libri di Commercio, Da Colle e Salviati...*, reg. 8, opening folio.

¹⁸ The terms *trattamo, disomi* or *ricevemo* are used in the transactions of bills of exchange (Cardoso, 2016: 61).

¹⁹ AS, *Serie I – Libri di Commercio, Da Colle e Salviati...*, reg. 8, fl. 17v.

²⁰ Transcription of the transaction: "A lui [Marco Lomellini] detto R^a dumila trecento setanta due per lui a uno huomo di don Gratia chome dixo Antonio Lomelini portò lui detto chontanti – R.^a II^m CCC LXX II" (AS, *Serie I – Libri di Commercio, Da Colle e Salviati...*, reg. 8, fl. 9).

or what the role of Michele in this transaction is. He wrote what seems to be the letter “h” in the place beside the entry in the “giornale” where the page numbers in the ledger would have been noted. Pacioli’s manual (1494: chapter 36) recommends using the symbol ‘H’ or a cross when the merchant needs to cancel an entry posted in the ledger by mistake. So, this ‘h’ that we found in the “giornale” may indicate that the entry was made inadvertently and that it should be ignored. Despite this, these two entries may both simply be notes of something Michele felt he should record so that he could remember them but did not consider them relevant to his affairs. Such notes were typical of what may have been recorded in a *ricordanze* and we must bear in mind that the section he labelled as “giornale” was more a day book within the Tuscan tradition rather than a Venetian journal.

The features of a *ricordanze* have seldom been the subject of study of researchers of medieval accounting, even though it is mentioned by both Benedetto Cotrugli and Luca Pacioli (Sangster et al., 2012: 37). The *ricordanze* served for the merchant to record his businesses, valuable and auxiliary information for the day book (“giornale” or other) and ledger, and also other matters that could not be forgotten. It was a type of diary or notebook which the merchant consulted almost on a daily basis, that included reminders about future business and transactions (Sangster et al., 2012: 29-33). Michele Da Colle’s *ricordanze* meets these requirements and characteristics.

In it, we find a section containing copies of bills of exchange, especially those in which Michele is the payer, and also copies of contracts pertaining to the Portuguese and Irish hides trade, which would take place in the future and, consequently, are not included in the transactions recorded in the “giornale” and ledger (Cardoso, 2016: 59-60; Sequeira, 2018: 133). The different sections of the *ricordanze* function independently and are often linked to the ledger. On several occasions, for example, in the ledger the merchant refers to different parts of the *ricordanze* (with cross references), in particular regarding bills of exchange or transport and storage costs of goods. In Figure 5 (in the Appendix), we can see the entry relating to the transport of goods belonging to the Bishop of Coimbra, D. João Galvão, which is recorded in the ledger and in which reference is made to a folio in the *ricordanze*, containing a detailed list of the expenses relating to that same transport. The record in the *ricordanze*, in turn, refers to the Bishop’s account in the ledger. Thus, the above assumption that there is a hierarchical, articulated and interdependent set of books is fulfilled.

Several authors mention the need for different types of accounts (Melis, 1950: 438-9; De Roover, 1937: 270-1 and 1956: 114; Yamey, 1991: 169-70; Hernández Esteve, 2005: 120; Goldthwaite, 2015: 630-1), but De Roover was the one who best clarified the idea, defining the existence of five types of accounts: personal, asset, expenses, profit and loss, and capital accounts.

Personal accounts represent the majority of the accounts in the ledger (50 in a total of 68). There are also various types of account holders: Italian merchants established in Iberian trade markets (Lisbon, Tavira, Valencia, Barcelona, Cadiz, Seville), Tuscan firms, members of the Portuguese high clergy and aristocracy, Portuguese royal employees, Iberian merchants (Christians and Jews), skippers, etc. (Cardoso, 2016: *passim*).

Asset accounts (cash account, goods accounts) are also included, among them the various accounts relating to commodities traded by Michele in Lisbon, which are part of the firm’s assets. There are also accounts relating to Sesimbra’s *kermes vermilio* (red dye), silk and

wool fabric, among others.²¹

As for expenses, we find records of accounts relating to Michele's expenses while he stayed in Lisbon, identified as *spese di casa a minuto* (small household expenses) and *maserizie di casa* (household equipment), including bed sheets, a desk, and other household objects.²² There are also expenses relating to certain commodities and a record relating to transport, that is, expenses associated with the purchase and maintenance of a mule and a horse.²³

Finally, there is an *Avanzi e Disavanzi*²⁴ account that corresponds to an ongoing account of profits and losses in which the merchant takes stock of his trading activity. It should be noted that this is an interim rather than a final account. Several authors argue that the presence of a balance sheet, separating profits and losses, as well as of an account pertaining to home expenses is a sign of sophistication in the accounting technique and demonstrates a profound knowledge of how to apply the double entry method (Yamey, 1991: 176; Goldthwaite, 2015: 631).

Of all the five accounts listed by De Roover, only the capital account does not exist. Although this account is an important factor, according to more recent authors it is not critical for a record to be considered an example of the use of double entry bookkeeping, provided that the use of the other requisites is verified (Hernández Esteve, 2005: 113).

While the variety of types of accounts is fundamental, their articulation is no less important (Goldthwaite, 2011: 91-2). This is also a visible characteristic in the records under review. Returning to the example of the sale of silk fabric to Rui Galvão (Figure 2, in the Appendix), the transaction implied entries in two types of different accounts: one personal account (pertaining to Rui Galvão) and a merchandise account (silk fabric). Figure 5 in the Appendix shows another example.

It is also essential that the records of the amounts are made in the same currency unit throughout the entire book. This does not alter the fact that the summary description refers to other currencies involved in the transaction, but it is imperative that the column containing the amount in cash be in the same currency (Besta, 1922, t. III: 328-9; Melis, 1950: 435; De Roover, 1956: 137; Antinori, 2004: 18; Hernández Esteve, 2005: 121; Sangster, 2018: 308). In Michele's books, records are always made in the Portuguese currency, the *real*. In the description, the merchant often refers to other currency units used in the transactions, always taking care to make the exchange to *reais* and mentioning the rate thereof.²⁵ The numbers are always organised into columns. As regards quantities, these constantly appear to the left of the record (Figure 2, 3rd fragment, in the Appendix). In the case of monetary values, these appear to the right of the record (Figure 6, in the Appendix). When it was necessary to record transactions in a foreign money of account in addition to the money of account used by Michele,²⁶ two money columns were maintained in the ledger, the first containing the foreign money of account (in Hindu-Arabic numerals) and the second in the money of account used in

²¹ AS, *Serie I, Da Colle e Salviati ...*, reg. 7, c. 19, 35, 47, 48, 49, 51.

²² AS, *Serie I, Da Colle e Salviati ...*, reg. 7, c. 26, 37.

²³ AS, *Serie I, Da Colle e Salviati ...*, reg. 7, c. 4, 9, 25, 29, 40, 53, 59.

²⁴ AS, *Serie I, Da Colle e Salviati ...*, reg. 7, c.11.

²⁵ The analysis of all the transactions made by Michele allows us to identify some exchange rates. So, in 1462-63, in Lisbon, one florin (Florence) was equivalent to 200-210 *reais*, one *fiorino di sugello* (Florence) to 150-220 *reais*, 1 *libra* (Valencia) to 300-400 *reais*, and 1 *maravedi* (Castille) to 230 *reais*. (Cardoso, 2016: 194-97)

²⁶ Two columns for different moneys of account was often used when recording activities involving agents located elsewhere.

the rest of the book (in Roman numerals). This can be seen in Figure 6, in the Appendix. This visual organisation also enables a quick and distinct reading of the thousands, hundreds, dozens and units. Several of these visual organisation principles are listed in the already mentioned handbook by Benedetto Cotrugli (Hernández Esteve, 1992: 93).

Concerning other formal aspects, some authors argue that the use of vernacular language is a characteristic of double entry records (De Roover, 1956: 138; Antinori, 2004: 11). Michele's books are no exception, since they are written in Italian. As for the folios or blank spaces, the rule determines that they should be rendered useless or scored through (Hernández Esteve, 2005: 119-22; Goldthwaite, 2015: 616). As we can see in Figure 7, in the Appendix, blank spaces were scored through.

Finally, some formal aspects are not found in Michele's books: the sum of the debits and credits at the end of the folios, the opening balance, and the final balance (De Roover, 1956: 114, 119; Yamey, 1991: 176; Hernández Esteve, 2005: 121; Goldthwaite, 2015: 628). Michele balanced some accounts at the end, but not all of them. The absence of an opening balance is consistent with the other surviving 15th century account books pertaining to the Salviati group. At that time, the final balance was not as important as it was later. Balance accounts, which were a list of the balances on all accounts at a point in time, were not intended to provide financial information that today we see in balance sheets. Instead, they served purely accounting purposes related to the opening and closing of a ledger (Yamey, 1991: 183; Goldthwaite, 2015: 628). The lack of a closing balance in Michele's ledger may be explained by the fact that the accounts were not closed and that balances were not, apparently, carried forward to another book. Also, in Portugal there was no equivalent of the Florentine *catasto*²⁷ which would have required that some form of statement of wealth was prepared.

Having analysed the characteristics of Michele's ledger and *ricordanze*, it can be concluded that this is an example of double entry bookkeeping, which, although not completely complying with the requirements in the literature, is consistent with Tuscan accounting procedures at the time. Over the years, Michele perfected his accounting skills, which led him to be hired in 1481 by the Salviati Bank of Florence to draft, together with others, the famous *libro stella*, considered one of the masterpieces of 15th century accounting (Carlomagno, 2009, I: 31; Scherman, 2013).

5. Before and after Michele: the possible Italian influence in the introduction of double entry in Portugal

In 2011, Miguel Lira revived the debate on the Italian influence on the introduction of the double entry method in Portugal. Having analysed in detail the position of various authors and attentively reviewed the historiography on Portuguese-Italian relations between the 13th and 16th centuries, he concluded that "the method of double entry bookkeeping has been observed in Portugal since the late 15th century, for which the direct or indirect involvement of Italian republics was decisive"²⁸ (Lira, 2011: 64). The discovery of Michele Da Colle's books provides evidence that corroborates this statement, which was already recognised by Miguel Lira in another article co-authored by Miguel Gonçalves and Maria Conceição Marques (2017: 126).

Having confirmed Lira's hypothesis, we need to question if observation of the use of the double entry method by Italian merchants would have been sufficient to influence the

²⁷ The Florentine *catasto* was introduced in 1427 as a levy on revenue and property (De Roover, 1956: 152-3).

²⁸ Our translation.

Portuguese. We know that Michele engaged closely with prominent Portuguese figures, from clergymen to nobles and merchants, both Christians and Jews. Particularly noteworthy among these are Lopo Afonso and Lourenço Caldeira, with whom Michele signed two contracts for the marketing of Portuguese and Irish hides (Sequeira, 2018: 133). Both engaged in trade, not only with the Da Colle but, also, with other Salviati group firms, in particular the Nerone of Pisa.²⁹ One of the accounting books of the latter contains particularly interesting information in Lopo Afonso's account.

A royal officer since 1426 and a member of the Royal Council since 1455, Lopo Afonso was a prominent figure who held various positions (private secretary to the king, chief notary, public prosecutor, meat tax collector, diplomat, member of the Royal Council) and circulated within the Italian sphere of finance (Tognetti 1999: 243; Gomes, 2006: 101-2, 119; Dominguez, 2013: 414; Cardoso, 2016: *passim*; Costa-Gomes, 2017: 522). The account books of the Nerone of Pisa contain a record from 1461 that documents the purchase made by Lopo Afonso of 2 *libri grandi da scrivere da banco chon copertine di cuoia* (2 large bank books with a leather bonding) from a *cartaio* (paper manufacturer and/or seller).³⁰ Note that the expression *libro grande* is used as a synonym for *libro mastro* or *libro debitori e creditori* (Edler, 1934: 159-62). The entry also indicates that it concerns bank books, which allows us to say that Lopo Afonso was indeed buying two ledgers. We cannot guarantee that these books were for his own use or, even if they were, that this would imply use of the double entry method. It is, however, a sufficiently strong indication that allows us at least to question whether a Portuguese businessman was copying the practice of merchants with whom he dealt regularly, using the same type of books and possibly the same bookkeeping system.

But there is more evidence. We also know that on 30th March 1462 Lopo Afonso paid 58 florins for his grandson's/nephew's³¹ stay at the home of Iacopo Da Colle (Michele's father) in Pisa. According to the documents, this young man, who is affectionately identified with a nickname (*Lopigno*), stayed there for 25 months. What was this young man doing at the home of Pisan merchants? *Lopigno* was also involved in hides and tallow business with the Nerone of Pisa.³² A short stay could easily be explained following a goods shipment but, as he stayed for more than two years, we are inclined to believe that what he was doing in Pisa was the same as Michele was doing in Lisbon: a type of 'traineeship'. The prolonged interaction with Iacopo would have allowed him to come into close contact with his bookkeeping methods and, perhaps, to put them into practice. As we have said before, this information is nothing other than small evidence relating to a one-off case. It is quite probable that some Portuguese directly involved in the business sphere who interacted with Italian merchants learned about the double entry method and applied it in their own records. However, no account books of Portuguese merchants from the 15th or 16th centuries have been found to date that show us whether they used the single or the double entry method.

²⁹ Some documentary examples available in: AS, *Serie I – Libri di Commercio, Neroni e Salviati. Francesco Neroni e Averardo di Alamanno Salviati di Banco in Pisa*, reg. 20, c. 9, 20, 45, 73, 79, 100, 152, 185, 191, 215, 230, 236.

³⁰ AS, *Serie I – Libri di Commercio, Neroni e Salviati. Francesco Neroni...*, reg. 20, c. 191.

³¹ The term used in the documents is *nipote*, which in Italian has the double meaning of nephew and grandson. AS, *Serie I – Libri di Commercio, Neroni e Salviati. Francesco Neroni ...*, reg. 20, c. 236.

³² AS, *Serie I – Libri di Commercio, Neroni e Salviati. Francesco Neroni...*, reg. 20, c. 185 e 236. The account books from Nerone's firm are the main source of Ana Clarinda Cardoso's ongoing PhD project, funded by the Portuguese Foundation for Science and Technology (SFRH/BD/130620/2017).

At any rate, if at first the Italian presence was influential, it certainly did not bear fruit in later centuries. The 16th century Portuguese arithmetic treatises are totally silent on the matter of double entries. For instance, the 1494 work by Luca Pacioli was well known by the Portuguese 16th century theorists: Gaspar Nicolas, author of the first Portuguese arithmetic treatise (1519); Rui Mendes (1540) and the Porto merchant Bento Fernandes (1555) (Silva, 2008; Barros, 2013). However, none of them show any interest in the chapter on double entry bookkeeping (*De Computis et Scripturis*) and only address the chapters on calculation and the rules of proportionality. Bento Fernandes, the first Portuguese merchant to write an arithmetic treatise, shows great knowledge of algebra, of the mercantile practices and of the Italian *abacco* tradition of the 15th century, but says nothing about the double entry method (Barros, 2013: 51).

In Portugal there are three copies of the 1494 printing of Pacioli's work. One is at the Porto Municipal Library, another is at the Lisbon National Library, and a third one is kept at the Library of Ajuda Palace, the latter belonging to the Santo Antão College in Lisbon.³³ We were able to consult these copies³⁴ and have found that they all contain annotations in several sections, but the chapter *De Computis* is immaculate and remains without any kind of annotations in all three cases. This fact corroborates the Portuguese scholars' lack of interest in innovative bookkeeping trends.

The idea that double entries were adopted, at least regularly, very late in private and public bookkeeping in Portugal remains valid. The first Portuguese bookkeeping treatise on double entry dates back to 1758 and was written by João Baptista Bonavie (Gonçalves, 2017: 31), and the Portuguese Royal Purse (*Erário Régio*) only adopted double entry bookkeeping in 1761.³⁵

Conclusion

While resident in Lisbon in the third quarter of the 15th century, Michele Da Colle, merchant-banker and member of the local Florentine community, used in Portugal a bookkeeping method that dated back to the 13th century. At that time, the method, double entry bookkeeping, was reaching maturity and was in common use by trading firms of the Republic of Florence and the other major commercial centres of Italy.

The copies of the documents analysed, from 1462-63, are an example of double entry bookkeeping based on the 15th century Tuscan "culture of accounting". Given the lack of other examples, Michele's books can be considered the earliest known example of double entry records in Portugal.

Some documentary evidence also suggests that Italian merchants may have influenced Portuguese merchants to adopt this method. For example, Lopo Afonso, royal officer and businessman, purchased what could have been double entry ledger books from a Pisan firm and

³³ Pacioli, Luca (1494), *Summa de Aritmetica, geometria, proporzioni e proporzionalità*. Venice: Paganino de' Paganini. As mentioned, there is a copy kept at the *Biblioteca Pública Municipal do Porto* [Porto Public Library] with the reference INC. 143, one at the *Palácio Nacional da Ajuda* [Library of Ajuda Palace] with the reference 48-IX-6 and another copy at the *Biblioteca Nacional de Lisboa* [National Library of Lisbon] with the reference INC. 908.

³⁴ Research in these libraries was carried out by Ana Clarinda Cardoso as part of the project *História da Contabilidade em Portugal* [History of Accounting in Portugal] (CEPESE/OCC).

³⁵ The *Regimento* [Regulation] of 22 December 1761, stipulating the adoption of the double entry method as the official account recording system, can be consulted at the *Biblioteca Digital do Tribunal de Contas* [Digital Library of the Court of Auditors].

sent one of his relatives to live with Tuscan merchants, possibly so that he could acquire technical knowledge essential to the world of business. The absence in the archives of 15th and 16th centuries books by Portuguese merchants does not, however, allow us to confirm said influence. And even if it did exist occasionally, apparently it does not seem to have lasted in the centuries that followed. The various Portuguese arithmetic treatises of the 16th century, clearly influenced by Luca Pacioli, are silent on the matter of double entry. The fact is that after Michele's stay in Lisbon it was only about three hundred years later that the double entry method was endorsed on a regular basis in Portugal.

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APPENDIX

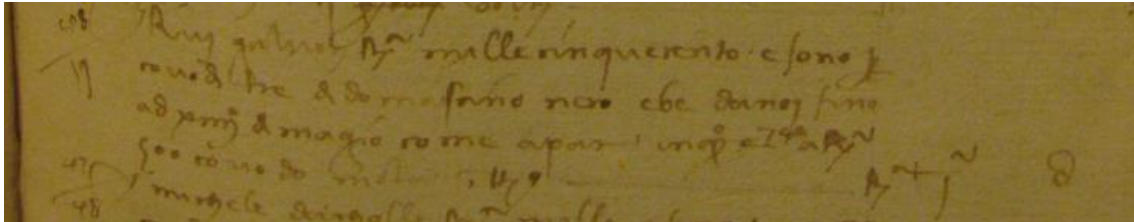
Table 2 – Presence of the basic characteristics of the Double Entry method in Michele Da Colle's account books

DOUBLE ENTRY CHARACTERISTICS	MICHELE DA COLLE'S BOOKS
Double registration of each operation (Debit and Credit) [Besta, 1922, t. III: 328-29; De Roover, 1937: 270 e 1956: 114; Melis, 1950: 435; Antinori, 2004: 18, Hernández Esteve, 2005: 95, 120; Goldthwaite, 2015: 614-15]	✓
Cross-referencing (from debit to credit and vice versa) [Besta, 1922, t. III: 328-29; Hernández Esteve, 2005: 121; Goldthwaite, 2015: 614-15]	✓
Record form: date, amount and brief explanation [Antinori, 2004: 18; Hernández Esteve, 2005: 121; Goldthwaite, 2015: 615]	✓
Accounts arranged in two opposing sections (in "T" form) [Besta, 1922, t. III: 328-29; De Roover, 1937: 270; Melis, 1950: 435, 444; Antinori, 2004: 18; Hernández Esteve, 2005: 117-118 e 121; Goldthwaite, 2015: 616]	✓
Sum of Debits and Credits must match [De Roover, 1937: 270-271; Hernández Esteve, 2005: 121]	✓
Hierarchical and articulated set of account books [Goldthwaite, 2011: 91-2; Houssaye Michienzi, 2016: 124-5]	✓
Existence of 2 books: Journal (or other source book) and Ledger (<i>mastro or debitori e creditori</i>) [De Roover, 1937: 270; Antinori, 2004: 18; Hernández Esteve, 2005: 121]	✓
1 record in the Journal (or other source book) must generate 2 entries in the Ledger (<i>mastro or debitori e creditori</i>) [De Roover, 1937: 270; Melis, 1950: 435; Antinori, 2004: 18; Hernández Esteve, 2005: 111]	●
Set of 5 accounts: personal, assets, expenses, profit and loss and capital [De Roover, 1937: 270-271; Melis, 1950: 438-439; De Roover, 1937: 270-1 e 1956: 114; Yamey, 1991: 169-170; Hernández Esteve, 2005: 111-112 e 120; Goldthwaite, 2015: 630-631]	●
Use of the same currency unit [Besta, 1922, t. III: 328-29; Melis, 1950: 435; De Roover, 1956: 137; Antinori, 2004: 18; Hernández Esteve, 2005: 121]	✓
Use of vernacular language [De Roover, 1956: 138; Antinori, 2004: 11]	✓
No blank pages or blank spaces (should this occur, these folios must be "rendered useless", scored through) [Hernández Esteve, 2005: 119-122; Goldthwaite, 2015: 616]	✓
Sum at the end of the folios, opening balance and final balance [De Roover, 1956: 114 e 119; Yamey, 1991: 176; Hernández Esteve, 2005: 121; Goldthwaite, 2015: 628]	X

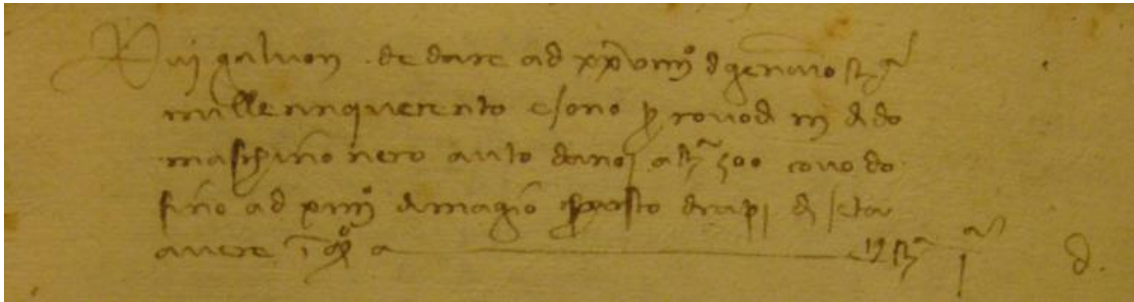
Key: ✓ fulfilled ● partially fulfilled X not fulfilled

Note: According to the main authors, the characteristics fulfilled by Michele Da Colle’s books are said to be sufficient to recognise that the record is made according to the double entry method.

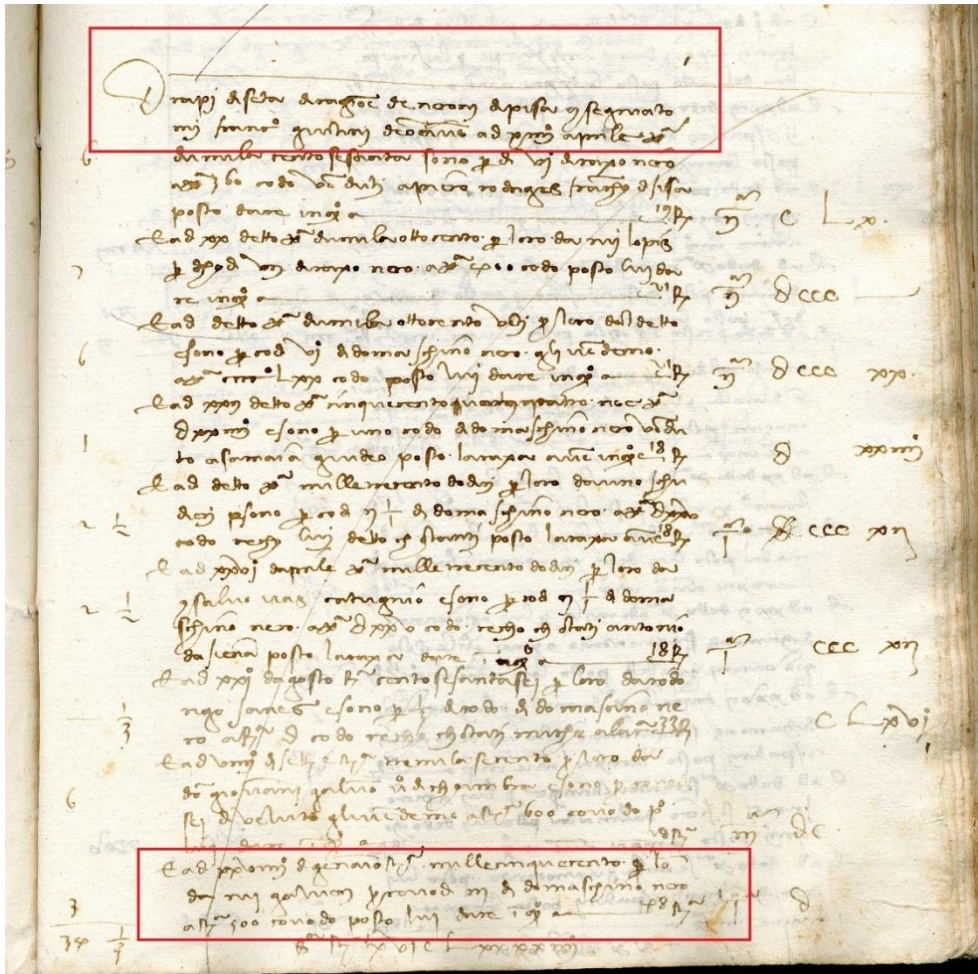
Figure 2 – Entries for a sale of silk fabric to Rui Galvão



[“Giornale”] AS, Serie I, *Libri di Commercio, Da Colle e Salviati*. ..., reg. 8, fl. 13.



[Ledger] AS, Serie I, *Libri di Commercio, Da Colle e Salviati*. ..., reg. 7, c. 48 left



[Ledger] AS, Serie I, Libri di Commercio, Da Colle e Salviati. ..., reg. 7, c. 19 right.

This set of three images corresponds to the triple record of the silk fabric credit sale made by Michele Da Colle to Rui Galvão. The first fragment is the entry made in the “giornale” (included in the *ricordanze*). The second and third fragments are the entries posted from the “giornale” to Michele’s ledger: as a debit to the buyer’s account (2nd fragment) and as a credit to the silk fabric account (3rd fragment). We can also see in the 3rd fragment, on the left, a column with the quantities, concerning the number of *côvados* (1 *côvado* = 66 cm) traded in each transaction. The transcription of the marked excerpts is shown bellow:

[“Giornale”, fl. 13; 1st fragment]

[Sabato a d(i) XXVIII di genaio]

(48/19) A Rui Galvon R^a mille cinquecento e sono p(er) covodi tre di domasc(h)ino nero ebe da noi fino a d(i) XIII di magio come apare in q(uest)o c(arta) 74 a R^a 500 covodo monta in tutto

R^a I^m D

[Ledger, c. 48 left; 2nd fragment]

[Dare]

Rui Galvon de[ve] dare a d(i) XXVIII^o di gen(n)aio R^a mille cinquecento e sono p(er) covod(i) III d(i) domaschin(n)o nero avuto da noi a R^a 500 covodo fino a d(i) XIII^o di magio posto drapi di seta avere in q(uest)o a c(arta) 19

R^a I^m D

[Ledger, 19 dir.; 3rd fragment]

[Avere]

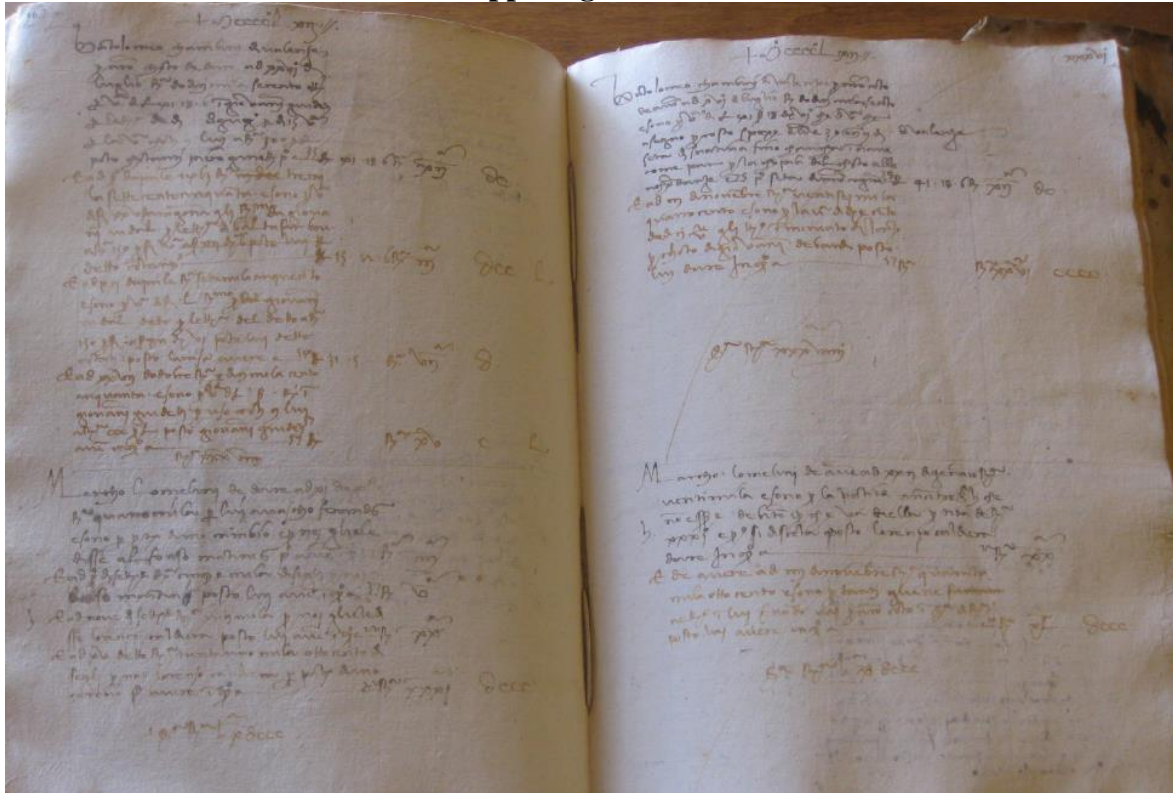
Drapì di seta di ragio(n)e di Neroni di Pisa c(on)segnato mi Francesco Giuntini de(von)o av(er)e [...]

[...]

(3) E a d(i) XXVIII^o di gen(n)aio R^a mille cinquecento p(er) loro da Rui Galvon p(er) covod(i) III di domaschino nero a R^a 500 covodo posto lui dare in q(uest)o a 48

R^a I^m D

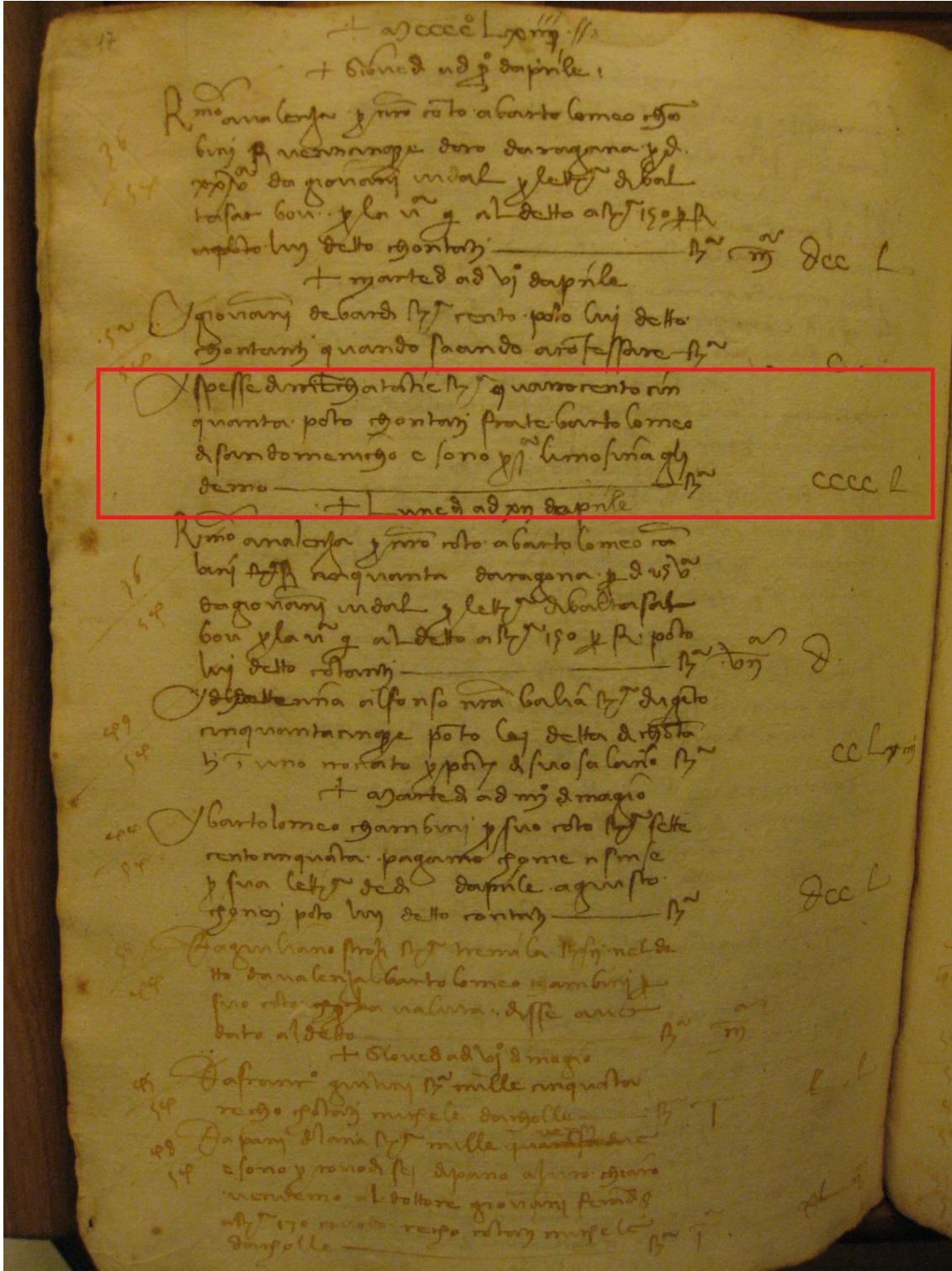
Figure 3 – Ledger (*debitori e creditori*) of Michele Da Colle: accounts arranged in two opposing sections



[Ledger] AS, Serie I, Libri di Commercio, Da Colle e Salviati. ..., reg. 7, c. 36.

On the left, the records concerning the debits made in the two accounts (Bartolomeo Cambini, Florentine merchant operating in Valencia, and of Marco Lomellini, Genoese merchant operating in Lisbon). On the right, the credits relating to these accounts.

Figure 4 – Records on the “giornale” of Michele Da Colle



AS, Serie I, Libri di Commercio, Da Colle e Salviati., reg. 8, fl. 17v.

We can see in this “giornale” folio the chronological record of transactions, separated by the days of the week and of the month. On the left of each transaction, we find the cross-references to the respective accounts (debit and credit) in the ledger. In the upper left-hand corner is the folio number. Note the transaction highlighted that does not contain the reference to the ledger accounts. Partial transcription, which includes the aforementioned highlight is shown bellow:

[“Giornale”, fl. 17v]

(17)

Gioved(i) a d(i) p(rim)o d'aprile

(36/54) R(iceve)mo a Valenza p(er) n(ost)ro co(n)to a Bartolomeo Cha(m)bini [...]

Marted(i) a d(i) VI d'aprile

(52/54) A Giovanni de Bardi R^a cento po(r)tò lui detto chontanti [...]

A spese d(i) merchata(n)tie R^a quatrocento cinquanta po(r)tò chontanti frate Bartolomeo d(i) San Domenico e sono p(er) I^a limosina gli demo

R^a CCCC L

Luned(i) a d(i) XII d'aprile

(36/54) R(iceve)mo a Valenza p(er) n(ost)ro co(n)to a Bartolomeo Ca(m)bini [...]

(49/54) A Chatterina Alfonso n(ost)ra balia [...]

[...]

[Ricordanze, section of copies of expenses] AS, *Serie I, Libri di Commercio, Da Colle e Salvati*. ..., reg. 8, fl. 76.

This set of records shows us the articulation between the ledger's records and the section with the copies of expenses in the *ricordanze* and also shows how an entry in the ledger could come from somewhere other than the section "giornale". In the first fragment, we find a debit transaction for a transport service provided by the merchant to the Bishop of Coimbra, D. João Galvão. In the second fragment, we can see the contra entry to the merchandise expenses account. Looking at the 1st fragment again, the description of the transaction refers to folio c. 76 of the *ricordanze*³⁶. This same folio appears in fragment 3, which presents a detailed list of expenses that the transport transaction entailed. We can see, in the second red box, that this record in the *ricordanze*, in turn, refers to the Bishop's account, in the ledger (c. 28). Partial transcription of the marked excerpts is shown bellow:

[Ledger, c. 28 left; 1st
fragment]
[Dare]

Don Giova(n)ni Rodrigues
veschovo di Choimbra de
dare [...]
E a d(i) XVI di luglio R^a
ventitremila ventisei e
sono p(er) piu spexe fatte a
sei caxe di suoi a(r)nexi
[rasurado] da Pisa a
Lixbona c(on)segniatogli
**chome apar(e) p(er) lo
chonto alle richordanze
c(arta) 76** posto spexe di
me(r)chantatie av(er)e in
q(uest)o c(arta) 25

R^a XXIII^m XXVI

[Ledger, c. 25 right;
2nd fragment]
[Avere]

Spexe di
me(r)chantatie a
rinchontro devono
avere [...]
E a d(i) XVI di
luglio R^a
ventitremila ventisei
p(er) loro da don
Giovanni Galvion e
sono p(er) piú spexe
fatti a sue robe posto
lui dare in q(uest)o a
28

R^a XXIII^m XXVI

[Ricordanze, fl. 76; 3rd fragment, highlighted excerpts]

Come vedete [...] mo(n)ta le spexe fat(te) av(e)re cose R^a
ve(n)titremila venti sei [...]

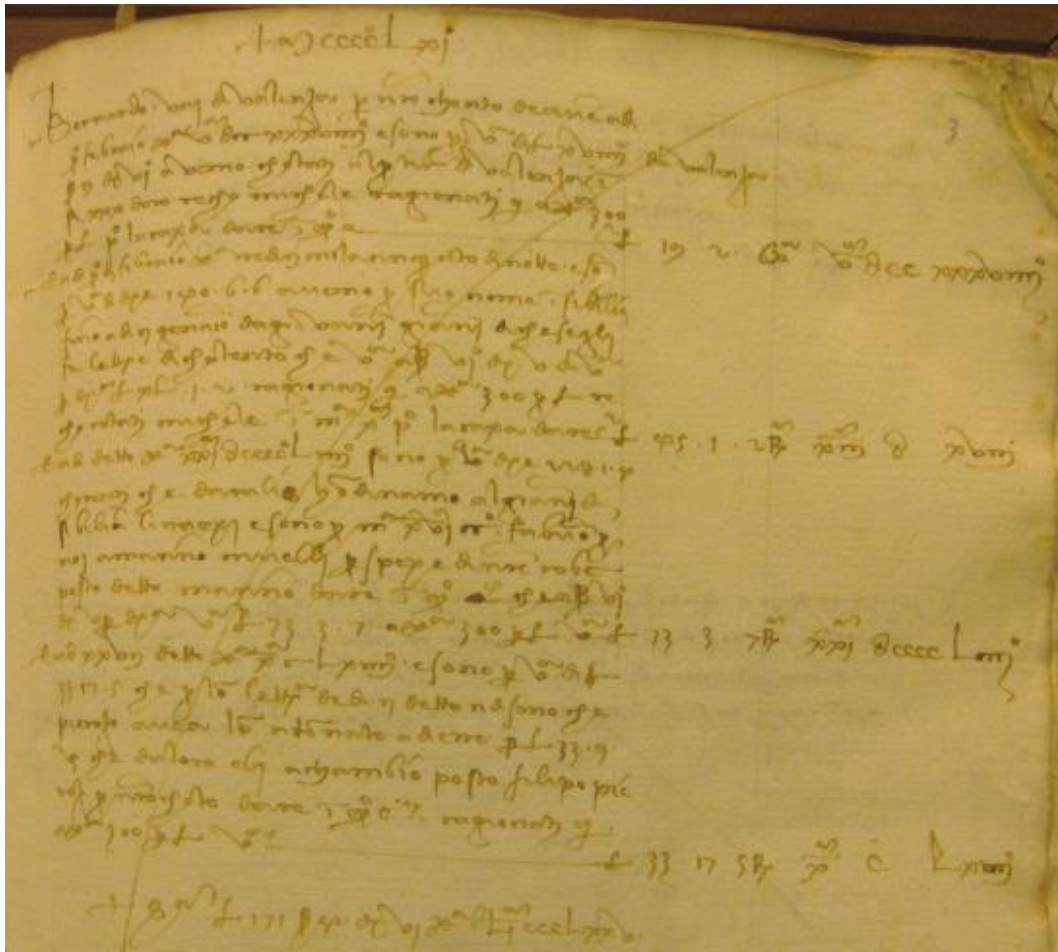
a suo libro c(arta) 28

R^a XXIII^m XXVI

[...]

³⁶ A forthcoming article deals in detail with this transaction concerning the transport of the Bishop of Coimbra's goods (Cardoso, in press). A similar transaction was also analysed in Sequeira, 2016.

Figure 6 – Numbers organised into columns



[Ledger] AS, Serie I, Libri di Commercio, Da Colle e Saviati. ..., reg. 7, c. 3 drt.

In this image, we can see the account pertaining to Bernardo Vai, who was Michele’s correspondent in the Valencia market. It is clear that the amounts are arranged in two columns. The one on the left indicating the amount in Valencia *libras* (pounds), in Hindu-Arabic numerals, while the column on the right shows the amount in Roman numerals in the currency used in the books: the Portuguese *real*. Transcription of the two first records is shown below:

+ MCCCC°LXI
da Valenza

Bernardo Vai di Valenza p(er) n(ost)ro
chonto de av(er)e a d(i) p(rimo) febraio R^a V^m
DCCXXXVIII° e sono p(er) v(alut)a di
L(ibras) XVIII° s(oldi) II d(enari) VI avemo
cho(n)tanti al partire di Valenza in F(io)r(ini) L 19.2.6 R^a V^m DCC XXX VIII°

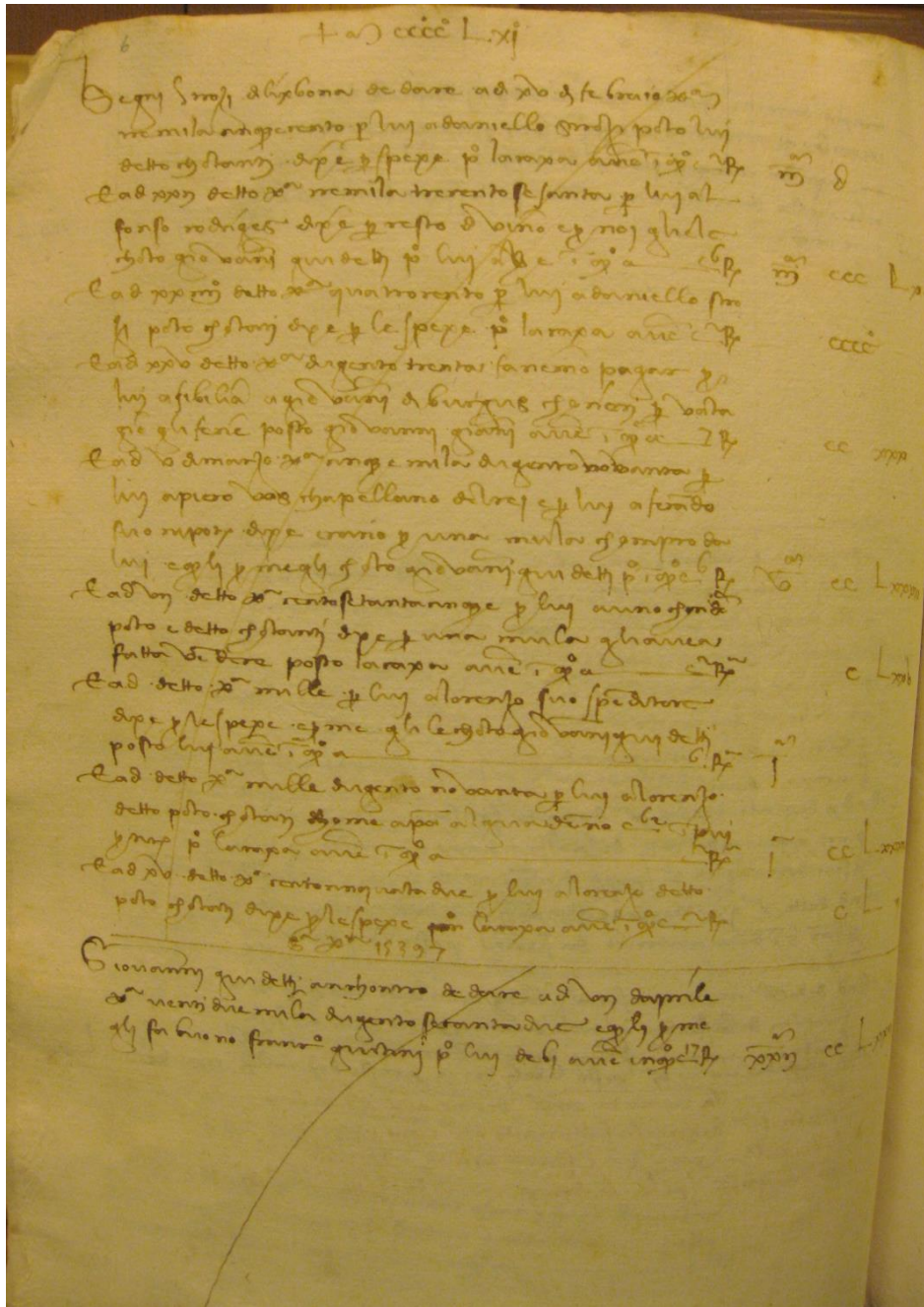
XXX d'oro rechò Michele ragioni q(ui) a
R^a 300 per L(ibra) p(ost)o la caja dare in
q(uest)o a c(arta) 2

E a d(i) p(rimo) di febraio R^a tredicimila
cinq(ue)cento diciotto e s(on)o p(er) v(alut)a
di D(obl)e 140.6.6 avemo p(er) suo nome i(n)
Sibilia fino a d(i) II genaio da Giovan(n)i
Gian(n)i di che se gli fa lett(e)re di
cho(n)tento che v(alut)a s(oldi) VI d(enari) V
di V(alenz)a per D(obl)e (sic) L(ibras)
XL.1.2 ragioni q(ui) a R^a 300 p(er) L(ibra)
rechò cho(n)tanti Michele in m(aravedis) X^m
p(ost)o la caja dare c(arta) 2

L 45.1.2

R^a XIII^m D X VIII

Figure 7 – Detail of a folio with an empty space with an oblique stroke



[Ledger] AS, Serie I, Libri di Commercio, Da Colle e Salviati. ..., reg. 7, c. 6 left

This folio of the ledger contains records of the accounts of Begni Strozzi (above) and of Giovanni Guidetti (below). Unused spaces were scored through with an oblique stroke.