

ALTERCATIO MUSICORUM: A DISCUSSION OF  
THE POLEMICAL REACTIONS TO RAMOS DE PAREJA'S  
MUSICA PRACTICA

by

Diana Margarita Allen Schrader

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A Thesis Submitted to the Faculty of the  
SCHOOL OF MUSIC  
In Partial Fulfillment of the Requirements  
For the Degree of  
MASTER OF MUSIC  
WITH A MAJOR IN MUSIC HISTORY  
In the Graduate College  
THE UNIVERSITY OF ARIZONA

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SIGNED: *Diana Margarita Schroder*

APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

*J. R. Anthony*  
J. R. ANTHONY  
Professor of Music

23 July 1977  
Date

## ACKNOWLEDGMENTS

The author would like to express her gratitude to those people and institutions without whom this study would have been impossible: to the Berkeley campus of the University of California, which allowed access to their extensive resources; to Dr. Albert Seay for his interest and his help; to Dr. James R. Anthony, thesis director; and to Mr. and Mrs. William C. Vecchio, Mr. and Mrs. Fred Baker and Mr. B. J. Connell, Jr. Greatest thanks are due David Schrader, the author's husband, for his continual encouragement and support.

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## ABSTRACT

Of the music theorists who responded unfavorably to Ramos de Pareja's Musica Practica, published in 1482, two, Niccolo Burzio and Franchino Gaffurio, were answered in print by Giovanni Spataro, one of Ramos' students. Spataro's entire printed output is devoted to the defense of his master's theories.

Chief among the theoretical innovations which Burzio and Gaffurio attacked were an expanded system of solmization based on the octave, and a new method of tuning instruments of fixed pitch, a method which approximated just intonation.

The controversy between Gaffurio and Spataro lasted for 42 years, beginning in 1489, when Gaffurio filled Spataro's copy of Ramos' treatise with argumentative marginalia, and ending in 1531 with the publication of Spataro's last book.

## CHAPTER I

### BARTOLOMEO RAMOS AND MUSICA PRACTICA

When Bartolomeo Ramos de Pareja (c. 1440-1500) published his Musica practica in 1482,<sup>1</sup> he engendered a controversy which lasted for decades. The ramifications of the dispute are beyond the scope of the present study, which will limit itself to the immediate reactions to Ramos, those which were answered by his devoted pupil, Giovanni Spataro.

Ramos came from Baeza, in the Spanish province of Betica, which is in southern Spain, the present Andalucía.<sup>2</sup> At the time of Ramos' birth, much of this territory was still under Moorish control. He departed Spain for Italy a few years before the accession of Ferdinand of Aragon (1479), who, with his Queen, Isabella of Castile, would, in addition to financing Columbus' adventures, drive the Moors out of Spain completely and provide the country with its present-day borders.

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1. Bartolomeo Ramos de Pareja, Musica practica Bartolomei Rami de Pareia, modern edition by Johannes Wolf, (Leipzig: Breitkopf & Härtel, 1901).

2. "Explicit musica practica Bartolomeo Rami de Pareia Hispani ex Betica provincia et civitate Baeza Gienna diocesi vel suffragana oriundi, . . ." Ramos, p. 104.

Details of Ramos' life are sketchy, based on speculation, on the few hints he left in Musica practica, and on Spataro's observations. Albano Sorbelli maintains that, though Ramos may have been born in Baeza, his family surely originated in Pareja, a village of Cuenca near Guadalajara, and the derivational name remained.<sup>3</sup>

Ramos received his first musical training from Juan de Monte,<sup>4</sup> who had been a singer in the Papal chapel in Rome in 1447. Ramos had a great deal of respect for de Monte, and listed him in the same breath with such giants as Okeghem, Busnois, and Dufay.<sup>5</sup>

The University of Salamanca possessed a chair of music which Alfonso X, the humanist Spanish monarch credited with the Cantigas de Santa Maria, had established in 1254. Alfonso set the value of the chair at 50 maravedis per year, while the chairs of canon law and medicine received an annual stipend of 300 and 200 maravedis respectively.<sup>6</sup>

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3. Albano Sorbelli, "Le due edizioni della 'Musica Practica' di Bartolome Ramis de Pareja", Gutenberg Jahrbuch, 1930, p. 106.

4. "magister meus Iohannes de Monte, qui fuit primus qui me musices imbuit rudimentis . . ." Ramos, p. 88.

5. "Et istud servat Okeghem, Busnois, Dufay et Johannes de Monte et alii viri in hac facultate famosi." Ibid. p. 84.

6. Robert M. Stevenson, Spanish Music in the Age of Columbus (The Hague: Martinus Nijhoff, 1960), p. 47.

For a time, Ramos held that chair and was, by his own account, quite an authority on Boethius. He relates a dispute he had with one Maestro de Osma on the subject of Boethius' musical categories. To close his argument, Ramos presented de Osma with a copy of a treatise which he had written, "and he, having seen and examined my treatise, said this to me: 'I am not as familiar with Boethius as this writer is.'"<sup>7</sup>

Unfortunately, the treatise, which Ramos wrote in Spanish while at Salamanca,<sup>8</sup> and a Mass which he composed there, did not survive.

Ramos departed Spain for Italy, probably near 1470. Albert Seay has found conclusive evidence that he spent at least some time in Florence. In a Florentine codex (Florence Bib. Naz. Cent., Banco Raro 229-Magliabecchiana XIX, 59), he located a beautifully illuminated circle canon bearing the inscription: "Mundus et musica et totus concentus. Bartolomeus Rami."<sup>9</sup> A black and white reproduction of the canon

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7. "ut upse viso et examinato tractatu meo hoc dixerit: Non sum ego adeo Boetio familiaris sicut iste." Ramos, pp. 42-43.

8. "in tractatu quem ibi in hac facultate lingua materna composuimus . . . ." Ibid., p. 42.

9. Albert Seay, "Florence: The City of Hothby and Ramos," Journal of the American Musicological Society vol. 9, No. 3 (1956), p. 194.

as it appears in this codex can be seen in Die Musik in Geschichte und Gegenwart, Vol. 10, plate 108, following column 1920. Seay's transcription is found in Appendix A of this study.

Either in Spain, or in the greener pastures of Italy, Ramos began to assemble his masterwork, his encyclopedic compendium, which was to be to music what St. Thomas Aquinas' Summa theologiae was to religion. In the Prologue to Musica practica, he outlines his plan:

Therefore, let the division of the work be thus: in the first book, we shall put forth discriminating practice. In the second, we shall discuss theory carefully. In the third, we shall demonstrate semi-mathematical, semiphysical music by means of suitable calculations.<sup>10</sup>

This magnum opus was intended to tear down the walls between the practical, performing musician and the theorist. Probably since Plato, surely since Boethius, there had been strict lines of caste between performers and listeners. In De institutione musica, Boethius divided musicians into three classes: performers, composers, and critics.

that class which is dedicated to instruments and there consumes its entire efforts, as for example the players of the cithara and those who show their skill on the organ and other musical instruments,

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10. "Operis igitur sit ista partitio. In primo libro subtilem practicam ponemus, in secundo theoreticam accurate discutiemus, in tertio musicam semimathematicam, semiphysicam congrua ratione probabimus." Ramos, p. 3.

are separated from the intellect of musical science since they are servants, . . . nor do they bear anything of reason, being wholly destitute of speculation. The second class having to do with music is that of the poets, which is borne to song not so much by speculation and reason as by a certain natural instinct. Thus this class also is to be separated from music. The third is that which assumes the skill of judging, so that it weighs rhythms and the whole of song. And seeing that the whole is founded in reason and speculation, this class is rightly reckoned as musical, and that man as a musician who possesses the faculty of judging, according to speculation and reason.<sup>11</sup>

The validity of Boethius' categories of musicians and his casual relegation of performers and poets to the lower orders are open to argument. However, he may have been reflecting accurately the attitudes of his time, the fading days of the Roman Empire, when musician was synonymous with mountebank, and most performers were slaves.

By Ramos' day, there was a full-fledged double standard in music. On the one hand, music was central to virtually every aspect in life, and on the other, musicians were poorly regarded and poorly paid.

A comparison of musicians' salaries with other occupations and professions invariably leaves the musicians at a disadvantage. In Milan during the sixteenth century, a doorkeeper of the cathedral or a driver of a cart earned as much as some singers.

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11. Oliver Strunk, Source Readings in Music History (New York: W. W. Norton, 1950), p. 86.

Architects, sculptors, and engineers employed by the cathedral received salaries which were twice as large as that of the choirmaster.<sup>12</sup>

The Church was not the only, or even the largest employer of musicians. The increasingly secular society of the Renaissance found more and more occasions where music was desirable and necessary, not only in the courts of the aristocracy, but in the republican governments of the developing cities as well.<sup>13</sup>

Music in the Renaissance was a social art, and a fair mastery of its techniques was an essential qualification for the successful courtier or indeed for any cultured person. Any account of sixteenth century social life leaves the impression that wherever two or three were gathered together they sang four or five part harmony.<sup>14</sup>

And in the main, a vast gulf between the real and the musical ideal prevailed.

Music was a part of the Quadrivium, one of the Seven Liberal Arts, and found a place in the curricula of the European universities, such as the University at Salamanca, where the disparity between the value of the chair of music

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12. Carl Anthon, "Some Aspects of the Social Status of Italian Musicians during the Sixteenth Century," Journal of Renaissance and Baroque Music Vol. 1, No. 3 (1946) pp. 116-117.

13. Paul Oskar Kristeller, "Music and Learning in the Early Italian Renaissance," Journal of Renaissance and Baroque Music Vol. 1, No. 4 (1946), p. 257.

14. Wallace K. Ferguson, "Interpretation of the Renaissance," Renaissance Essays, Paul O. Kristeller, ed. (New York: Harper & Row, 1968), p. 72.

and professorships in medicine and canon law has already been noted. However, most Italian universities made little provision for formal music teaching in their lists of courses.<sup>15</sup>

In 1450, Pope Nicholas V established a chair of music at the University of Bologna. By means of the bull "Inter varias", he set up additional faculty positions in medicine, philosophy, rhetoric, and logic as well.<sup>16</sup>

The Rotulo of the University of Bologna was a general purpose document, a college catalogue, which listed the regulations of the institution, the academic chairs, the names of the instructors, and the schedule of classes. There was a separate Rotulo for the Law College and for the Liberal Arts College.

The Liberal Arts Rotulo for the year 1451 provides space for the music professor's name under the heading "Ad lec. Mus.", but the name written under "d. M." (dominus Magister) has been completely blotted out.

Despite the fact that the course of study had been announced, the chair of music remained vacant and was not mentioned again in the Rotule of succeeding years.<sup>17</sup>

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15. Kristeller, p. 260.

16. Ugo Sesini, "Ad Lecturam Musicae, lo studio Bolognese nella historia musicale", Momenti di teoria musicale tra medioevo e rinascimento, Giuseppe Vecchi, ed. (Bologna: Tamari Editori, 1966), p. 34 note 6.

17. Ibid. p. 14.

By the time Ramos settled in Bologna, the chair of music, still listed tantalizingly on the books, had been unoccupied for some 25 years. Ramos believed that he stood a good chance of obtaining that prestigious position. He began teaching music privately and, in 1482, published the first part of his projected trilogy, his Musica practica.

For reasons known only to himself, he published two editions of his book within weeks of each other. The two printings are very much alike, with only minor differences between them, all of which have been carefully noted by Wolf in his 1901 edition of the work.

The Biblioteca del Conservatorio of Bologna possesses an example of each printing, and has given the number A-80 to the earlier copy, dated May 12, 1482, and the number A-81 to the copy bearing the date June 4, 1482.

The colophons of both printings make Ramos' purpose in publishing abundantly clear. The colophon of A-80 reads:

Here ends the Musica practica of Bartolomeo Ramos de Pareja of Spain, originating from the province of Betica and the town of Baeza, suffragan diocese of Jaen, of the kindly city of Bologna, until he might teach the same publicly. Printed in the year of our Lord 1482, on the 12th day of May.<sup>18</sup>

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18. "Explicit musica practica Bartolomei Rami de Pareia Hispani ex Betica provincia et civitate Baecza Gienna diocesi vel suffragana oriundi, almae urbis Bononiae, dum eam ibidem publice legeret, impressa anno Domini millesimo quadringentesimo octogesimo secundo quarto idus Maii." Ramos, p. 104.

The printer's name is not given, but Sorbelli argues that the work was done by Enrico di Colonia.<sup>19</sup>

The colophon of A-81 reads:

Here felicitously ends the first part of the Musica of the outstanding and famous musician, Bartolomeo Pareja of Spain, until he might publicly teach music at Bologna, in which the entire practice of singing is treated. Truly printed by the labor and expense of Maestro Balthazar de Ribiera, year of our Lord 1482, the 5th day of June.<sup>20</sup>

Gaspari in the nineteenth century and Sorbelli after him have argued that A-81, the copy bearing the later date, was actually the first to be printed, and that some error on the printer's part was responsible for the three-week difference in publication dates.<sup>21</sup>

I think it is more likely that Ramos paid for the printing of A-80 from his own pocket, and, finding that he had insufficient copies, he took the work to Ribiera for re-printing. The colophon gives evidence that the cost of A-81 was borne by the printer.

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19. Sorbelli, p. 111.

20. "Explicit feliciter prima pars musicae egregii et famosi musici Bartholomei Parei Hispani, dum publice musicam Bononiae legeret, in qua tota practica cantorum pertractatur, impressa vero opere et industria ac expensis magistri Baltasaris de Hiriberia anno domini 1482 die 5<sup>o</sup> Junii." Ramos, p. 104.

21. Gaspari's theory is given in the preface to Ramos, p. viii. Sorbelli's is on p. 111 of "Le due edizioni".

Neither A-80 nor A-81 shows many signs of having been "edited" in the modern sense of the term. Wolf says, "The printing of Musica practica is so careless that one can scarcely understand it. An abundance of typographical errors, absurd punctuation, and indiscriminate use of majuscules aggravate the difficulty of deciphering the text."<sup>22</sup>

Sorbelli theorizes that the book may have suffered due to the ignorance of the compositor, to faulty writing on the author's part, to insufficient correction of the proofs, or to difficulties encountered because Ramos was a foreigner.<sup>23</sup> Wolf and Sorbelli both cite Ercole Bottrigari, who saw the book when it was much newer, and who said, "Bartolomeo Ramos' Musica practica is as badly printed a book as I have ever seen . . . ." <sup>24</sup>

But publication alone was not sufficient for Ramos to secure the desired position. Perhaps Ramos did not get the coveted chair of music because the Assunteria, the group in charge of studies, was put off by the sloppiness of the Musica's printed text, or perturbed by Ramos' innovations in music theory. They may have disapproved of his high-handed

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22. Ramos, p. viii.

23. Sorbelli, p.110.

24. "Bartol<sup>o</sup> Ramo nel primo Tratt. della 3<sup>a</sup> parte della sua Isag. Mus. Prat. cosi male stampata, come io me habbia veduto altro libro stampato . . . ." Ramos, loc. cit.

treatment of Guido d'Arezzo, which shall be discussed later, or the problem could have been political.

The mathematical faculty had long considered the teaching of music to fall within its province, and wished to retain the privilege. In the Quadrivial tradition, the music professor should have been subordinate to the mathematical faculty,<sup>25</sup> and Ramos was an outsider, as well as a radical.

Stevenson argues that when Ramos learned that he would not get the faculty position, he abandoned his plan to publish a trilogy, and that the difference between the two colophons gives evidence of his disappointment.<sup>26</sup> However, he may be unaware of all the evidence in the case. The edition which lacks the statement that it is the "prima pars," A-80, contains the following sentence just before the Epilogue: "However, first-rate musicians have realized even better things, the truth of which we shall explain in detail, by means of the most convincing numerical calculations, in the coming volume."<sup>27</sup>

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25. Sorbelli, p. 107.

26. Stevenson, p. 55, note 12.

27. "Melius tamen primi senserunt, cuius veritatem in sequenti volumine firmissimum numerorum rationibus enucleabimus." Ramos, p. 102.

Nonetheless, failing to obtain this position must have been a terrible blow to Ramos, financially as well as psychologically. According to Spataro, he had spent ten years preparing the Musica.

He had shared it with his friends, possibly with his students, but was reluctant to commit it to print, even after completing the third part of the treatise, for he was continually in the process of refining his material. Spataro says, "Always he said to me, 'I stand more vigilant to take things away rather than to add.'"<sup>28</sup> It is unfortunate that such a perfectionist did not exercise a little more care with the printing of the work when he finally did publish.

After his disappointment, Ramos gathered up all of the printed copies of the Musica practica and departed for Rome. According to Spataro, he felt that Bologna had scorned him, so he proposed to complete his work from Rome. But the second and third volumes of his projected trilogy were not forthcoming. The fleshly temptations of the big city were overwhelming. Ramos fell into "lascivious living"

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28. "che za erano diece anni che havea facto quel libro, et ancora non voleva porre fora; se non che tanti furono li preghi de li amici, che quasi la terza parte divulgo. E sempre a me diceva; Io sto piu vigilante per livar via che per azunzere." Spataro cited by Sorbelli, p. 108.

which caused his death,<sup>29</sup> and the copies of the Musica practica were never seen again.

Ramos is very poorly represented in terms of extant works. On his own testimony he wrote at least one Mass and a motet (Tu lumen, tu splendor, patris) of which he was very proud, but the music is lost. The sole remaining composition of Bartolomeo Ramos de Pareja is the canon which Seay found in Florence (Appendix A).

Of his theoretical writings, only Musica practica survives. The treatise which he wrote in Spanish while at Salamanca has been lost. And despite the two printings, little remains of Musica practica. Only three copies are known to survive, and all three are defective. The printing dated May 11, 1482 exists in a single copy in the Biblioteca del Conservatorio in Bologna. It is missing the first page. The June 5th edition survives in two copies. One, incomplete, is in the Proskesche Musikbibliothek of Regensburg, and the other, which lacks folios 1 and 23, is in the Biblioteca del Conservatorio in Bologna.<sup>30</sup>

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29. "et lui quasi sdegnato ando a roma e porto con lui tute quelle particule impresse con intentione de fornirla a roma ma lui non la fornite mai ma lui attendeva a certo modo vivere lascivo, el quale fu cause de la sua morte." Spataro, cited by Wolf in preface to Ramos, p. xiv.

30. Écrits imprimés concernant la musique, François Lesure, ed. (Munich: Henle Verlag, 1971), p. 687.

Musica Practica

In Wolf's modern edition, the book runs to 104 pages, with an additional ten pages of introduction and eight pages of appendix. The text is divided into three major parts.

The first part deals with fundamentals of music, the second with counterpoint, and the third with more advanced elements: canons, prolation, proportions, and the like. The first and third parts are subdivided into large sections called tractatus, and each tractatus is divided into chapters, which are generally a page or two in length. The second part, Contrapunctus, is the shortest, and is divided directly into chapters.

A complete list of the chapter titles of Musica Practica and the pages on which they are found is located in Appendix B.

The book contains very few musical examples. Most of them were written in by hand after the book was printed. There are eight explanatory figures. The first (page 5), is an illustration of Ramos' method of string division to derive the tuning of his monochord. Figure 2 (page 10) shows the Greek Greater Perfect System superimposed over Ramos' string division. Figure 3 (page 13) is an illustration of the Guidonian Hand. Figure 4 (page 35) locates various tones and semitones in tetrachords. Figure 5 (page 36) shows the tetrachords divided by coniunctae revolving around the

semitones. Figure 6 (page 47) is the Manus Rami, Ramos' version of the Hand, giving his solmization syllables rather than the familiar Guidonian ut-re-mi. Ramos also rearranged the direction of the pitches on the fingers in a fashion he conceived to be more logical than the winding pattern illustrated by Reese.<sup>31</sup> Figure 7 (Page 61) is an elaborate construction of the Music of the Spheres, incorporating the Muses and the planets into the Greater Perfect System. The final figure, No. 8 (interleaved between pages 76 and 77), is a complex diagram of the intervallic relationships of all the notes in the Greater Perfect System.

Musica practica follows the conventions of the time in that the treatise begins with a prologue to the reader and ends with an epilogue, but it is still quite different from other early examples of printed treatises. It displays none of the pretty conventions of culture so common in the fifteenth century and afterward: no poetry by the author or by his friends, no advertisements from Ramos' colleagues. In light of his disappointment at Bologna, the absence of any dedication to a patron may be significant.

Writing of Guillermo Despuig's Ars musicorum of 1495, Stevenson says:

after the usual compliments to his patron and formal bow to the authority of Boethius, he next

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31. Gustave Reese, Music of the Middle Ages (New York: W. W. Norton, 1940), p. 151.

strikes out against "other theorists" who dare to write on music but know so little Latin that they assign diatessaron, diapente, and diapason to the feminine gender. This error in gender is of course exactly the mistake that Ramos de Pareja made repeatedly . . . .<sup>32</sup>

but it was by no means his only grammatical failing.

Wolf corrects without comment Ramos' grammar and his spelling. Footnotes document 137 separate instances of grammatical blunders common to both printings. Some of these errata are worth noting.

Ramos calls the L'homme armé Mass of Okeghem (whose name he consistently spells 'Olregam') missa alome armet.<sup>33</sup> On page 27, a reference to linea secunda was inexplicably rendered as prima secunda. Speaking of the power of music, of the sound of the trumpet which causes horses to flick their ears and tremble in their limbs, Ramos uses the accusative case artus rather than the correct ablative artubus.<sup>34</sup> Wolf does not comment upon Ramos' erroneous use of the feminine gender mentioned above since Ramos was consistent in his error and since his modifiers agree with the nouns.

Ramos' affectionate regard for his friends is more than matched by his disdain for his enemies, and his enemies

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32. Stevenson, p. 75.

33. Ramos, p. 87.

34. " equos ad tubae clangorem micare auribus, tremere artubus . . . ." Ibid., p. 2.

are all those with whom he disagrees. He calls the Spaniard Tristano de Silva "our closest friend"<sup>35</sup> once, and "our friend" (amicus noster) twice.<sup>36</sup> He identifies Johannes Urede as "our dearest friend, choirmaster to the King of Spain."<sup>37</sup>

On the unfriendly side, Ramos is spiteful about the past masters whom he considers not only dead issues, but dead wrong. After discussing a system of tetrachord division which he (erroneously) attributed to Marchetto de Padua, Ramos says, "I, however, consider this Marchetto to be worth only about four Marchetti,"<sup>38</sup> a small coin then in circulation in Venice, equal to 1/20 of the Venetian lira. Of Guido d'Arezzo, respected by many as the inventor musicae, Ramos says he was "perhaps a better monk than a musician."<sup>39</sup>

He casually insults John Hothby, the English theorist, by remarking that his viewpoint "is not to be wondered at,

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35. "Tristano de Silva, Hispano, familiarissimus noster . . . ." Ibid., p. 14.

36. Ibid., pp. 86 and 102.

37. "Johannes Urede, carissimus noster regis Hispaniae capellae magister . . . ." Ibid., p. 85.

38. "Ego autem Marchetum hunc tanti existimo, ut Marchetos quatuor . . . ." Ibid., p. 14.

39. "Guido, monachus fortasse melior quam musicus . . . ." Ibid., p. 11.

for he is a follower of Guido,"<sup>40</sup> and entitles the chapter on the facing page: "Reproving the followers of Guido and subtly demonstrating the truth of the matter."<sup>41</sup>

### Tuning Method

Having dispensed with introductory amenities in Chapter 1, Ramos gives instructions for his division of the monochord. An English translation of this chapter is in Strunk, pp. 201-202.

Up to the 1400's, Western theorists had commonly prescribed the so-called "Pythagorean tuning," which called for perfect fifths and fourths (in the ratios  $3/2$  and  $4/3$  respectively), but allowed large, dissonant thirds ( $81/64$ ). The size of the third as a simultaneous interval was immaterial in chant; but from 1200 on, there are signs that in actual performance of part music, the sizes of thirds were being adjusted in response to their new function. . . . It was easy enough to specify the required sizes of thirds; ratios of  $5/4$  (for major thirds) and  $6/5$  (for minor ones) produced sweet, natural, consonant intervals that made the new harmony come alive. The problem was to combine these perfect thirds into a tuning system with perfect fifths. A complete tonal system containing both types of intervals cannot be built. . . . Choral music could adjust the sizes of intervals as the piece progressed, tuning up prominent chords wherever possible. . . . But keyboard instruments such as organ or harpsichord, increasingly in evidence after 1450, demanded some kind of fixed tuning.<sup>42</sup>

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40. "Sed non miror, quia sequax Guidonis est." Ibid., p. 42.

41. "Reprobans Guidonis sequaces et veritatem rei subtiliter demonstrans." Ibid., p. 43.

42. Richard L. Crocker, A History of Musical Style (New York: McGraw, Hill, 1966), p. 180.

Though he claimed only to be providing an easier method of dividing the monochord, Ramos' tuning is one of the earliest attempts to deal with the problem of combining pure thirds with perfect fifths and fourths. He derives his tuning by a process of bisecting the whole string and portions of it, and by dividing portions into three.

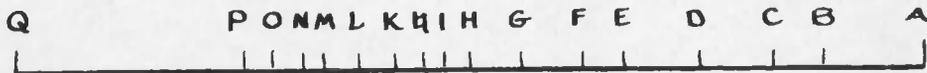
Ramos gives each pitch its own designation, using the letters up through Q to represent them, rather than start again after G. Each pitch on his monochord has its own alphabetical designation, which helps to make melodic direction clear in his musical examples.

When all his instructions have been carried out, the monochord string will be divided as shown in Figure 1, which also illustrates the relationships between the various divisions on Ramos' monochord. Table 1 gives the ratios and pitches of each division.

These ratios differ from the Pythagorean system of tuning. Pythagorean tuning derives all its intervals from multiples of successive  $3/2$  perfect fifths. In addition to the problem of the wide major thirds, many of the Pythagorean ratios are extremely cumbersome, as Ramos said, "useful and pleasant to theorists" but for singers "laborious and difficult to understand."<sup>43</sup>

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43. Strunk, p. 201.



Here the  
string or  
chord is  
attached

Binding of  
the string

Figure 1. Division of Ramos' monochord (from Strunk, p. 202)

$\overline{AQ}$  equals the whole string;  $\overline{AH}$  equals  $1/2$  the distance  $\overline{AQ}$ ;  
 $\overline{AD}$  equals  $1/2$  the distance  $\overline{AH}$ ;  $\overline{FH}$  equals  $1/2$  the distance  $\overline{DH}$ ;  
 $\overline{PQ}$  equals  $1/2$  the distance  $\overline{HQ}$ ;  $\overline{LP}$  equals  $1/2$  the distance  $\overline{HP}$ ;  
 $\overline{NP}$  equals  $1/2$  the distance  $\overline{LP}$ ;  $\overline{IN}$  equals  $1/2$  the distance  $\overline{FN}$ ;  
 $\overline{MQ}$  equals  $1/3$  the distance  $\overline{AQ}$ ;  $\overline{AE}$  equals  $2/3$  the distance  $\overline{AQ}$ ;  
 $\overline{uQ}$  equals  $2/3$  the distance  $\overline{EQ}$ ;  $\overline{BQ}$  equals 2 times the distance  
 $\overline{uQ}$ ;  $\overline{KH}$  equals  $1/2$  the distance  $\overline{MH}$ ;  $\overline{CQ}$  equals 2 times the dis-  
tance  $\overline{KQ}$ ;  $\overline{EG}$  equals  $1/2$  the distance  $\overline{uE}$ ; and  $\overline{OQ}$  equals  $1/2$   
the distance  $\overline{GQ}$ .

Table 1

Ratios resulting from Ramos' string division

Division	Ratio to Whole String	Sounds
AQ	1 <sup>2</sup>	Fundamental pitch (A)
HQ	2/1	Octave (a)
DQ	4/3	Perfect fourth (D)
PQ	4/1	Double octave (a')
LQ	8/3	Octave plus fourth (d)
MQ	3/1	Octave plus fifth (e)
EQ	3/2	Perfect fifth (E)
FQ	8/5	Minor sixth (F)
<del>B</del> Q	9/4	Octave plus whole tone (b)
BQ	9/8	Whole tone (B)
KQ	12/5	Octave plus minor 3rd (c)
CQ	6/5	Minor third (C)
NQ	16/5	Octave plus minor 6th (f)
IQ	32/15	Octave plus semitone (b <sup>b</sup> )
GQ	9/5	Minor seventh (G)
OQ	18/5	Octave plus minor seventh (g)

Franchino Gaffurio, in his Practica musicae of 1496, published a chart of string-lengths for his scale, which was pure Pythagorean.<sup>44</sup> Gaffurio was a representative of the conservative element in music and one of Ramos' chief detractors, so it is appropriate to illustrate here the similarities and the differences between the two tuning systems.

Table 2 gives the string-lengths of Gaffurio's monochord division and the resultant ratios of the pitches. The fundamental length of the string (10,368) was arbitrarily selected so that the ratios could be reduced to whole numbers. It is unlikely that Gaffurio or anyone else had a monochord 10,368 units long.

Neither Ramos' nor Gaffurio's intonation approaches equal temperament. Gaffurio's system features two sizes of semitones: the diesis, or small semitone, occurring between e and f, and having the ratio 256/243, and the apotope, or large semitone, occurring between b<sup>b</sup> and b, and having the ratio 2187/2048. Ramos' ratios for these two semitones are 16/15 and 135/128 respectively, and his tuning system has two sizes of whole tones (9/8 and 10/9) as well.

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44. Franchino Gaffurio, Practica musicae, Clement A. Miller, translator and transcriber (Rome: American Institute of Musicology, 1968), p. 24.

Table 2  
String lengths and ratios of Gaffurio's tuning

Pitch	Length	Ratio
gamma	10,368	1
A	9,216	9/8
B	8,192	81/64
C	7,776	4/3
D	6,912	3/2
E	6,144	27/16
F	5,832	16/9
G	5,184	2/1
a	4,608	18/8
b	4,374	64/27
h	4,096	162/64
c	3,888	8/3
d	3,456	6/2
e	3,072	54/16
f	2,916	32/9
g	2,592	4/1

Equal temperament is predicated on the equal division of tones into semitones, expressed in units of measurement called cents. In Table 3, Ramos' and Gaffurio's intervals are converted into cents for ready comparison with equal temperament. As can be seen, the two systems share a few pitches, but differ on most.

Ramos derives a diesis, minor third, diminished fifth, minor sixth, and minor seventh which are sharper than Gaffurio's, while his apotome, 'small' whole tone, major third, major sixth, and major seventh are flatter. It is paradoxically a part of his tuning method that his diesis the 'small' semitone, is 22 cents larger than his apotome, the 'large' semitone.

The formula used for converting both sets of intervals into cents is in the Harvard Dictionary of Music,<sup>45</sup> and can be stated as:

$$c = \log \frac{i}{d} \times 4000, \text{ less correction factor.}$$

The log of an interval expressed as a ratio is found by subtracting the log of the denominator from the log of the numerator. The correction factor is 0, 1, 2, 3, or 4, depending upon whether the desired pitch is closer to c, e, f#, a, or c'.

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45. Harvard Dictionary of Music, Willi Apel, ed. (Cambridge, Mass: Harvard University Press, 2nd edition, 1969), p. 420.

Table 3

Comparison between the tuning ratios of Ramos and Gaffurio

Interval	Ramos' Ratio	Cents	Gaffurio's Ratio	Cents	Equal Temp.
Minor semitone	16/15	112	256/243	90	100
Major semitone	135/128	92	2187/2048	114	100
Whole tone	9/8 10/9	204 182	9/8	204	200
Minor third	6/5	316	32/27	294	300
Major third	5/4	386	81/64	408	400
Perfect fourth	4/3	498	4/3	498	500
Augmented fourth	45/32	590	759/512	612	600
Diminished fifth	64/45	610	1024/729	588	600
Perfect fifth	3/2	702	3/2	702	700
Minor sixth	8/5	814	128/81	792	800
Major sixth	5/3	884	27/16	906	900
Minor seventh	9/5	1058	16/9	996	1000
Major seventh	15/8	1088	243/128	1110	1100
Perfect octave	2/1	1200	2/1	1200	1200

### Solmization System

In addition to proposing an entirely novel tuning method, Ramos challenged tradition by developing a solmization system based upon the octave rather than the hexachord. Hexachordal solmization had been used since Guido's time to teach young singers how to read the neumes. Guidonian solmization emphasized the individuality of every pitch within the gamut. Ramos believed that the emphasis should be on the octave and on its recurrence.

He says of the Greek Greater Perfect System as handed down by Boethius:

Out of these things is manifested their error, for they begin badly--they start off thus: 'There are twenty letters: A, B, C, D, E, F, G, a, b, c, d, e, f, g, aa, bb, cc, dd, ee,'--whereas there are not twenty, but only seven different letters, after which no others but themselves arise again.<sup>46</sup>

Ramos did not think merely to expand the familiar method by adding a single syllable after la to bring us back to ut; he devised an entirely new set of eight syllables: psal-li-tur-per-vo-ces-is-tas, which forms the Latin phrase

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46. "Ex his manifestatur illorum error, qui male ordiuntur--inchoant namque sis: Viginti sunt litterae: A, B, C, D, E, F, G, a, b, c, d, e, f, g, aa, bb, cc, dd, ee--quoniam non viginti, sed septem tantum sunt diversae, post quas non aliae, sed eadem quasi iterum renascuntur." Ramos, p. 9.

psallitur per voces istas: "it is sung by the voices themselves."<sup>47</sup>

Ramos argues that the Guidonian vocables were not the only syllables ever used for solmization purposes. Odo of Cluny had suggested, in his *Enchiridion*, noe-noa-nan-ne-ca-ne-a-gis, a group of nonsense syllables which filled the octave. Others had proposed tri-pro-de-nos-te-ad-do which, Ramos says, "signified the bases of the modes."<sup>48</sup> Guido's system, of course, used the initial syllables of each phrase of Ut queant laxis, the hymn to St. John the Baptist.

Ramos explains that his solmization system can be used to extend beyond a single octave by changing on the c, from tas to psal if the melody ascends<sup>49</sup> [and from psal to tas if it descends]. This method would be, he believed, easier to use and to teach than the traditional Guidonian

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47. Ibid., p. 19.

48. "Odo enchiriadis dicebat: noe noananne cane-agis, quae nihil sunt significantia. Alii vero tri, pro, de, nos, te, ad, do, quae significabant modorum sedes, . . ." Ibid.

49. "Quod si supra diapason scandere volumus, in eodem sono psal, ut prius, locabimus. Manebit autem bisyllabum c scilicet tas-psal et sequitur cum d-li et cum e-tur et reliqua sicut prius. Sic et in gravi faciendum est, quoniam, ut saepe diximus, post diapason renascitur vox; et quotiens ultra diapason transcendimus vel descendimus, totiens vocem renovamus." Ibid., p. 20.

system, with its seemingly-endless mutations to accommodate melodies which extended beyond the limits of the hexachord.<sup>50</sup>

### Inversion of Intervals

Ramos also recognized the invertibility of intervals. He stated that a fifth subtracted from an octave provided a perfect fourth. He recognized that, though the fifth and the fourth would be perfect, other intervals would change when inverted: that one would be major and the other minor.

If a major sixth is subtracted from the octave, for instance, the resulting third will be minor, and vice versa. Likewise, when a minor seventh is subtracted from an octave, it produces a major second, and so forth.<sup>51</sup>

Ramos recognized that intervals larger than an octave could be considered compounds of the octave, or composite intervals. The difference between them was that the composite

50. For a discussion of mutation, see Albert Seay, "The Expositio manus of Johannes Tinctoris," Journal of Music Theory, vol. 9, no. 2 (1965), pp. 194-233.

51. "Sed quid, si fiat e converso, hoc est, si a specie inferiori intendatur diapason vel a superiori remittatur? Dicendum, quod a tertia sexta provenit et a sexta tertia et a quinta quarta; ideoque tertia et sexta eiusdem sunt condicionis, quoniam imperfectae. Sed quinta et quarta maxime conveniunt, de quo in theoricis nostra. . . . quod quantum quinta habet perfectionis, tantum quarta ad dissonantiam accedit et a consonantiis recedit. Sicut, quando sexta ex tertia procreatur et e contra, si creans est maior, creata provenit minor et e converso, idem quoque de dissonantiis, quia a secunda septima formatur et e contra. Sed si maior est creans, erit minor creata et e contra." Ramos, p. 64.

sounded higher than the fundamental interval. But the ninth was a compound second, the tenth likewise a compound third, the eleventh a fourth, the twelfth a fifth. "For often it has been said that all harmony is the diapason."<sup>52</sup>

### Counterpoint

Ramos' rules for counterpoint are not at all radical. In fact, he acknowledges that they are "brief rules of anti-quity."

1. A composition ought to begin and end with a perfect consonance or a unison.

2. Two or more like intervals or unisons ought not follow each other.

3. Two or more imperfect consonances may follow each other.

4. If the cantus continues on the same pitch for two or more notes, the organum ought to move, rather than remain stationary.

5. A major sixth resolves to an octave, a minor sixth to a fifth. Likewise, a major third resolves to a fifth and a minor third to a unison.

6. If the tenor ascends the counterpoint ought to descend.<sup>53</sup>

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52. "quoniam saepe dictum est totum esse concentum diapason. Quicquid igitur de prima, et de eius octava similiter erit. Differt tamen in hoc, quia acutius aut gravius sonat. Erit igitur octava sicut fons, nona sicut secunda, decima veluti tertia, undecima sicut quarta, duodecima velut quinta, . . ." Ibid.

53. "Nunc autem, quoniam super datum cantum organizare curamus, quasdam regulas breves antiquorum prius inseremus, quarum prima est: Inchoandum et finiendum est in specie perfecta aut in unison. 2a. Non unam post aliam similem facere nec unisonum licet. 3a. Imperfectae dua aut plures

Tinctoris defines fuga as "the likeness of the voice parts in a composition as to the value, name and shape of their notes and rests, and sometimes even to their degree on the staff."<sup>54</sup> Ramos expands upon this somewhat ambiguous description of imitative counterpoint and provides musical examples, as follows:

However, the best mode of composing counterpoint [organizing] is when the organum imitates the tenor in ascent or descent, not at the same time, but after one note or several. It begins in the same voice to form the same, or a similar, melody at the fourth or at the fifth, or, in fact, even at the octave, or in suitable intervals above or below. This mode of practice they call 'fuga' therefore, because one voice follows another similarly through arsis or thesis. Thus, if the tenor sings l n m l n m o, the organum can follow it at the fourth lower, after the first note, and sing h k q h k q l. [See Figure 2a] Also, at the fifth above, the same pause being observed, the organum sings p r q p r q s. [See Figure 2b]. The same likewise is true of their composites, of the unison or the octave. If the tenor sings d e f g c f e d, the organum, after a pause of two notes can echo the same at the octave, that is, l m n o l k n m l [See Figure 2c]. The same at the unison and at their octaves above and below. But in these examples, we put those final pitches in the organum, the tenor having no more notes before them, for a similarity is being shown, which we put in, whereas the

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unam post aliam possunt dari. 4a. Si cantus continetur in eodem sono per duas foces aut plures, organum in eodem sono non quiescat, sed per diversa loca mutetur. 5a. regula: sexta maior coniungit ad octavam, minor vero disiungit ad quintam. Sic et tertia maior ad quintam disgregat, minor autem ad unisonum adducit. 6a. Si tenor ascendit, contrapunctus descendere procuret." Ibid., p. 65.

54. Johannes Tinctoris, Dictionary of Musical Terms, Carl Parrish translator and annotator (London: Free Press of Glencoe, 1963), p. 33.



a. First example: imitation at the lower fourth



b. Second example: imitation at the upper fifth



c. Third example: imitation at the octave

Figure 2. Ramos' examples of fuga

notes which follow in the tenor may not be dissonant with those, because, when the fuga begins to be dissonant, in similarity let there immediately be a dissimilarity, that thus the fuga may not go against the rules given above.<sup>55</sup>

### Conservative Elements

Ramos is conservative in his conception of the ethos of the modes. He relates the four maneriae to the four humours: Protus rules the phlegmatic humour, deuterus the choleric, tritus the sanguine, and tetrardus the melancholic.<sup>56</sup> The entire chapter "In quo musicae mundanae . . ." (pp. 56-60) is, in fact, a discussion of ethos, of the role

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55. "Est tamen modus organizandi optimus, quando organum imitatur tenorem in ascensu aut descensu; non in eodem tempore, sed post unam notulam vel plures incipit in eadem voce eundem cantum facere aut similem in diatessaron vel diapente aut etiam diapason vel in suis compositis ac decompositis sub aut supra. Quem modum practici fugam appellant, propterea quod una vox aliam sequitur simili arsi aut these, ut, si tenor cantet l n m l n m o, organum potest eum sequi in diatessaron inferius post primam notulam et dicere h k q h k q l. Sic et in diapente supra eadem pausa servata organum dicet p r q p r q s. Idem quoque de eorum compositis, de unisono aut diapason. Si tenor d e f g d c f e d, organum post duas notulas idem poterit in octava resonare, quod [est] l m n o l k n m l. Idem in unisono ac in suis sub et supra octavis. Sed in his exemplis ponimus illas ultimas voces in organore tenore non habente aliquid pro eis, ut similitudo ostenderetur, quia supponimus, quod voces, quae sequenter in tenore, non discordent cum illis, quia, cum fuga incipit discordare, in similitudine fiat immediate dissimilitudo, ita ut non faciat contra regulas supra dictas." Ramos, p. 68.

56. "Unde protus flegmatii dominatur, deuterus vero colerae, tritus sanguini, tetrardus autem segnior et tardior melancholiae." Ibid., p. 56.

played by the stars upon the various modes and their effects upon men.

Likewise, he is conservative in his delight in canons. He devotes a chapter (pp. 90-92) to a discussion of various canons found in the literature, and their explanations, beginning with the canon crescit in triplo et in duplo et ut iacet, found throughout the tenor in every movement of Dufay's Mass Se la face ay pale, four canons by Busnois, and several of his own, including a canon in the Mass he composed at Salamanca, one in his motet Tu lumen, tu splendor, patris, composed at Bologna, and several others which he describes, but for which he does not list titles of compositions. Apparently, he wrote canons into many of his works, and it is appropriate that he is represented by a circle canon (Appendix A).

## CHAPTER II

### NICCOLO BURZIO AND FLORUM LIBELLUS

The first published reaction to Ramos came in 1487 with the appearance of Niccolo Burzio's Florum libellus, or Little Book of Flowers.

Burzio was born in Parma, around 1450. He was destined for the priesthood from youth and, after taking vows as a sub-deacon on March 28, 1472, he went to Bologna to study canon law there at the University,<sup>1</sup> which was one of the great centers of study for that discipline, along with the universities at Paris, Orleans, Canterbury, Oxford, and Padua.<sup>2</sup>

In Bologna, Burzio attached himself to Giovanni Bentivoglio, whose family had long been rulers of the city. He studied music with Johannes Gallicus (1415-1473) a Carthusian monk of Mantua<sup>3</sup> (and one of the few theorists favorably cited by Ramos).

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1. François Joseph Fétis, Biographie universelle des musiciens, 2nd edition (Paris: Firmin Didot Frères, 1869), vol. 1, p. 113.

2. Encyclopaedia Britannica, 15th edition, s. v. "Canon Law", Peter J. Huizing.

3. Kristeller, p. 266.

Ercole d'Este, Duke of Ferrara (subject of Josquin's Missa Hercules dux Ferrariae) had three daughters, whose beauty was enhanced by their father's power. All three made important political marriages. Isabella married Francesco Gonzaga of the ruling house of Mantua; Beatrice married Ludovico Sforza, Duke of Milan, and, in 1486, Lucrezia married Giovanni Bentivoglio's son Annibale in Bologna. Burzio, who by this time had developed a good reputation as a poet, celebrated the Bentivoglio wedding in verse.

He remained in Bologna for some thirty years, during which time he published his response to Ramos, his Florum libellus. In 1503, Julius II gained the triple crown of the Papacy, and his ambition of incorporating Bologna into the Papal States did not include the continuing power of the Bentivoglio. In 1508 they were suppressed, and Burzio removed himself to Parma, where he became the rector of the Oratory of St. Peter in Chains. He died in Parma, some time after February, 1518.<sup>4</sup>

In addition to Florum libellus, Burzio's output includes three titles which do not deal with music.<sup>5</sup> Giuseppe Massera published in 1966 a manuscript of Burzio's, a revision

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4. Fétis, p. 113.

5. Klaus Wolfgang Niemöller, "Nicolo Burzio", Die Musik in Geschichte und Gegenwart, Vol. 15 (Kassel: Bärenreiter, 1973), col. 1206.

of the second tractatus of Florum libellus that is virtually identical with the printed version, but which includes more musical examples.<sup>6</sup>

### Florum Libellus

There is some disagreement over the title of this book. Customarily, it is listed in bibliographies as Opusculum musices from the incipit,<sup>7</sup> but Burzio says, "Our compendium, therefore, which is supported by three tractatus, is named Florum libellus."<sup>8</sup> According to Lesure, 33 copies survive in participating RISM libraries.<sup>9</sup> It is, in fact, a little book, being but 67 octavo folios. In terms of extant copies, Burzio is much better represented than Ramos. Forni Editore brought out an unedited facsimile in 1969.

The Florum is set in semi-Gothic type and does not have many typographical or grammatical errors, yet it poses considerable problems for the modern reader nonetheless.

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6. See Giuseppe Massera, "Nicolai Burtii Parmensis Regulae Cantus Commixti", Quadrivium, vol. 7 (1966) pp. 91-101 and vol. 8 (1967) pp. 33-49.

7. "Nicolai burtii parmensis: musices professoris, ac iuris pontificii studiosissimi, musices opusculum incipit." Niccolo Burzio, Florum libellus, facsimile of 1487 edition (Bologna: Forni Editore, 1969), fol. 1 r.

8. "Compendium igitur nostrum quod tribus tractatibus fulcitur, florum libellus nuncupatur." Ibid., fol. 3 r.

9. Lesure, p. 194.

Hugo de Rugerio, Burzio's publisher, incorporated a great many manuscript abbreviations into his printed text. These abbreviations had been developed by copyists for speed in transcription and for the purpose of saving precious parchment. They fall into two general categories: suspensions, in which a single letter represents an entire word, and contractions in which letters are elided within syllables or replaced by symbols.

Figure 3 reproduces folio 4 v. of Florum libellus and identifies some of the abbreviations and clarifies the symbols. Although Figure 3 demonstrates the printer's ingenuity in putting the largest possible number of words on a single small page, it does not show all the abbreviations encountered in the book. In addition to the single suspension shown in Figure 3, Burzio commonly used the following: .s. for scilicet and .n. for enim. Direct quotations from the Latin will indicate the presence of abbreviations by underscoring the inserted letters.

Burzio's purpose in publishing his treatise was twofold: to provide a standard manual for singers and to repudiate Ramos. Both these goals are stated in the incipit: "Here begins the little book on music of Niccolo Burzio of Parma, professor of music and student of canon law, with a

1 Res iam musices: magno quōdā apud gre  
 2 a cos honore habita ē: ita quod nemo repu  
 3 tabat liberaliter eruditus: nisi cantu z fidi 12  
 4 bus opaz dedisset. Unde apud valeriū maximū titu  
 5 lo de studio z industria. Socratē accepim<sup>9</sup> etate p<sup>r</sup> 13  
 6 uectū: fidib<sup>9</sup> tractadis opaz dedisse. satius iudicātes 14  
 7 ci<sup>9</sup> artis vsus sero: q̄z nūquā p̄cipe. quāobres vt ip̄e  
 8 senex didicit. ita ingenuos adulescētes erudiri i his 15  
 9 iussit nō qdē ad lasciuie icitāmētū: s̄ ad monis anie  
 10 sub regula quadā atqz rōe moderādos. At enim nō  
 11 ois vox. s̄ tm̄ que bene r̄sonat ad soni melodiā fa- 16  
 12 cit ita mot<sup>9</sup> aie: nō oēs: sed q̄ rōni p̄ueniūt ad rectaz  
 13 p̄ite armoniā p̄tinēt. Nā ad r̄missionē animi sedādas  
 14 qz passiōes plurimū valet modulatiōis vsus atqz hu  
 15 ius disciplie cognitō digna ē igenio liberali. fm̄ quā 17  
 16 rōem speculamur sonoz varias naturas ac potesta-  
 17 tes. z ex qbus iuicē proportionib<sup>9</sup> r̄sonārias: dispo-  
 18 nātiāsqz causari p̄tingat. Aristotiles iccirco i proble-  
 19 matib<sup>9</sup> vbi de hoc satis abunde: musicē naturalē b̄re  
 20 delectationem omnibusqz etatibus: ac singulis mo-  
 21 ribus amicum esse docuit. Nōne dauid vt habetur  
 22 originaliter regum p̄mo: saulem a spiritu imundo:  
 23 arte modulationis eripuit: Asclepiades medicus  
 24 freneticorum mentes morbo turbatas: nōne sepe sa-  
 25 nitati restituit: De quo apud Celsum libro tertio de  
 26 medicina. c. xviij. de tribus insanie generibus. Nul-  
 27 lū legim<sup>9</sup> tam imitte: t̄aqz aspuz p̄ct<sup>9</sup>: qn oblectamē  
 28 toz huiusce nō moueat affectu. vnde apud Valeriū

Figure 3. Folio 4 verso of Burzio's Florum libellus indicating some of the abbreviation signs

defense of Guido d'Arezzo against a certain Spanish prevaricator."<sup>10</sup>

Burzio follows the same format as did Ramos. His book is divided into three tractatus and each tractatus is divided into chapters. He, unlike Ramos, closes with a graceful poem, "Carmen Nicolai Burtii Parmensis ad lectorem."<sup>11</sup> A list of the chapter-titles and the folio-numbers upon which they appear is given in Appendix C.

Like Ramos, Burzio deals in his first tractatus with the basic elements of music, chiefly plainchant and solmization. The second tractatus is concerned with counterpoint, and the third with cantus figuratus, mensural music.

Ramos had only eight illustrations in his treatise, Burzio boasts nine, including one of some historical significance.

Burzio's figure 1 (fol. 13 r.) shows one definition of proportio, as divisions within the octave. Figure 2 (fol. 14 v.) is a graphic description of the three genera of tetrachords from the Greek system of music theory: diatonic, chromatic, and enharmonic. Burzio gives the diatonic genus as

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10. "Nicolai Burtii parmensis musices professoris ac iuris pontificii studiosissimi, musices opusculum incipit: cum defensione Guidonis aretini, adversus quendam hispanum veritatis prevaricatorem." Ibid., fol. 1 r.

11. Ibid., fol. 66 v.

consisting of Tone, Tone, Semitone; the chromatic genus as consisting of five Semitones, and the enharmonic genus as consisting of two Dieses and a Ditone. The third illustration (fol. 15 v.) is the chant setting for Guido's hymn, Ut queant laxis. The fourth illustration is an eleven-line staff which shows the positioning of all seven Guidonian hexachords and occurs on the same page. Figure 5 (fol. 16 r.) depicts ascending tetrachords on every note in the Greater Perfect System. Figure 6 (fol. 24 v.) shows Burzio's species of diapason. Figure 7 (fol. 35 r.) is a chart of consonances, from the unison to the bisdiapason. Figure 8 (fol. 38 v.) is a three-part composition, printed apparently from a wood block. According to Reese, this is the earliest known example of printed part-music.<sup>12</sup> A transcription is given in Appendix D. Finally, figure 9 (fol. 45 v.) is a chart of various symbols used in mensural notation, meter signs, ligatures, etc.

#### Attacks on Ramos

Burzio's twofold intention, to teach music and to reproach Ramos, often works at cross-purposes. His recriminations distract from the didactic text, and vice versa. It is easy to see from Burzio how the English word libel derived from the Latin libellus.

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12. Gustave Reese, Music in the Renaissance, revised ed. (New York: W. W. Norton, 1959), p. 155.

Ramos' attempts to put down other musicians were, perhaps, heretical, but they were set in a tone of heavy-handed jocularly. Burzio, however, seethes with spite. While continually addressing his readers as amantissimi (Dearly Beloved), he calls down blood-curdling imprecations on Ramos. "Therefore, may your tongue cleave to your throat when, having been poisoned, you prepare to vomit. Nor may the authority of all the fathers be defiled by your envy."<sup>13</sup>

Burzio is disconcerting to read, as well as difficult to decipher, for his snarling attacks on Ramos occur unexpectedly, and almost at random, springing up like toadstools and distracting from the subject at hand.

He apparently believed he was fighting a holy crusade, defending a beleaguered faith against the inroads of a base, anti-Guidonian infidel, for he says:

I shall make a vow to fight the errors of a certain modern, and his ignorance, and to demonstrate it clearly and absolutely to everyone as error. This man, indeed, by certain sophistries and utterly false absurdities endeavors to oppose holy Guido d'Arezzo, whose sanctity and doctrine deserve preference by philosophers! O remarkable deceit! O impudence unheard of before today! The madman bellows repeatedly and cries aloud a multitude of insults. What do you shout? What angers you? Before I

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13. "Adheareat igitur lingua faucibus tuis, dum quod venenati paras evomere ne tantorum patrum auctoritas, tuo livore polluatur." Burzio, fol. 21 v.

depart from here, it is inevitable that you shall be ashamed of your most abominable errors.<sup>14</sup>

His strongest words are used in defense of the system of solmization named for (and sanctified by) Guido. He felt that Guido's method was particularly threatened by Ramos even though, after inventing his own system, Ramos was inconsistent in its use, and referred later to the familiar Guidonian vocables.

I shall not omit hereafter the thick-headed theory of this man concerning the fundamentals of music, in which, lamenting for having labored such a long time, he says that he is setting down new syllables for separate pitches, which he describes thus: Psallitur per voces istas [Ramos, p. 19]. The message concluded from these syllables is: 'Let it be sung by the voices themselves.' O insanity! O unbearable ignorance! Recognize yourself! You are describing the manifold forms which were employed in the time of the ancients and which were very nearly useless. . . ."15

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14. "vota promam, cuiusdam moderni errores huiusmodi ac insitiam expugnare et eam omnibus liquido erroneam absolutissimeque demonstrare. Hic enim quibusdam cavillatibus ac falsis omnino ineptiis pium Guidonem Aretinum, qui sanctitate ac doctrina philosophis merito præferendus, nititur oppugnare. O insignem calumniam! O impudentiam ante hunc diem inauditam! Exclamat saepenumero demens et multis vociferatur. Quid clamas, quid angeris? Ante hinc discedam, tui nefandissimi erroris te pudeat necessum est." Ibid., fol. 1 r.-v.

15. "Non omittam praeterea huius viri crassam circa principia musicae doctrinam, in qua lugubrando laborasse inquit, ut dictiones singulis chordis imponeret novas, quae ab ipso hoc modo describuntur: Psallitur per voces istas. Quae huiusmodi descriptiones conclusio est: psallitur per voces istas. O vecordiam, o ignorantiam non ferendam! Recognosce te ipsum. Describis enim apud antiquos vario stilo et paene inutili. . . ." Ibid., fol. 2 r.

It is odd that Burzio should so abuse Ramos for attempting to invent a new system of solmization, for Johannes Gallicus, Burzio's mentor, for whom he has the greatest respect, had developed such a system himself. In lieu of Guido's syllables, Gallicus proposed the use of ba, be, bi, bo, bu, bam,<sup>16</sup> but Burzio did not acknowledge the contradiction in his position.

### Counterpoint

Like Ramos and other theorists, Burzio gives a set of rules for counterpoint. His rules are similar to those given in Chapter I, though not as concisely stated.

The first rule is that a composition must never begin with a dissonance, but most particularly must never end with one.<sup>17</sup> The second rule forbids successive perfect consonances.<sup>18</sup> Rule number three advises against having more than two or three successive dissonances before coming to rest on some sort of resolution by leading successive thirds

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16. Heinrich Hüschen, "Gallicus, Johannes," Die Musik in Geschichte und Gegenwart, vol. 4 (1955) col. 1296-7.

17. "Primo siquidem numquam a dissonantiis quamquam compassibilibus inchoandum, numquam et in illis finiendum. . ." Burzio, fol. 36 r.

18. "Secundo cavendum est ne unquam duas consequenter feceris perfectas consonantias videlicet in diversis lineis vel spatiis, hoc est duas quintas, vel octavas, vel duo unisonos. . . ." Ibid.

to a fifth and sixths to an octave.<sup>19</sup> The fourth rule warns against trifling with perfection, i.e. that perfect consonances cannot be augmented or diminished, for then they become dissonances.<sup>20</sup> The last rule advocates contrary motion in the voices.<sup>21</sup>

After his last rule, Burzio talks about imitative counterpoint which, interestingly, he calls fuga. His remarks are taken practically word for word from Ramos. In Figure 4, both statements are shown in the Latin for ease in comparison. One need not be much of a latinist to see a striking resemblance between Burzio's words and those of a "certain Hispanic prevaricator," of whom Burzio says, "It disturbs me now, Beloved, and provokes me to bile, the foolishness and insolence of that Spaniard . . . let him be silent, therefore and dumb, for he is worthy of a dose of hellebore [an herb thought to be a remedy for madness.]"<sup>22</sup>

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19. "necnon duas vel tres ponere successivas, ita quod post plures dytonos sive tertias statim quinta fiat, post plures sextas mox diapason fiat et successive de aliis intelligendum." Ibid., fol. 36 v.

20. "Quarto namque cum fueris in qualicunque perfecta consonantia noli concitus ad dissonantias compassibiles te declinare quamquam hoc aliquid fit impossibile: nisi possis statim illas suas perfectas subiungere." Ibid.

21. "Quinto est candidissimo calculo natandum quod ascendente plano cantu cum perfectis descendere debes, vel et e contra si descenderit ascendendum." Ibid.

22. "Movet me nunc, amantissimi, et ad bilem provocat illius hispani fatuitas et insolentia . . . sileat igitur et obmutescat, nam helleboro dignus." Ibid., fol. 15 v.

Optime enim organizatur si- ve discantatur quod organum sive supranus ut vulgi utar vocabulo imitatur tenorem in ascensu aut descensu non in eodem momento, sed post unam aut duas notulas vel plures incipiet in eadem voce eandem melodiam organ- izando, quid maxime cantu mensurato observandum est, et a nonnullis practicis fuga nuncupatur.	Est tamen modus organizandi optimus, quando organum im- itatur tenorem in ascensu aut descensu; non in eodem tempore, sed post unam not- ulam vel plures incipit in eadem voce eundem cantum facere aut similem in dia- tessaron vel diapente aut etiam diapason vel in suis compositis ac decompositis sub aut supra. Quem modum practici fugam appellant, . . . .
Burzio, fol. 36 v-37 r.	Ramos, p. 68.

Figure 4. Burzio's comments on fuga compared with Ramos

#### Rules for Singers

Burzio observes that, while "every musician is a singer, not every singer is a musician,"<sup>23</sup> an observation still made from time to time, and he gives recommendations for the preservation and protection of the voice.

His three rules for vocalists can be said to have stood the test of time. He recommends first that "he who would sing should not burst forth in the beginning of the song with a waste of breath and too high a pitch,"<sup>24</sup> or in other words, that singers should practice breath control and be well warmed up before singing.

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23. "Omnis ergo musicus cantor, sed non omnis can-  
tor musicus." Ibid., fol. 9 v.

24. "Primum videlicet ne quis in primordio cantus  
cum velit cantare effusione spiritu et nimis alte prorumpat,  
. . ." Ibid., fol. 32 v.

His second rule advocates the regular use of exercise,<sup>25</sup> and he warns, "third and last for the conservation of the voice, overabundance of food and drink must be avoided."<sup>26</sup> He then launches into a lecture against overindulgence and the dangers of too much strong drink.

He closes this chapter with a startling pronouncement: "Too frequent coitus debilitates and enervates the body and profoundly injures the voice."<sup>27</sup> This warning seems a little out of place, considering that Burzio's intended audience was composed of clerics, albeit in minor orders, and children. He did, after all, address the book to the humble friars and to all religious,<sup>28</sup> who should scarcely require such admonition.

In his second tractatus, Chapter VI, Burzio discusses English Discant, the practice of improvising counterpoint over a cantus firmus at sight. He is describing the English system rather than the Continental fauxbourdon, despite his attribution of the method to the French,<sup>29</sup> for he speaks of

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25. "Alterum est ut congruo utamur exercicio." Ibid.

26. "Tercio et ultimo ad vocis conservationem: cibique et potus satietas vitanda." Ibid., fol. 33 r.

27. "Nimis frequens coitus debilitat et enervat corpus atque vocem penitus frangit." Ibid., fol. 34 r.

28. "Pauperibus clericis, ac religiosis, Nicolaus Burtius Salutem Plurimam Dicit." Ibid., fol. 1 r.

29. "De contrapuncto praticorum qui ultramontanis et maxime Gallicis est in usu." Ibid., fol. 39 r.

the other voices improvising above and below the tenor, which is occupied with the cantus firmus, and in fauxbourdon the cantus firmus was usually in the top voice. However, by the time that Burzio wrote about it, this method of sight-singing polyphony had been in fairly consistent practice for over a century.

In Chapter XX of his third tractatus, Burzio gives his method for determining pitches on a monochord. His directions paraphrase Odo of Cluny's rules, by which the monochord string is divided into nine equal parts, and from the first ninth is divided again into nine, etc., which derives the whole tones of Pythagorean intonation in 9/8 ratio.<sup>30</sup>

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30. Odo's instructions are in Strunk, pp. 103-108.

### CHAPTER III

#### GIOVANNI SPATARO AND HONESTA DEFENSIO

Spataro's initial appearance in Ramos' defense came in 1491, with the publication of his first printed treatise: Iohannis spadarii in musica humilissimi professoris eiusdem musices ac Bartolomei Rami pareie eius preceptoris honesta defensio In Nicolai Burtii parmensis opusculum.<sup>1</sup>

Giovanni was one of five children born to Guido and Perpetua Spataro.<sup>2</sup> The exact date of his birth is unknown, but it was probably near the end of the year 1458.<sup>3</sup> His father was a tradesman, a swordmaker, as his surname indicates (spada: a sword).

Little is known of Giovanni's educational background before he came under Ramos' influence. He was to become Ramos' most faithful and most noteworthy student, in fact, his most dedicated and belligerent apologist.

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1. Giovanni Spataro, Honesta defensio in Nicolai Burtii parmensis opusculum, facsimile of the 1491 edition (Bologna: Forni Editore, 1967), fol. 1 r.

2. Ludovico Frati, "Per la storia della musica in Bologna dal secolo XV al XVI," Rivista Musicale Italiana, vol. 24 (1917), p. 456.

3. Walther Dürr, "Spataro, Giovanni," Die Musik in Geschichte und Gegenwart, vol. 12 (1965) col. 1018.

However enviable Spataro's musical education may have been, his Latin was deficient. He was able to read Latin adequately and to translate from Latin into Italian, but he never mastered the art of Latin composition. This put him at a considerable disadvantage, for Latin was in his time the language of erudition.

Latin was a unifying factor throughout Western Europe. Though it had become debased and closer to the vernacular in the Middle Ages, it was still an expression of the ancient Imperium Romanum. With the classical renaissance of Petrarch, Latin came to enjoy immense prestige. A cultured gentleman was expected to be able to compose a poem in Latin with grace, if not with ease.

In the arts and sciences, publication in Latin was indispensable. While publishing in Latin was not necessarily a guarantee of universal recognition, a work printed in the vernacular could not expect more than limited local notice.

"Actually, however, the ordinary musician, both the theorico and prattico fell far short of this educational ideal. Most of them know very little Latin and wrote exceedingly crudely, even in the vernacular."<sup>4</sup> Spataro was one of these. His linguistic deficiency caused him no little hardship all his life.

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4. Anthon, p. 123.

Some theorists went to the trouble and expense of having their treatises translated into Latin, such as Pietro Aron, whose Instituzione armonica was translated by Marcantonio Flaminio, and Stephano Vanneo, whose Recanetum was translated by Vincenzo Rossetti.<sup>5</sup>

In a letter of April 8, 1523, Spataro wrote, "At the end of Lent, I shall have a very learned friar of St. Augustine translate the Sesqualtera into Latin. The business must wait until the end of Lent, because this friar preaches every day in the church of St. Stephen, thus his time is occupied."<sup>6</sup> But nothing came of it. The Sesqualtera, completely entitled Tractato di musica di Gioanni Spataro musico Bolognese nel quale si tracta de la perfectione da la sesqualtera producta in la musica mensurata exercitate, was published in 1531, in Italian.

Spataro's entire literary output was produced in Italian. Also, every book he wrote contained either a defense of Ramos or an attack on his detractors, or, more likely, both.

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5. Ibid.

6. "Finita che sia questa quadragesima io sero con uno frate de sancto Augustino multo docto: per fare ridurre lopera de la Sesqualtera in latino . . . bisogna aspectare facte la quadragesima perche tale frate predica ogni giorno in la eclesia del nostro sancto Stephano siche ora e impedito." Spataro to Pietro Aron, cited by Gaetano Gaspari in Ricerche, documenti e memorie riguardanti la storia dell'arte musicale in Bologna (Bologna: Forni Editore, 1969), p. 41.

In 1505 Spataro became a singer in the choir of San Petronio in Bologna. In 1512, he succeeded Gabriele Lunerios as choirmaster, a post which he held until 1540, almost the rest of his life.<sup>7</sup>

During some of Spataro's years in the choir, the church was decorated by the heroic bronze statue of Julius II which the Pope had commissioned from Michelangelo and set up in San Petronio to symbolize his subjugation of the city. However, the Bolognese did not appreciate the gesture. In 1512, they pulled the statue down and sent it to Alfonse d'Este, the Duke of Ferrara, who melted it down into a cannon.<sup>8</sup>

The monastic policies of poverty and obedience were imposed upon church musicians by the low salaries and the harsh discipline (we may assume from Burzio that chastity, like Latin, was more esteemed than practiced). Singers in San Petronio's choir, the largest in Italy, earned a starting salary of 3 lire per month. As choirmaster, Spataro received the princely sum of 10 lire monthly. By contrast, two lecturers in the humanities at the University of Bologna earned respectively 1860 lire and 1200 lire per year.<sup>9</sup> Music

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7. Dürr, col. 1019.

8. Encyclopaedia Britannica, 15th ed., s. v. "Michelangelo", Robert J. Clements.

9. Anthon, p. 114.

may have ranked high in the Quadrivium, but economically it was low indeed.

As members of a cappella, musicians were under rather rigid discipline. All chapel statutes emphasize that the singers owed their choirmaster practically absolute obedience. Chatting during services, swearing, sleeping, and similar disrespectful conduct was severely punished. The cathedral of Milan punished every transgression with the loss of a week's salary; for the third offense, they were to be deprived of their post.<sup>10</sup>

In 1530, San Petronio was the site of a brilliant spectacle. That year, Pope Clement VII crowned Charles V as Holy Roman Emperor. San Petronio was selected as the ceremonial location for political reasons. By 1530, Spataro was 70 years old, though still very active in the performance of his duties. It is interesting to speculate on his role in the preparations and in the coronation ceremony itself, for a great deal of music was necessary to solemnize such an event. It was to be the last time a Pope ever crowned a Holy Roman Emperor.

Spataro lived his entire life in Bologna and kept in touch with the course of Italian music through correspondence with his colleagues. He was a prolific letter-writer, as a source in the Vatican Library (Ms. Vat. lat. 5318) can testify. It contains some four dozen of his letters to

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10. Ibid., p. 121.

various musicians, chiefly Pietro Aron and Giovanni del Lago with two letters addressed to Marco Antonio Cavazzoni.<sup>11</sup>

### Testaments

Spataro lived past his eightieth birthday and had ample occasion to prepare himself for death. He wrote a will on May 24, 1520, and revised it four times: on July 29, 1527, October 26, 1535, October 1539, and October 26, 1540.<sup>12</sup>

He must have had, as Anthon remarks, some source of income beyond the salary paid him by San Petronio in order to have amassed enough worldly goods to be concerned over their disposal.<sup>13</sup>

He left his housekeeper, Berta, a tiny annuity of 7 lire, a bed with a good bolster, two pair of sheets and a blanket. He left her as well her bedding, two trunks, and the coffer where he kept his pewter. To his friend Giampietro, the smith, he left an iron anvil weighing 4,000 pounds. He left his nephew Antonio di Giovanni del Migliore his two best mantles, and another mantle went to Hermes di Lodovico Capocchia.

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11. See Knud Jeppesen, "Eine musiktheoretische Korrespondenz des früheren Cinquecento," Acta Musicologica, vol. 13 (1941), p. 5 et. seq.

12. Frati, p. 457.

13. Anthon, p. 115.

His books on music and his manuscripts and scores, he left to the music school at San Petronio.<sup>14</sup>

In his testament of October 1535, he requested to be buried in the church of San Petronio, in the new Lady Chapel, which was still under construction. He wanted a white stone set over his grave and,

Above the white stone is to be the insignia, the arms of my ancestors, that is to say, a shield upon which is sculpted an arm in armor, with the hand holding a cudgel. From the cudgel hang three chains and at the end of the chains are three balls. Above the stone, carve the following words: S. Sepulcrum Johannis Spatarii Musici Bononiensis et heredum suorum.<sup>15</sup>

Naturally, he provided for masses to be sung on the anniversary of his death for the repose of his soul. In the 1535 will, he asked for them to be sung at the Lady altar, but in his last will, October 26, 1540, he requested that his requiem masses be sung from the high altar. In addition, he asked that a special Mass, entitled La Comune de San Petronio be celebrated.<sup>16</sup>

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14. Frati, pp. 458-59.

15. "Sopra la quale pietra bianca e la insignia, o vero arma, de li mei antecessori; cioe uno scudo, nel quale e sculpito uno brazo dentro armato, che ne la mano tene uno bastone, nel quale bastone sono le catene; et nel fine de le tre predictate catene sono tre palle. Sopra la qual pietra sono sculpite queste sequenti parole: S. Sepulcrum Johannis Spatarii Musici Bononiensis et heredum suorum." Spataro, cited by Frati, Ibid., pp. 461-462.

16. Ibid., p. 462.

The actual burial inscription, cited by Frati, reads as follows: "Johannes Spatarius of Bologna is not solely enclosed by this urn, but also he was renowned for music theory, for virtue as well as faith. Let all now pray for these vanities of a good man. He lived 80 years; he died on the 17th of January, 1541."<sup>17</sup>

#### Spataro's Works

The archives of San Petronio contain the compositions of Giovanni Spataro, many in his own hand, and all in manuscript. There are several Masses and motets, a set of responses for Holy Week, and a few secular compositions.<sup>18</sup> Four of his motets have been brought out in modern editions, two by Luigi Torchi,<sup>19</sup> and two by Knud Jeppesen.<sup>20</sup>

Spataro's literary output is entirely polemical, intended either to defend Ramos or to assail Ramos' detractors. Honesta defensio was published in 1491 to refute Burzio. In 1510, Spataro's Breve e utile regole di canto appeared in

17. "Janus Spatharius Bononiensis hac non solus urna clauditur sed musicae theoricæ inclytum decus simul fides bene his boni omnes jam precentur inanibus vixit annos LXXX obiit decimo sexto calendas februarii. MDXLI." Ibid., p. 463.

18. Dürr, col. 1019.

19. Luigi Torchi, L'Arte musicale in Italia (Milan: Ricordi, 1897), vol. 1, pp. 31-48.

20. Knud Jeppesen, ed., Italia Sacra Musica (Copenhagen: Wilhelm Hansen, 1962), vol. 1, pp. 113-123.

manuscript to lay down rules for singers and to argue with Franchino Gaffurio. In 1521, he published both Errori de Franchino da Lodi and Dilucide et probatissime demonstratione . . . contra certe vane excusatione da Franchino Gaffurio. In 1531 the Tractato di musica was published which, despite its comprehensive title, is in fact another opportunity to take issue with Gaffurio.

Gaffurio and Spataro carried on a scholarly feud which lasted until Gaffurio's death in 1522. Unlike the Renaissance gentlemen who resorted to swords or poison to settle their differences, these two theorists duelled with ink, and both lived to advanced ages, indeed their longevity was remarkable for their era.

#### Honesta defensio

The book is Spataro's first, published when he was 33 years old. It is a 50-folio octavo, of which four copies survive, three in European libraries and one in the United States.<sup>21</sup>

Honesta defensio is set in clear, easy-to-read type. Some of the manuscript abbreviations are still to be found, but not so many as in Burzio's book. Plato de Benedictis, Spataro's printer, restricted his use of the abbreviations

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21. The Forni facsimile (with preface by Joseph Vecchi), is the first volume in a projected series of Spataro's complete works.

generally to the contractions for "m", "n" and "per". Confusion arises occasionally when words are run together or divided at the end of a line, for there is no hyphenation.

The book presents a spare appearance by comparison with those of Ramos and Burzio, for there are no illustrations or musical examples, and only two diagrams, one showing species of 5ths and 4ths in Ramos solmization system (fol. 18 v) and the other giving an Euclidean proof of Ramos' theory on proportion (fol. 40 v).

Spataro followed conventional practice by dedicating the book to a third party, Antonio Galeazzo de Bentivoglio, the son of Giovanni, 19 years old in 1491 and an Apostolic Prothonotary (a largely ceremonial office).<sup>22</sup> At the end of the text another conventional device appears, a poem dedicated to Spataro and composed in terza rima by Michael Salimbenis, another of Ramos' former students.

Honesta defensio is a point-by-point answer to Florum libellus, and parallels Burzio's book in form. That is to say that Honesta defensio is divided into three parts to correspond with the three Tractatus of Florum libellus, and Spataro takes up his objections to Burzio in the order in which they appear, first citing Burzio's statements, then debating them. However, since Spataro's Latin was not equal

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22. Joseph Vecchi, preface to Spataro, p. ii.

to the situation, he translated Burzio's comments into Italian, and answered him in the same tongue.

Burzio begins his Prologue by describing himself as one who, since adolescence, has devoted many long hours to the study of music, and who has increased the understanding of those who came to him seeking instruction in the art,<sup>23</sup> an Italian counterpart of Chaucer's Clerk of Oxenford: "and gladly wolde he lerne and gladly teche."

Spataro disputes this self-portrait at once, saying rather that Burzio was ignorant of music's first principles:

Do you not recall when you showed to my most learned master a certain composition of yours, composed with such ignorance that you did not reconcile the contra with the soprano, but if the tenor formed a fifth or a third with the soprano, the contra was a fifth under the tenor, which formed a ninth or a seventh with the soprano. And because my master humbly asked that you not make these songs of yours public until you had learned a little, you took the worst sort of offense at the paternal correction.<sup>24</sup>

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23. "Cum multi velut umbra declinavere anni quibus ab adolescentia; non sine tamen lugubratione nimia, circa musices disciplinam tempus contueruerim et quamplures ex me haustum huiusmodi suscep<sup>er</sup>int et incrementum." Burzio, fol. 1 r.

24. "E non ti ricorda quando al mio doctissimo maestro mostrasti certe tue compositione composte cum tanta ignorantia, che tu non concordavi il contra cum il soprano. Ma se el tenore era quinta o terza cum lo soprano lo contra era quinta sotto il tenore, che veniva a essere una nona, o una septima cum lo soprano: e perche il mio maestro humilmente te disse non monstrar questi toi canti fora finche non hai imparato un poco, te adirassi, come pessimo a la paterna correctione." Spataro, fol. 2 v-3 r.

Then Spataro disputes every point where Burzio dares to differ with Ramos. When Burzio says, "He endeavors to oppose holy Guido d'Arezzo who, by his sanctity and doctrine deserves to be preferred before the philosophers,"<sup>25</sup> Spataro responds, "Where you say that Guido is in a state of grace, that by doctrine and sanctity he deserves to be in the presence of the philosophers, you could well have argued this better. Cannot one be very saintly and be ignorant of music?"<sup>26</sup>

Burzio said of Ramos' monochord tuning:

Where are the musical principles of Boethius, whose division of this sort was proved by clearest reasoning? Where is the common, easy division of d'Arezzo and of Johannes Carthusiensis? How can this kind of explanation be obscure to anyone, no matter how infantile, how feeble-minded?<sup>27</sup>

to which Spataro replies:

Of that different division which states that Guido divides by nine, as you still do, he [Ramos] does not call it false, but more laborious than his, for

25. "pium Guidonem aretinum qui sanctitate ac doctrina philosophis merito praeferendus, nititur oppugnare." Burzio, fol. 1 v.

26. "E dove tu dici Guido essere stato sancto che per doctrina, e sanctita merita essere inanci alli philosophi, tu potivi bene in questo argumentar meglio. Non po uno essere sanctissimo et ignorare la musica?" Spataro, fol. 3 v-4 r.

27. "Ubi musicorum monarcha Boethius: qui huiusmodi divisionem luculentissimis rationibus probat? Ubi aretini ioannisque cartusiensis divisio pervulgatissima, quam nemo tam puerilis aetatis, tam imbecillis sensus, qui huiusmodi demonstratio sit seclusa?" Burzio, fol. 1 v-2 r.

because in his monochord division he divides by two, three, or four. Therefore, if a division by nine is one of utter clarity, then perhaps that which does not go beyond four will be confusion.<sup>28</sup>

Later on, Spataro has an opportunity to expand upon the difference in tunings, for Burzio devotes two chapters in his third Tractatus to the division of his monochord, and gives a set of complex and confusing directions for this operation. His method is based upon Odo's nine-fold division, and Burzio, by his circuitous explanation of the mathematics involved, makes Ramos' directions seem childishly simple.

Spataro says:

In Chapters 20 and 21, you divide your entire monochord by steps. One would like to know whether these ought to be giant-steps or pygmy-steps, or perhaps they are your own, which, being those of the moderns would be half-way between these. And one would also like to know if each of such steps would have to be five feet long, with each foot containing sixteen inches, as you maintain in your Chapter 19. . . .<sup>29</sup>

The talk of feet and inches is a sly reference to Burzio's rambling dissertation on measurement in which he

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28. "E di quella altra divisione che dice Guido partir per nove, come e tu ancora fai non dice lui essere falsa, ma laboriosa piu che la sua, per che nella sua partitione parte per dui, tri, o quatro adunque se quella per nove e una chiarezza, perche quella che non passa quatro sera confusione." Spataro, fol. 6 v.

29. "Dapo capitolo xx e xxi tu dividi tutto il tuo monochordo per passi. Vorrebbe saper da te se questi passi debeno essere de Giganti, o di pigmei o voi che siano delli moderni che son mezi intra questi, e vorrebbe sapere se ciascun de tal passi debbe havere cinque piedi, e ciascuno piede xvi dita, come tu dici nel tuo capitolo xix. . . ." Ibid., fol. 45 r.

states that "a foot truly is sixteen inches," and a little later, "a step [pace] comes from five feet. . . ."30 Spataro wonders whether anyone in the choir, or even in the whole parish of San Petronio could comprehend Burzio's tuning directions.31

Burzio says of Ramos' solmization system, "Oh folly! Oh unbearable ignorance!"32 In coming to Ramos' defense, Spataro is able to use Burzio's own words against him, for Burzio had said in praise of the octave, "If I had a hundred tongues and a hundred mouths and a voice of iron, I might vainly try to express its praises."33 Spataro cites this elegant passage, along with the following: "Further, it [the octave] contains all of the consonances and, like a good mother, it warms them on its lap and nourishes them." The octave received the name diapason, "for pan signifies

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30. "Pes vero est digitorum sedecim. . . . Passus enim ex pedibus quinque . . . ." Burzio, fol. 59 r.

31. "questo tuo monocordo non caperebe nel choro il San Petronio e maxime quando fai lultima divisione che se volemo intendere questi passi intiegri non voglio dire nel choro, ma non potra stare in tutta la chiesa." Spataro, loc. cit.

32. "O vecordiam, o ignorantiam non ferendam!" Burzio, fol. 2 r.

33. "cuius laudes si mihi linguae oraque centum atque ferrea vox nequicquam exprimere possem." Ibid., fol. 23 v-24 r.

'everything', according to Cicero, that which contains all universal harmony."<sup>34</sup>

Spataro argues that Ramos was completely in agreement with Burzio regarding the primary importance of the diapason, and that is the very reason why Ramos based his entire solmization system upon it, so that students might recognize the diapason's importance from the start without having to deal with the ambiguity of mutation implicit in Guido's method.<sup>35</sup>

#### Burzio's Appropriations

It was careless of Burzio to quote from a writer he called an "obstinate, arrogant liar,"<sup>36</sup> and expect to get away with it. Spataro noted his plagiarism of the definition of fuga from Ramos (see Figure 4), and says:

If the illumination of reason should penetrate into the darkness of your path, and you should wish to follow the footsteps of my master, I would sing of you as it has been said, "that which was lost has been found." But if you do not wish to come out of the shadows, you shall remain as a blindman, for

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34. "Continet praeterea omnes huiusmodi supradictas coniunctiones, et ut pia mater in sinu foveat, ac nutrit. . . . Nam pan totum significat, quia totam concentus universitatem continet, unde Cicero. . . ." Ibid., fol. 24 r.

35. "come dici tu essere grosso principio una cosa tanto degna quale ha cussi degna conclusione: per la quale si novi possono prestamente venir a cognitione della verita. Senza quelle ambage di mutatione che causano per le voce del tuo Guido." Spataro, fol. 8 r.

36. "Tu contumax, tu arrogans et praevaricator . . ." Burzio, fol. 2 v.

that which you state as your final remark, up to the last word of your fifth precept, you have taken to the letter from my Pareja's source, part two, first Tractatus, chapter 1.<sup>37</sup>

Spataro identifies additional material from Burzio's third Tractatus as coming from Ramos (see Figure 5) and locates instances of Burzio's borrowing from other sources, as well:

Item: Chapters 2, 3, 4, 5, 6, 7, 8, and 9 you have stolen word for word from Jean De Muris. Item: the entire 11th chapter you have taken, word for word, from Isidore, from the third book of the Etymologia-rum, out of chapters 3, 4, 5, and more, to which you pose a disproportionate similarity.<sup>38</sup>

In addition, Spataro found sections in Burzio's first Tractatus which he had borrowed from Franchino Gaffurio without crediting his source.<sup>39</sup>

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37. "Se dal lume della ragione illuminato alla via della nerita vorai venire e seguitar l'orme del mio preceptore io cantaro di te quel dicto perierat inventus est: e se non vorai delle tenebre partirti ti rimarai come cieco. Da quello che tu dici e nota fina a lultima littera di questo tuo quinto precepto tu lhai ad litteram tolto dal mio pareia fonte delli musici della secunda parte tractato primo capitulo primo." Spataro, fol. 38 v.

38. "Item il capitulo ii, iii, iiii, v, vi, vii, viii, viiii ad litteram et de verbo ad verbum tu gli hai furati da Iohannes de muris. Item tutto lo xi capitulo de verbo ad verbum lhai robato da Isidoro nel terzo libro delle ethimologie dalli capituli iii, iiii, v e piu che lhai posto simile a te disproporcionato." Ibid., fol. 39 r-v.

39. "Dapo che diro io quanti capituli e quante sententie hai robato da franchino gaffaro nel primo tuo tractato la mazor parte." Ibid., fol. 39 v.

<p>Vel modus est coniunctio soni temporisque longis mensurati, hoc est coniunctio proportionis quae notis longis consurgit, et brevibus viam mensurae mensurando scilicet tempus ipsum.</p>	<p>est coniunctio soni temporisque longis notulis mensurati, quod nihil aliud est quam quod modus est coniunctio proportionis, quae consurgit ex notis longis et brevibus viam mensurae mensurando scilicet tempus ipsum.</p>
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Burzio, fol. 41 r.

Ramos, p. 77

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Cum igitur modos coniungimus invicem modum maiorem appellamus et e contra, cum prolatio secatur maior prolatio nuncupatur. Modus namque minor habebit longam maior vero maximam quae duplex longa a nonnullis vocitatur. Prolatio autem minor semibreve habebit sed maior minimam et haec vobis menti inhearent.

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Cum igitur modos coniungimus invicem, modum maiorem appellamus. E contra vero, cum prolatio secatur, maior prolatio nuncupatur. . . . modus ergo minor habebit longam, maior vero maximam, quae duplex longa a plerisque est appellata, prolatio minor semibreve quae et minor est nuncupata, sed maior minimam . . . .

Burzio, fol. 41 v.

Ramos, p. 78.

Figure 5. Comparing portions of the third Tractatus Chapter 1, of both Burzio and Ramos

The eight chapters Spataro cites are not entirely word for word quotations from De Muris. Burzio rearranged the chapters and left out the musical examples, as well as altering the text from time to time and expanding upon it. However, the source of his ideas is unmistakable: Jean De Muris' Tractatus super musicam mensuratam (manuscript in the British Museum, B. M. Egerton 2954). A comparison of Burzio and De Muris is shown in Figure 6.

Ascendens igitur ligatura est cum nota secunda altior prima situata est. Descendens vero per contrarium.	Ascendens est quando secunda nota est altior prima. Descendens e contrario quando prima nota est altior secunda.
Burzio, fol. 42 r.	De Muris, fol. 18 r.
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Quo ad totum dupliciter a parte ante et a parte post. A parte ante quia pars propinqua procedit. A parte post vero quia eam sequitur sive sole fuerit sive supermanserit perfectione computata.	Quo ad totum dupliciter scilicet a parte ante et a parte post. A parte ante scilicet quando comprehendit sola longa vel quattuor vel septem vel decem et vel earum valor . . . .
Burzio, fol. 43 r.	De Muris, fol. 4 r.
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Pausa nihil aliud est quam vocum amissio. Vel est aspiratio ut dicunt mensurata pro temporibus quot fuerit spaciis figurata. Unde sciendum est quod pausa valet tot tempora quot occupat spacia. Si igitur unum occupaverit, unum valebit, si vero duo, similiter duo retenebit. . . .	Pausa dicitur vocum amissio seu aspiratio mensurata pro totam tempora quot fuerit spaciis figurata. Quam pausa tot valet tempora quot occupat spacia. Si unam occupat spacia, unum valet tempora, et si duo occupat spacia, duo valet tempora.
Burzio, fol. 44 r.	De Muris, fol. 20 v.
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Vel alteratio hinc celebrata est proprii valoris secundum vocem formae, enim notae duplicatio. Quo circa haec annotanda sunt. Primo enim notandum quod nulla nota alteratur ante sibi similem vel minorem se.	Unde alteratio in musica est propria valoris secundo notae formam duplicatis. De quia tales donatur regulae. Prima regula est quod nulla nota potest alterari ante sibi similem nec ante minorem se.
Burzio, fol. 44 v.	De Muris, fol. 13 v.

Figure 6. Comparing Burzio with De Muris' Tractatus super musicam mensuratam

Prior to the development of copyright laws, authors had no legal protection against plagiarists. However, most reputable writers, like Ramos and Spataro, were careful to credit the works they cited. Even Burzio, when quoting from the classics, identified his sources. It reflects very badly upon him that he tried to pass off his opponent's words, as well as those of other writers, as his own.

His eleventh chapter, which Spataro mentions, is an uncredited citation of Isidore of Seville's Etymologiarum.<sup>40</sup> Isidore, with Boethius, Cassiodorus, and Guido was one of the founding fathers of medieval music theory. That he inspired Burzio as well can be seen from Figure 7.

<p>Simplices numeri sunt qui nullam aliam partem aliquotam habent nisi solam unitatem, ut ternarius solam terciam, et quinarium solam quintam, et septenarius solam septimam, his enim unica pars aliquota est. Compositi sunt qui non metiuntur sola unitate, sed et aliis numeris ut novem . . . .</p>	<p>Simplices sunt, qui nullam aliam partem habent nisi solam unitatem, ut ternarius solam terciam, et quinarium solam quintam, et septenarius solam septimam. His enim una pars sola est. Compositi sunt, qui non solum unitate metiuntur, sed etiam alieno numero procrelum unitate metiuntur, sed etiam alieno numero procreantur, ut IX . . . .</p>
<p>Burzio, fol. 47 v.</p>	<p>Isidore, col. 157.</p>

Figure 7. Comparing Burzio with Isidore of Seville

40. Isidore of Seville, Etymologiarum, J. P. Migne, editor and publisher, Patrologiae Latinae (Paris: Migne, 1877), vol. 82.

The citation of "franchino gaffaro" (see Note 39) refers to the initial work in Gaffurio's musical trilogy, his Theorica musicae, published in 1480 and revised in 1492.<sup>41</sup> As before, Burzio has borrowed a likely phrase here and there (see Figure 8).

<p>Hinc ad iovis stellam quasi dimidium eius quod facit semitonium minus. A iove vero usque ad saturni sydus paulisper plus idest semitonium maius. Inde ad summum coelum ubi zodiaci signa, semitonium minus. Itaque a summo coelo ad solem qui in medio collocatus tanquam pater planetarum, et hominum, diatessaron. A terre autem sumitate ad eundem coelum tonos esse quinque cum duobus minoribus semitoniis, ex quibus concluditur fieri diapason . . . .</p> <p>Burzio, fol. 6 r.</p>	<p>Hinc ad iovis stellam que pheton dicta est quasi dimidium eius quod facit semitonium minus. A iove vero usque ad saturni stellam phenon nuncupatam paulisper plus idest semitonium maius. Inde ad summum coelum ubi signa sunt, semitonium minus. Itaque a summo coelo ad solem diastema est qui in medio collocatus tanquam pater planetarum, et hominum, diatessaron, id est duorum tonorum et semitoniis. A terre autem sumitate ad eundem coelum tonos esse quinque concluditur a Pythagoras cum duobus semitoniis minoribus ex quibus fit diapason . . . .</p> <p>Gaffurio, fol. 12 v.</p>
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Figure 8. Comparing Burzio with Gaffurio

Spataro's detective work puts the entire Florum libellus into a questionable light. How much of Burzio's

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41. Franchino Gaffurio, Theorica musicae, facsimile of the 1492 edition (Rome: Reale Accademia d'Italia, 1934). The preface by Gaetano Cesari compares the 1480 and the 1492 editions.

work is original, and how much is undiscovered borrowing? He was not an enemy worthy of the swordmaker's steel, nonetheless, Spataro was diligent in citing and debating Burzio's arguments. What a pity that he could not engage Burzio in Latin, for his use of the vernacular diminished the authority of Honesta defensio and blunted his weapons by raising doubts about his scholarship.

## CHAPTER IV

### FRANCHINO GAFFURIO

There is considerable diversity in the spelling of Franchino's surname. It appears variously as Gafurius, Gaffori, Gaffurius, Gaffaro, and Gaffurio. The last version is preferred by Italian sources and used by the Library of Congress classification system, so it is the spelling which shall be used hereafter.

He was born January 14, 1454 in Lodi, a small town 30 kilometers south of Milan. His father was Bettino Gaffurio whom Fétis calls a private<sup>1</sup> and Sartori calls a captain<sup>2</sup> in the volunteer corps. The boy Franchino was destined early for the priesthood, and was ordained in 1473 or 1474. He proved that the Church was a fluid organization for all its hierarchy, for Gaffurio transcended his humble origins to become an internationally-respected scholar and teacher.

His life is extremely well-documented. We may follow his career around the cultural centers of Italy. He even spent two years in Spain at the court of Ferdinand of Aragon, though he held no position there.

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1. Fétis, vol. 3, p. 375.

2. Claudio Sartori, "Gaffurius, Franchino", Die Musik in Geschichte und Gegenwart, vol. 4 (1955), col. 1237.

Gaffurio held musical posts in Mantua, in Milan, in Naples, in Lodi, and in Bergamo before settling to work in Milan, where he remained for the rest of his life.

In Milan, he was attached to the cathedral choir for 38 years, serving as choirmaster from 1484 until his death in 1522. The year 1484 also marked his first acquaintance with Ludovico Sforza, the Duke of Milan. Franchino served as the Duke's premier singer and later as his choirmaster.

Ludovico Sforza was a sterling example of a Machiavellian Renaissance Prince. He was two years Gaffurio's senior and had ascended to power in 1480 by assuming the regency of his nephew, Gian Galeazzo II, a boy of eleven. Gian Galeazzo's mother, Bona of Savoy, had been acting as regent, but Ludovico applied compelling arguments which convinced her to flee Milan.<sup>3</sup>

Ludovico's use of the power he usurped was not entirely evil, for he developed Milan into the most powerful city in Italy, underwrote extensive civil construction, and cultivated a court of unsurpassed brilliance through his patronage of the arts.

In addition to supporting Bramante and Leonardo, Ludovico maintained Gaffurio in comfort. Gaffurio was in no way undeserving of the benefits accruing to him as Ludovico's

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3. Encyclopaedia Britannica, 15th ed., s. v. "Ludovico Sforza", Alfredo Bosisio.

but his life was much easier than Ramos' by virtue of the Duke's interest and support.

Ramos had placed all his hopes on the chair of music at the University of Bologna. When he failed to get it, his disappointment was acute. Gaffurio succeeded where Ramos had failed. He is the only professor of music in the period whose appointment to an Italian university is documented.

The only certain example of a chair of music at any Italian university is that held by Francisco Gafori at Pavia between 1494 and 1499. The founding of that chair is praised by contemporary poets as a great innovation, and Gafori does appear on the pay roll of the University, with the additional statement that he is actually lecturing at Milan, as was the case with several lecturers in other fields. . . .<sup>4</sup>

Kristeller believes that the professorship was another sign of favor from Ludovico Sforza, to enhance Gaffurio's standing.<sup>5</sup>

Gaffurio successfully published a trilogy on the art of music. The first volume, Theorica musicae, appeared in 1480, antedating Ramos by two years. It was revised and republished in 1492. The second volume, Practica musicae, was first published in 1496. Its extreme popularity is attested by its many revisions and reprintings (1497, 1502, 1508, and 1512). The final volume, De harmonia musicorum instrumentorum opus, was published in 1518.

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4. Kristeller, p. 261.

5. Ibid., p. 262.

In addition to his trilogy, Gaffurio wrote many other, shorter, treatises on music, as well as a considerable body of compositions.

Gaffurio's books are models of early publishing practice, each with a suitable dedication and with poetry at the beginning and end. The books of his trilogy are exquisite examples of the printer's art, beautifully decorated with woodcuts and containing abundant diagrams and musical examples. All three are easy to read, retaining only a few of the abbreviational signs which made Burzio so difficult to scan (refer to Figure 3).

The colophon of Practica musicae brings Renaissance politics to life, for it reads: "Printed at Milan, in care of Ioannis Petrus de Lomatio, by Gulielmus Signer Rothomagensis, on the last day of September, 1496, in the felicitous reign of Pope Alexander VI, august Caesar Maximilian, and the invincible Ludovicus Maria Sforza, Duke of Milan."<sup>6</sup>

Ludovico used to boast that the Pope was his chaplain and the Holy Roman Emperor Maximilian his general. The Pope, of course, was the unscrupulous and notorious Roderigo Borgia, whose son Cesare was the model for Machiavelli's Prince, and whose daughter, married and re-married wherever political expediency led, was the mysterious Lucrezia.

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6. Gaffurio, Practica, p. 240.

In his continual quest for learning, Gaffurio was like his friend, Leonardo da Vinci, a frequent visitor at Gaffurio's little house in the neighborhood of San Marcellino.<sup>7</sup> Leonardo, or one of his students, painted a portrait of Gaffurio which presently hangs in the Biblioteca Ambrosiana in Milan.<sup>8</sup>

Gaffurio was widely read and possessed a remarkable personal library. Naturally, he was well-acquainted with the classic Latin writers, and he sprinkled his books with well-chosen quotations from Vergil, Cicero, and Pliny. He also commissioned translations of Quintilianus, Bryennius, the Introductorium of Baccheus, and the Harmonics of Ptolemy from the Greek into Latin.<sup>9</sup> "He thus differs from his predecessors, who apparently had obtained their knowledge of ancient music theory mainly by way of Boethius."<sup>10</sup>

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7. Sartori, col. 1239.

8. See Plate 51 in vol. 4 of Die Musik in Geschichte und Gegenwart.

9. "praeterea veterum musicorum graeca opera: Aristidae quintiliani: Manuelis Brienii: Baccei senis Introductorium et Ptholomei harmonicon: quae omnia eius cura et impensa a diversis interpretibus in latinum sunt conversa." Pantaleon Melegulus from the Epilogue to Franchino Gaffurio's De harmonia musicorum instrumentorum opus, facsimile of the 1518 edition (Bologna: Forni Editore, 1972) fol. 101 v.

10. Reese, Renaissance, p. 180.

Gaffurio's Compositions

During his tenure at the Milan Cathedral, Gaffurio assumed responsibility for the copying of the so-called Gaffurio Codices, four large volumes containing his works and those of other composers active in Milan. "In all, we have 13 Masses, 28 motets, 11 Magnificats, six antiphons, two litanies, and one Stabat Mater by Gaffurio."<sup>11</sup> Of these, the Masses and Magnificats have been brought out in modern editions in the series Archivum musices metropolitanum mediolanense.<sup>12</sup>

One volume of the Gaffurio Codices was his choir book, the Liber capelle ecclesie maioris Mediolani. It had been preserved in the archive of the cathedral vestry, but was severely damaged by a fire at the International Exposition of 1906.<sup>13</sup> However, a facsimile edition of the charred remnants has been published in the Archivum musices series.<sup>14</sup>

Although Gaffurio was traditional in his theoretical writings, his compositions show a large degree of harmonic

11. Ibid., p. 181.

12. Archivum musices metropolitanum mediolanense (Milan: Fabbrica del Duomo, 1958-1968). Masses in vols 1-3, transcribed by Amerigo Bortone; Magnificats in vol. 4, transcribed by Fabio Fano.

13. Fabio Fano, "Note su Franchino Gaffurio", Rivista Musicale Italiana, vol. 55 (1953), p. 243.

14. Archivum musices, vol. 16, Angelo Ciceri and Luciano Migliavacca eds.

daring. Reese<sup>15</sup> and Cesari both remark upon a passage in the motet Beata progenies in which Gaffurio has the cantus enter a major seventh above the bass,<sup>16</sup> and Cesari located a passage in the motet Ortus conclusus which contains a series of diminished fifths.<sup>17</sup> Since the diminished fifths are between e and b<sup>b</sup>, strongly implying a dominant-seventh chord on c which, moreover, resolves to an f-major triad, it is doubtful that Gaffurio intended the use of musica ficta to lower the e or raise the b<sup>b</sup> and avoid the tritone.

#### Gaffurio's Writings

Gaffurio was the most prolific of the theorists we have considered. He left a large body of writings, both published and unpublished. A list of his works appears in Appendix E. All his books were well-received and are still quite valuable. His trilogy on music "provides an almost complete picture of the status of music theory at the time, including both speculative and practical elements."<sup>18</sup>

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15. Reese, Renaissance, p. 181.

16. Gaetano Cesari, "Musica e musicisti alla corte Sforzesca", Rivista Musicale Italiana, vol. 29 (1922), p. 33.

17. Ibid., p. 34

18. Albert Seay: review of the Clement Miller translation of Gaffurio's Practica musicae in Notes, vol. 26 No. 2 (Dec. 1969), p. 264.

Gaffurio gives a great deal of information on the Ambrosian rite, which was still in practice at the cathedral of Milan. An extraordinary practice of the Ambrosians was a method of singing in seconds and fourths, of which Gaffurio says:

We call counterpoint false when two singers, one on each part, produce a series of dissonant intervals, such as a major and minor second, perfect and augmented fourth, major and minor seventh, and major and minor ninth, all of which are entirely lacking in any semblance of pleasant sound. Our Ambrosians use this counterpoint on solemn vigils of martyrs and in some chants of the Mass for the dead, saying that it was instituted by St. Ambrose. The music is truly mournful, in which the Church laments the shedding of blood of the holy martyrs and recites the litany for the dead. But it does not come from Ambrose, for it is not found anywhere in the works of that mellifluous writer, since (as Guido says) he cultivated a singularly lovely sweetness when he composed church songs. The movement of false counterpoint, which Ambrosians call the following, is of this sort: one singer takes the notes of the cantus planus in the upper voice, and two or three sing together the notes of the other part on a second or fourth in a certain order which, because it is entirely lacking in any musical principle, I am ashamed to describe. When they begin such an accompanying voice part on a unison with the cantus planus, they proceed with seconds and fourths to the end or to a definite cadence, where they come together on a unison. Frequently, they begin on a second or a fourth, but always end on a unison.<sup>19</sup>

Although the mode of performance is similar, this dissonant style of sight-sung counterpoint would bear little resemblance to the English Discant which Burzio discussed (see p. 46).

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19. Gaffurio, Practica, pp. 147-148.

### Rules for Singers

Like Burzio in Florum libellus, Gaffurio provides a set of rules for singers in his Practica. But where Burzio's rules are aimed at the virtuoso, Gaffurio's are eminently practical, designed for the choir singer.

Finally, we decided that the following should be stated for the instruction and counsel of new singers: they should not produce musical tones with a mouth gaping wide in a distorted fashion or with an absurdly powerful bellowing, especially when singing at the divine mysteries; moreover, they should avoid tones having a wide and ringing vibrato, since these tones do not maintain a true pitch and because of their continuous wobble cannot form a balanced concord with other voices. . . .

Further, exaggerated and unbecoming movements of the head and hands proclaim a foolish singer, for the head and hands do not form a pleasing sound, but a well modulated voice. Through their imprudent manner many singers are displeasing to those whom they thought they would please. This was the principal reason why Guido, having forsaken florid and mensural music, devoted himself to ecclesiastical song. For he said about them (as I reluctantly repeat): of all men in our times it is the singers who are most fatuous.<sup>20</sup>

The citation from Guido, which Gaffurio is not the least reluctant to use out of context, comes from Guido's Prologus antiphonarii sui,<sup>21</sup> and refers to the necessity of learning repertoire by rote in the absence of a standard system of notation.

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20. Gaffurio, Practica, pp. 148-149.

21. "Temporibus nostris super omnes homines fatui sunt cantores . . . ." An English translation of the Prologus appears in Strunk, pp. 117-120.

### Temperament

Ramos' innovative division of the monochord was a new type of tuning, not properly a temperament, as J. Murray Barbour distinguishes between the two. A tuning, Barbour says, is a term

applied to such systems . . . in which all intervals may be expressed as the ratio of two integers. Thus for any tuning it is possible to obtain a monochord in which every string length is an integer. A temperament is a modification of a tuning, and needs radical numbers to express the ratios of some or all of its intervals.<sup>22</sup>

Although Gaffurio was a conservative theorist, and although he recommended the use of the Pythagorean tuning system, it is from him that we first read of temperament. In his second rule of counterpoint ("two perfect consonances of the same size cannot immediately follow each other in parallel motion"), Gaffurio inserts the comment: "Thus a harmonic division diatonically formed does not allow a movement of parallel fifths . . . although a fifth can be diminished by a very small, hidden and somewhat indefinite amount (as organists assert), which they call participata."<sup>23</sup> Diminishing fifths by a very small amount (2 cents, from the Pythagorean 702 to 700) is a primary requirement of equal temperament.

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22. J. Murray Barbour, Tuning and Temperament (East Lansing, Mich.: Michigan State College Press, 1953), p. 5.

23. Gaffurio, Practica, p. 125.

He comments similarly about the tempering of the major sixth in De harmonia, saying that its pitch is not determined entirely through measurement of the string, but that it is lowered by "a thirty-sixth part, which skillful organists and harpsichordists call communicata or participata, accomplishing it by means of long practice and judgment."<sup>24</sup>

#### Marginalia

Gaffurio's library was not the unblemished (and unread) collection of a dilettante, but a resource for an active scholar. He increased the usefulness of his books by adding notes and comments in the margins. At least two manuscripts from his library survive, bearing his marginal annotations, one being a treatise of Ugolino di Orvieto (London, Br. Mus. Add. 33519)<sup>25</sup> and another being the De musica of Georgi Anselmi (Milan, Bibl. Ambrosiana, H. 233).<sup>26</sup> To his copy of Anselmi, Gaffurio added diagrams, musical examples, and annotations, answering any doubt as to the identity of

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24. "non integre metitur sextam ipsam maiorem ut trigesimo sexto secundi deductum est: quam iccirco artifices organorum & cytharedi communicatam seu participatam vocant usui plurimum commitentes & sensui." Gaffurio, De harmonia, fol. 77 v.

25. Jacques Handschin, "Anselmi's Treatise on Music Annotated by Gaffurio", Musica Disciplina, vol. 2, 1948, p. 125.

26. Georgius Anselmi Parmensis, De musica, Giuseppe Massera, ed. (Florence: Leo S. Olschki, 1961), p. 7.

the annotator by signing at the end, "Liber Franchini Gafori Laudensis musicae professoris mediolani phonasci."<sup>27</sup>

Unfortunately, Gaffurio did not restrict himself to glossing books which belonged to him. When Spataro lent him one of the few remaining copies of Ramos' Musica, Gaffurio filled the margins with disparaging comments before returning the book to its owner. These marginalia survive in the May 11, 1482 (Bologna, Bibl. del Conservatorio A-80) copy of Ramos, and Johannes Wolf carefully included them in his 1901 edition.

Gaffurio may not have realized that he was desecrating a priceless relic when he wrote in Spataro's book. He may have thought he was advancing the cause of truth by disabusing a colleague of his errors. Nonetheless, he was guilty of a serious error in judgment, for he made a life-long enemy of Spataro by his thoughtless vandalism.

One of these marginalia is especially interesting for its approach to the problem of musica ficta and Guidonian mutation. Mutation was the process by which singers accommodated melodies extending beyond the range of a single hexachord. Nearly every pitch in the gamut had several names, depending upon the position it held in the overlapping hexachords. Thus, we read of c-fa-ut and a-la-mi-re. In the durum hexachord which began on g, c was fa, and in the

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27. Ibid., p. 23.

naturale hexachord beginning on c it was ut. The singer vocalised the c depending upon the direction of the melody. If the melody extended above c, the c was vocalised as ut, if the melody descended below c, it was called fa. Similarly with a-la-mi-re. In the naturale hexachord, a was la, in the molle hexachord, it was mi, and in the durum hexachord, it was re.

The hexachord on c was called naturale because it was innocent of the problematical b-b<sup>b</sup>. The hexachord on f was called "soft" (molle) or "round" (rotundum) with equal frequency, sometimes both within a single sentence. The g hexachord was called "hard" (durum) or "square" (quadratum). The durum and molle hexachords took their names from the different shapes assigned to the letter B to distinguish b-natural from b-flat.

Ramos did not approve of the Guidonian system of mutation, and had developed his own solmization to simplify sight-singing. But before he could illustrate his new, improved method, he had to discuss the old. He devoted the fourth chapter of the second tractatus of the first part of Musica to mutation.

He says there are six mutations available to the singer on g-sol-re-ut:

sol re, re sol, sol ut, ut sol, re ut, ut re. Sol re in ascending from natural to soft, re sol in descending from soft to natural, sol ut in ascending



In Chapter 4 of Book One of Practica musicae, just as he said, Gaffurió gives an explanation of Guidonian mutation, including an explanation of his use of the terms direct and regular. "A mutation is direct and regular which proceeds in contrary motion to the preceding melodic movement...In indirect and irregular mutation, the motion is the same as that of the preceding or following mutation. . . ."30

In the Guidonian system, one vocable was immutable: b-fa/♭-mi, for two pitches were involved, b-flat and b-natural. Singers used whichever note best suited the melody, keeping in mind the need to avoid the tritone. However, the mutation justifying their choice of fa or mi had to take place before they reached the b in question. This is the practice of which Ramos speaks, and this necessity of avoiding the tritone causes modern transcribers much anxiety in applying accidentals.

However, Ramos has no sooner made the statement that mutation may not take place on b-fa/♭-mi, than Gaffurió inserts a marginal comment disagreeing with him. Gaffurió says, "On b-fa/♭-mi permutation may occur, according to Marchetto, which we make clear in our Practica, and as is proved by this example (see Figure 10)."31

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30. Gaffurió, Practica, p. 39.

31. "In b-fa/♭-mi fit permutatio secundum Marchetum, quod et in Practica nostra declaramus, ut hoc etiam probatur exemplo." Ramos, p. 33.



Anselmi says, "if the subsequent pitches are subject to the three genera, according to the authority of the distribution of the cantus, the vocable will have to be mutated, carried across, and permutated."<sup>33</sup> Here, Anselmi is using the term genus to refer to the three types of hexachords, rather than the Greek system of tetrachords.

Ramos used the alphabet through Q to indicate pitch, (see p. 19), which spared him the considerable expense of having his musical examples printed from woodcuts or written in manually after printing, and which, moreover, neatly sidestepped the Guidonian syllables. In a discussion of counterpoint, Ramos says, "If the tenor sings f d c d g d c g e f d, the organum should not sing h q m l q q k q k h q, but does better to sing h l m l l n m l m k l [see Figure 11], for the first example is Phrygian and the second is Dorian."<sup>34</sup> Gaffurio inserted pointedly, "This procession of consonants can confuse rather than instruct singers. More sensible and more easily understood is the progression

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33. "cum littere subsequentes generibus tribus deserviant pro arbitrio dispositoris cantus erit inflectanda vox et transportandum et permutandum." Anselmi, p. 155.

34. "si tenor f d c d g d c g e f d, organum non faciat h q m l q q k q k h q, sed potius h l m l l n m l m k l, quoniam prima organizatio est phrygii, secunda vero dorii." Ramos, p. 72.

handed down by the Institutions of Guido and designated by means of suitable melodious vocables."<sup>35</sup>

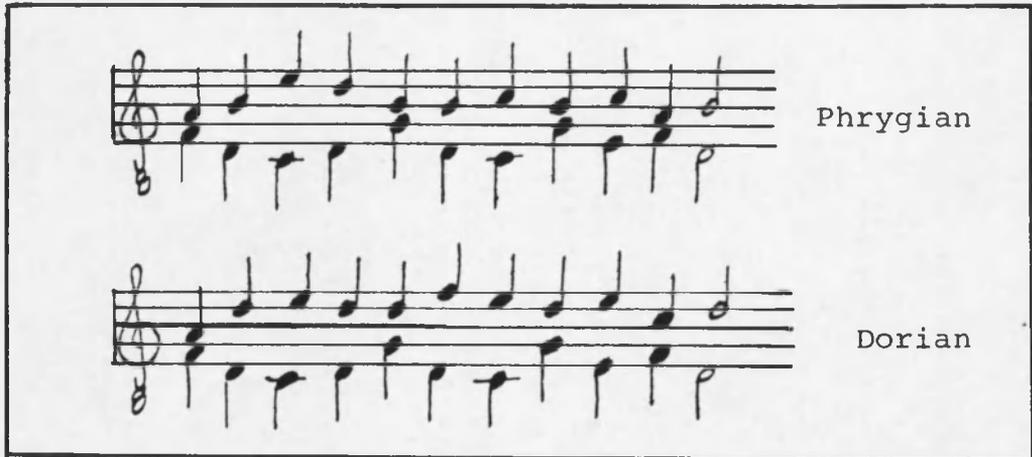


Figure 11. Ramos' examples of Phrygian and Dorian organum

Another area upon which Gaffurio disagreed with Ramos was the interpretation of Isidore of Seville's famous quotation on the evanescence of music, "Unless sounds are remembered by man, they perish, for they cannot be written down."<sup>36</sup>

This statement is sometimes construed to mean that in Isidore's day music survived through oral tradition, for notation had not been stabilized. This was Ramos' view, and he felt that music had made much progress since Isidore's

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35. "Hic litterarum processus consonantiarum potius cantores confundit quam instruit. Sanior quidem et perceptu facilius est progressio guidonicis institutionibus deducta et numerositatis consonae vocabulis denominata." Ramos, p. 72.

36. Strunk, p. 93.

time. He believed that the art had come to a point where any desired sound could be notated, and speaking of Egidius de Marino, Ramos says, "For it is absurd what he says, that that which can be pronounced cannot be written."<sup>37</sup>

In the margin, Gaffurio's disagreement appears:

That which can be written can be pronounced, not, however on the contrary, such as hissings which are produced and cannot be written. It is not absurd not to be able to write that which can be pronounced, because sounds are pronounced flowing by in the past. Hence they are committed to memory, because they cannot be written down. And that is a maxim of Rhabanus Maurus and Isidore.<sup>38</sup>

In the Practica, Gaffurio expanded upon this idea, "Since sounds cannot be written, their tones are committed to memory through practise and habit, for tones have only temporary duration."<sup>39</sup> Gaffurio is arguing here that the best notation is only a code for reminding the musician how to recreate a sound. Prior to the development of electronic recording devices which can "write down" sounds, Gaffurio's position was undeniably valid.

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37. "nam, absurdum esset, ut ait, quod potest pronuntiari non posse scribi." Ramos, p. 78.

38. "Quod potest scribi, potest et pronuntiari; non autem e contrario ut sibila, quae proferuntur et scribi non possunt. Non est absurdum scribi non posse quod potest pronuntiari, quia soni pronuntiantur in praeteritum tempus praeterfluentes. Hinc mandantur memoriae, ne pereant, quia scribi non possunt. Et est sententia Rhabani Mauri et Isidori." Ibid.

39. Gaffurio, Practica, p. 26.

Gaffurio did not approve of Ramos' method of subtracting intervals from the diapason. Three times in a single paragraph, he interrupts Ramos with his marginalia. Ramos says, "It must be said that from a third comes forth a sixth and from a sixth a third; and from a fifth comes a fourth, . . ."40 at which point Gaffurio interrupts with: "A fifth and a fourth differ greatly, for one is consonant of itself and the other, obviously, dissonant of itself, while they are simply deduced."41 Ramos continues, "therefore, the third and the sixth themselves are conditional, by reason of their imperfection."42 Here, Gaffurio interposes an advertisement for his own book:

I, however, in the third book of my Practica, which shall be entitled 'Counterpoint', have distinguished consonances of this sort by ternary progression. Some, in fact, I call perfect, others imperfect, and others median, on the authority of certain ancients, and reckoned by many computations.43

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40. "Dicendum quod a tertia sexta provenit et a sexta tertia et a quinta quarta, . . . ." Ramos, p. 64.

41. "Quinta et quarta multum differunt; nam una consonat per se et alia dissonat per se scilicet, dum simpliciter deducuntur." Ibid.

42. "ideoque tertia et sexta eiusdem sunt condicionis, quoniam imperfectae." Ibid.

43. "Ego autem in tertio Practicae nostrae, qui contrapunctus inscribitur, consonantias huiusmodi ternaria distinxim progressionem. Alias etiam dico perfectas, alias imperfectas aliasque medias auctoritatibus quorundam veterum et multis ductis rationibus." Ibid.

Ramos concludes, "But the fifth and the fourth come together best. . . ."44 at which Gaffurio announces: "Here a most beautiful, long, and subtle dispute is born."45

Some of Gaffurio's insertions were less in the nature of scholarly debate and more along the lines of contention. On the margin of Ramos' last illustration, a complicated chart of intervallic relationships throughout the Greater Perfect System, Gaffurio remarks, "This demonstration is difficult to understand and proceeds completely to confusion."46 Where Ramos quoted Petrus de Osma's flattering comment on his grasp of Boethius' theory ("I am not so familiar with Boethius as this writer"), Gaffurio inserted, "This author is insufferably boastful."47

Gaffurio returned the annotated copy of Ramos to Spataro, whose fury literally knew no bounds. In 1531, long after Gaffurio's death, Spataro still had not forgiven him, and wrote in a letter to Pietro Aron, dated November 27,

Regarding the Musica of Bartolomeo Ramos, I could not be of service, because it is not to be found in

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44. "Sed quinta et quarta maxime conveniunt. . . ." Ibid.

45. "Hic pulcherrima et longa subtilisque disputatio nascitur." Ibid.

46. "Haec demonstratio difficile percipitur et admodum confusione procedit." Ibid., interleaved between pp. 76 and 77.

47. "Hic se multum iactat auctor." Ibid., p. 43.

Bologna, save that copy which I have myself. I sent my copy to Milan, to Franchino, and he later sent it back, all full of marginal notes against the author in his hand, in such a way that I cannot edit them out, that I know of. . . .And if I could find another copy, I would buy it, and because such marginal notes should not be seen by anyone, I would throw the one I have into the fire. 48

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48. "Circa la musica de bartolomeo ramis non pote-  
ti esser servito perche in bologna non se ne trova se non  
quella la quale io tengo appresso de mi et io la mandai a  
milano a Franchino et lui dopo me la mando tuta sesquiter-  
nata et de sua mano appostilata contro lo auctore: in modo  
che non me curo che sia veduta. . . .et se io ne trovasse un  
altra io la compraria: et perche tale appostille non fussino  
vedute io geteria questa che tengo nel foco." Spataro to  
Aron, cited by Gaspari, p. 37.

## CHAPTER V

### THE MOUSE AND THE ELEPHANT

Bartolomeo Ramos intended that his book should provide something for everyone, that it should be a practical manual for students as well as for sages. He wrote in his Prologus, "I am undertaking this work not only for trained philosophers or mathematicians, but anyone who has been taught the rudiments of Latin grammar may understand this book of mine. Here the mouse and the elephant can both swim, Daedalus and Icarus can equally fly."<sup>1</sup>

Spataro, though he lacked Gaffurio's polish and his classical background, felt that he was on an equal footing with Franchino in terms of practical musicianship. By virtue of his long association with Ramos, he was eminently qualified to correct Gaffurio's misinterpretations of his maestro's work. Spataro devoted himself to the task of freeing Gaffurio from his errors. From 1510 onward, Spataro's whole literary output was directed against Gaffurio. Each work of his would hereafter contain disparaging comments on the

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1. "Non philosophos tantum aut mathematicos institutos hic suscipimus; quilibet modo prima grammaticae rudimenta sit edoctus, nostra haec intelliget. Hic mus et elephas pariter natate, Daedalus et Icarus pariter volare possunt." Ramos, p. 2.

writings of Gaffurio. He also incorporated the dispute into his voluminous correspondence, compelling his friends to align with him, or at least to listen to his charges against the perfidious professor from Lodi.

Spataro's treatise, Utile e breve regule di canto, is a manual of mensural notation which appeared in manuscript in 1510. A copy of this treatise, presented to the British Museum by Sir John Hawkins in 1778, has been edited by Giuseppe Vecchi and published in Quadrivium.<sup>2</sup> Utile e breve is in Italian, but studded with Latinisms, such as scilicet and hoc modo to lend weight to Spataro's rules.

The treatise could very well stand alone, but Spataro embellished it with polemic. He disputed minute points of musical practice with Gaffurio, citing the Tractato vulgare del canto figurato. This was Gaffurio's vernacular translation of a portion of the Practica musicae, which had been published in 1492 under the name of Francesco Caza, one of Gaffurio's students.

Gaffurio did not respond to Spataro's attacks. He exacerbated Spataro's resentment first by ignoring him and second by making unflattering mention of Ramos in Liber secundus of his De harmonia musicorum instrumentorum opus, the

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2. Giuseppe Vecchi, "Le Utile e breve regule di canto di Giovanni Spataro nel Cod. Lond. British Museum Add. 4920," Quadrivium, vol. 5 (1962), pp. 5-68.

final volume of his trilogy. In this section, Gaffurio discusses the Pythagorean proportions of intervals, explaining that the major third (the ditone) must have the proportion  $81/64$ , and says, "Hence Bartolomeo Ramos judged erroneously in the third chapter of his third tractatus of his Practica, near the end,<sup>3</sup> where he indifferently ascribed sesquiquarta [ $5/4$ ] proportion to the entire interval of the ditone on his monochord."<sup>4</sup> According to Pythagorean measurement, as Gaffurio had explained earlier, the ditone exceeds  $5/4$  proportion by  $81/80$  (the syntonic comma).<sup>5</sup>

Similarly, Gaffurio finds his measurement for the minor third ( $32/27$ ) to exceed Ramos' proportions by a syntonic comma, for Ramos' minor third had been given as  $6/5$ .<sup>6</sup>

In this same work, Gaffurio mentions "a certain letter directed to us by Johannes of Bologna, surnamed Spataro, a man who, though illiterate, is very intelligent in

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3. Gaffurio here refers to p. 98 in Ramos.

4. "Hinc falso arbitratus est Bartholomeus Ramis Hispanus tertio tertii tractatus suae practicae circa finem qui integrum ditoni intervallum in chordotono sesquiquartae indifferenter ascribit dimensiōni . . ." Gaffurio, De Harmonia, fol. 61 v.

5. "sesquioctogesimam perficit proportionem qua sesquiquinta proportio tonum excedit cum semitonio quod repugnat Ramis Hispani indifferenter concludentis semiditonum sesquiquinto intervallo proportione convenire . . ." Ibid., fol. 62 r.

music."<sup>7</sup> This is the first public acknowledgment Gaffurio gives of the letters which Spataro had begun to send him.

Spataro the epistler sent at least eighteen letters to Gaffurio over a period of years.<sup>8</sup> He considered publishing a three-part work to deal with his responses to Gaffurio's insults. The first portion was to be entitled Appostille, and would contain his arguments against the marginalia which Gaffurio put into his copy of Ramos. The second part would be called Epistole, to be concerned with his correspondence, even those letters unanswered, with Gaffurio. The last part was to be called Proportione. It would have little to do with the first two sections, being a consideration of proportio in mensural music.<sup>9</sup>

Gaffurio had devoted the last book of his Practica to the topic of proportio, giving it an unusual amount of attention. Of the 155 polyphonic musical examples in the

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7. "quadam Epistola ad nos directa Ioannes Bononiensis cognomento spatarius, vir (quamquam illiteratus) in musices acutissimus." Ibid., fol. 77 r.

8. "et de ogni tuo errore et mie dubitatione comprehese: per 18 epistole mie havesti clara notitia." Spataro, Errori de Franchino da Lodi (Bologna: Benedetto de Ettore Faelli, 1521) fol. 2.

9. "La p<sup>a</sup> sua parte era da me chiamata Appostille; la quale solamente tendeva a la responsione de certe appostille le quale scripse franchino gafurio de sua propria mano sopra el musico tractato de la pratica del mio preceptore: l'altra particula era dicta epistole; in la quale particula se contenuvano multe musice questione intra luj et me occurrente; et la terza particula era il tractato de proportione; la quale non fanno le epistole et appostile predictae." Spataro cited by Gaspari, p. 66.

Practica, 111 appear in the last book, illustrating propor-  
tio.<sup>10</sup> Spataro apparently had his own opinions on this sub-  
ject and intended to debate them with Gaffurio.

But this projected treatise never saw the light of  
day. In a letter written January 30, 1531 to Pietro Aron,  
Spataro said, "But it seems to me that the expense and the  
labor involved have cast down my willingness to print such  
a work . . . ."11

#### The Apologia of Gaffurio

In 1520, Gaffurio finally answered Spataro's many  
letters. He sent Spataro, not a letter, but a slender book,  
a libellus of his own, entitled Apologia Franchini Gafurii  
musici adversus Ioannem Spatarium & complices musicos Bon-  
onienses.<sup>12</sup> The mouse had at last caught the elephant's  
attention, and incurred his wrath.

Sir John Hawkins discusses the Gaffurio-Spataro con-  
troversy in the second volume of his General History of the  
Science and Practice of Music, and translates sections of

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10. Clement C. Miller, "Gaffurius' Practica Musi-  
cae, Origin and Contents", Musica Disciplina, vol. 22 (1968),  
p. 124.

11. "Ma a me pare che la fatica et spexa seria ge-  
tata via volendo fare stampare tale opere . . . ." Spataro  
cited by Gaspari, p. 66.

12. Gaffurio, Apologia Franchini Gafurii adversus  
Ioannem Spatarium & complices musicos Bononienses (Turin:  
Augustino de Vicomercato, 1520).

the Apologia into English. His translation of the opening paragraphs reads:

You Spatarius, who are used to speak ill of others, have given occasion to be spoken against yourself, by falling with such madness on my lucubrations, though your attack has turned out to my honour. Your ignorance is scarce worth reprehension; but you are grown so insolent, that unless your petulance be chastised, you will prefer yourself before all others, and impute my silence to fear and ignorance. I shall now make public your folly which I have so long concealed; not with the bitterness it merits, but with my accustomed modesty.

How could you think to reach Parnassus, who understand not Latin? You who are not above the vulgar class, profess not only music, but also philosophy and mathematics, and the liberal arts, and yet you have desired me to write to you in our mother tongue. Could no one else declare war against me but you, who are void of all learning, who infect the minds of your pupils, and pervert the art itself? But though my knowledge be small, yet I have sufficient to detect your errors, and likewise those of your master Bartholomeo Ramis.<sup>13</sup>

Not content to deride Spataro's educational shortcomings, Gaffurio criticizes his literary style as well, when he says, "In your sixteenth description, spun out to the length of four sheets, you ostentatiously insist on many very unnecessary things. . . ." <sup>14</sup> Gaffurio's remarks are not without merit. Spataro has a lamentable bent for verbosity and a terror of the full stop. His sentences run on and on,

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13. Sir John Hawkins, General History of the Science and Practice of Music (London: T. Payne & Son, 1776) vol. 2, pp. 337-338.

14. Ibid., p. 339.

pieced together by semicolons and commas. His paragraphs are too few, and too long.

Gaffurio does not suffer from Spataro's prolixity, and is able to point out succinctly the deficiencies he perceives in Ramos' solmization system:

How can youth studying music profit by the erudition of thy master? Who described his very obscure and confused scale by these eight syllables, "Psal li tur per vo ces is tas," wherein the natural lesser semitone is marked by a various and dissimilar denomination [tur-per and is-tas]: but he, frightened and repenting, laid that aside, and was forced to return to the diatonic scale of Guido. . . .<sup>15</sup>

Ramos' motet, Tu lumen

Gaffurio devotes considerable space to discussing Ramos' puzzle canon, which appeared in the motet Tu lumen. Only a fragment of this composition remains, and that thanks to Gaffurio, who indicated the location of the pitches for a part of the tenor in the Apologia (fol. 8 v.)

Ramos provided clues for the working out of his canon in the last part of his Musica, as follows:

But in the motet Tu lumen, which we composed at Bologna, until we were lecturing publicly, we put the words: "In perfectione minimorum per tria genera canitur melorum," meaning that whatever notes were indicated in the lines and spaces were to be worth six beats to a measure, for which this: C is the sign, for a rest of one tempus had been placed at the beginning, indicating that every syllable denotes one tempus. In the first Part, second tractatus, Chapter 6, we have already discussed what the

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15. Ibid., p. 340.

three genera of melodies are. The canon is to be sung thrice: the first time, the second note is raised above the first by a trihemitone, the second time by a whole tone, and the third time by a semitone.<sup>16</sup>

In the margin of the Musica practica, beside this explanation, Gaffurio had written: "An obscure canon, completely incompatible with good sense."<sup>17</sup>

As Ramos says, he did discuss the three genera of melodies earlier. They are the three genera of tetrachords from Greek musical theory: diatonic, chromatic, and enharmonic. The chapter which Ramos cites gives the intervallic division of the last two as follows:

We divide the chromatic tetrachord by semitone, semitone, and trihemitone, that is: the first interval is a semitone and the second is a semitone, but the third is a semiditone, or minor third. The enharmonic genus divides the semitone into two parts

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16. "Sed in moteto Tu lumen, ubi posuimus: In perfectione minimorum per tria genera canitur melorum, quod Bononiae, dum publice legeremus, composuimus, insinuavimus quamlibet notulam per syllabas in lineis et spatiis denotatas 6 mensuras valere, sicut si hoc esset signum: C Quoniam pausa temporis in principio ponitur, et ideo unaquaque syllaba unum tempus denotat. Quae vero sint tria genera melorum, diximus in prima parte tractatu [secundo capitulo sexto]. Nam caniter ter: prima vice notula secunda elevatur a prima per trihemitonium, in secunda vice per tonum et in tertia per semitonium." Ramos, p. 91.

17. "Obscurus canon et admodum sententiae dissonus."  
Ibid.

which are called dieses, and thus the first space holds two separate dieses, but the third interval embraces the ditone, the major third.<sup>18</sup>

The division of the diatonic genus does not appear in this chapter, but much earlier, where Ramos says:

But the diatessaron b-e, which is able to contain four pitches, is called a tetrachord, because it is the division and interval of four strings. One string is the note b, another is c, the third is d, the fourth e, among which three intervals are enclosed: two tones and one semitone.<sup>19</sup>

On fol. 8 v. of the Apologia, Gaffurio gives the notation for the first measures of the tenor line of Ramos' motet, so with this fragment and Ramos' instructions, we may interpret the canon as suggested in Figure 19.

Gaffurio disagrees with Ramos' interpretation of the Greek genera and how they should be tuned, but he is especially concerned about the interpretation Ramos gives of his canonic instructions. He cites the relevant paragraph

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18. "Partimur enim tetrachord chromatici per semitonium et trihemitonium, hoc est: primum intervallum est semitonii et secundum semitonii, sed tertium est trihemitonii sive semiditoni. Enharmonium vero genus semitonium dividit in duas partes, quae dieses appellantur, et sic duo spatia prima singulas dieses tenent; at vero tertium intervallum ditonum amplectitur." Ibid., p. 43.

19. "Sed b-e diatessaron, quia quattuor vocum est capax, sive tetrachordum dicitur, quod quatuor chordarum divisio est et intercapedo. Est enim una chorda sive vox b, alia c, tertia d, quarta e, inter quas tria clauduntur intervalla, duo scilicet toni et unum semitonium." Ibid., p. 6.

from Ramos, and asks: "If that tenor is to be sung through the three genera of melodies in perfection of minims, what are perfect minims? For the minim is never divided into three parts. If the semibreve is to be divided in three, then it would have been wiser to say: In perfection of semibreves."<sup>20</sup>

Tu lu--men tu splendor pa-tris

Tu lu--men tu splendor pa-tris

Tu lu--men tu splendor pa-tris

Figure 12. A suggested interpretation of Tu lumen

20. "Quodsi tenor ipse in perfectione minimorum per tria genera canitur melorum, quomodo erunt perfectae minimae, quae nusquam tres in partes dividi solent. Quae semibreve tres in minimas partitur; tuncque sanius dixisset in perfectione semibrevis." Gaffurio, Apologia, fol. 8 v.

Spataro's Errori de Franchino

Nine months after the publication of the Apologia, Spataro brought out a 52-folio book of invective entitled Errori de Franchino da Lodi (Bologna, January 12, 1521).

The Errori is similar to the Honesta defensio, only much expanded in scope, for Spataro is attempting to answer the errors he perceives in all of Gaffurio's works to date, rather than responding to a single work, as was the case with Honesta defensio. Errori contains a Foreword and five Parts, and ends with a poem by Spataro. Each Part deals with a different work of Gaffurio's.

Part 1 is concerned with the Practica musicae and contains 28 statements, ranging in length from a paragraph to several pages, numbered successively and labeled "error 1, 2, 3, etc." Part 2 contains only 4 "errors" and deals with Gaffurio's Theorica. Part 3 deals with the Angelicum ac divinum opus musicae, Gaffurio's vernacular translation of the Practica, and contains 4 "errors". Part 4 deals with De harmonia musicorum instrumentorum opus, and contains 30 "errors" which Spataro discovered in De harmonia. Part 5 seems to be the reason why Spataro wrote the book. It is concerned with the Apologia and contains no less than 43 "errors". Apologia is one of the shortest of all Gaffurio's works, being only 10 folios in length.

The Errori de Franchino illustrates the worst of Spataro's literary shortcomings. In addition to his rambling prose style, his arguments are untenable. For example, he argues against the ratio of 2187/2046 for the Pythagorean major semitone, the apotome, on the grounds that the Pythagoreans did not derive it by subtracting from the whole (9/8) tone, but found their minor semitone by subtracting the major third from the perfect fourth.<sup>21</sup> However the minor semitone may have been derived originally, if it is subtracted from a 9/8 whole tone, the remaining interval will have a ratio of 2187/2046.

It is in Errori that Spataro responds to Gaffurio's slurs on his maestro's puzzle canon. He asserts gleefully that he has caught Gaffurio the grammarian in a syntactical blunder: "because you are so full of anger and bitterness you do not notice that which you have said above, namely, minimorum is an adjective, and not a noun, and originates from minimus-minima-minimum, not minima-minimae as you

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21. "e stato male concluso perche li Pythagorici (circa la inventione del semitono) non hebene cura de trovare uno semitono el quale fusse propinquo a quello altro semitono, el quale da poi restava al complemento del tono sesquioctavo, imperoche (come demonstra Boetio nel cap. 27 del secundo libro de la sua Musica) per trovare el vero semitono dal sesquitertio intervallo da essi pythagorici furno tolte o vero subtracte due sesquioctave. . . ." Spataro, Errori, fol. 4 v.

so foolishly have believed. . . ."22 Thus, the instructions for the canon should be read: "In minor perfection, let it be sung through the three genera of melodies."

Only Spataro, however, could derive much satisfaction from Gaffurio's error in rendering Ramos' intentions, for the syntactical blunder had been Ramos'. If the word minimorum was intended as an adjective modifying proportione, it should have been in agreement with the noun it was intended to modify; it should have been in the ablative case, and read: "In perfectione minima. . . ." Gaffurio interpreted the genitive minimorum correctly as the possessive "of minims". Moreover, the sign which Ramos indicated in his instructions: C, was not used for tempus perfectus, prolatio minor, which he asserts he intends, but for tempus imperfectus, prolatio maior. Small wonder then, that Gaffurio added the parenthetical pejorative (illiteratus tamen) into his citation of the canon: "Your preceptor's canon, Tu lumen, tu splendor patris which he wrote until he, though illiterate, was publicly teaching at Bologna. . . ."23

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22. "perche tu sei tanto pieno de ira & livore: che tu non te acorgi che quello che disopra hai dicto, scilicet minimorum e adiectivo & non substantivo & nasce da minimus minima minimum & non da minima minima come da te cosi pazamente e stato creduto. . . ." Spataro, Ibid., fol. 43 v.

23. "cantici ipsius preceptoris tui, Tu lumen tu splendor patris quid dum bononiae (illiteratus tamen) publice legeret. . . ." Gaffurio, Apologia, fol. 8 v.

The Closing Arguments

Errori was published on January 12, 1521. Exactly 90 days later, on April 12, Gaffurio published a pamphlet Epistola prima, ostensibly to respond to Spataro's arguments, but actually to harangue him.<sup>24</sup> The dispute had become a dogfight.

Gaffurio's pamphlet was published in the form of a letter to Brother Sylvester Alzato, a Milanese monk. This 'letter' is full of Gaffurio's word games, beginning with the title, which is a pun on Spataro's surname, calling him "Scabbard-maker" (Vaginarium). Gaffurio says that his opponent can be described in a few words: a malign, impudent, rambling, wordy, lying, good-for-nothing. He presents a Latin acronym to prove it: MAGNVM: Malignus-Audax-Garrulus-Verbosus-Mendax.<sup>25</sup> Once again, Gaffurio says, "that canon of Bartolomeo Ramos, Tu lumen, tu splendor patris is distorted and ill-conceived."<sup>26</sup>

Spataro's response to this publication appeared on May 14, 1521. His Dilucide et probatissime demonstratione

24. Gaffurio, Epistola prima Franchini Gafurii Musici in solutiones obiectorum Ioannis Vaginarium Bononiensis, (Milan: Antonio Alberti, 1521).

25. "ab hoc ipso nomine MAGNVM facile eliciuntur: singulis litteris singulas ipsas dotes ascribendo hoc modo: Malignus-Audax-Garrulus-Nebulo-Verbosus-Mendax." Ibid., fol. 4 v.

26. "Inde constat Canonem illum Bartholomei Rhamis Tu lumen tu splendor patris esse mutilatum & male consyderatum." Ibid.

is directed to Sylvester Alzato and acknowledges receipt of the letter to Alzato "publicly produced and printed by Franchino Gaffurio" in which "this Franchino comes on like a mad dog."<sup>27</sup> Spataro defends once again Ramos' division of the monochord, asserting that it is easier to understand and to tune than the Pythagorean division.<sup>28</sup>

Ten days later, on the 24th of May, Gaffurio's last printed work appeared, a second letter, addressed this time to the Florentine, Antonio de Albertis. This Epistola secunda is a continuation of Epistola prima and not properly a response to the Dilucide. However, Gaffurio still argues against Ramos' monochord division, especially the major and minor thirds, for they are, he maintains, a comma flat. He is the first, he says with justifiable pride, to recognize the tendency of musicians to temper intervals by tiny amounts (communicata or participata), which are almost imperceptible,

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27. "Ho receputo una Epistola in publico producta & impressa da Franchino Gafurio a te mandata . . . che ad esso Franchino come etiam al Cane rabiato . . . ." Spataro, Dilucide et probatissime demonstratione, facsimile of the 1521 ed., with German translation by Johannes Wolf (Berlin: Bibliothek Paul Hirsch, 1925), fol. 2 r.

28. "se possono facilmente producere, come etiam appare in la divisione del monochordo pratico del mio preceptore assignata. Dove (senza partire la chorda in XVI parte) appare el semitonio cadere in la comparatione XVI ad XV, . . . . similmente senza dividere essa chorda in V parte appare che la sexta maggiore cade tra V ad II & per tale modo, etiam (senza exercitata per se la quantita de ciascuna tertia) appare che la tertia maggior cada in sesquiquarta & la minore in sesquiquinta." Ibid., fol. 4 v-5 r.

only making possible greater harmony. The syntonic comma, he asserts, is clearly audible, and the resulting intervals are out of tune.<sup>29</sup>

Gaffurio died, after three months of intermittent fever, on June 25, 1522,<sup>30</sup> and Spataro had the final word. In 1523, he completed his Tractato di musica which, as has been discussed, he hoped to have translated into Latin (see p. 50).<sup>31</sup>

It is a wordy, diffuse treatise, more noteworthy for its uncommonly long sentences than for the theories expressed. Virtually every page contains an attack on Franchino who was, of course, long beyond responding. The altercatio musicorum was ended.

Spataro was not a particularly good writer, even in Italian, but he represented the shape of things to come. The day of Latin's supremacy in letters was drawing to a close.

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29. "quam solus Gafurius solerti examine queritans adinvenit hanc communicationem seu participationem musicorum instrumentorum artifices vocant, reddit enim aliquanto suaviorem concinatatem. . . . Si Rhamis sensibilem crediderit differentiam inter semiditonum integrum proportionis 32 ad 27 & sesquiquintum sesquioctogesima proportione adauctum ut detractor scribit: senties ne haec a Boetio bene dicta decimo tertii musicae. Est enim comma quod ultimum comprae-hendere possit auditus." Gaffurio, Epistola secunda apologetica in solutiones obiectorum Ioannis Vaginarri Bononiensis, (Milan: Antonio Alberti, 1521), fol. 6 r-v.

30. Sartori, col. 1239.

31. Spataro, Tractato di musica, facsimile of the 1531 edition (Bologna: Forni Editore, 1970).

After Gaffurio, the only major theorist to publish in Latin would be Heinrich Glarean. Soon all musical treatises would be appearing in the vernacular languages.

Spataro was as poor a match for Gaffurio as Burzio had been for Spataro, a mouse quarrelling with an elephant. Like a mouse, Spataro may not have won the war, but he made a considerable nuisance of himself in the meantime.

Ramos' goal of solmization based on the octave would one day be realized, but the system which developed was an extension of the old Guidonian method. Later theorists would explore Ramos' monochord tuning in its entirety and expose its underlying weakness, i.e., the impossibility of modulation, even to the key of the dominant. Ramos recognized the need for a change, for a tuning system and a solmization system more fit for the practical musician than for the theorist, and the divergence between his dream and the direction which music ultimately took does not invalidate his dream.

## APPENDIX A

### RAMOS' CIRCULAR CANON

Ramos' four-voice, endless canon was composed to be sung either in the Lydian or in the Hypolydian mode, depending upon the taste of the performers, thus the two clefs in Seay's transcription (Figure A-1).

The manuscript bears a legend at the bottom: "Omnibus hoc vitium est cantoribus inter amicos ut numquam inducant animum cantare rogati, iniussi numquam desistant," which Seay has translated, "The trouble with all singers is that, when they are with friends and are asked to perform, they can never be persuaded; unasked, they never stop."<sup>1</sup>

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1. Seay, "Florence: The City of Hothby and Ramos" p. 195.

Handwritten musical score for a 4-voice canon. The score is written on four staves, each with a treble clef and a 3/8 time signature. The key signature is one flat (B-flat). The notation includes various note values (quarter, eighth, and sixteenth notes), rests, and slurs. The first staff begins with a tempo marking  $\text{♩} = 0$ . The fourth staff concludes with the word "etc." written above the final notes.

Figure A-1. Seay's transcription of  
Ramos' 4-voice canon

APPENDIX B

CONTENTS OF RAMOS DE PAREJA'S MUSICA PRACTICA

Chapter	Title	Page
	Prologus	1
I	[Untitled]	3
II	Monochordi elementaris divisio seu compositio	4
III	Datarum divisionem recta cognitio	6
IV	Figurae praecedentis ad usum cantorum subtilis applicatio	11
V	Quorundam erroris circa praedictam clara ostensio	12
VI	Diversorum instrumentorum brevis notitia	15
VII	Copulandi vocem cum instrumentis modus subtilis	18
VIII	[Untitled]	22
Tractatus Secundus		
I	In quo ostenditur, qualiter et quomodo vox in plano debeat figurari	25
II	Fictae musicae declaratio	28
III	De coniunctarum cognitione	30
IV	De vocum permutatione	31
V	Reprobans aliqua praecedentis et rectum modum coniunctarum demonstrans	34
VI	Quod musicae differentia non est in qualitate sed in quantitate	40
VII	Reprobans Guidonis sequaces et veritatem rei subtiliter demonstrans	43
VIII	In quo subtiliter, quot modis unaquaeque species fiat, declaratur	48
Tractatus Tertius		
I	In quo de tonis sive modis aut tropis plena cognitio ponitur	52
II	De origine tonorum	54
III	In quo musicae mundanae, humanae ac instrumentalis per tonos conformitas ostenditur	56
Secunda pars, Id est Contrapunctus		
I	In quo notitia vocum consonantium et dissonantium ponitur	62

Chapter	Title	Page
II	In quo error reprehenditur et veritas demonstratur	68
	Tertia pars, in Qua de Numeris Harmonicis Copiose Pertractatur	
I	[Untitled]	77
II	In quo signa per quae numeri distinguuntur	82
III	In quo signa aliarum specierum	84
IV	In quo canones et subscriptiones subtiliter declarantur	90
	Tractatus Secundus	
I	In quo de triplici proportionalitatem genere subtiliter disputatur	93
II	In quo medietas harmonica discernitur	95
III	In quo primariae monochordi divisiones ad numerorum rationes applicantur	96
IV	In quo semitonia canenda aut evitanda	99
	Epilogus	103

## APPENDIX C

CONTENTS OF NICCOLO BURZIO'S FLORUM LIBELLUS

Chapter	Title	Folio
	Descriptio libelli	3 r
I	Quid sit musica, et unde dicatur	3 v
II	De laudibus musicae	4 v
III	Quotplex sit musica	5 v
IV	De musica humana	7 v
V	De musica instrumentali	8 r
VI	Quid sit musicus, et differentia inter musicum et cantorem	9 r
VII	Quid sit sonus, et diffinitio soni generalis	9 v
VIII	Quid sit vox, et de vocum distinctione	10 v
IX	Quid sit consonantia, et qualiter formetur, et quid dissonantia	11 r
X	Quid sit harmonia?	11 v
XI	Quis hominum primo cecinerit, et sonos musicae proportione coniunxerit	12 r
XII	De tribus melorum generibus	14 r
XIII	Ad musices praticam condiscendam, quis ordo?	15 r
XIV	Quare Guido neque minus, neque plus, ultra illas sex syllabas elegerit	16 v
XV	Cum tot inventiones sit ad docendum una dumtaxat et non plures ad cantandum sunt musicae	17 v
XVI	De divisione manus	18 v
[XVII]	Corde philosophorum	19 r
XVIII	Quid sit mutatio in cantu	20 r
XIX	Quid sit proprietas in cantu	20 v
XX	De signo be mollis et b quadri	21 r
XXI	De coniunctionibus musicalibus	21 v
XXII	De diapason, ac eius laudibus	23 v
XXIII	De quattuor tropis tonis, seu modis antiquis in quattuor autenticis, et quattuor plagalibus mutatis	25 r
XXIV	De ascensione parvularum antiphonarum, vel cantuum	27 v
XXV	De autenticis, ac plagalibus antiphonis a suo fine seculor, aut euouae discernendis	27 v
XXVI	De finitis in A nonnullis antiphonis secundum modernos irregularibus	28 v

Chapter	Title	Folio
XXVII	Qualiter per singulos tonos psalmi sint inchoandi	28 v
XXVIII	Quis tropis, sive modis tale temperamentum primus adhibuerit, ac illos in lucem ediderit	29 r
XXIX	Quid necessum sit volentibus cantum angelicum sive planum sacris litteris apponere	32 r
XXX	De vocis conservatione, et qualiter quis ad cantandum se custodire debeat	32 r
	Tractatus secundus Nicolai Burtii Parmensis sub quo regule cantus commixti seu contrapuncti continentur	34 v
I	De consonantiis perfectis et imperfectis	34 v
II	Qualiter consonantiae perfectae ac dissonantiae compassabiles in practica disponantur	35 v
III	De quinque preceptis circa contrapunctum observandis	36 r
IV	Quando diapente imperfectum debeat perfici, et ubi naturaliter cadat	37 r
V	Qualiter debeant componi cantilenae an primo incipiendum sit a suprano vel tenore, an contrabasso	37 v
VI	De contrapuncto practitorum, qui ultramontanis et maximae gallicis est in usu	39 r
	Tertius tractatus eiusdem Nicolai Burtii in quo cantus figurati radices atque proportionum enigmata enodatur	40 r
I	Quid sit cantus figuratus	40 v
II	Qualiter ab invicem haec tempora discernantur	41 v
III	Quid sit ligatura	42 v
IV	De perfectione et imperfectione notularum	42 v
V	Quid sit punctus in cantu mensurato	43 v
VI	Quid sit pausa et quid operetur in cantu figurato	44 r
VII	Quid sit alteratio in cantu figurato	44 v
VIII	De diminutione	44 v
IX	Quid sit sincopa in cantu figurato	45 r
[X]	De ligaturis	45 v
XI	Quid sit numerus, et nonnulla ad numerum pertinentia	46 v
XII	Quid sit proportio et quottuplex sit	49 v
XIII	De quinque generibus proportionum inaequalium	50 v
XIV	De genere superparticulari	51 v

Chapter	Title	Folio
XV	De genere superpartiendi	52 r
XVI	De duobus aliis generibus compositis	53 v
XVII	Quid sit proportionalitas, et quomodo proportiones inaequalitatis ab aequalitate nascantur	54 v
XVIII	Repilogatio proportionum ex quibus consonantiae et membra earundem conficiuntur	55 v
XIX	De quantitate continua	56 v
XX	De divisione monocordi	61 r
XXI	Omnes monocordi tonos per minus ac maius dividere necessarium	63 r
XXII	De astrologia micrologus	64 r
	Habetis igitur charissimi hoc nostro florum libello...	66 r
	Carmen Nicolai burtii <u>Parmensis</u> ad lectorem	66 v

## APPENDIX D

### BURZIO'S THREE-PART COMPOSITION

In the transcription which follows, all note-values have been halved, i.e. breves reduced to whole notes, etc., and ligatures are indicated by brackets. The original was written entirely on C-clefs, the cantus on a first-line clef, the tenor on a second-line clef, and the contratenor on a fourth-line clef (Figure D-1).

The image displays a musical score for a three-part composition. It is organized into three systems, each containing three staves. The top staff of each system is labeled 'CANTUS', the middle 'TENOR', and the bottom 'CONTRATENOR'. The notation is in a common time signature (C) and uses a treble clef for the Cantus and Tenor parts, and a bass clef for the Contratenor part. The music consists of a series of notes, some with slurs and ties, indicating a melodic line. The first system shows the beginning of the piece, with the Cantus part starting on a whole note. The second system continues the melodic development, with the Tenor part showing more complex rhythmic patterns. The third system concludes the piece, with the Cantus part ending on a whole note and the other parts providing harmonic support.

Figure D-1. Transcription of Burzio's 3-part composition

## APPENDIX E

### THE WRITINGS OF FRANCHINO GAFFURIO

Source: Claudio Sartori, "Gaffurius", MGG, vol. 4, col. 1240.

#### A. Unpublished Works

1. Extractus parvus musicae, manuscript in Cod. palat. parmensis 1158.
2. Tractatus brevis cantus plani, manuscript in Cod. palat. parmensis 1158.
3. Musicae institutionis colloctiones, written in Verona, 1476, not preserved.
4. Flos musicae, written in Verona, 1476, not preserved.
5. Proportioni practicabili, unpublished manuscript, written between 1481 and 1483 in Bologna.
6. Glossemata quaedam super nonnullas partes theoricæ Ioannis de Muris, unpublished manuscript, written in Milan, 1499, Biblioteca Ambrosiana, H. 165.
7. De harmonia musicorum instrumentorum opus, autograph dated 1500, Code miniato XXVII A 9 in Biblioteca Laudensis in Lodi.

#### B. Published Works

1. Theoricum opus, 1480, Naples, Francesco di Dino. Revised and published in Milan, 1492, by Ioannes Petrus Lomatius under the title Theorica musicae.
2. Practica musicae, 1496, Milan, Guglielmo Signerre; republished 1497, Brescia, by Augustino Britannico; republished under the title Musicae utriusque practica in 1502 and 1508; republished in Venice, 1512, by Zannis de Portezio. An Italian translation of two chapters of the Practica was published in 1492 in Milan, under the title Tractato Vulgare del Canto Figurato, by Ioannes Petrus

Lomatius. Francesco Caza, one of Gaffurio's students, was listed as the author.

3. Angelicum ac divinum opus musicae, 1508, Milan, Gothard Pontano. Despite the Latin title, this is an Italian translation of the major part of the Practica, lacking most of the musical examples.

4. De harmonia musicorum instrumentorum opus, 1518, Milan, Gothard Pontano.

5. Apologia adversum Ioannem Spatarium, 1520, Turin, Augustino de Vicomercato.

6. Epistola prima in solutiones obiectorum Iohannis Vaginarium Bononiensis, 1521, Milan, Antonio Alberti.

7. Epistola secunda in solutiones obiectorum Iohannis Vaginarium Bononiensis, 1521, Milan, Antonio Alberti.

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