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## PACIOLI'S *DE SCRIPTURIS* IN THE CONTEXT OF THE SPREAD OF DOUBLE ENTRY BOOKKEEPING

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### RESUMEN

El presente trabajo examina y pone en duda, a la luz de las evidencias presentes, algunas nociones ampliamente aceptadas en relación con el uso y expansión de la partida doble durante los primeros siglos de su existencia. De esta manera, el autor expresa su opinión de que no cree que los libros impresos y, en particular, la *Summa* de Luca Pacioli, ejercieran una gran influencia directa en la divulgación de este sistema, como generalmente se cree. En relación con esta última obra, y entre otras razones, porque piensa que muy pocos mercaderes la adquirirían al no conocer ni siquiera el nombre de Pacioli, que era un gran matemático y humanista, muy conocido en los círculos intelectuales, pero probablemente desconocido en el mundillo mercantil. Pocos comerciantes podrían imaginar, por otra parte, que el volumen contenía un capítulo dedicado a la teneduría de libros. Aparte de ello, no se estima que dicho capítulo *De scripturis* enseñe la partida doble de la forma práctica y eficaz que los mercaderes precisaban, sobre todo por la falta de un supuesto práctico que mostrase la disposición y forma de redactar los asientos en el diario y el mayor. Por añadidura, el formato y dimensión del volumen tampoco contribuían a hacerlo tan manejable como requería una obra de consulta que debía estar siempre a mano en el despacho del mercader. A la vista de estas consideraciones, el autor concluye que no parece que la *Summa* pudiera influir grandemente de forma directa en el conocimiento de la partida doble que pudieran tener los comerciantes. En cambio, cincuenta años después de su publicación sí influyó decisivamente en la redacción de los tres siguientes libros que aparecieron en las década de los 1540, uno italiano, el de Manzoni, otro belga, el de Ympyn, y el último inglés, el de Mellis. Descartados, pues, los libros impresos como principal vehículo de divulgación directa de la contabilidad por partida doble entre los mercaderes, el autor se plantea el interrogante de cuáles fueron las vías de difusión del nuevo sistema: piensa que esta difusión debió de que tener lugar a través de tres distintos cauces: los tratados impresos de contabilidad, pero como medio indirecto de enseñanza de la partida doble, es decir, no a los propios mercaderes, sino a los maestros de materia mercantil; la movilidad de mercaderes, tenedores de libros y aprendices, que se desplazaban de un país a otro para conocer mejor su oficio; y, finalmente, los maestros y las escuelas comerciales. A este respecto, se ofrecen en el artículo diversos ejemplos de estos tres cauces, haciendo especial hincapié en el de la traslación de mercaderes y aprendices. Por último, el autor pone en tela de juicio la exactitud de la creencia bastante extendida de que la partida doble era ampliamente usada en Europa ya durante el siglo XVI. El opina que es posible que fuera bastante conocida, mucho más en el siglo XVII que en el XVI, pero que pocos mercaderes fuera de Italia la utilizaban, y que buena parte de ellos, o eran italianos o habían hecho allí su aprendizaje.

### ABSTRACT

This paper examines and questions, in the light of the known evidences, some widely accepted ideas with respect to the use and spread of double entry during its first centuries of existence. In this regard, the author says that he does not believe that printed books and, in particular the *Summa* of Luca Pacioli, had a great *direct* effect on the diffusion of knowledge of the system and of its use. With regard to Pacioli's work, very few merchants would have known of him, or have heard of the publication of the *Summa*, or have been aware that it included a chapter on double entry bookkeeping. Moreover, the *De scripturis* section is not an effective exposition of the system. The reader's task would have been easier had the text included specimen rulings with specimen entries. The most serious deficiency of all is that Pacioli did not provide an illustrative set of account books in which the appropriate entries were entered for each of a series of transactions, and in which the end-

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products of the balancing and closing of the ledger were shown. Apart from that, the *Summa* is a large book of more than 600 large pages, of which *De scripturis* is only a small part. It would have been cumbersome to use for quick reference in a counting house. Although the author doubts whether Pacioli's had any or much direct effect on the spread of use of the double entry system inside or outside Italy, it certainly had a direct effect on the contents of three books published in the 1540s by an Italian, Manzoni, a Fleming, Ympyn, and an Englishman, Oldcastle. Having ruled out printed books as the main *direct* way of diffusion of double entry among merchants, the author wonders which were the main ways of diffusion of the new system. He means there were three ways: printed books, but in an *indirect* way, since he suspects that they were used mainly by teachers of the subject, and rarely used by auto-didactic merchants or bookkeepers who studied on their own; the movement of merchants, bookkeepers and apprentices from one commercial centre to another; and the activities of teachers of commercial subjects who gave private tuition. To this respect he offers some examples of these ways, giving special attention to the latter. Lastly, the paper also questions the extended belief that the double entry system was widely used in 16<sup>th</sup> century Europe. The author believes that it was possible that the new system might have been well known, but much more in the 17<sup>th</sup> century than in the 16<sup>th</sup>, and that only a few merchants outside Italy used it, most of whom were Italian or had done their apprenticeships in Italy.

## PALABRAS CLAVE:

*Contabilidad, historia, Pacioli, partida doble, práctica contable*

## KEY WORDS:

*Accounting, accounting practice, double entry, history, Pacioli*

## 1

The spread of the use of double entry bookkeeping outside Italy is often attributed largely to printed expositions of the system. Thus Fabio Besta, the first major writer on the history of accounting, stated that "outside Italy, account-books in double entry appeared only after Italian publications describing that system had been translated into foreign languages". (Besta acknowledges that the account-books of foreign branches of Italian businesses were exceptions to his statement.) Moreover, according to Besta, it was the Venetian style or version of double entry, the *scrittura veneziana*, that crossed the Alps and was disseminated "in Flanders, in England and among the German peoples"<sup>1</sup>. Besta clearly implied that printed books played a major part in spreading the use of the double entry.

More recently, Jean Favier, distinguished French historian, has narrowed the focus, concentrating it on Luca Pacioli. In his *De l'or et des épices (Naissance de l'homme d'affaires au Moyen Âge)* he observes that double entry bookkeeping (*comptabilité systématique*) came to Europe, outside Italy, only in the sixteenth century. It was then that merchants in all the countries ensured the success [*feront la fortune*] of the book in which, in 1494, Luca Pacioli of San Sepolcro explained and clarified the system<sup>2</sup>. Favier's English translator expressed the point more vividly by stating that "merchants from every country rushed to buy this guide to accountancy"<sup>3</sup>. The implication is clear: many merchants outside Italy were eager to use the double entry system, and the *Summa* enabled them to do so.

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<sup>1</sup> F. Besta: *La Ragioneria*, 2nd ed., Milan, 1929, vol.3, p. 340.

<sup>2</sup> J. Favier: *De l'or et des épices*, Paris, 1987, p.339.

<sup>3</sup> J. Favier: *Gold and Spices* (translated by Caroline Higgitt), New York, London, 1998, p.276. Favier also writes that Pacioli's exposition of bookkeeping was an "instant success and for many years used by the business world" (*ibid*, p. 261)

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In my view, which is elaborated below, Besta over-stated the role of printed expositions of accounting in the sixteenth century. It would be wrong, in any case, to gauge the extent of the use of the double entry system in Europe in different periods on the basis of number of books published on the subject, in the sixteenth century or in the next two centuries. What is perhaps even clearer is that Pacioli's exposition, in particular, is likely to have had virtually no *direct* effect on the diffusion of knowledge of the system and of its use.

Very few merchants inside Italy, and even fewer outside Italy, in the late fifteenth century would have known of Luca Pacioli, or have heard of the publication of his *Summa*, or have been aware that it included a short section on double entry bookkeeping, the section *Particularis de computis & scripturis*.

Pacioli was a prominent mathematician and known to other mathematicians. More generally, Pacioli was well known in humanist circles, and his works appealed to humanists. According to Ingrid D. Rowland, "Pacioli's *Summa* addressed subjects dear to the humanists' tradition: geometry, ...perspective, and proportion. In order to attract a humanistically educated public as well as learned merchants, Pacioli outfitted the printed editions of his works with his own Latin prefaces and Latin rubrics that added a certain classicising tone to the vernacular text".<sup>4</sup> But few merchants, even Italian merchants, were educated in the humanist tradition. And merchants outside Italy would have provided an even more meagre market for the *Summa*, even if they could read Italian.

There is indeed no evidence as to how many merchants bought copies of the *Summa* when it was first published. The fact that so many copies have survived to the present day is best explained in terms of purchases by mathematicians and other learned individuals rather than by merchants. Copies entering the libraries of scholars, both professional and amateur, and institutions of learning had a much better chance of survival than had copies being used in the counting-houses or bureaux of merchants.

## 2

A merchant who bought a copy of the *Summa* in order to learn how to keep his books according to the double entry system would have been disappointed and frustrated.<sup>5</sup> The *De scripturis* section is not an effective exposition of the system, though a merchant or clerk who studied it would nevertheless have learned much from it, and much of the teaching was in an agreeable form. As to content, he would, for example, have been taught the need for meticulous detail, and shown how to minimise opportunities for the perpetration of fraud. He would have learned all he needed to know about the arrangement of columns in each of the three principal account books, and about the place of each of those books in the bookkeeping scheme of things. But the reader's task would have been easier had the text included specimen rulings with specimen entries, since a good illustration is better than a sequence of sentences. The examples of journal and ledger entries in the text do not show the ruled lines, and the entries are not always set out clearly. Moreover, the specimen journal entries in several of the

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<sup>4</sup> I.D. Rowland, *The culture of the High Renaissance*, Cambridge, 1998, p.116.

<sup>5</sup> For a detailed discussion of *De scripturis*, see B.S. Yamey (ed.), Luca Pacioli: *Exposition of double entry bookkeeping*, Venice 1494, Venice, 1994.

chapters do not follow the description given in chapter 11, which itself is misleading in that an inappropriate sign ( ) is used instead of the distinctive sign used in practice and almost certainly intended by Pacioli, namely (/). Pacioli seems to have been poorly served by his printer or proof-reader or proof-corrector -or perhaps he himself was careless, since he is said to have participated in the supervision of the printing of the *Summa*. Further examples of poor proof-reading or editing are some incompleting sentences.

A more serious deficiency is the exposition of the balancing and closing of the ledger in chapter 34. The chapter confuses several different procedures. Either Pacioli did not understand the subject fully, or his expository skill deserted him at this critical point. In the absence of a fully worked-out illustrative example, the reader would have reached the end of chapter 34 confused and perhaps worried by his failure to comprehend the text. The further exposition in the summary chapter 36 would probably have increased his perplexity.

The most serious deficiency of all is that Pacioli did not provide an illustrative set of account-books in which the appropriate entries were entered for each of a series of transactions, and in which the end-products of the balancing and closing of the ledger were shown. Whilst Pacioli lavishly provided worked-out examples in his sections on arithmetic, algebra and geometry, he was surprisingly unimaginative in not seeing the need to present a model set of written-up account-books in *De scripturis*. It may be that he himself did not feel sufficiently confident to carry out this task; or perhaps the authors of manuscripts he may have been working from did not provide illustrative account-books because they intended to give oral instruction (accompanied by demonstrations on the equivalent of present-day flip-charts) to supplement and fill out their written texts.

Two further points are worth noting. First, the *De scripturis* does not go into some of the finer points of double entry bookkeeping as would often have been encountered in practice at the time. Thus there is no discussion of such subjects as compound journal entries, or closing and opening balance accounts (with entries reversed) in the ledger. Also, Pacioli did not discuss the special accounting practices associated with changes in the rate of exchange between two currencies, for example between the merchant's domestic currency and the foreign currency in which his foreign agent recorded the transactions he made on his behalf. Benedetto Cotrugli, a merchant of Ragusa, whose manuscript of 1458 (in Italian) on *dell'arte di mercatura* pre-dated the *Summa*, refers briefly to the appropriate procedure in his chapter *Del'ordine di tenere le scripture*. In his own ledger the merchant has two sets of columns on each side of the ledger account opened in the agent's name. When the appropriate entries are made and balanced in the two sets of columns, the merchant's profit or loss arising from exchange fluctuations is revealed in the domestic-currency columns. Cotrugli remarks that a merchant who does not keep his accounts in this way, does not deserve to be called merchant (... *non se' degno d'essere nominato mercante*).<sup>6</sup>

The second point relates to physical aspects of the *Summa*. It is a large book of more than 600 large pages, of which *De scripturis* is only a small part. An unbound copy in the Library of the Institute of Chartered Accountants in England and Wales, in London, weighs 1.8 kilograms; another copy, in the same collection, bound in wooden boards, weighs 2.5

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<sup>6</sup> U. Tucci (ed.), *Benedetto Cotrugli Raguseo: Il Libro dell'arte di mercatura*, Venice, 1990, p.174.

kilograms.<sup>7</sup> It would have been cumbersome to use for quick reference in a counting-house (quite apart from its other deficiencies for such a purpose). Moreover, the printing in the copies of the first edition I have seen is not clear or easy to read. Altogether, both format and scale, dictated as they must have been by the encyclopaedic extent of the subject-matter, are more appropriate for the scholarly library than for the counting-house. What the book lacked in convenience of handling was compensated by its physical *gravitas*. Brian Richardson has remarked that in Renaissance Italy "the underlying perception was that the larger the book was, the greater its seriousness". There was "The association between physical and metaphorical weight".<sup>8</sup>

### 3

Although I doubt whether Pacioli's *Summa* had any or much *direct* effect on the spread of use of the double entry system inside or outside Italy, it certainly had a direct effect on the contents of three books on the subject published in the 1540s. Pacioli's *De Scripturis* in the *Summa* was the pioneering publication; and three books drew on it, either directly or via an intermediary, respectively by an Italian, a Fleming from the Low Countries, and an Englishman: Domenico Manzoni, Jan Ympyn and Hugh Oldcastle.<sup>9</sup>

Hugh Oldcastle's *A profitable treatyce* (London, 1543) is very close to *De scripturis*, or rather to a selection of chapters in the earlier work. It is not easy, however, to judge the pedagogic merits of the Oldcastle book, since no copy has survived, and our knowledge of its contents comes from its re-working by John Mellis in his *A briefe instruction* (London, 1588). But Mellis's book is not simply a re-issue of Oldcastle; it is demonstrable that Mellis added, ineptly, long passages from English books published after 1543, written by James Peele and John Weddington, both of whom had practical experience of bookkeeping. It seems clear, however, that Oldcastle's book, like Pacioli's, did not include a set of illustrative account-books; and Mellis added one, again drawing without acknowledgement on the published works of others.<sup>10</sup>

Manzoni's *Quaderno doppio* (Venice 1540, and later editions) is altogether in a different class. The exposition is identifiably "Paciolian". But Manzoni was selective in his unacknowledged borrowings from Pacioli. Moreover, he added a substantial amount of material that is not in Pacioli. Above all, he compiled a list of 300 transactions, sub-divided into broader categories; and these transactions are entered into the model set of account-books. This part of the book, itself of convenient weight and size, would undoubtedly have been very useful to the practising bookkeeper. As Flavio Pilla has put it, the merchant or his bookkeeper, when in doubt as to how to record a transaction, could stretch out his hand to get his *Manzoni*, turn its pages, find the place, gain enlightenment, and finally transform the

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<sup>7</sup> Information kindly provided by Avril Dennis, Deputy Librarian, The Institute of Chartered Accountants.

<sup>8</sup> B. Richardson, *Printing, writers and readers in Renaissance Italy*, Cambridge, 1999, p.125.

<sup>9</sup> See Yamey (ed.), *op.cit.*, *passim*.

<sup>10</sup> On Oldcastle and Mellis, see B.S. Yamey, "Oldcastle, Peele and Mellis: a case of plagiarism in the sixteenth century", *Accounting and Business Research*, vol.9, 1979; reprinted in *Further essays on the history of accounting*, New York & London, 1982.

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details of the transaction into one or more appropriate bookkeeping entries.<sup>11</sup> This would not have been practicable with the ponderous *Summa*.

Manzoni stated that he kept the books of several important people in Venice. He also taught bookkeeping and other subjects. The quality of his book suggests that he must have been an effective teacher.

Ympyn's book was published posthumously by his widow: the *Nieuwe instructie* (Antwerp, 1543) in Dutch; the *Nouvelle instructie* (Antwerp, 1543) in French; and the *A notable and very excellent woorke* (London, 1547) in English. Ympyn spent twelve years in Venice in his early manhood, travelled extensively, and eventually settled in Antwerp where he became a member of the guild of mercers. Ympyn (or his widow) refers to Pacioli's *Summa* in the prefaces to his books.

It is clear that Ympyn, either directly or through an intermediary, followed the *De scripturis* closely in many places. But Ympyn was selective, and moreover also included new or improved material in the text. In particular, his treatment of the balancing and closing of the ledger differs materially from Pacioli's. It is briefer, and clearer; and Ympyn obviously intended his readers to refer to the illustrative set of account-books included in the book. The model set of account books is of high quality; and, as Raymond de Roover has suggested, Ympyn may have drawn examples of transactions from his own business as merchant. It is perhaps not surprising that the only known copy of the English version of Ympyn's book, now in Moscow, does not have the model set of account-books: This part must at one time have been detached for easy reference, and had been so often consulted that it disintegrated -or was stolen or lost.

It may be noted, in passing, that neither Manzoni nor Ympyn discussed compound journal entries or the treatment of accounts kept in a foreign currency (as well as in the domestic currency) alluded to in Cotrugli's early manuscript.

Traces of the influence of *De scripturis* can be found in a few books on accounting after the 1540s; and his name is referred to in a few cases. But, no book on the double entry system published after the 1540s can be said to be in the Paciolian mould to any significant extent.

#### 4

It is difficult to assess the various ways in which knowledge of the double entry system was disseminated in the first two or three centuries after it first emerged in practice in Italy around 1300. When they became available, printed books obviously played some part. I suspect that they were used mainly by teachers of the subject, and rather rarely by auto-didactic merchants or bookkeepers who studied on their own.

Before printed books appeared, diffusion of knowledge of the double entry system within Italy would have been due to the movement of merchants from one commercial centre to another; to the movement of bookkeepers and apprentices; and to the activities of teachers of commercial subjects who gave private tuition. It is not clear, however, whether bookkeeping was taught in the *scuole d'abaco*, the schools in which many boys, intended

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<sup>11</sup> F. Pilla, "Il bilancio di esercizio nelle aziende private veneziane", *Studi veneziani*, vol.16, 1974, p.261.

eventually for employment or a career in business, spent the last few years of their education. But, generally, there were teachers willing to teach the subject to those willing to pay for tuition.

Diffusion, mainly by way of personal commercial contacts and tuition, continued, of course, after printed expositions became available, in increasing numbers, in various European languages. The economic history literature reveals much movement, across national borders, of merchants, bookkeepers, apprentices and students of commercial subjects, including bookkeeping, in the sixteenth and seventeenth centuries. It is not possible to present a systematic picture of these movements and the resulting contacts and transfer of knowledge. Some examples may be helpful and indicative. Here, then, are a few cases illustrating the movements of commercial people, and the contacts between them, of the kinds that would have contributed towards the international diffusion of knowledge of the double entry system. Many other examples could be added for the period from the fifteenth to the seventeenth century.

Lukas Rem and Matthaues Schwarz were the sons of German business men who, as youths, were sent to Italy to study commercial subjects. Rem went on horseback to Venice at about the time Pacioli's *Summa* was published in that city. He was under fourteen years of age. He lived in succession with several merchants, including two who were factors of the powerful Welser family business. He also spent time with a man employed in the Fondaco dei Tedeschi, the headquarters of German merchants in Venice (now the central post office). There, according to his diary, the young Lukas learned arithmetic in 5 and a half months. Then he went to a school "where one learned how to keep books". Within three months he was able to write up a journal and ledger. Schwarz, on the other hand, wrote that he had difficulty finding a competent teacher of bookkeeping in Milan and Genoa; but in Venice he met a teacher who had a great reputation. This was Antonio Mariafior (a name which appears in one of the entries in Manzoni's model set of account-books as a teacher of *abaco* and *quaderno*, that is arithmetic and bookkeeping). Schwarz returned to his native Augsburg, where he entered the employment of Jakob Fugger, "der Reiche" in 1516. In due course he became head bookkeeper of the politically and financially influential Fugger business and confidant of its head Jakob and of his successor Anton. Schwarz also wrote a manuscript on bookkeeping.<sup>12</sup>

Paulus Behaim, a member of a Nuremberg family, served his apprenticeship in Cracow and then was employed by the prominent Imhof family to whom he was related. He was sent to Antwerp where he spent several years; and while acting on behalf of his employers, he also engaged in trading on his own account. Several of his ledgers have survived, and illustrate his steady increase in wealth, both when employed by the Imhofs and also afterwards. When he had returned to Nuremberg, he was required to keep the Imhof's journal and ledger. The examples of entries he made in his own account-books show, according to Balduin Penndorf, the influence of Johann Neudorfer, the famous arithmetician and calligrapher with whom he had studied in his youth. A manuscript exposition of

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<sup>12</sup> On Rem and Schwarz, see B. Penndorf, *Geschichte der Buchhaltung in Deutschland*, Leipzig, 1913.

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bookkeeping is reliably attributed to Neudorfer. Neudorfer does not appear to have had it published, but presumably used it for his own teaching purposes.<sup>13</sup>

Jan Pieterszoon Coen was baptised in 1587 in Hoom. His father became a well-to-do merchant, who in 1600 sent his son to Italy, where he was apprenticed to the merchant Giorgio Pescatore in Rome. (Pescatore was born in the Netherlands as "Joris Visser", which he Italianised literally as Giorgio Pescatore). Coen learned "all the intricacies of Italian bookkeeping", as well as other branches of commercial lore. He entered the service of the Dutch East India Company (the "VOC") and became its first Bookkeeper General. He subsequently rose to the position of Governor General in Batavia, and carried out the expansionist policy of the mailed fist.<sup>14</sup>

George Watson, born in Edinburgh in 1645, was the son of a merchant. After serving an apprenticeship with another merchant in Scotland, he was sent to Holland "for his further improvement in merchandising and particularly for his learning book-keeping, which then was a very rare accomplishment". Some of his exercise books in writing, arithmetic and bookkeeping have survived. He returned to Scotland in 1676. He had a distinguished career in business and in public life and made large charitable gifts.<sup>15</sup>

Passchier Goessens, born in Brussels, left his native country because of his religion, and settled in Germany around 1588. He wrote a serviceable book on accounting in German *Buchhalten fein kurz zusammen gefasst* (Hamburg, 1594). He did so, he said, to help merchants in Hamburg and to enable citizens of his adopted city to let their children study bookkeeping in their own city instead of having to send them to other cities or countries "at great expense and danger". According to Penndorf, it was teachers from the Low Countries (such as Goossens) and Portuguese Jews who brought double entry bookkeeping to Hamburg. Some merchants, such as the van der Meulen, left the Low Countries after the "Spanish Fury" and settled in German commercial centres.<sup>16</sup>

## 5

In the preceding section I have outlined and illustrated the various ways in which knowledge of the double entry system was transmitted within countries and, particularly, across national or regional frontiers. There quite clearly was a considerable volume of deliberate as well as unintentional transmission or diffusion of knowledge of the system. It is very difficult, however, to attempt to translate the spread of knowledge of the system into any realistic assessment of the extent to which merchants and other business men actually used the system. This difficulty applies whether one is considering its use in one particular country in a given period, or changes in its use at different periods within, say, the sixteenth and seventeenth centuries.

The major difficulty is that what we know about the extent of the use of the double entry system in the past depends heavily on two sets of accidents of history: first, the accidents of survival of account-books in the face of losses due to deliberate destruction, fire

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<sup>13</sup> On Behaim, see Penndorf, *op.cit.*

<sup>14</sup> G. Messelman, *The cradle of colonialism*, New Haven & London, 1963, pp.229-37.

<sup>15</sup> R. Brown (ed.), *A history of accounting and accountants*, Edinburgh, pp.156, 183.

<sup>16</sup> Penndorf, *op.cit.*, p.149.



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and flood, rats and mice, and decay through age; and second, the accidents of selection by scholars of particular collections of account-books for study, and the publication of their findings. It is obvious, however, that only a small proportion of surviving and (in principal) accessible materials for the sixteenth and seventeenth centuries has been examined, with the bias probably in favour of account-books of prominent merchants, business firms and families. Thus although we do know a good deal about the use of the system in Italy, notably in Tuscany, by such large business firms as the Medici, Bardi, Peruzzi, Borromei and Datini, knowledge about smaller firms is far more patchy. Datini, the "merchant of Prato", himself wrote that many of his fellow citizens did not keep account-books at all. However, recently, Richard K. Marshall has examined surviving account-books of merchants and tradesmen in late medieval Prato, and found none of them is in double entry.<sup>17</sup>

The difficulties are aggravated by the fact that scholars who have studied particular collections of account-books and related material almost certainly have not adopted a uniform set of criteria for identifying the presence or absence of the double entry system. Thus some historians may have regarded bi-lateral accounts *alla veneziana* (with the debit side of an account on a left- hand page and the credit side on the adjacent right-hand page) as evidence of the use of the system. Or the presence of both a journal and a ledger may have been taken as evidence of double entry. The statements even of contemporary merchants, while interesting, for the same reason have little value as evidence. One may also ask how one merchant would have known how other merchants kept their books. Though merchants did not treat the double entry system, and the way they organized their books, as trade secrets, they were unlikely to show their journals and ledgers to others.

## 6

Nevertheless, and subject to the caveats entered at the beginning of the preceding section, it seems to me that the use of the double entry system must have been quite limited outside Italy in the sixteenth century, though merchants may have made somewhat more extensive use of it in the seventeenth century. What I believe is quite clear is that very many more people had acquired some knowledge of the system than actually used the system in practice. Here, I can do no more than deal as examples first, rather parochially, with the situation in sixteenth- and seventeenth-century England, and second, with the situation in sixteenth-century Antwerp.

According to the late G.D. Ramsay, economic historian, without the innovation, double entry bookkeeping, "the emergence of the firm as a business entity would have been grievously hampered, and so would the unfolding of English foreign trade under Elizabeth I".<sup>18</sup> Quite apart from general implausibility of this statement, it appears likely that very few English merchants kept their books by double entry in the sixteenth century. I know of only one surviving example. This is the journal of Thomas Gresham, commenced in 1546, now in the possession of the Mercers' Company in London. This famous merchant, diplomat and public figure (to whom is attributed Gresham 's Law, about bad money driving good money

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<sup>17</sup> R.K. Marshall, *The local merchants of Prato*, Baltimore & London, 1999.

<sup>18</sup> G.D. Ramsay (ed.), *John Isham: mercer and Merchant Adventurer*, Northampton, 1962, p.liiii.

out of circulation) spent many years in Antwerp, and his journal shows signs of that city's influence. It has even been conjectured (by Ernst Stevelinck)<sup>19</sup> that he was responsible for the translation of Ympyn's book into English.

More examples have survived -and have been examined -for the seventeenth century. I have discussed elsewhere the surviving double entry account-books of five seventeenth-century merchants: William Hoskins, Sir John Banks, Sir Robert Clayton, Sir Dudley North and Sir Charles Peers.<sup>20</sup> To this list can be added three more merchants: Sir John Calley, Daniel Harvey (brother of the more famous William, discoverer of the circulation of the blood) and Charles Marescoe.<sup>21</sup> This is an impressive list, including several prominent merchants. And we must not forget the English East India Company and the Bank of England. However, many other merchants of distinction did not use the double entry system, including Sir Arthur Ingram, Sir Thomas Cullum and Sir William Turner .

Thomas Mun, a London merchant and author of economic tracts, wrote in 1664 that a "perfect" merchant "ought to be a good Penman, a good Arithmetician, and a good Accomptant, by that noble order of *Debtor* and *Creditor*, which is used only amongst Merchants".<sup>22</sup> On the other hand, Richard Dafforne, self-styled 'accountant, and teacher of the same', writing in 1635, and who had experience of business life in both Holland and England, thought that a "great part" of merchants in his native country had only "small love" for the "*science*" of bookkeeping.<sup>23</sup>

## 7

During the sixteenth century Antwerp became the hub of international trade. Merchants from all over western Europe had trading relationships with merchants in Antwerp; many foreign merchants and factors (agents) visited the city or spent long periods in the city; and many youths and young men came to study commercial subjects or to gain commercial experience in the offices of merchants. As Henry de Groote's investigations have shown, there were a relatively large number of "school masters" in Antwerp who taught languages, bookkeeping and other commercial subjects.<sup>24</sup> Moreover, several books on the double entry system were published in Antwerp in the sixteenth century, beginning with Ympyn's Dutch

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<sup>19</sup> E. Stevelinck, "Qui peut avoir traduit en Anglais le premier livre de comptabilité paru en Français?", *De Gulden Passer*, vol.70, 1992.

<sup>20</sup> B.S. Yamey, "Some seventeenth and eighteenth century double-entry ledgers", *Accounting Review*, vol. 34, 1959; and "A seventeenth century double-entry journal", *Accountancy*, November 1960; both reprinted in *Essays on the history of accounting*, New York, 1978.

<sup>21</sup> The Calley ledger is in a private collection. On Marescoe, H. Roseveare (ed.), *Markets and merchants in the late seventeenth century*, Oxford, 1987. The Harvey ledger, which recently was brought to light, is now in The Guildhall Library, London. This ledger is extraordinarily large. It has almost 1700 pages of thick paper, with a massive vellum binding. The cover measures 35 cms. by 52 cms. (It is much bigger than Pacioli's *Summa*). On the Harvey documents, see Bloomsbury Book Auctions, Catalogue of Sale, 22 November 2001.

<sup>22</sup> T. Mun, *England's treasure by forraign trade ...*, London, 1664.

<sup>23</sup> R. Dafforne, *The merchants mirrour*, London, 1635, in the "epistle dedicatory".

<sup>24</sup> H.L. V. de Groote, *De zestiende-eeuwse Antwerpse schoolmeesters* (reprint of articles in *Bejdragen tot de geschiedenis inzonderheid van het oud Hertogdom Brabant*), vols. 50 and 51, 1967-68.

and French texts, and followed by works by Mennher, Savonne, Weddington, Clout, de Renterghem and van den Dycke.

It would therefore be surprising if many foreign merchants and bookkeepers did not acquire knowledge of, and competence in, the double entry system in Antwerp. But, once again, the interesting question is whether many foreigners, having learned about the bookkeeping system, then applied it in their businesses.

Some economic historians have regarded Antwerp as the commercial centre from which use of the double entry system spread widely throughout the rest of Europe. Thus Herman van der Wee wrote that it "was via Antwerp that the use of bills of exchange was generalized throughout Western and Northern Europe and the same can be said of the use of double-entry book-keeping".<sup>25</sup>

The view expressed by van der Wee suggests, at least, that the use of the double entry system was widespread among Antwerp merchants themselves. Indeed, according to Oskar de Smedt, the system was used in Antwerp on an extensive scale.<sup>26</sup> However, the picture again is not at all clear. Emile Coornaert, who studied French participation in the international trade in Antwerp in the sixteenth century, observed that double entry bookkeeping was little used in that city.<sup>27</sup> J.A. van Houtte concurred: "It would be wrong to suppose, however, that [double-entry's] use was widespread there".<sup>28</sup>

There were, of course, some Antwerp merchants who did use the system. Examples include the van der Molen and the de Groote businesses. However, the three most prominent names which I associate with the system in Antwerp are all rather special cases.

The Affaitadi were large-scale international bankers and merchants located in Antwerp, but came originally from Cremona in Italy. The surviving balance accounts of some of their companies at the time of the dramatic bankruptcy of the business were in Italian.<sup>29</sup>

The surviving account-books of the prominent Antwerp merchant Jan della Faille have been used skillfully and productively by Wilfrid Brulez in his monographic study of the business he built. Della Faille was born in Wevelgem (in present-day Belgium) in 1515. Fifteen years' later he went to Venice, to work for Maarten de Hane, who was born in Brussels, and settled and prospered in Venice. He bought a palace, on the Grand Canal. Della Faille also did well, and became the de Hane factor in the branch establishment in Antwerp, which was also responsible for the branch in London. Della Faille gained a mastery of the double entry system in Venice, and applied it to his business in Antwerp, which included his activities on behalf of de Hane as well as his trading on his own account. The entries in his double entry journals, kept in Italian, are perfect examples of the distinctive Venetian form of journal entry (which is incorrectly described and illustrated in Pacioli's *De scripturis*). Della Faille defrauded his Flemish/Venetian principal, and a long period of litigation with de Hane's

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<sup>25</sup> H. van der Wee, *The growth of the Antwerp market and the European economy (fourteenth-sixteenth centuries)*, The Hague, 1963, vol. ? , p.433.

<sup>26</sup> O. de Smedt, *De Engelse Natie te Antwerpen in de Ibe eeuw (1496- 1582)*, Antwerp, 1954, vol.2, p.487.

<sup>27</sup> E. Coornaert, *Le Français et le commerce international a Anvers: fin du Xve XVle siecle*, Paris, 1961, pp.173, 245.

<sup>28</sup> J. van Houtte, *An economic history of the Low Contries, 800-1800*, London, 1977, p.207.

<sup>29</sup> J. Denucé, *Inventaire des Affaitadi banquiers italiens a Anvers de l'annee 1568*, Antwerp, 1934.

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heirs ensued.<sup>30</sup> The third example is that of a surviving set of account books of the celebrated printer and publisher Christophle Plantin. In 1563 he entered into partnership with four others, which lasted until 1565. The journal and ledger for that period were kept in Italian and in accordance with the double entry system. No doubt one of the partners or a bookkeeper was responsible for writing-up these account-books. When the partnership ended, Plantin gave up the system.<sup>31</sup>

## 8

Unless my chosen "samples" happen to have been unrepresentative, my tentative conclusion must be that the double entry system was not widely used by merchants in Europe (outside Italy) in the first century or two after the publication of Pacioli's *Summa*. However, the limited use of the system in practice cannot be attributed to lack of opportunities for merchants and bookkeepers to study the system and become proficient in its application in business. In the process of diffusion of knowledge of the system, printed books, and more especially their use by teachers, played an important part; and in this way Luca Pacioli must rightly be honoured as a founding father (though the limitations of his pioneering *De scripturis* should not be glossed over).

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<sup>30</sup> W. Brulez, *De firma Della Faille en de internationale handel van Vlaamse firma's in de 16e eeuw*, Brussels, 1959.

<sup>31</sup> L. Voet, *The Golden Compasses*, Amsterdam, 1969-1972, vol. 2, pp. 45. Plantin published two books on bookkeeping in the sixteenth century, respectively by Valentin Mennher (in German) and by Pierre Savonne (in French).

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