

Literacy, Identity and Fourteenth-Century Italian Merchants  
in the *Zibaldone da Canal*

Eve Wolynes

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Professor Koziol  
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"Texts such as this still permit us not only to see the medieval merchant at work in his shop, weighing and calculating; they further allow us to discern the whole man, reading, thinking, musing, praying, and watching the seasons and the stars in the fourteenth century."<sup>1</sup> With this David Herlihy quite succinctly expressed the appeal of the text in his review of the 1967 edition of the *Zibaldone da Canal*. The *Zibaldone*, unique among merchants' manuals of the fourteenth century, contains material that allows scholars to see the merchant outside of his role as tradesman and in a new light, as an individual whose intellect extends beyond his profession. Existing scholarship has largely neglected the image of "the whole man, reading, thinking, praying and watching," in favor of looking at how the *Zibaldone* can illuminate economic issues of medieval weight conversions, trade, naval technology, and the like. While there is no doubt of the importance of these issues and of the insights the *Zibaldone* can offer on them, the question of the merchant behind the text, of the social identity expressed within its pages, has largely been overlooked. In this paper I intend to bring to light the personality, or, indeed, personalities, of the merchants who compiled the manuscript; and I intend to look at how these personalities reflect the values and cultural identities of fourteenth-century merchants.

The *Zibaldone da Canal* is a text found in an Italian manuscript that dates to the fourteenth century and the first decades of the fifteenth. Yale University gained possession of the manuscript in 1967; prior to this it had been held by a variety of hands over several centuries, but the da Canal family held the manuscript consistently up until the mid-seventeenth century.<sup>2</sup> The Venetian dialect of the Italian and the emphasis on Venetian trade suggest a Venetian author. Based on the style of hand, language and paper, the physical manuscript was written

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<sup>1</sup>Herlihy, David, "Review: Untitled," *Journal of Economic History*, vol. 28, no. 3. (Cambridge: Cambridge University Press, 1968), ed. 509-510.

<sup>2</sup>MS 327, "Merchant's Commonplace Book", Yale University Beinecke Library Website description, <http://brbl-net.library.yale.edu/pre1600ms/docs/pre1600.ms327.htm>

some time in the last quarter of the fourteenth century. The text as it survives today begins in mid-sentence, evidence that it lacks at least one fascicle according to Thomas Marston, curator of medieval and Renaissance Literature at Yale as well as a previous owner of the manuscript.<sup>3</sup> The manuscript survives in only one copy, and there is no evidence that it ever enjoyed more than a very limited audience. All but the last five folios are written in a single neat, fourteenth-century chancery gothic hand; the last five folios contain five different hands, by my count.<sup>4</sup> Based on the date of 1422 written on f. 67v, these last folios probably resulted from excess blank pages subsequently filled in by later owners of the manuscript.<sup>5</sup> The physical manuscript therefore dates to the last decades of the century. But f. 26v contains the date August 20th, 1311, dating the content itself to the first quarter of the fourteenth century. This discrepancy suggests that the initial collection of the material predated a later recopying by at least several decades.<sup>6</sup>

Attempting to address this conflict of dates, Alfredo Stussi, editor of the 1967 edition of the original Venetian edition, left open the question of whether the text was a complete copy of an older text, or an entirely new compilation.<sup>7</sup> However, I have come to believe that at least a partial answer to this question exists: that the manuscript is a combination of both an earlier compilation by one person, and subsequent additions by a second individual.

At first glance, The *Zibaldone da Canal* represents a typical example of a “commonplace” book. These books existed in elsewhere in Europe, but particularly in Italy, where they were called “zibaldone.” From this second genre the *Zibaldone da Canal* gains its

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3Thomas Marston, “Descrizione del Manoscritto” in *Zibaldone da Canal: Manoscritto Mercantile del Sec. XIV* (Venice: Comitato per la pubblicazione delle fonti relative alla storia di Venezia, 1967), xli-xlii; xlii. Translation of this and other Italian texts kindly provided by Frank Bezner, except where noted as translations by John Dotson.

4The last five pages are included in Appendix B, as well as sample pages of the fourteenth-century hand.

5Marston, “Descrizione....”

6Interestingly, the date was added by an additional hand.

7Alfredo, Stussi, “Note Introduttive,” in *Zibaldone da Canal: Manoscritto Mercantile del Sec. XIV* (Venice: Comitato per la pubblicazione delle fonti relative alla storia di Venezia, 1967), vii-xxxvii.

name, which basically means “Commonplace Book of the Da Canal Family.” Dotson says of the genre, “the person keeping the commonplace book, or miscellany, would jot down formulae, recipes, verses of poetry, literary passages, prayers — anything at all according to whim or plan.”<sup>8</sup> Unlike most commonplace books, however, the *Zibaldone* restricts its subjects and uses a more systematic approach.

In order to understand the content’s structure and narrow subjects, I have classified the material into three categories: mathematical, mercantile, and literary/cultural. The categories generally appear in the text in this order, though with some mixture at the edges; for example, the mercantile section on trade with Ayas on ff. 63r-v occurs well after the shift to literary material on f. 44r. Titles provided by the compiler have allowed for relatively easy identification among these categories. “Mathematical” will refer to the sections that give instruction on theoretical algebraic and geometric mathematics. They are usually untitled and unlike any other category, they contain illustrations. “Mercantile” refers to any section that pertains to trade. The compilers generally titled mercantile section according to trade location. The final category cannot be found until f. 44r. After this point, however, the text consists almost entirely of literary or cultural material. While “literary” and “cultural” each have their own nuanced meaning, for the purposes of this text I use them synonymously. What I call literary represents essentially a “catch-all” category of anything that does not contain material related to trade, merchants, or math. Titles provided by the compiler have allowed for relatively easy identification among these categories.<sup>9</sup>

The first publication of the Italian edition involved four scholars: Alfred Stussi, the

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<sup>8</sup>Dotson, John. E., ed. and trans., *Merchant Culture in Fourteenth Century Venice: the Zibaldone da Canal*. (Binghamton: Center for Medieval and Renaissance Studies, 1994), 11.

<sup>9</sup>For the list categorizing each section, see Appendix A.



primary editor of the text, along with Frederic C. Lane, Thomas Marston, and Oystein Ore. Each wrote an introductory article to the edition, though Marston wrote merely a description of the physical manuscript rather than analysis. Stussi focused largely on an analysis of the language and a cataloging of the contents, but offered little in the way of a coherent opinion on the text. Lane, meanwhile, tried to date the text, noting that the mercantile information fits the date written in the text, August 20th, 1311. In his article, he states that the section on Tunis cannot have been compiled after 1331, because after that year the gold content of Tunisian money no longer matched the *Zibaldone da Canal*. According to Lane, other mercantile material matches this date or earlier. After dating the material, Lane considers the text within the broader traditions of mercantile compilations, particularly the *taquino*, naval ship manuals written in the fifteenth and sixteenth centuries. *Taquino*, Lane explains, are compilations intended for personal use. As a result they lack a systematic, organized structure. Earlier texts in the zibaldone genre are likewise disorganized, lifting material directly from sources with no attempt toward structural cohesion. As these texts developed over time, they acquired much more organized and systematic approaches to their material. The *Zibaldone da Canal*, meanwhile, mixes a systematic in approach with an unplanned structure. Locations of trade provided the frame of approach for the content, but which specific areas were included, and which were not, went unplanned ahead of time.<sup>10</sup> Addressing the dates assigned by Lane, Stussi notes that that while the content dates to the early decades of the fourteenth century, the language indicates a date of composition some fifty years later, matching the style of hand as well as three watermarks on the paper of the manuscript that date between 1365 and 1372. These observations, he argues,

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<sup>10</sup>Lane, Frederick C., “Manuali di Mercatura e Prontuari di Informazioni Pratiche” and “Le Navi Raffigurate Nello Zibaldone,” in *Zibaldone da Canal: manoscritto mercantile del sec. XIV* (Venice: Comitato per la pubblicazione delle fonti relative alla storia di Venezia, 1967), xlvii-lxvii.

suggest a recopying of the text where the content remained unchanged but the language was updated by the scribe.

Oystein Ore, the last of the Italian scholars involved with the 1967 edition, analyzed the text not as a medieval historian, but rather a mathematician with a penchant for history. As such, he focuses entirely of the mathematic problems at the beginning of the text. He claims that, unlike other fourteenth-century mathematical texts, the text lacks a foundation in didacticism. He argues that the solutions presented are neither organic, originating from logically progressing through the steps of the problem, nor systematic, applying a single method or foundation to provide the solution. For example, the text frequently uses the so-called “rule of three,” the method of finding the value of a fourth number based on its proportional relation to three other numbers (i.e.  $A : B = C : D$ , then  $AD = BC$ ). But unlike instructional texts, the *Zibaldone* makes no effort to explain the rule. Ore concludes that this reflects the text of a student rather than a teacher, a theory supported by the numerous errors that exist in both the calculations and the final solutions. Often problems contain errors in the calculations but nevertheless arrive at the correct solution, suggesting to Ore the influence of an instructor providing the solutions, which the student then copied down.<sup>11</sup>

These four individuals comprise the backbone of Italian scholarship. Literature in English on the *Zibaldone da Canal* is similarly limited. John E. Dotson has produced the majority of it, with a number of articles on the various merchants’ manuals of the fourteenth century.<sup>12</sup> These include an article on medieval shipping using the Western manuals for the

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<sup>11</sup>Ore, Oystein, “I problemi di matematica nello Zibaldone da Canal,” in Stussi, *Zibaldone da Canal: Manoscritto Mercantile del sec XIV* (Venice: Comitato per la pubblicazione delle fonti relative alla storia di Venezia, 1967), lxix-lxxvi.

<sup>12</sup>The other significant merchants’ manuals Dotson uses are the *Tarifa zoe noticia dy pexi e mexure di luogi e tere che s’adovra marcadantia per el mondo* (Venice 1967), ed. V. Orlandini; and *La practica della mercatura*, by Francesco Balducci Pegolotti, ed. Allan Evans (Cambridge, 1936).

analysis of shipping weight ratios between trade ports in thirteenth- and fourteenth-century Italy.

<sup>13</sup> His second article analyzes merchant's manuals to see which areas of trade the manuals frequently discuss. From this Dotson interprets the texts' attitudes toward Islamic cities and cultures, concluding that such manuals actually reflected a rather open and accepting attitude toward Islam, at least where profit was concerned: "The attitudes reveals in the manuals suggest the existence of a true business community reaching across cultural differences usually perceived as barriers."<sup>14</sup> Finally, Dotson introduces his translation of the text with a fairly broad (if by necessity somewhat general) analysis of the text as "a potpourri of one person's interests from the early fourteenth century."<sup>15</sup> He focuses largely on how the text reflects a Venetian perspective on trade, and how this compares to other merchants' manuals, which concentrate on trade with different locations than the *Zibaldone*. He concludes that the thirty-year gap between the compilation of the *Zibaldone da Canal* and the later manuals produced emphasis on different areas based on how historical events effected trade. For literary material, Dotson considers the merchant compiler someone whose intellectual proclivities were practical yet unremarkable, never departing from the so-called "European mainstream," but rather reflecting texts popular throughout all of Europe: Tristan, Bartholomew of England, etc.<sup>16</sup>

Frederick M. Hocker also looked at the *Zibaldone da Canal* and, similarly to Lane, analyzed the text as a precedent of the fifteenth-century *taquino* naval manuals. The phrases "I would have you know," and "you ought to know," he argues, indicate a "prescriptive" text,

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<sup>13</sup>Dotson, "A Problem of Cotton and Lead in Medieval Italian Shipping," in *Speculum* vol. 57, no. 1. (Cambridge: the Medieval Academy of America, 1982), 52-62.

<sup>14</sup> Dotson, "Perceptions of the East in Italian Merchants' Manuals" in *Across Mediterranean Frontiers: Trade, Politics and Religion, 650-1450*. ed. Dionisius A. Agius and Ian Richard Netton. (Belgium: Brepols Publishers, 1997), 173-186, 186.

<sup>15</sup>Dotson, "The World of the *Zibaldone da Canal*," in *Merchant Culture in Fourteenth Century Venice: the Zibaldone da Canal* (Binhamnton: Center for Medieval and Early Renaissance Studies, 1994) 1-27, 11; hereafter referred to as *Zibaldone*.

<sup>16</sup>Dotson, "The World of the *Zibaldone*. . .," 19, 22.

revealing the text's purpose as a compendium intended to help readers protect themselves from the fraud of their traveling agents and preserve trade techniques and secrets within a family to guarantee a competitive edge.<sup>17</sup> This argument works only if one regards *Zibaldone da Canal* as a precedent to the *taquino* manuals. But Hocker fails to consider that the text already has affinities with another genre, its fellow fourteenth-century merchants' manuals. These other merchants' manuals (notably the *Tarifa zoe noticia*) were, according to Dotson, "public in the sense of being widely distributed and belonging to no particular enterprise." Moreover, Dotson notes that between the *Zibaldone* and the *Tarifa zoe noticia* "there are many passages that are very similar in phrasing, sometimes nearly identical."<sup>18</sup> It is unlikely that the owners of the *Zibaldone da Canal* preserved this material as a competitive edge, since the very same information was already available in the public domain.

Armando Petrucci, a scholar of literacy rather than economic history, considered the the zibaldone genre from a different perspective than the others. He looks at these manuals not as precedents to the later *taquino*, but as heirs to the earlier Latin miscellaneous books, instructional compilations that collected whole works rather than excerpts. He argues against the perception of these texts as a degenerate form of their predecessors, and instead considers the zibaldone genre to be "the manifestation of an essentially non-book mentality, appropriate for those whose graphic culture consisted especially of writing for business and private documentation."

Commonplace books acted as "the evidence for and instrument of a definite desire for extra-scholastic and autodidactic acculturation that was both professional and ideological: a desire particular to artisan merchants of fourteenth- and fifteenth-century Italy."<sup>19</sup> By looking at the

<sup>17</sup>Frederick M. Hocker and John M. McManamon, "Mediaeval Shipbuilding in the Mediterranean and Written Culture at Venice," in *Mediterranean Historical Review*, vol 21:1, (2006) 1-37; 13-14. Doi: 10.1080/09518960600682174.

<sup>18</sup>Dotson, "The World of the *Zibaldone*. . . ," 25.

<sup>19</sup>Petrucci, Armando, "From Unitary Book to Miscellany," and "Reading and Writing Volgare," *Writers and*

text as a manuscript in the trend toward vernacular literacy, Petrucci opened up a new approach to the *Zibaldone da Canal* and other merchants' manuals that used these books not only as evidence for economic history but for social and intellectual history.

The compilers composed the *Zibaldone da Canal* during a time many historians consider to be the transition to a new era of education and literacy. Italian renaissance historians often consider the fourteenth century a transitional period, after which there came a flourishing of art, literature, and education. Meanwhile, many medievalists end their study at approximately 1350. However, the *Zibaldone da Canal* reflects the instructional texts of both eras. As a collection of other texts, it draws its structure instructional Latin miscellanies of the earlier Middle Ages. But it also reflected an increasing lay literacy in the vernacular that continued to develop through the Renaissance. Thus, *Zibaldone* can be considered a bridge between these two eras.

The increase in lay literacy during the thirteenth and fourteenth centuries coincided with the commercial and maritime revolutions that saw the position of merchants rising in society. Thomas Berhmann notes what he calls an "explosion" in the numbers of legal charters through the thirteenth century. One can hardly criticize his use of the word "explosion" since he found that "for the period between 1250 and 1274, we have three times as many items as for the whole twelfth century," for a single church, not to mention only twenty-five Bolognese wills from the twelfth century, and more than 250,000 from the thirteenth.<sup>20</sup> Vernacular literacy constituted the majority of this increase. Up to this point Italy had used Latin almost exclusively, while the rest of Europe adopted the vernacular, primarily for poetry and literature much earlier. Petrucci points out that this newfound lay literacy occurred largely in the vernacular, with "middle-class"

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*Readers in Medieval Italy*, ed. and trans. By Charles M. Radding. (New Haven: Yale University Press, 1995. 1-18 and 169-235; 188-189.

<sup>20</sup>Berhmann, Thomas, "Pragmatic Literacy in the Lombard City Communes," in *Pragmatic Literacy, East and West: 1200-1330*, ed. Richard Britnell (Woodbridge, UK: Boydell Press, 1997), 25-41; 25, 30.

individuals like the newly wealthy merchants, as well as accountants, artisans and bankers, learning to read and write in the vernacular but not Latin. As vernacular literacy rose in Italy, educated merchants were its primary consumers.<sup>21</sup> There has been some debate, however, as to how far this rise in literacy extended. In *Italy in the Age of the Renaissance*, Robert Black claims it was limited to predominantly urban areas, but Berhmann suggests that the change occurred in the countryside as well since charters rose in “smaller social communities, like the cathedral chapters of Milan, Cremona and Novara” as well.<sup>22</sup>

Two primary phenomena produced this rise in mercantile vernacular literacy: first, the rising necessity of numeracy and the subsequent development of what were called abbaco schools; and second, the necessity of literacy for communication over long distances for large-scale trade. The necessary numeracy for trade meant that only educated merchants could viably trade, making education, and thus literacy, a requirement rather than an option for merchants. Of the long-distance communication J. K. Hyde notes that “around the middle of the thirteenth century, a major breakthrough took place in the use of literacy in the field of long-distance commerce and finance. . . . The moving leg which spanned the business world was composed of correspondence: letters of differing shards of formality, from bills of exchange to informal notes.”<sup>23</sup> This breakthrough in mercantile literacy left its mark in the form of a massive number of surviving letters, most famously those of Francesco Datini of Prato, from whom we have over 125,000 letters written in the span of less than thirty years, sent from over 250 different places.

Datini was certainly unique in his almost obsessive preservation of his correspondence, but was

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21Petrucchi, *Reading and Writing*, 140; 175.

22Black, Robert, “Education and the Emergence of a Literate Society,” in *Italy in the Age of the Renaissance: 1300-1550*. ed. John M. Najemy, (Oxford: Oxford University Press, 2004), 18-35; 32. Berhmann, “Pragmatic Literacy. . .,” 29.

23Hyde, J. K., “Some Uses of Literacy in Venice and Florence in the Thirteenth and Fourteenth Centuries,” in *Transactions of the Royal Historical Society*, Fifth series, vol. 29 (Cambridge: Cambridge University Press, 1979), 109-129; 113.

probably not the exception in volume.<sup>24</sup>

Meanwhile the increasingly pressing need for numeracy as well as literacy pushed merchants to establish an education system separate from preexisting primary and secondary schools. These included “public” schools run by independent schoolmasters,<sup>25</sup> schools sponsored by the commune, and ecclesiastical schools funded by the church.<sup>26</sup> None of these, however, taught the practical business mathematics that Italian merchants wanted their sons to learn. While university mathematics studied “harmonious relationships between numbers which might have significance for other disciplines,” lower levels of instruction did not teach arithmetic at the level of competence necessary for business.<sup>27</sup> Instead, merchants turned to the the *Liber Abbaci*, written by Leonardo Fibonacci in 1202, which emphasized practical mathematics tailored to the needs of merchants.<sup>28</sup> Eventually abbaco mathematics gained popularity in schools around the last decade of the thirteenth century in Florence, and from there spread to the rest of Northern and Central Italy. Abbaco schools taught in the vernacular, unlike the medieval universities, and the two rarely overlapped in curriculum. Grendler explains that “Latin schools ignored abbaco because it added nothing to the social status and career goals of their students. The Latin schools sought to train society’s leaders and the professionals (chiefly secretaries and lawyers) who aided them.”<sup>29</sup> Thus, as the fourteenth century progressed, Latin and vernacular education and literacy developed on parallel but generally separate paths.

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<sup>24</sup>Hyde, “Some Uses of Literacy. . .,” 113-115.

<sup>25</sup>Public only in the sense that they accepted anyone capable of paying the necessary fees, so there were no official social-class restrictions

<sup>26</sup>Grendler, Paul F., “Schools in Western Europe,” *Books and Schools in the Italian Renaissance* (Aldershot, UK: Variorum, 1995), 185-205; 188-196.

<sup>27</sup>Grendler, *Schooling in Renaissance Italy: Literacy and Learning: 1300-1600* (Baltimore: Johns Hopkins University Press, 1989), 307.

<sup>28</sup>Albrecht Heeffer argues that abbaco algebra developed independently of and prior to the introduction of the *Liber abbaci*, based on the fact that early fourteenth-century abbaco texts make few or no references to Fibonacci’s work. But based on the similarities of the math problems in the *Zibaldone da Canal* to those of the *Liber abbaci*, it would seem that merchants were familiar with the text, even if contemporary abbaco treatises did not reference it.

<sup>29</sup>Grendler, *Schooling*, 311.

Nevertheless, despite the rise in literacy, Venice never developed two literary genres popular in Florence, namely the *ricordanze*, or personal family/business memoranda, and the city chronicle. The best known chronicle of Florence is without a doubt Giovanni Villani's *Nuova Cronica*, but no similar contemporaneously famous chronicle existed in the vernacular for Venice. Martino da Canal, a possible distant relative of the *Zibaldone*'s compiler, did write a chronicle in the last quarter of the thirteenth century, but in Franco-Venetian rather than the vernacular. Subsequently, the work never gained any significant popularity. Hyde suggests that the greater popularity of vernacular literature such as the *ricordanze* and chronicles in Florence was a product of a more enthusiastic embrace of thirteenth-century Bolognese rhetoricians' "program of written and spoken eloquence geared to civic needs," which encouraged eloquence in the vernacular as well as Latin, while the strength of Latin in Venice discouraged efforts to cultivate a vernacular tradition.<sup>30</sup> He ultimately concludes that Venice's inability to focus on the literary cultivation of a single language prevented the city from ever gaining prominence in late-medieval vernacular literature; the use of Venetian, French and Latin in Venice's literary tradition made it a jack of all trades but master of none. Venice eventually caught up to Florence in adopting vernacular literature, but not in time to adopt these two literary genres.

Scholars have had notorious difficulty tracking the training of merchants. Unlike university academics, lawyers, physicians and other lay professionals, they have failed to leave a significant paper trail behind them detailing the education of young merchants in their profession. In *Studies in Venetian Social & Economic History*, Frederic C. Lane explains, "In regard to the training of young merchants, we know little except that it involved working under older men, chiefly relatives, voyaging, and attending schools 'of the abacus' which taught

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<sup>30</sup>Hyde, "Some Uses of Literacy in Venice. . .," 121.



accounting as well as arithmetic.”<sup>31</sup> Richard A. Goldthwaite seems willing to go into more detail about the training of merchants, citing the letters of a young nobleman training as a banker that describe enduring grueling hours of work at menial tasks, such as handling the cash box at a local office branch. Learning from the ground up, however, seems to have been unique to Florentine merchants, since Goldthwaite mentions that Venetian ambassadors to Florence “were always somewhat surprised that sons of the city’s wealthiest patricians should engage in manual labor,” suggesting that Venetian merchants probably apprenticed at the same level they would later occupy.<sup>32</sup> The *Zibaldone da Canal* offers insight into the training and education of Venetian merchants and how these were both closely tied to literacy.

Previous scholarship on the *Zibaldone da Canal* has generally avoided speculation about the compiler’s identity. Dotson referred to the author as “our anonymous businessman-compiler,” based on the fact that “most of the material is just what one would expect of a businessman, or an aspiring one: memoranda for converting weights, measures, and moneys into their Venetian equivalents; observations on business conditions; and information about taxes and fees.”<sup>33</sup> But even this statement assumes a fact for which no real evidence exists: that a single individual compiled the text. The disorganization of much of the later material in the text contrasts with the time and effort put into the manuscript itself, visible in the neat writing, decorated initials and intricate illustrations. This suggests that while it is possible that the surviving manuscript is the original, it is much more likely that the text was compiled and then recopied by a professional scribe.<sup>34</sup> Even if the multiple individuals collected the material over

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31Lane, Frederic C., “Double Entry Bookkeeping and Resident Merchants,” *Studies in Venetian Social and Economic History*, ed.s Benjamin G. Kohl and Reinhold C. Mueller (London: Variorum Reprints, 1987) 177-191; 180.

32Richard A. Goldthwaite, “Schools and Teachers of Commercial Arithmetic in Renaissance Florence” *Journal of European Economic History*, 1972 vol. 1 no. 2, ed. Luigi de Rosa (Rome: Banco di Roma, 1972) 418-433, 418.

33 Dotson, “The World of the *Zibaldone*. . .,” 11-13

34 Dotson, “The World of the *Zibaldone*. . .,” 9.

time, the handwriting would show no evidence of it because of the recopying. Therefore, while Dotson and others assume that a single individual compiled the fourteenth-century material, the handwriting can provide no absolute proof. Conversely, just as the script cannot prove the existence of only a single compiler, it cannot prove the existence of multiple compilers. Thus, we must seek proof in the content, rather than the handwriting.

Although recopying erased the original handwriting, it failed to remove one of the most fascinating aspects of the text, one which sheds light on the question of multiple compilers. The mercantile and mathematical sections alternate in using Arabic and Roman numerals, often within the same sentence: “*Sapie che lbr. CXX al pexo sotil de Venexia si e in Pullia et in lo Principado lr. 100, doncha sono lo 1/6 menor.*”<sup>35</sup> Dotson noted such sections, observing that “there is not. . . a great deal of consistency in this practice,” and therefore ultimately decided not to reproduce the variations in numerative style “for reasons of clarity and accuracy.”<sup>36</sup>

Unfortunately, Dotson’s decision means that his translation obscures a key piece of evidence which suggests a second compiler. While much of the mercantile material does consistently mix Arabic and Roman numerals, this is not true for the whole text: beginning just after the section about trade between Cyprus and Venice on f. 34r, the text ceases using Arabic numerals almost entirely. Between this first section on trade with Cyprus on f. 34 r<sup>37</sup> and trade with Cremona on folio 43 verso, Arabic numerals are used only scantily, suggesting that the compiler preferred Roman numerals. The exception to this is fractions, which the compiler continues to express with Arabic numerals.<sup>38</sup> Following the abbreviated an Italian prose version

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<sup>35</sup>Stussi, *Zibaldone da Canal:Manoscritto Mercantile del Sec. XIV*, 22. F. 10v in the original MS.

<sup>36</sup> Dotson, “The World of the *Zibaldone*. . .,” 14.

<sup>37</sup>Note that there are two sections on Cyprus which are separated by several sections addressing other areas. Both of these sections, however, I have attributed to the second compiler. See appendix. It is with the first section that the transition to predominantly Roman numerals begins, page 102 (“Cyprus with Venice”) in Dotson, 56 in Stussi and f. 34r in the original

<sup>38</sup>This suggests that by the fourteenth century Roman numeral fractions had become archaic and unused, even as

of the popular Tristan romance on f. 44r, the text uses Arabic numerals but three times.

However, the issue of multiple compilers raises the question of when exactly the text was compiled. Frederic Lane dates much of the mercantile material to the first decades of the thirteenth century. The date August 20th, 1311 is written in the text on f. 26v in an early mercantile section, and the literary sections include a chronicle that ends in 1304 on ff. 57r-59r. The transition from the first compiler to the second comes around f. 34r. The first compiler shifted from mathematical to mercantile material around f. 23v (with some blending between the two on the edges). Meanwhile, the second compiler introduced literary material at f. 44r. Fourteenth-century material ends at f. 67r, and the last folios consist of several fifteenth-century hands, including a date of 1422. These dates would seem to suggest that the text's compilation spanned a relatively brief period, with a gap of disuse before the redaction into a fair copy around 1380. A quick compilation would not provide sufficient time for the text to change hands, making a single compiler more likely. However, these dates do not actually prohibit the existence of a second compiler. The dated mercantile material comes early on in the first compiler's half of the text, leaving the possibility that the half attributed to the second compiler came at a later date. The chronicle's date of 1304 establishes a *terminus post quem* for the literary material, but it cannot definitively establish the date of composition, because the chronicle could have been added well after 1304. It actually combines two chronicles, one of which was already out of date by fifty years by 1311 (it ends at 1257 before the second chronicle picks up). Since the first chronicle was out of date, there is no reason to assume the second was not out of date as well. If the chronicle was indeed added long after its final included date, this would leave ample time for a second compiler.

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regular Roman numerals persisted.

A keen critic might suggest that a shift from one original source to another accounts for the shift in numeration. That is, a casual compiler who copied an original source might not have bothered to rewrite Roman numerals in Arabic. Mercantile and mathematical texts would be far more likely to contain Arabic numerals because of the connection between *abbaco* mathematics and Fibonacci's *Liber Abaci*, which introduced Arabic numerals to the West. In contrast, cultural texts would be far less likely to use Arabic numerals. After all, a change in source-text could explain why the portion which lists types of cloths frequently traded with Venice consistently uses only Roman numerals, yet exists squarely within the mercantile sections which heavily utilize Arabic numerals. Indeed, Frederic C. Lane determined that the compiler copied the list from *Raciones panorum quod debeat habere per pecia*.<sup>39</sup>

Unfortunately, this suggestion that the use of numerals only reflects the source-text is not a particularly viable solution. The transition from mixed Arabic-Roman to heavily Roman remains far too consistent to suggest that the shifts reflect only a change in parent source. The mercantile sections stay basically the same in content across the shift in numerals from mixed Roman-Arabic to predominantly Roman numerals, suggesting that a change in parent source cannot account for the shift. Eleven mercantile sections use predominantly Roman numerals. Moreover, while the text switches fairly abruptly from mercantile to literary material, it does not do so with absolute precision: two mercantile sections follow the Tristan on f. 43v, and neither contains any Arabic numerals whatsoever. The section on trade with Ayas on f. 63r best exemplifies this. This section is exactly like the earlier mercantile sections; it describes trade with the area in terms of which goods are frequently traded, how weights and measurements are converted between Ayas and Venice, and what taxes are levied on various goods. Indeed, this

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<sup>39</sup>Lane, "Manuale di mercatura e proutuari de informazioni pratche," in Stussi, *Zibaldone*, as noted by Dotson in his translation.

segment differs from the early mercantile sections in only two ways: its location within the text among the cultural excerpts, and its lack of Arabic numerals entirely. Moreover, the transition to Roman numerals continues with the shift to cultural material, such as the “Division of the parts of the natural day,” on ff. 46v-49v, which uses exclusively Roman numerals. This persistence of exclusively Roman numerals across the shift of content suggests that it was not merely an introduction of a second mercantile source-text that resulted in the shift; the preference remained even as the subject, and thus the source-text, of the material changed. No matter what the content, mercantile or non-mercantile, the text almost never uses Arabic numerals after the section on trade with Cremona on f. 43v.

Since change in parent-source cannot be the cause for the shift in numeration, we must look to other explanations for the transition. One might argue that the compiler consciously or unconsciously changed his numbering methods over the long compilation time. But a single compiler changing style so abruptly suggests a deliberateness that is simply not evident elsewhere in the text. One can consider the varying styles of numeration a type of identity assumed by the compiler. Using a mix of Roman and Arabic just as Arabic numerals were on the cusp of new-found popularity in the West suggests a worldly writer, while purely Roman numerals suggest someone more traditional, particularly in a text that already utilized Arabic numerals. In choosing to mix Arabic and Roman, the first compiler assumes one identity; by refraining from use of Arabic numerals in the second half of the text, the compiler presents a new identity to the reader. To believe only a single individual compiled the text requires that he decided to drastically change his presentation of himself half-way through the manuscript, which is unlikely. If the lone compiler sought to recreate his identity down to the very smallest expressions of self in the form of numeration, why then did he not edit the initial portions during

their subsequent recopying to be consistent with his later self-presentation?

Furthermore, the shift in usage reflects not only change in self-presentation, but also in the compiler's methodology behind numeration. Dotson eventually gave up on finding a systematic methodology behind the alternating use of Arabic and Roman numerals, coming to the conclusion that “there is not. . . a great deal of consistency in this practice.”<sup>40</sup> But the compiler does have a system in using Arabic and Roman numerals, and it fits quite nicely with the image of the pragmatic merchant who subtly suggests smuggling in the face of high tariffs. In that vein of pragmatism, the first compiler almost always uses whichever numeral will express the number in the fewest, simplest characters possible. Numbers that would be excessively long if written in Roman numerals are written in the “shorthand” of Arabic, but simpler numbers such as forty-five, tend to be written out in Roman numerals. Indeed, Roman numerals are rarely more than three letters long. With the onset of predominantly Roman numerals, however, this numeric pragmatism falls away, and there truly is, to my mind at least, no precise methodology behind why the second compiler chose to leave only a small handful of number remaining in Arabic. But the vestiges of merchant pragmatism remain: the Arabic numerals are frequently, though not always, paired with fractions, which are never expressed with Roman numerals, suggesting that the compiler often resorted to Arabic numerals when he considered the alternative too troublesome to be worth the effort.<sup>41</sup> For there to be a single compiler, he would have had to apparently deliberately cast off a mixed numbering system, and the practicality this system entailed, yet still preserved the mixed-numbered material without revising it to be consistent with his new self-presentation. Thus we must discard the theory of a single compiler who actively decided to switch methods of numeration.

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<sup>40</sup> Dotson, “The World of the *Zibaldone*. . .,” 14.

<sup>41</sup> The exception to Arabic fraction is  $1/2$ , which is expressed as  $\div$ .

This leaves a third and final theory: the shift in numerative methods also coincided with the introduction of a second and heretofore unknown compiler. The existence of a second compiler explains both the shift in numeration and the subsequent introduction of literary content. Evidence of additional compilers in the fifteenth-century material, visible in additional scribal hands at the very last folios of the manuscript, also supports this theory. The existence of such compilers in the fifteenth century implies that these later individuals considered the *Zibaldone* as something of a “living” text, to be added to as new material presented itself rather than preserved in its pristine form. Such an idea would have had roots in the precedent of the second compiler whose handwriting had been erased by the recopying.

It is even possible, though unlikely, that there were more than two fourteenth-century compilers. This possibility can be based largely on the repetition of material, notably of two sections on trade between Venice and Negroponte on ff. 33v and 36r, weight conversions between Naples and Tunis on ff. 32r-v and 40r, and weight conversions between Cyprus and Venice on ff. 34r and 34v-35r. Note that the transition to predominantly Roman numerals occurs with the first inclusion of trade with Cyprus, rather than second. Curiously, the second section on trade with Cyprus is one of the few after the shift that makes much use of Arabic numerals. This section is also significantly shorter than the initial composition on trade with Cyprus, and is more limited in scope.<sup>42</sup> Furthermore, the shift back to predominantly Arabic numerals occurs in the second half of the text, between two sections that use predominantly Roman numbers. Thus while it is possible that the redundancy and shift reflect a third compiler, because the inclusion is so brief, it seems more likely that the second compiler merely paused in his own collection and

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<sup>42</sup>It addresses only how the weights of carob-beans convert between Cyprus and Tunis, while the original section goes into much greater detail of various conversions of weights of oil, honey, money, lightweights (which includes certain types of trade goods) and grossweights (again, other types of trade goods).

analysis of information to include an excerpt lifted from a source that favored Arabic numerals in an effort to provide data his own material lacked. Its inclusion in the notebook was more likely to have been an offhand decision that produced a careless reproduction of the Arabic numerals used in the original, rather than a conscious decision to switch between one format or the other. Likewise, both its brevity and its inclusion among other Roman utilizing sections suggest against a third compiler, but rather that the second compiler acted with careful thoroughness when it came to adding information to the manuscript.

A similar instance occurs in the material from the first compiler, where he interrupts his sections on trade with various areas to describe the lengths<sup>43</sup> of cloths imported to Venice. The surrounding sections mix Arabic and Roman numerals, but the imported cloth section uses exclusively Roman numerals. The other sections are written in complete sentences and contain much more conversational and stylized writing, as opposed to the brusque, listed form of the material on cloth: “Provins ought to be 38 *braccia*. Colored combrics ought to be 45 *braccia*,”<sup>44</sup> as opposed to: “Now you ought to know that one pays duty on everything, save that which is hidden, and that which is not hidden pays 5 percent. And to have *dople* one pays 2 and a quarter bezants, but everyone who knows how to do it well pays only the 2 and a quarter bezants for making.”<sup>45</sup> The tone of the latter clearly suggests a mentor explaining the secrets of the trade to a young pupil, and remains consistent with the tone of the mathematical problems at the beginning of the text, while the former lacks the consistent narrative style of its surrounding material. As with the second section on Cyprus, this exception probably reflects the original source, whereas the rest of the material reflects the compiler’s heavier editorial hand. The lack of instructional

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<sup>43</sup>That is, minimum legal lengths as dictated by legislation.

<sup>44</sup>Dotson, *Zibaldone* 76; f.23v

<sup>45</sup>Dotson, *Zibaldone* 85; f. 27r



tone suggests that the compiler included the list for his own interests rather than the reader's. Most importantly, the inclusion of an exclusively Roman-numeral text among the mixed-numerals does not discredit the theory of two compilers.

Since previous scholarship has assumed a single compiler for the fourteenth-century material, one must consider how this new perspective changes our interpretations of the text. The two halves of the manuscript reflect the individual personalities of their respective compilers. Each determined what he wished to preserve, culling the useless information and saving only what he considered of value. By considering what each compiled, one can develop an understanding of the manuscript as a manifestation of the changes in values and interests between the generations that had their hand in forming the *Zibaldone da Canal*. Yet as each compiler — the first and second in the fourteenth century and then the others in the fifteenth — added his own representation of his culture and values, he nevertheless chose to preserve the earlier material. This suggests that even as the values and interests of the later compilers changed, they still considered to earlier material a part of their own interests, and a part of their own identity, showing that that the earlier material, and the cultural identity it represented, still had relevance and value to the later compilers. Even as the shifts in the *Zibaldone da Canal* represent cultural changes, the continued maintenance of the text embodies a cultural continuity as well.

Between the first and second compiler, the most obvious change is the introduction of cultural material into a previously entirely mathematical and mercantile text. This shift first appears on f.54 r., which I have assigned to the second, heretofore unknown compiler. Previous analysis by Dotson, Stussi, Lane and Ore has largely ignored the literary and cultural material in favor of the mercantile material. This makes sense, given that much of the literary material is

what Dotson calls “best-sellers, non-fiction and self help,” all within the “European mainstream.”<sup>46</sup> The cultural sections are, indeed, unremarkable in content so obviously derived from other earlier and better-known sources. In contrast, Dotson and others consider the mercantile material unique because the *Zibaldone da Canal* is one of the earliest texts in the genre of merchant’s manuals, with the other well-known manuals, Pegolotti’s manual and the *Tarifa* coming several decades later.<sup>47</sup> Because the compiler collected the literary sections of the *Zibaldone* from other sources considered “popular,” that ever-used term to denigrate texts deemed to possess minimal intellectual value, scholars usually gloss over these sections. However, Stussi does note that the excerpt of the “Doctrine of the Slave of Bari” omits the verses relating to “mercantile morals” and suggests this may be deliberate, something certainly in keeping with the casual references to smuggling in the mercantile material.<sup>48</sup> This suggests that the decision to include such literary material was not as careless as Stussi and Dotson suggest, but rather that their inclusion was as deliberate as the mercantile sections were. Although Stussi and Dotson begin to consider how editorial influence reflect a personality and cultural identity in the literary sections, both fail to fully explore the notion, instead favoring the mercantile material. Scholarship needs to continue to see how the inclusion of mercantile and literary material reflect a changing mercantile culture within the text.

Just as the introduction of cultural material by the second compiler represents a significant change, its original absence in the content from the first compiler is equally important. By omitting literary works, the compiler placed the text within the genre of merchants’ manuals. As a result, this transition from mercantile to cultural material reflects not

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<sup>46</sup>Dotson, “The World of the *Zibaldone*. . .,” 19.

<sup>47</sup>Pegolotti is dated to 1340, and the *Tarifa* to 1345, 30 years after the 1311 date contained in the *Zibaldone* MS.

<sup>48</sup>Dotson, “The World of the *Zibaldone*. . .,” 22; and Stussi, “Note Introduttive”, xxvi

only a shift in content but in genre as well. Where it had been a merchant's manual, it now became a personal commonplace book. Thus the *Zibaldone* must be looked at within the contexts of both genres to understand how it functions within each category. From there one can then consider how the change in genres reveals each compilers' cultural identity.

Dotson examined the text as a merchants' manual rather than commonplace book, looking at the attitudes fourteenth-century Italian merchants held toward Muslims. He found that "the attitude found in the merchants manuals of the early fourteenth century may be described as rational, businesslike, and often well-disposed toward Muslims."<sup>49</sup> This "rational, businesslike" attitude persists throughout the mercantile sections, and appears in nearly every aspect of the mercantile and mathematical sections. In the mathematical sections, some problems are purely theoretical: "Make me this calculation: if  $3 \frac{1}{2}$  were  $5 \frac{1}{4}$ , what would  $13 \frac{1}{3}$  be?" But most possess the same businesslike attitude shown in the mercantile sections. These problems are word problems that reveal just how extensively the compiler's mercantile background influenced his compilation: "Make me this calculation: 2 merchants have their wool on a ship. One of them put 17 sacks [on board]. And when they had arrived in Venice the captain demanded his freight charges from the merchants and they said to him, 'Take one of our sacks from each of us and sell it and pay our freight costs and return the remainder.'" Even when explaining math, the text has the pragmatic connection between math and business at heart, using concrete imagery to give mathematical theories mercantile applications.

This same problem also exhibits the compiler's tendency to use Venice as a backdrop to his mathematical problems. Many of the math problems are similar in style to the *Liber Abbaci*, the famous text by Leonardo Fibonacci that introduced the study of Arabic numerals in the West.

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<sup>49</sup>Dotson, "Perceptions of the East. . .," 186.

However, the compiler never lifts any problems word-for-word from this predecessor. Instead, he changed the problems so that “wherever possible the examples were given from a Venetian point of view” and “they appealed to a Venetian by engaging his love of his city and the sea.”<sup>50</sup> In the *Zibaldone*’s word problems, the merchants are always Venetian, and the ships always port in Venice. But the statement by Dotson raises a question: Were these math problems uniquely Venetian because the compiler himself was Venetian, and compiled those that interested him the most due to their Venetian overtones, or were the examples from a Venetian point of view in order to appeal to the audience?

This question presumes that the compiler did not write the *Zibaldone da Canal* purely for his own benefit. However, Oystein Ore when he argues that the manuscript originated as an “abbaco book.” The texts developed at abbaco schools, when young students copied math problems provided by their instructor for later use.<sup>51</sup> Here we find the likely origin of the *Zibaldone da Canal* as a collection of math problems probably used exclusively by the compiler with no additional audience.

The progression from erroneous mathematical material to mercantile material makes sense when put into the perspective of a text originating in a personal abbaco book. Over time, the first compiler would have added to the mathematical information with similarly useful reference material. The transition between mathematical and mercantile material occurs smoothly since so many of the math problems<sup>52</sup> discuss the same concepts as the subjects covered under mercantile headings. These mercantile sections generally cover material a merchant might need to access in his day-to-day business. Correspondence with other merchant

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<sup>50</sup>Dotson, “The World of the *Zibaldone*. . .,” 14.

<sup>51</sup>Grendler, *Schooling*, 316.

<sup>52</sup>That is, the pragmatic math problems dealing with calculations of weight of merchandise or of profits.

served as the most important source of information on trade for a merchant. These provided detailed “information on accounts, commodity availability and prices, ship movements, money-related services such as banks and exchange rates, summations of old business, instructions for future actions, and notes of personal interest such as deaths and weddings.”<sup>53</sup> Letters provided a greater breadth and wealth of information than the fairly sparse and limited content of the mercantile sections of the *Zibaldone da Canal*, which limited itself almost entirely to weight and money conversions. But such letters were rather jumbled and disorganized compared to the more structured organization that the mercantile sections of the *Zibaldone da Canal* offered. Considered as a reference text, the *Zibaldone da Canal* served a function complementary to correspondence, rather than redundant.

This limited scope of topics also suggests that the original compiler intended the text primarily for personal use. Both fourteenth-century compilers add material that overlaps in topic only where the later material provides information absent from the earlier section. But this thorough nature applies within a narrow lens of interests. For example, the second section dedicated to trade with Apulia on f. 32r does not overlap the material provided earlier, on f. 8r. However, it still provides information very much in the same vein: the first outlines weight conversions between Apulia and Venice; the second covers these same conversions, only between Apulia and Tunis instead. Importantly, this narrow scope of interest reveals an assumption that the audience was familiar with the various trade entrepôts. Never, even in the sections written by the second compiler, does the *Zibaldone da Canal* thoroughly describe the area with a level of detail one might expect of an introductory text. Instead, both of the

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<sup>53</sup>Congdon, Eleanor, “Datini and Venice News from the Mediterranean Trade Network,” in *Across the Mediterranean Frontiers: Trade, Politics and Religion, 650-1450*. ed. Dionisius A Agius, Ian Richard Netton. (Belgium: Brepols Publishers, 1997), 157-171; 159

compilers assume that the audience already has sufficiently familiarity with all the locations that they need only discuss the finer details.

The appearance of familiarity with local places and practices, the narrow scope of interest, and the roots of the math problems in an abbaco book all suggest that the *Zibaldone da Canal* began as a compilation by the compiler purely for his own, personal use. But the tone suggests that the text's audience swiftly changed. One can pinpoint the introduction of a second-party audience to an exact point in the manuscript: f. 26v gives a date, "1311, 20 August."<sup>54</sup> While there is mercantile material prior to this date, its short-hand tone is reminiscent of the mathematic sections: "In Apulia, meat and cheese are sold by pesi and 30 pesi and 1 thousandweight, and a peso is 20 rotoli"; "Here is your rule: we must calculate that we have bought 5 thousandweights of Apulia that would cost 45 ounces of gold. Now, you ought to say, 12 times 45 makes 540, which pounds one ought to divide in 6 parts," and so on and so forth.<sup>55</sup> Material before f. 26v maintains this straightforward tone, and while the compiler makes overtures toward didacticism, these seem merely echoes of the abbaco book from which the *Zibaldone* developed. The next mercantile material is a list of legal lengths of cloths imported to Venice lifted. By Lane's identification, the compiler lifted the section directly from the *Raciones pannorum quod debeat habere per pecia*. This, too, the compiler clearly included for personal use; it is so offhandedly compiled that it does not even bother with complete sentences. The 1311 date immediately follows this list, and the very next title hints at the increasingly instructional tone of the material that follows: "Memorandum of how the weights and measures of Venice are equivalent with weights and measures of many countries, and of the payment of

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<sup>54</sup>Later, in the fifteenth-century material, is written the date 1422 accompanied by a claim of ownership by one Niccolo da Canal, from whom the text has earned its "da Canal" eponym.

<sup>55</sup>Dotson, *Zibaldone*, 43; f. 8r

those countries, and how their money exchanges by direct exchange with the money of Venice.”

<sup>56</sup> For the first time, the text has an additional audience. The compiler makes this clear with his subsequent introduction: “First, I want to begin with how to change the weights and the measures of Venice with the weights and measures of Tunis, which is the capital of the Kingdom of all Barbary.”<sup>57</sup> The content remains much the same as before, and the compiler still assumes prior knowledge of the locations. But the tone conveys clear belief that the content requires more explanation than it had before. This new tone stays fairly consistent throughout the material added by the first compiler, visible in how most new sections begin with a phrase along the lines of “*debis saver*,” “you ought to know,” or “*ve faco asaver che*,” “I would have you know.”<sup>58</sup>

One might argue that this is not as dramatic a shift in tone as I have suggested. After all, the mathematical sections also use “instructional” phrases such as “This is your rule [of how to calculate something]” or “Make me this calculation” that seem to suggest a second-party audience. But while these do suggest a second-party audience, that audience is in fact the compiler himself. Because the text’s origins lie in an abbaco book, the process of copying the rules and problems from an instructor produced the instructive tone. But the work following these prompts reflect the product of an individual writing for himself as audience. Thus while the mathematical material and the first mercantile material up to the 1311 date reflect a reference text for personal use by the compiler, as the compiler progressed in collecting the material his intentions changed, transforming the once personal text into a text with a new, second-party audience.

The compiler expanded the *Zibaldone*’s audience, and in doing so he also changed the

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<sup>56</sup>Dotson, *Zibaldone*, 83; f. 26v.

<sup>57</sup>Ibid.

<sup>58</sup>Original Venetian is from Stussi’s *Zibaldone da Canal*, *Manoscritto Mercantile de Sec. XIV*, and translation is from Dotson’s *Merchant Culture in Fourteenth-Century Venice: Zibaldone da Canal*.

text's purpose. Still probably intended as a handbook to be conveniently taken out at moments when the reader needed a quick refresher on the minutiae of trade, the compiler shifted the its purpose from the conservation of material into the transmission of that material. Before, the material revealed an individual's perception of himself and what he valued in terms of what he preserved for his own interest. With the adoption of a separate audience, the preservation of information instead reflected the character he wished to present to the audience as well as the cultural identity and values he wished to inculcate in the audience.

That character is of someone who is curious and clever, yet pragmatic and analytical. The majority of math problems serve as exemplary versions of problems the compiler might have come up against in daily business. But the compiler seems to have included several purely for amusement's sake, revealing a compiler that revels in mathematical calculations. "Make me this calculation," one such problem begins, "there is a tower 40 braccia high and at its foot there is a cat that wants to climb up it, and he climbs  $\frac{1}{4}$  during the day and at night slips back  $\frac{1}{5}$ . And atop the tower there is a mouse that wants to come down, and he descends  $\frac{1}{3}$  during the day and at night returns upward  $\frac{1}{4}$ . I ask you: in how many days will the cat and the mouse meet?"<sup>59</sup> This problem has no real-world application. Its inclusion in the manuscript appears to serve only as entertainment in calculation. Likewise he later displays what one might call "mathematical wittiness," a trick of predicting the "calculation of a ring, in order to know how to say by calculation which person has it, in which hand, and on which finger of the hand, and on which knuckle."<sup>60</sup> With these problems, the compiler reveals an interest in math in two forms: first, in its commercially useful form, but also in math as a form of intellectual entertainment.

This was a different sort of math for math's sake than that studied in medieval universities,

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<sup>59</sup>Dotson, *Zibaldone*, 54; f. 13v.

<sup>60</sup>Dotson, *Zibaldone*, 69, ff. 19v-20r.



where students “sought to find harmonious relationships between numbers which might have significance for other disciplines. . . . The obvious order, unity and harmony appealed to medieval mathematicians who might then apply the principles to metaphysics and theology.”<sup>61</sup> But this non-commercial math fits with the fact that later, as abbaco schools progressed in a parallel development with Latin higher education in universities, merchants frequently read treatises written by abbaco *maestri* instructors. As Goldthwaite puts it, these treatises suggest that “The Italian merchant . . . found a fascination in mathematics that went well beyond practical applications. . . ; one can easily imagine a Florentine merchant in what moments of leisure he might have had fascinated by some utterly improbable mathematical problem involving, for example, capital, time and interest, or division of profits by a partnership, of the kind he might find in a mathematical treatise, and being completely satisfied merely because such mental activity somehow sharpened his wits.”<sup>62</sup> That the math problems are largely practical, commercially applicable problems used for reference shows that the original compiler primarily used the *Zibaldone da Canal* as a reference text. But the fact that he included problems that still had no real pragmatic application shows that he enjoyed math even outside mercantile necessity.

A less intellectually curious side emerges in the sections on trade, one that is more pragmatic and disinterested. The mercantile sections possess an almost clinically analytical tone, relaying only facts and almost never venturing into the realm of opinion. The compiler presents even smuggling in a matter-of-fact tone: “Now I would have you know — and this is to pay nothing for customs duty [on the importation of gold into Tunisia] — . . . That one pays duty on everything, save that which is hidden, and that which is not hidden pays five percent. And to

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<sup>61</sup>Grendler, *Schooling*, 307.

<sup>62</sup>Goldthwaite, “Schools and Teachers of Commercial Arithmetic in Renaissance Florence,” in *The Journal of European Economic History*, vol. 1 no. 2. (Rome: Banco di Roma, 1972), 418-433;.

have dople struck one pays 2 and a quarter, but everyone who knows how to do it well pays only the 2 and a quarter bezants for the making; to pay all the duty you 46 dople and 19 miasesi from a mark for Venice.”<sup>63</sup> Though the compiler condones the methods behind smuggling, he does so with a neutral tone. He implies that because merchants so widely practice smuggling, to avoid it would be economically inefficient. Dotson notes this disinterested tone as well, and compares the *Zibaldone* to another merchant’s manual that mentions smuggling, Francesco Balducci Pegolotti’s *Practica della mercatura*. This later manual describes a similar process of smuggling gold into Tunisa but explains that “being found out [i.e. If the deceit is discovered], you pay nothing except the duty; nonetheless you lose faith and honor by it so that they will never trust you as before your crime was found out.”<sup>64</sup> This second manual emphasizes the question of social acceptability of smuggling, and subtly discourages it. In contrast, the *Zibaldone da Canal* gives no definitive opinion beyond explaining that “everyone who knows how to do it pays only [the regular customs duty rather than the additional taxation on gold].”<sup>65</sup> The compiler refrains from explicitly encouraging or discouraging smuggling, and limits his comments on the subject to factual observations. Thus even by the standards of the time, the *Zibaldone da Canal* made additional efforts to appear unbiased.

There are, however, a few cases in which the compilers exhibit personal biases. Dotson calls the first compiler’s descriptions of Collo, Djidjelli and Bugi “gushing” reviews, which suggests that the compiler had a personal fondness for these places.<sup>66</sup> But the second compiler’s biases reveal a more bitter and frustrated individual. He complains the wheat trade in the Ayas, saying, “by the wish of the Armenians no one can truly tell one month to another [what the

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<sup>63</sup>Dotson, *Zinbaldone*, 85-86; ff. 27r-v.

<sup>64</sup>Translation courtesy of Dotson in *Zibaldone*, n. 86.

<sup>65</sup>Dotson, *Zibaldone*, 85; f. 27r.

<sup>66</sup>Dotson, “Perceptions of the East. . .” 181-182.

measures of wheat and barley are] because no measure converts to this one; that is because it increases and decreases at their wish, and so the merchants get out of it many times what they give.”<sup>67</sup> And later he grumbles about merchants in Adalia: “Now everyone who goes there should know that they do not respect contracts, and therefore everyone who goes there should know how to make such contracts as should be good.”<sup>68</sup> Both compilers strive to present their mercantile material in as dispassionate and straightforward a manner as possible. But when the need to praise or complain overwhelms them, they reveal their respective underlying biases toward their subjects.

The mercantile content itself also reveals the disinterested merchant behind the *Zibaldone da Canal*. By describing the weight and coinage conversions, each section provides a wealth of economic information: what areas traded what sort of goods, which places shared weight systems with others, what goods were taxed by various governments. But this is primarily quantitative information; the *Zibaldone* rarely ventures into the realm of quality. The second compiler does at one point address the physical attributes of merchandise rather than their numeric values: “These are the characteristics of spices and how to recognize them as each is written singly below.”<sup>69</sup> Yet, as the phrase “how to recognize them” suggests, the compiler’s interest in spices seems to have been theoretical rather than genuinely practical, as if he himself never handled goods. While not all descriptions fit this conclusion — he describes rice, for example, as “white and big,” the exact same phrase that describes sal ammoniac — others convey a belief that the reader had no familiarity with spices: “know that scammony is the juice of a plant and is made in little cakes. Those that are good are easily broken and ought to be of a gray color inside; when it is

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<sup>67</sup>Dotson, *Zibaldone*, 111; f. 37v.

<sup>68</sup>Dotson, *Zibaldone*, 122; f.42v.

<sup>69</sup>Dotson, *Zibaldone*, 127; f. 45v.

broken you want to put it to your tongue, and if it yields a milk-like juice, the color of that juice ought to be gray.”<sup>70</sup> Furthermore, this segment on spices comes just after the first literary piece on f. 44r and just before the scientific section on astronomy on f. 46v. The fact that the compiler places it in the literary, rather than mercantile, material suggests that its inclusion reflects more its appeal to the compiler’s cultural interests than its practical applicability.

Between the intellectually curious and keen merchant seen in the mathematical sections, and the more distant and objective observer of the mercantile sections, the image emerges of a compiler almost wholly removed from the very world he describes. Prior to 1300, Italian merchants generally traveled with their own wares. They involved themselves personally in the decisions of not only of where to port, but also of whom they would sail with and sell to. These decisions required knowledge of places beyond the narrow scope of exchange rates and weight conversions. David Jacoby calls the mass movement of traveling merchants a “cyclical, circular, seasonal migration [which] emerged in the twelfth century.”<sup>71</sup> But as trade developed through the thirteenth century, “the complexity and diversity of their undertakings and the steady increase in the flow of goods required a rationalization of business procedures. One important aspect of this process was linked to emigration. Indeed, the operation of the trade system could be improved and complemented by the all-year-round, continuous presence of these merchants in foreign cities.”<sup>72</sup> As trade grew more complex, it that required merchants specialize into their specific areas and roles, resulting in less travel and mobility. As merchants grew increasingly sedentary, they became isolated from foreign centers of trade. The almost clinical attitude toward trade visible in the text speaks to the fact that the merchant-compilers probably never

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70Dotson, *Zibaldone*, 128; f.45v.

71Jacoby, David, “Migration of Merchants and Craftsmen: a Mediterranean Perspective (12th-15th Century),” *Trade, Commodities and Shipping in the Medieval Mediterranean*. (Aldershot, UK: Ashgate Publishing Ltd. 1997) 541.

72Jacoby, “Migration. . . ,” 541.

actually dealt in person with the places they describe. Due to their sedentary roles, the *Zibaldone*'s compilers had little need for deep knowledge of local conditions. As such, they preserved in the text an implicit assumption that the readers would also have little need of the information, and that any need they had would be satisfied by frequent correspondence with foreign trade partners. As an instructional text, the *Zibaldone da Canal* omits this information in an effort to cultivate the same inclination to quantitative analysis in its readers, and in doing so reveals a belief that the merchant-reader would eventually fulfill the same role of isolated, sedentary merchant. The moments of bias visible may well be evidence of the few times where the compilers actually managed to travel to the destination for their wares.

Beginning with the introduction of literary material into the text, however, the *Zibaldone da Canal* drastically changed the compiler's identity reflected in the text, and even the function of the text itself. The very inclusion of cultural material represents a shift in the text's purpose. Before, with the mercantile material, its purpose was largely instructional. In the literary sections, however, the compiler seems to have intended the work once more only for personal use. Where familiarity with trading entrepôts served as the primary trait of mercantile section, the literary section takes the assumption of familiarity yet higher. This suggests that the audience of the literary sections consisted entirely of compiler himself.

The very first literary piece, a summarized prose version of *Tristan* on f. 44r, reveals the extent of this assumed familiarity. One passage in the excerpt exemplifies this particularly well: "while hunting King Milliadus came upon a white hind, and the king followed it until it came to a well. She led him to a room where the king knew nothing of himself, neither good nor evil."<sup>73</sup> The compiler fails to clarify the crucial detail that "she" refers to the sorceress who had

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<sup>73</sup>Dotson, *Zibaldone*, 125; f. 44r.

transformed herself into a hind. Instead, he assumes that the reader knows the story well enough to need no elaboration. One might argue that wide-spread knowledge of chivalric romances among merchants allowed the compiler to reasonably expect his readers to know *Tristan*. Grendler notes that these tales had established themselves as classics in Italy by the beginning of the fourteenth century, especially among merchants.<sup>74</sup> However, although merchants may have been familiar with the *Tristan* story, the compiler does not seem to have had them in mind as he condensed the story. The inconsistency of the summarization shows that the compiler only preserved in detail those portions of the story that most interested him, even when the omission of details impaired the plot's integrity. This speaks more to a personal interpretation of the story than a systematic abridgment of the text for an audience.

Thus, the literary material reflects a change in audience to one intended entirely for personal perusal. As an instructional text, the *Zibaldone da Canal* reflects an effort by both compilers to transmit to an audience the personal characteristics, values and interests it represents, as well as the information it held. But the second compiler maintained that educational intention only for a time. By giving a new purpose to the *Zibaldone da Canal*, the second compiler also made the identity expressed therein exclusively his. The mercantile material represents both individuals, and the character traits and values it reflects are generally common between both compilers. But the literary material reflects only the interests of the second compiler, and reveals just how extensively his values differed from those of the first compiler.

The literary material still consists mostly of what one might reasonably call “practical,”

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<sup>74</sup>He also suggests that merchants may well have been responsible for the introduction of romances from France into Italy, because of trade routes. Grendler, “Chivalric Romances in the Italian Renaissance,” *Books and Schools in the Italian Renaissance* (Aldershot, UK: Ashgate Publishing Ltd, 1995) 59-102, 65.

and this description extends even to the material in fifteenth-century hands. For example, the fifteenth-century material includes a pragmatic little prayer in Latin for the alleviation of worms: “Job multos habuit vermes, multas infirmitates substinuit, postea sanatus fuit. O Domine, libera famulum tuum, vel famulam tuam et cetera, Franciscum ab honibus vermibus et faciat omnes.”<sup>75</sup> The commonality of pragmatism and what Dotson calls “a straight-to-the-point-and-get-on-with-the-story approach” remains even in the final generation that had a hand in the compilation of the text.<sup>76</sup> With the blasé ending of the line “famulum tuum, vel famulam tuam et cetera,” it is as if the compiler cannot even be bothered to outline the trivial, repetitive details of the prayer. The second compiler’s continued utilitarianism reveals the enduring grip of that former day-to-day pragmatism originally exhibited by the first compiler.

The original compiler carried his version of the *Zibaldone* with him regularly, referencing its mathematical solutions whenever he came up against an unfamiliar problem. But this new material reflects a different sort of pragmatism, intermittent rather than day-to-day. Following the catalog of spices, the compiler added material on astronomy and the divisions of the day, a handful of conventional prayers, descriptions of the uses of vultures, coral, and rosemary, the Ten Commandments, a quick chronicle, two troubadour serventes poems, a collection of proverbs, advice on bloodletting, and a final mercantile section on trade with Ayas, a port in Armenia. Certainly, many of these sections had practical uses, but not daily uses in the sense that the earlier material had. Furthermore, the catalog of herbs and spices functions as a hybridization of mercantile and literary categories, revealing the conflict between mercantile pragmatism and literary intellectualism. By approaching trade theoretically, the second compiler introduced personal judgment into a category previously focused exclusively on practical

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<sup>75</sup>Dotson, *Zibaldone*, 176; f. 69v.

<sup>76</sup>Dotson, “The World of the *Zibaldone*. . .,” 20.

applications.

None of the literary sections are more than a folio or two long, and their sheer diversity suggests that perhaps the most prevalent characteristic of this second compiler consisted of his interest in anything and everything that came his way. Beneath this characteristic of expansive intellectual curiosity, however, lies a more fundamental shift in the compiler's cultural identity. As established, the disinterested tone of the earlier mercantile sections reflects isolation from trade, a product of its increasingly sedentary nature. But the fact that the first compiler chose to include exclusively mathematic and mercantile content reveals that trade remained his primary interest. Although physically isolated from the travel of trade, he was not yet intellectually isolated from his profession. Despite the disinterested tone of the first half, one might consider the *Zibaldone da Canal* an almost nostalgic effort by the first compiler. By spending his free time writing about places he had never seen or been to, he may well have felt closer to the vast expanse of the Mediterranean beyond Venice, even as his profession increasingly tied him to his city.

The departure from mercantile material by the second compiler, then, reflects an end to the effort to recapture a connection to the outside world. As the second compiler increasingly specialized in his profession, he likewise distanced himself more and more from his wares. Isolated from both trade goods and trade routes, the second compiler went a step further and separated himself from mercantile cultural identity. His addition of literary material to the *Zibaldone da Canal* suggests that he lacked the dedication to mercantilism of the first compiler. Instead the second compiler seems to have opted to dabble, first in mercantilism, but then in scientific and, poetic and historic subjects. As his world shrank physically, he took up literary/cultural intellectualism as a means of "expanding" his imaginative world, rather than



continuing to cling to the physical world by writing about places he had never even seen.

In doing so, he expanded in every direction possible. His interest in everything from astronomy to serventes poems shows that the his intellectual expansion had no firm direction beyond an idea of a literary world outside of mercantilism. This lack of direction could arguably reflect an effort to find a new cultural identity to which the second compiler could dedicate himself. But when recompiling the text in the last quarter of the fourteenth century, the second compiler still chose to include the mercantile material. His preservation of the earlier material suggests that even though his interests had expanded beyond the mercantile, the foundations of cultural identity remained entrenched in the merchant identity of his predecessor. So it seems far more likely that the diversity of the literary material was not the product of a search for a single new interest, but rather the reflection of a cultural identity that involved supplementing the core mercantile identity with a literary pursuits. Though the second compiler had grown sufficiently isolated from the physical activity of trade and from the mercantile identity of his predecessors that he felt the need to extend his interests to literary fields, being a merchant was still sufficiently self-defining that he did not need to completely recreate himself. Literature supplemented the core identity of mercantilism without supplanting it entirely.

But the second compiler did more than merely preserve and add to the original compiler's work; he also had it redacted into a fair copy. The recopying of the text long after its inception reflects the value the second compiler placed on the material produced by the first. However, the recodification must also be considered as a physical recreation of the manuscript and not merely as a preservation of material. Book ownership in the earlier Middle Ages functioned as a sign of status. But zibaldone, as "hodge-podge" and disorganized as they were, hardly counted as this display of wealth. Petrucci describes most zibaldone texts as "retaining the book-form only in its

outward appearance as a container of folded leaves,” but this is clearly not the case for the *Zibaldone da Canal*.<sup>77</sup> The original manuscript may well have fit this description. The recopying took a manuscript that probably looked as disorganized as its organization remains, and recreated it as something altogether more aesthetically purposed. Dotson states that the “neat, regular, chancery gothic hand with illustrations and decorated initials... suggest the work of a professional scribe.”<sup>78</sup> This professional handwriting suggests that the compiler recopied the text not only for the sake of preservation, but for the purpose of aesthetic improvement as well. It is possible that the second compiler had the text redone by a professional scribe simply because he himself did not have the time to rewrite the text. But the recompilation introduced further aesthetic improvements with illustrations and decorated initials as well. Handwriting, illustrations, initials, all show a trend toward the formation of the manuscript as an artistic work, rather than a purely functional text. While not as extravagant as other artistic texts such as illuminated manuscript, the purpose here seems much the same but on a much lower scale. The recreation of the manuscript as an aesthetic work suggests that in a sense it functioned as a form of “conspicuous consumption” of intellectualism and wealth.

In *Venice: A Maritime Republic*, Frederic Lane notes that social mobility declined throughout the fourteenth century, saying: “By the end of the fourteenth century, Venetian society was much more clearly and elaborately stratified than it had been a couple centuries earlier... The dominance of resident merchants... tended to diminish the ease with which men could move up the social scale, especially when in the mid-fourteenth century there was a contraction of the economy, accentuated by the Black Death.”<sup>79</sup> Considered in this light, the

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<sup>77</sup>Petrucchi, *Writers and Readers*, 183.

<sup>78</sup>Stussi, “Caratteri generali,” xii; Dotson, “The World of the *Zibaldone*. . .,” 9.

<sup>79</sup>Lane, Frederic C., *Venice: a Maritime Republic*, (Baltimore: Johns Hopkins University Press, 1973), 151.

conspicuous consumption of a mercantile text, especially one that attempts to broaden the definition of mercantile cultural identity to include literary aspirations, could reflect a subtle and slight effort to scale the social ladder. The effort is not terrible drastic: the manuscript is still written on paper, not vellum, the illustrations drawings, not miniscules, the language vernacular, not Latin. The manuscript still contains all the trappings of what Petrucci calls the dissolution of “private vernacular miscellaneous book... into a disorderly accumulation of texts.”<sup>80</sup> But the recompilation nevertheless reflects an effort on the part of the second compiler to recreate the text into something approximating the more expensive manuscripts, to allow the text to act as a display of wealth. Hardly a radical effort, but the fact that the compiler cultivated interest beyond trade, and that he put such effort into making the manuscript at least somewhat aesthetically pleasing, suggests that he was attempting to change his social status.

The *Zibaldone da Canal*, then, ultimately reflects the transformation of the aspirations, personalities, and values of its two fourteenth-century compilers. From its original conception as a young student’s mathematical workbook, the *Zibaldone da Canal* evolved into a work with an audience beyond its compiler. With this evolution, the text transformed into an effort to transfer information, and the cultural identity embodied in the implicit values and characteristics in the text, onto an audience. The constant connection between math and trade in the mathematical sections reveals that the compiler always tried to present them in a mercantile context. This shows his deep intellectual connection with trade and identification with mercantile culture. Thus while the shift away from mathematical content reflects a change in purpose of the text, it does not reveal a similar change in the first compiler’s core identity.

But once the responsibility of compilation fell to the hands of the second compiler, the

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<sup>80</sup>Petrucci, *Writers and Readers*, 187.

text gradually shifted away from its didacticism. It once more became intended for private use. The transition by the second compiler away from mercantile material instead constitutes both a shift away from the previously didactic purpose of the text as well as away from an identity purely invested in mercantile culture, values, and ideals. Instead, the second compiler extended his interests beyond trade to literary interests ranging from poetic to medical to historical. But the shift to literary material was limited first by the persistence of the same core mercantile identity of the first compiler. While this identity did not dominate the second compiler's compilation as it did the first compiler's, it nevertheless remained a key component.

As the second compiler expanded his identity beyond merchant culture through the addition of non-mercantile material to the text, he also physically recreated the text in the form of a recompilation by a professional scribe. The aesthetic revival of the text can be considered a subtle form of conspicuous consumption, where the text's purpose lies as much in its display of wealth as in pragmatic preservation of information. This change suggests that as the second compiler gradually moved away from merchant culture, he also made an effort to identify with a different social status than before.

The final pages by various fifteenth-century hands complete the transition away from that original identity of a merchant consumed by his profession; they add nothing in the way of mercantile or mathematical material. Yet even they, by preserving the original material, show that the *Zibaldone da Canal* was still valued over one-hundred years after the first compiler undertook the composition of the text. Today we value still value the *Zibaldone da Canal*, with its vast insights into everything from merchant education to attitudes toward Mediterranean Muslims in fourteenth-century Italy. Perhaps someday future historians will look on our own analyses of and additions to such texts as reflections of our modern-day merchant culture.

## Appendix A

Here following is an Outline of the Zibaldone: A basic description of the material that appears; it's heading, in both Venetian and English; to which compiler I have attributed this section; and whether I have categorized the section as Mathematical, Mercantile, or Literary/Cultural.

Folios 1 recto through 8 recto (Dotson 29-42):

Untitled.

Mathematical problems.

Attributed to the first compiler.

Folios 8 recto through 8 verso (Dotson 42-44):

"Apulia with Venice, Venice with Apulia"; "*Puia cum Veniexia, Venienxia cum Puia.*"

A mercantile section that gradually transitions back into mathematical problems dealing with exchange rates between Venice and Apulia.

Attributed to the first compiler. Mercantile Section.

Folios 9 recto through 23 recto (Dotson 44-75):

Untitled.

Further mathematical problems.

Attributed to the first compiler.

Folios 23 verso through 26 recto (Dotson 76-82):

Untitled.

A list of minimum legal lengths of imported cloths, its source determined by Frederic Lane to be *Raciones pannorum quod debeat habere per pecia.*

Attributed to the first compiler. Mercantile Section.

Folio 26 verso (Dotson 83):

The only written date in the fourteenth century material, 1311, 20 August. Also, the title: "Memorandum of how the weights and measures of Venice are equivalent with weights and with measures of many countries, and of the payments of those countries, and how their money exchanges by direct exchange with the money of Venice." In Venetian: "*Rechordanca de quello che torna li pexi e le mexure de Venexia cum pexi e cum mexure de pluxor parte e de li pagamenti de quelle parte e li canbi che a quelle monede a dreto cambio cum le monede de Venexia.*"

Folio 26 Verso through 28 verso (Dotson 83-89):

"Tunis", "*Tunisto*".

A mercantile section describing trade with the capital of Tunisia.

Attributed to the first compiler.

Folio 28 verso through 29 recto (Dotson 89-90):

"This is how the weights of Bona exchange with those of Venice," "*Questo si e como torna lo pexo de Bona cum quello de Venexia.*"

A mercantile section about the port of Bona in Algeria.

Attributed to the first compiler.

Folio 29 recto through 29 verso (Dotson 91):

"This calculation is how to convert the weight of Collo with that of Venice,"

"*Questa raxion si e como torna lo pexo d'Ancholli cum quello de Venexia.*"

- A mercantile section about the town of Collo in Algeria.  
Attributed to the first compiler.
- Folios 29 verso through 30 recto (Dotson 92):  
“Here begins how to convert the weight of Djidjelli with Venice,” “*Qua comenca como torna lo pexo de Cicari cum Venexia.*”  
A mercantile section describing trade with the coastal town of Djidjelli in Algeria.  
Attributed to the first compiler.
- Folios 30 recto through 30 verso (Dotson, 93):  
“This is how the weight of Bugia converts to the weight of Venice,” “*Questo si e como torna lo pexo de Bucia cum Venexia.*”  
A mercantile section describing trade with the Algerian port of Bugia.  
Attributed to the first compiler.
- Folio 30 verso (Dotson, 94):  
“This is how the weights of Susa and Cape Africa and Sfax and Gabes converts with those of Venice,” “*Questo si e como torna li pexi de Sussa e d’Africha e de Faessi e de Chapssi cum Venexia.*”  
A mercantile section about Tunisia.  
Attributed to the first compiler.
- Folios 30 verso through 31 recto (Dotson 94-95):  
“This is how the measures of Sicily convert to those of Barbary,” “*Questo si e como torna le mexure de Cecillia cum quelle de Barbaria.*”  
A mercantile section about the coast of Algeria.  
Attributed to the first compiler.
- Folio 31 recto (Dotson 95):  
“This is how the weights of Tunis convert with Trapani,” “*Questo si e como torna li pexi de Tonisto cum Trapano.*”  
A mercantile section describing trade between Tunis and the Sicilian port of Trapani.  
Attributed to the first compiler.
- Folios 31 verso through 32 recto (Dotson 96-97):  
“This is how one converts the oil measure of Messina to those of Tunis,” “*Questo si e como torna la mexura de lo oio de Mexina in Tonisto.*”  
A mercantile section describing Tunis and the Sicilian port of Messina.  
Attributed to the first compiler.
- Folio 32 recto (Dotson 97):  
“This is how to convert the salma of wheat of Apulia in Tunis; This is how to convert oil and other weights of Apulia in Tunis.”  
Two consecutive mercantile sections, both dealing with weight conversions of particular goods between Apulia and Tunis.  
Attributed to the first compiler.
- Folios 32 recto through 32 verso (Dotson 98):  
“This is how to convert the weights and measures of Naples in Tunis,” “This is how the Cantar of Tunis converts at Naples.”  
Two consecutive mercantile sections, both dealing with trade between Naples and

Tunis.

Attributed to the first compiler.

Folio 33 recto (Dotson 99):

“This is how oil from Venice converts at Messina,” “*Questo si e como torna l’oio da Venexia a Mixina.*”

Mercantile section about Messina.

Attributed to the first compiler.

Folio 33 recto (Dotson 99):

“This is how measures of oil are converted at Palermo,” “*Questo si e como torna le mexure de l’oio cum Pallermo.*”

A mercantile section about Palermo.

Attributed to the first compiler.

Folios 33 recto through 33 verso (Dotson 99-100):

“This is how the weights of Zara are converted in Venice,” “*Questo si e como torna lo pexo de Ciara a Venexia.*”

A mercantile section of trade with the Croatian port.

Attributed to the first compiler.

Folio 33 verso (Dotson 100):

“This is the course of Clarentza and of Venice with Negroponte,” “*Questo si e lo corso de Cllarenca e de Venexia cu Negreponte.*”

A mercantile section of the Peloponnesian coastal town of Clarentza and the Island of Euboea (referred to as Negroponte).

Attributed to the first compiler.

Folio 33 verso (Dotson 101):

“This is how the weights and measures of Limassol and of Famagusta are equivalent with Venice,” “*Questo si e como torna li pexi e le mexure de Limosso e de Famagosta cum Venexia.*”

A mercantile section about two Cyprian port towns.

Attributed to the first compiler.

Folio 34 recto (Dotson 101):

“This is how the measures of Barletta are equivalent to those of Cyprus,”

“*Questo si e como torna le mexure de Barlletto cum Cepro.*”:

A mercantile section about Cyprus and a coastal Italian town.

Attributed to the first compiler.

Folios 34 verso through 35 recto (Dotson 102-104):

“Cyprus with Venice,” “*Ciepro cum Venexia.*”

A mercantile sections about trade between Cyprus and Venice.

The first section attributed to the second compiler. The hand remains the same due to recodification; all material

Attributed to the second compiler remains in the same hand.

Folio 35 recto (Dotson 104):

“Ancona with Venice,” “*Anchona cum Venexia.*”

A mercantile section about an eastern coastal town of Italy.

Attributed to the second compiler.

Folios 35 recto through 35 verso (Dotson 104-106):



“These are the things that are weighed by light weight at Venice,” “*Queste le cosse che se pesa a sotil in Venexia.*”

A mercantile section listing first simply items weighed using a particular weight scale in Venice, and subsequently briefly addresses weight comparisons with other places.

Attributed to the second compiler.

Folios 35 verso through 36 recto (Dotson 106-107):

“Clarentza and Coron and Modon with Venice,” “*Cllarenca e Choron e Modon cum Venexia.*”

Mercantile section about Clarentza, and additional Peloponnesian towns of Coron and Modon.

Attributed to the second compiler.

Folio 36 recto (Dotson 107-108):

“Negroponte with Venice,” “*Negreponde cum Venexia.*”

Mercantile section about Negroponte.

Attributed to the second compiler.

Folio 36 recto through 37 recto (Dotson 108-109):

“Candia with Venice,” “*Chandia cum Venexia*”:

Mercantile section about a Crete port, attributed to the second compiler.

Folio 37 recto (Dotson 109):

“The weight of Montpellier and Nimes,” “*Lo pexo de Monpusllier et a Nemes.*”

Mercantile section about Southern French ports.

Attributed to the second compiler.

Folio 37 recto (Dotson 110):

“The light and gross weight of Genoa,” “*Lo pexo de Cenova sotil e grosso.*”

Mercantile section about Genoa.

Attributed to the second compiler.

Folio 37 recto through 39 recto (Dotson 110- 114):

“Armenia with Venice,” “*Armenia cum Venexia.*”

Mercantile section about trade with Armenia.

Attributed to the second compiler.

Folio 39 recto (Dotson 114):

“This is how the weights of Tortosa are converted to those of Venice,” “*Questo si e como torna lo pexo de Tortosa cum quello de Venexia.*”

Mercantile section about the Syrian town of Tortosa.

Attributed to the second compiler.

Folio 39 recto (Dotson 114):

“This is how the weights of Latakia are converted to those of Venice,” “*Questo si e como torna li pexi de La Lica cum Venexia.*”

Mercantile section about the Syrian port of Latakia.

Attributed to the second compiler.

Folios 39 verso through 40 recto (Dotson 114-116):

“Alexandria,” “*Allexandria.*”

Mercantile section about the Egyptian port of Alexandria.

Attributed to the second compiler.

Folio 40 recto (Dotson 117):

“This is what a hundredweight of fruits from the Principate becomes in Alexandria,” “*Questo si e como torna lo C de le frute del Principado in Allexandira.*”

Mercantile section of weight conversions of specific nuts between Naples and Alexandria.

Attributed to the second compiler.

Folio 40 recto (Dotson 117):

“This is how the weights of Cyprus convert with Tunis,” “*Questo si e como torna lo pexo de Ciepro cum Tonisto.*”

Mercantile section.

Attributed to the second compiler.

Folios 40 recto through 40 verso (Dotson 117-118):

“This is how the weights of Constantinople convert with Venice,” “*Questo si e como torna lo pexo de Constantinopoli cum Venexia*”:

Mercantile section.

Attributed to the second compiler.

Folio 40 verso (Dotson 118):

“This is how the weights of Aleppo convert with those of Venice,” “*Quest si e como torna lo pexo de Allapo cum quello de Venexia.*”

Mercantile section about trade with the Syrian city.

Attributed to the second compiler.

Folios 40 verso through 41 recto (Dotson 119):

“This is how the weight of Alexandria is converted with Venice,” “*Questo si e como torna lo pexo d’Allexandria cum Venexia*”:

A second mercantile section addressing Alexandria, offering a note on the weight system for goods imported *to* Alexandria as well as further weight conversions.

Attributed to the second compiler.

Dotson notes that “this second passage on the trade of Alexandria appears to be derived from a different source.”<sup>81</sup>

Folios 41 recto through 41 verso (Dotson 119-120):

“Alexandria,” “*Allexandria*”:

An additional mercantile section on trade with Alexandria, that details the weight system on goods imported *from* Alexandria. It also differs from the first section on Alexandria by offering a different conversion on the weight of peppers, which Dotson sites as evidence that “the *Zibaldone* was compiled from a variety of sources.”<sup>82</sup>

Attributed to the second compiler.

Folio 41 verso (Dotson 120-121):

“Thessalonica and Sudak,” “*Sallonichi e Salladaia.*”

Mercantile section on the Crimean town of Sudak and the Greek town of Thessalonica.

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81Dotson, 119

82Dotson 119

- Attributed to the second compiler.
- Folio 42 recto (Dotson 121):  
 “Constantinople with Venice,” “*Constantinopoli cum Venexia.*”  
 Additional mercantile section on Constantinople with further different conversions of weight, as with the third section on Alexandria.  
 Attributed to the second compiler.
- Folio 42 recto through 42 verso (Dotson 121-122):  
 “Adalia with Venice,” “*Satallia cum Venexia.*”  
 Mercantile section on the Turkish port of Adalia.  
 Attributed to the second compiler.
- Folio 42 verso (Dotson 122):  
 “These are the things that are weighed at Venice by the gross thousandweight, which gross thousandweight is 1562 1/2 light pounds in Venice,” “*Queste si e le cosse che se pexa a Venexia a millr grosso, lo qual millier grosso se in Venexia a sotille lbr MV(C)LXIJ ÷.*”  
 Mercantile title with no actual corresponding list.  
 Attributed to the second compiler.
- Folio 42 verso (Dotson 123):  
 “These are the things that are weighed by light weight, but in Venice are weighed by the gross thousandweight,” “*Queste si e le cosse che se pexa a sotil in Venexia a millr grosso.*”  
 Mercantile section listing items.  
 Attributed to the second compiler.
- Folios 42 verso through 43 recto (Dotson 123):  
 “This is how the mint of Venice receives gold,” “*Questa si e la cecha de Venexia como ella receve l’oro.*”  
 A mercantile section briefly discussing minting of gold.  
 Attributed to the second compiler.
- Folio 43 recto (Dotson 123-124):  
 “Milan with Venice,” “*Millan cum Venexia.*”  
 Mercantile section on Milan.  
 Attributed to the second compiler.
- Folio 43 verso (Dotson 124-125):  
 “Cremona with Venice,” “*Cremona cum Venexia.*”  
 Mercantile section on Cremona.  
 Attributed to the second compiler.
- Folios 44 recto through 45 recto (Dotson 125-127):  
 “About the things that happened when King Milliadus went hunting,” “*De cio che introvene all re Milliadus siando andato a chacere.*”  
 Literary section (the first) retelling the Tristan story up to the attempted poisoning of Tristan by his stepmother.  
 Attributed to the second compiler.
- Folio 45 verso through 46 verso (Dotson 127-130):  
 “These are the characteristics of spices and how to recognize them as each is written singly below,” “*Questa si e la chognossenca dele spllecarie si chomo se*

*raxionera qua de soto per singollo."*

Mercantile section describing the qualities of various herbs and spices.

Attributed to the second compiler.

Folio 46 verso through 52 recto (Dotson 131-141):

"Division of the parts of the natural day," "*Devixion de le parte de li di naturalli.*"

Literary section on Astronomy.

Attributed to the second compiler.

Folio 52 recto through 52 verso (Dotson 141-143):

Untitled.

Literary section listing various charms in Latin, largely Biblical in nature; only one charm is in Venetian.

Attributed to the second compiler.

Folio 52 verso (Dotson 143-144):

"To stanch blood," "*A stagnar sangue.*"

Literary section listing a method to halt the flow of blood, advice of greeting people, and a charms using communion wafers for the sick.

Attributed to the second compiler.

Folio 53 recto (Dotson 144-145):

"The things written here below are very precious to do, and are found written in the *Book of Properties*," "*Queste si e mollo precioxe cosse de far secondo como disse qua de soto per singollo e trovasse scritto in lo libro de proprietatibus*":

Literary section excerpted from the *Liber de proprietatibus* by Bartholomew of England, that focuses on the material from that source on the use of vultures in medicine.

Attributed to the second compiler.

Folios 53 recto though 54 verso (Dotson 145-147):

"These are the virtues of coral, each recounted here below," "*Queste si e le vertude dello corallo sy como se contara qua de soto per singullo*":

Literary section, at least part of which has *Liber de proprietatibus* as its source, though not necessarily all. Focuses on both medicinal and magical/charm uses of coral, and subsequently goes on to list various charms not involving coral.

Attributed to the second compiler.

Folios 54 verso through 55 recto (Dotson 147):

"These are the 10 Commandments of God which he gave to Moses on Mount Sinai," "*Questi sono li X comandamenti de Dio li qual fo dad a Moixe in lo monte de Sinai.*"

Conventional Ten Commandments with the following differences: switches Five and Six (shalt not kill and shalt not steal) and switches Nine and Ten (shalt not covet wife becomes shalt not covet house, which is covered in Ten instead).

Attributed to the second compiler.

Folio 55 recto (Dotson 148):

"These are the four seasons of the year," "*Questi si e li IIIJ tenporalli de l'ano.*"

Literary section briefly describing the seasons.

Attributed to the second compiler.

Folios 55 recto through 55 verso (Dotson 148-149):

“Here begins the events from one year to another, and how they may be foretold,”  
“*Qua comenca lo movimento de un ano a l’alltro si como dira quencenavanti.*”  
Literary section predicting weather, mortality rates and crops based on which day the first of various months falls.

Attributed to the second compiler.

Folios 55 verso through 57 recto (Dotson 149-151):

“These are the virtues of rosemary, which is very good for all illnesses; rosemary has twenty-five powers, and all are good,” “*Queste sono le vertude de lo rosmarin, le qualle sono mollto bone per tute infirmitade per lo qual rosmarin si a vertude 25 e tute bone.*”

Literary section describing the medicinal and charm uses of rosemary.

Attributed to the second compiler.

Folios 57 recto through 59 recto (Dotson 151-155):

“In nomine Domini. Amen.”

Literary section, a chronicle of Venetian; it seems to use two separate sources based on the fact that it goes up to the year 1303 and then begins again at 1240 through 1257.

Attributed to the second compiler.

Folios 59 verso through 62 verso (Dotson 155-161):

“The Precepts of Solomon,” “*Li amaistramenti de Sallamon.*”

Literary section, a sirvente troubadour poem which offers advice and moral precepts such as “command a lesser man by love and give him not insult nor injury.”<sup>83</sup>

Attributed to the second compiler.

Folio 63 recto through 63 verso (Dotson 161-163):

“The course of Ayas,” “*Lo corsso de Laiaca.*”

Mercantile section on the Armenian port of Ayas.

Attributed to the second compiler.

Folio 64 recto (Dotson 163-164):

“To know how to look after your blood,” “*Asaver vadarsse de tuor sangue.*”

Literary section on bloodletting and a calendar of auspicious and fortunate days of the year.

Attributed to the second compiler.

Folio 64 verso (Dotson 164-165):

“These are beautiful words to understand,” “*Questi si e belli vochabolli da comprendere.*”

Literary section listing various proverbs such as, “The wise man says: whoever shall do well shall have good and shall not know whence it shall come;”<sup>84</sup>

Attributed to the second compiler.

Folios 64 recto through 66 verso (Dotson 165-169):

“The God of Love,” “*Ell dio d’amore.*”

Literary section, the second sirvente troubadour poem.

Attributed to the second compiler.

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83Dotson, 156

84Dotson 164

- This is the last piece written in the fourteenth-century hand.
- Folio 67 verso (Dotson 170):  
 Untitled.  
 Literary section, a brief list of the rooms of the Doge's palace.  
 Attributed to a third, fifteenth-century compiler, second visible handwriting.
- Folio 67 verso (Dotson 170):  
 Untitled.  
 One line of a prayer.  
 Attributed to the third compiler, fifteenth century compiler, second hand.
- Folio 67 verso (Dotson 170):  
 Untitled.  
 A prayer to Mary Magdalene and subsequent Ave Marias.  
 Attributed to the third compiler with the new, second hand.
- Folio 67 verso (Dotson 170-171):  
 Untitled.  
 The last lines of three Ave Maria and a Paternoster, in a gothic hand.  
 Attributed to a fourth compiler in the third visible hand.
- Folio 67 verso (Dotson 171):  
 "Nota. Iste liber est domini Nicholai de Canali honorabilis civis Veneciarum, 1422 mense agusti, nati egregii et nobilis domini Bartolomei." "Note. This book belongs to lord Niccolo da Canal, honorable citizen of Venice, 1422 month of August, born to the distinguished and noble lord Bartolomeo." This is the first date since the 1311, 20 August, and the etymology of the text's name. Attributed to a fifth compiler in the fourth visible hand.
- Folio 68 recto (Dotson 171-172):  
 "Here below are the virtues which the Christian soul acquired with many spiritual and corporal blessings hearing the holy Mass completed and begun."  
 Cites various saints in describing the necessity of attending Mass, including St.s Augustine, Bernard, and Ambrose.  
 Attributed to the fifth compiler, fourth hand.
- Folio 68 verso (Dotson 172):  
 Untitled.  
 The first couplet in a classical hexameter poem in Latin of unknown origin.  
 Attributed to the fifth compiler, fourth hand.
- Folio 68 verso (Dotson 172):  
 "Iste liber est domini Nicolai de Canali nati egregii et nobili viri domini Batholomei,"  
 "This book belongs to Niccolo da Canal, born to the distinguished and noble lord Bartolomeo." The second of two notes ascribing possession of the text to Niccolo da Canal, this time undated. Attributed to the fifth compiler, fourth hand.
- Folio 68 verso (Dotson 172):  
 Untitled.  
 Extremely brief section that is nigh inscrutable. Textual flaws make it essentially indecipherable at times. Also, a line of a Venetian poem repeated twice "for penmanship practice," according to Dotson.  
 Attributed to the fifth compiler, fourth hand.

Folio 68 verso (Dotson 173):

Untitled.

Continuation of the description of the Mass and its spiritual purpose.

Attributed to the fifth compiler, fourth hand.

Folio 69 recto (Dotson 174-175):

Untitled.

A series of three sonnets, at least one of which may have its origins in Petrarch's Sonnet 203.

Attributed to the fifth compiler, fourth hand.

Folio 69 verso (Dotson 175-176):

Untitled.

Series of Latin prayers and charms, as well as a nonsensical charm.

Attributed to a sixth compiler, fifth, final hand.

## Appendix B



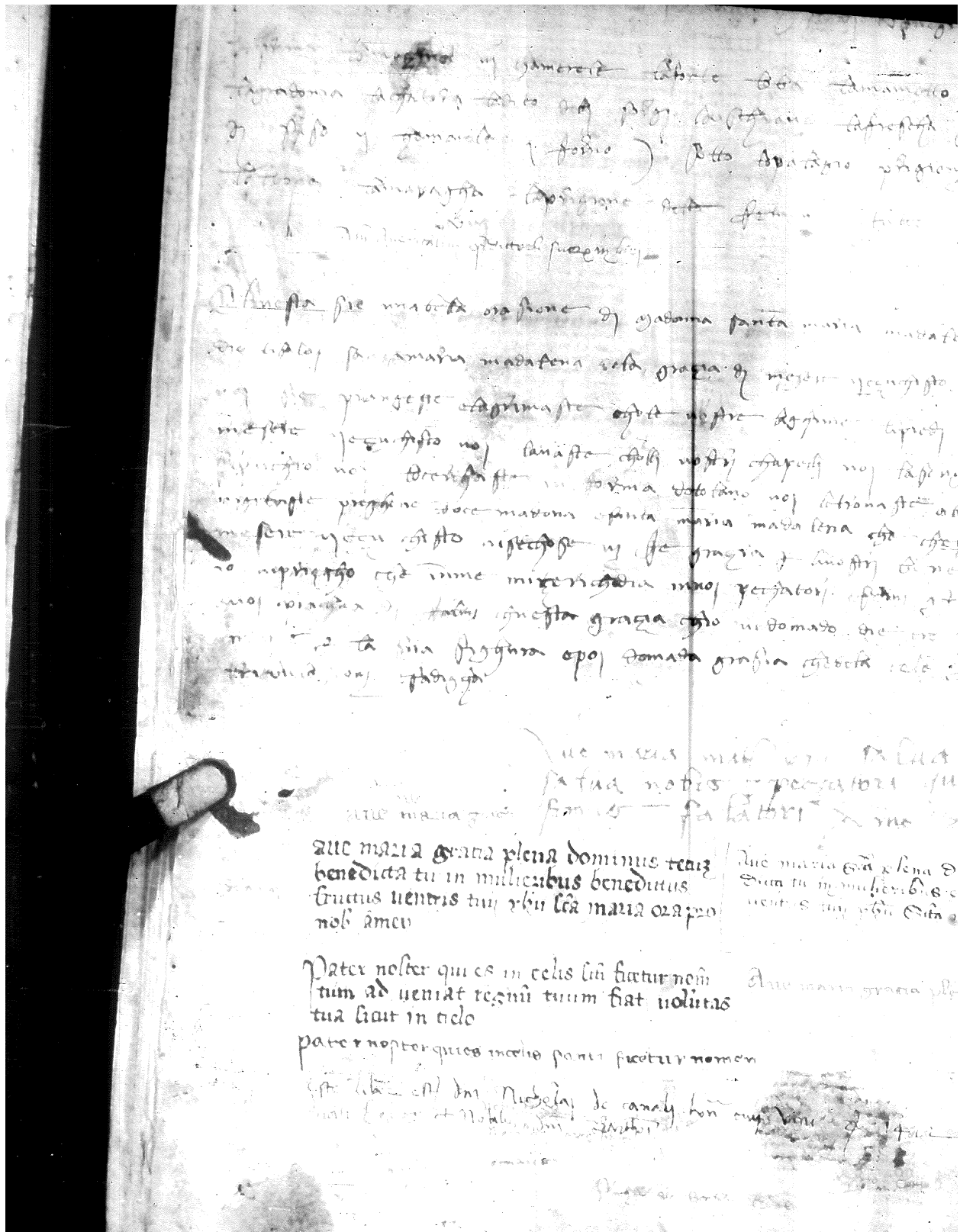
**M**o chi te domadasse che mota  $13\frac{1}{3}$  e  $\frac{1}{4}$  ma  $29\frac{1}{4}$  e  $\frac{1}{4}$ . questa sia lassa Regola. Mo nu, deuemo fare tube Raxio che nu, deuemo dire ase troua  $\frac{1}{3}$  e  $\frac{1}{4}$  . 12. epuo se die multiplichar  $13$  ma  $12$  che fa  $196$ . epuo die tuor  $\frac{1}{3}$  e  $\frac{1}{4}$  de  $12$  che se  $7$ . caoga poua  $196$ . auera  $163$ . equeti sic  $2$ . Deximi, esio una parte epuo di che se troua  $\frac{1}{3}$  e  $\frac{1}{4}$  che se troua  $20$ . mo se die multiplichar  $29$  ma  $20$ . si fa  $980$ . caoga se  $7$  che  $\frac{1}{4}$  de  $20$  che se  $5$ . caoga ai  $980$ . auera  $989$ . equeti sedemada Sintissima mo se die multiplichar  $163$  ma  $989$ . casto che mota se do de sic simi. de intessimi  $410$  sic  $270$ . quaratissimi, doncha se die parti lassa de  $163$  ma  $989$  .  $1270$ . parte che mota  $95007$ . chende dien apartirto  $1270$ . parte uen  $700$ . e  $270$ . chotato mota  $13\frac{1}{3}$  e  $\frac{1}{4}$  ma  $29\frac{1}{4}$  e  $\frac{1}{4}$ . ep esto total muodo se die fai tube te semale Raxio diuati Rati che nu, noi ssemo multiplichar che tutta ma nu, deuemo atrouare un tal numero a che se troua tuti li Rati che sono de questa parte p la lassa de lassa epuo se mostro lassa cassa asai. questa lassa de lassa total Raxio

**S**i tu possi domadare come  $\frac{4}{9}$  de lassa  $4$ . questa sia lassa Regola che nu, deuemo multiplichar to numero de poua ai tuto qto che se de parti. lassa  $4$  ma  $14$ . si fa  $90$ . lassa  $90$  se die parti p qto che de lassa lassa sic  $9$ . chende uen  $10$  .  $6$  .  $7$  .  $11$  .  $9$  .  $\frac{1}{3}$  . castato se li  $\frac{4}{9}$  de lassa  $14$ . ep qto modo se tube te semale Raxio

**M**o chi disesse come de  $2$  parte de lassa  $7$ . nu, deuemo dire  $2$  ma  $7$ . si fa  $14$ . lassa lassa se die parti lassa parte p tu che no fa lassa de lassa Raxio che nu, deuemo parti  $13$  parte qto  $14$ . lassa chende uen lassa  $4$ . e  $13$ . edir  $4$ . pao che tato se adire  $2$  parte duna cassa quato serane adir  $13$ . duna cassa e  $3$  parte serane li  $\frac{3}{4}$  e  $4$  parte serane adir  $\frac{4}{9}$  e  $4$  parte serane  $\frac{4}{9}$  cassa duna simette Raxio sempre multiplichar lassa p me lassa questa lassa patti sempre ai  $1$ . de lassa cassa lassa tube te semale Raxio

**V**esta sic Cadraparia scita qua deoto  
 Lien auenexia tuta die esse possit, si  
 • Estella no fosse tropada Capeta de tate braga, to n  
 che dond si lade responderi itato quato sapetu  
 mor Equeto sic segod fardone estatuto de Genexia  
  
 Petar. Hake de Tane x. die auer. braga xxxvij.  
 p tu smen de auer. poss. segod Raxio, qd fust hama  
 auer. j. uo lla de tin.  
  
 Ippe detenta de Aucha de auer. braga xxxvij. se  
 de petar. Hake de te segnad de Tane  
 Decime lla de Aucha die auer. braga xxvj.  
 Ippe segnad de Aucha xxx. de auer. braga xvj.  
 Doaxi de auer. braga xxxvij.  
 Tutu, Drapi dipia Romanat de se segnad de Tane  
 tent, die auer. braga xxxvj.  
 Apruini die auer. braga xxxvij.  
 Tancrass. de Tostore die auer. braga xlv.  
 Tande de Tostore de auer. braga xlv.  
 Trafton die auer. braga xlv.  
 Tesne die auer. braga xxxvj.  
 Tapania die auer. braga xxxij.  
 Altrauilla de auer. braga xxxij.  
 Gastarilla de auer. braga xlv.  
 Tamore grande die auer. braga xl.  
 Sanguini. Tullini grandi braga xxxij.  
 Sanguini. Tullini parui braga xxvj.  
 Tamore tentu parui braga xxxvj.

[illegible]



*[Faint handwritten notes in Italian, likely bleed-through from the reverse side of the page.]*

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