VÁCLAV PHILOMATHES’ MUSICORUM LIBRI QUATTUOR (1512):
TRANSLATION, COMMENTARY, AND CONTEXTUALIZATION

Devin Iler, B.M., M.M., Ph.D.

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APPROVED:

Thomas Sovik, Major Professor
Benjamin Brand, Minor Professor
Graham Phipps, Committee Member
Frank Heidlberger, Committee Member and
Chair of the Division of Music
History, Theory and
Ethnomusicology
Benjamin Brand, Director of Graduate
Studies In the College of Music
James Scott, Dean of the College of Music
Costas Tsatsoulis, Dean of Toulouse
Graduate School

The Czech-born music theorist, Václav Philomathes, wrote the *Musicorum libri quattuor* in 1512 while attending the University of Vienna. This didactic treatise became one of the most widely published theory treatise of its time with 26 copies of five editions remaining today and covers the topics of Gregorian chant practice, Solmization, Mensural Notation, Choir Practice and Conducting, and Four-voice Counterpoint. Of particular note, is the section on choir practice and conducting, of which there is no equivalent prior example extant today. This dissertation provides a Latin-English translation of Philomathes’s work, as well as produces a critical commentary and comparison of the five editions while positioning the editions within the context of the musico-theoretical background of early-to-mid-16th century scholarship in Central Europe.
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PART I – BACKGROUND, COMMENTARY, AND CONTEXTUALIZATION

CHAPTER 1

INTRODUCTION

Prefatory Remarks

Perhaps one of the least recognized theorists between the late-15th and the mid-16th century is the Czech-born author Václav Philomathes. Although he is most
remembered for his *Grammatyka czeská* (the earliest Czech language grammar book, 1533), his *Musicorum libri quattuor* (Four Books About Music) had a profound influence on the main German centers of musical learning. First published in Vienna in 1512, it saw five reprints—Leipzig (1518), Vienna (1523), Wittenberg (1534), Strasbourg (1543), and Vienna (1548, no extant copy of this edition). Beyond the many published editions, Philomathes’s influence extended into the works of other authors. Georg Rhau, who printed both the Leipzig and Wittenberg editions, also quoted many of Philomathes’s verses in his own *Enchiridion utriusque musicae* (1517) and offers the following explanation for their inclusion: “as he is the most skilled man in the arts of poetry and music, I did not hesitate to prefer his verses to others.” Johannes Galliculus, in his *Libellus de compositione cantus* (1520) also quoted Philomathes, and Martin Agricola even published a commentary on Philomathes’s treatise, as the *Scholia in Musicam*

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1 Numerous spellings of his name are found throughout the existing scholarship. I have settled on Václav Philomathes, but other possibilities include, Václaw, Wencelas, Wenceslaus, Wenceslai, Wenceslai, Filomates, Philomates, or Philomathis.
Given the number of published editions of Philomathes’s works in the important centers of learning and the quotations appearing within treatises of other authors, it is clear that Philomathes exerted a profound influence on German scholarship through the mid-16th century.

To date, few scholars have undertaken study of Philomathes, and the *Musicorum libri quattuor* has yet to see a comprehensive examination. Although there is a Czech translation from the Latin (2003), a translation into a major research language (English) is needed to increase access to the document. The primary task of the dissertation is to provide a Latin-English translation, as well as produce a critical commentary and comparison of the five editions while positioning the editions within the context of the musico-theoretical background of early-to-mid-16th century scholarship in Central Europe.

Part I of the dissertation consists of the background, commentary, and contextualization of the *Musicorum libri quattuor*. The critical commentary serves two purposes: it interprets and explains some of the passages in the treatise, and it explains the differences between the editions. Philomathes wrote the treatise in Latin hexameter verses, which creates several rather confusing passages—even in translation. While the verse format was a common feature in medieval music treatises, by 1512 this format had fallen out of favor. Furthermore, it must have been likewise difficult for the contemporaries of Philomathes to understand the instruction given in this format, because in 1538 (only 26 years after the first edition), Martin Agricola saw the need to write a *Scholia* for other teachers or students that explains the *Musicorum libri quattuor* line-by-

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4 Not to be confused with the composer Alexander Agricola (1446 – 1506) or with the Protestant reformer Johannes Agricola (1494–1566).

5 Possible reasons for this type of format are included in subsequent chapters.
Like Agricola, modern scholars also benefit from a commentary and translation of Philomathes for an important reason: unless the reader physically attended lectures by the master himself or was intimately familiar with the topic, the short poetical verses are insufficient to understand the material. Modern audiences lack this immersion and familiarity and require an unraveling of confusing passages. In addition, the technique of using Latin hexameter verses emphasized memorization and mnemonic learning; this is an issue for modern audiences who have never been expected to memorize pedagogical verses and who, most likely, would find no practical value in memorization.

Examination of these confusing portions, as well as a comparison of the editions, will create a provisional analysis of the text which aids in establishing a context for Philomathes’s treatise.

Three major pursuits establish the framework for approaching and understanding Philomathes: the first consists of an investigation of the musical milieu of several cities directly involved with the publication of Philomathes’s works. A comparison of the religious and musical cultures in the cities of Vienna, Wittenberg, Leipzig, and Strasbourg shows both the vast number of musicians and pedagogues Philomathes’s treatise reached and demonstrates the contrast between the Catholic-centric instruction at

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6 Martin Agricola, *Scholia in Musicam planam Venceslai Philomatis*, Wittenberg: Georg Rhau, 1538. This book systematically quotes the *Musicorum libri quattuor* in small three- to eight-line divisions and follows the quotation with two to three pages of prose explaining Philomathes’s descriptions. This type of gloss or commentary on a treatise was extremely common throughout the Renaissance; see chapter 11 of *Music Education in the Middle Ages and Renaissance*, edited by Susan Forscher Weiss, Russell E. Murray, Jr., and Cynthia J. Cyrus, Bloomington, IN: Indiana University Press, 2010, where Susan Weiss discusses many instances of commentary.

Vienna and Protestant instruction in the other German cities. The second pursuit provides a discussion of recent secondary sources to observe how the study of Philomathes’s writings may transform, modify, elaborate, or extend the discipline’s recent understanding of issues related to mode, rhythm, counterpoint, and musical practice of the early-16th century. The final pursuit is an examination of sources written between c. 1500 and 1550 in order to study the influence and dissemination of ideas prior to, during, and after the writing of Philomathes’s treatise. The goal is to identify what theoretical ideas Philomathes may have used in writing his \textit{Musicorum libri quattuor}, and after its publication, to identify how those ideas found their way into other authors’ writings; the concept of \textit{transtextuality}, formulated by the French literary theorist Gérard Genette, is used to describe the network of relationships exchanged between Philomathes’s treatise and others. The examination of geographical and musical matters, an overview of contemporary sources, and a discussion of transtextuality all serve to provide several different lenses of analysis and contextualization in order better to inform our understanding of the \textit{Musicorum libri quattuor}.

Part II of this dissertation contains the translation and comparison of the five editions of the treatise. The translation appears in a side-by-side format, with the Latin text on the left and English translation on the right, in order to easily compare both original source and the modern edition. Unless otherwise noted, translations of all text and quotations are by the author of this dissertation.

\footnote{Why the \textit{Musicorum libri quattuor}, written by a Catholic priest, became so popular within the Protestant-dominated scenes of these German cities is addressed in Chapter 4.}

\footnote{See Chapter 4 for a discussion of transtextuality.}
A Changing Musical Climate

In the early-15th century, the discipline of music theory was undergoing rapid transformation. Although early writers such as Guido of Arezzo, Jehan des Murs, and others launched “theoretical” discussion on a trajectory of focusing on such practical issues as the instruction of singing, theory treatises still remained grounded in speculative topics such as the mathematical properties of acoustics and neo-Platonic philosophy. Theorists writing in the last two decades of the fifteenth century such as Franchinus Gaffurius, Ramis de Pareia, and Giovanni Spataro increasingly focused more on practical theory and less on speculative theory. Theory treatises gradually became less concerned with the order of music in the universe or its relation to God and moved toward an emphasis of teaching other musicians how to compose, read, or simply sing music. Scholars had repurposed the role of music — these changes lead to a wide array of didactic treatises dedicated to instructing young students in the basics of chant and choral singing.10

As these Italian theorists’ works moved north, scholars began to mimic the changes to the discipline the Italians began, and a large collection of German didactic writings emerged north of the Alps. The lateinschule tradition embraced the direction of musica practica and produced many works designed not only for the amateur, but sometimes addressing the needs of the professional musician. Too often, these works are ignored in our study of the history of music theory in a rush to reach the innovations of later pioneering theorists such as Heinrich Glarean, Pietro Aaron, and Gioseffo Zarlino, who redefined the conception of the medieval modal system and composition instruction.

In the scramble to find something “new,” theorists such as Václav Philomathes, Georg Rhau, Nicolaus Wollick, Johann Cochlaeus, Johannes Galliculus, Andreas Ornithoparchus, Martin Agricola, Adrianus Coclico, and others are passed over or have had their “practical” contribution relegated to a mere footnote. Identifying the connection between these largely ignored writers and the impact they had as teachers, colleagues, and contemporaries of Glarean and other key German authors helps reveal the thought and influences behind their innovative ideas.

Often the process of understanding theoretical discourse during a given era relies on gathering the same ideas from many sources in order to get a complete context.11 A careful examination of Philomathes’s treatise provides insight into ideas of theoretical language, musical-theoretical practice, and influence during the early-16th century in Germany. While Books I, II, and IV of the treatise (modes, mensural rhythm and prolation, and counterpoint, respectively) largely contain the same information found in other contemporary texts, it remains pertinent to look into Philomathes’s contribution because it demonstrates a unique writer’s perspective from a particular time, period, and place. In addition, the language of Philomathes offers rewording of concepts: the whole of the treatise is written in strict Latin hexameters, which leads the author to use multiple synonyms for the same word. For example, most Renaissance authors, when writing about “song,” would simply use *cantus*. Philomathes uses “cantus, canor, canendum, canticum, Carmen, oda, hymnus, melos, melodia, modulamen, or ars.” The value of many synonyms comes from the slightly different perspectives that might arise when

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11 Examples of this include Anne Smith, *The Performance of 16th-Century Music: Learning from the Theorists*, New York: Oxford University Press, 2011, and Jessie Ann Owens, *Composers at Work: The Craft of Musical Composition 1450-1600*, New York: Oxford University Press, 1997. For these topics, which are often found through brief or cursory description, the authors needed to look at many theorists to gather a complete picture.
Philomathes uses uncommon words to explain a concept; this is in contrast to other Renaissance authors simply repeating the same word. Because of Philomathes’s poetical meter, this translation of the treatise will often provide a unique perspective on account of the many synonyms found during descriptions and explanations. Another interesting feature is that, on account of Philomathes’s desire to remain brief and offer an introductory primer to musical topics, there are errors on topics such as mensural theory, and occasionally his descriptions do not provide enough detail to understand the given topic fully. These inadequacies point to the fact that his book probably served as a supplement for the teacher or student in the classroom rather than a comprehensive guide.

Perhaps the most original contribution of the *Musicorum libri quattuor* is contained in the third book of the treatise. In this book, Philomathes breaks with tradition and includes sections on methods of producing a quality voice during singing, how to balance tone and the multiple voices of a choir, a description of how a cantor ought to physically arrange his choir, and lastly methods on conducting the choir and performing duties as a cantor. Prior to Philomathes, the permitted topics were modes, rhythm, counterpoint, and prolation. With the exception of Conrad von Zabern’s *De modo bene cantandi chorale cantum* (1474), which discusses only one of the four subjects contained in Book III of the *Musicorum libri quattuor* (how bad singing occurs and how to sing well),\(^{12}\) Philomathes’s writing appears to be original thought and certainly one of the earliest comprehensive examples of these topics in a music treatise. Regardless, the

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\(^{12}\) Timothy McGee, *The Sound of Medieval Song: Ornamentation and Vocal Style According to the Treatises*, New York: Oxford University Press, 1998, discusses a host of early medieval descriptions concerning vocal quality that resonate with some of Philomathes’s instruction. Gaffurius includes brief mentions of performance practice in *Practica Musice*; e.g. he references singing plainchant in equal note values (Book II, Chapter 15), singers wanting to control enunciation as well as rhythm (Book II, Chapter 15), and finding the basic pulse of the music in relation to the pulse of a resting heart (Book II Chapter 1). These examples are brief and cursory; in contrast, Philomathes goes far beyond the scope of Gaffurius or authors cited in McGee with the inclusion of the entire book on these matters.
treatise seems to have set a precedent for other authors to include similar sections in their own treatises: Andreas Ornithoparchus’s *Musicae activae micrologus* (1517), Sebald Heyden’s *De arte canendi* (1540), Hermann Finck’s *Musica practica* (1556), and Jan Blahoslav’s *Musica* (1558) all include a book on practical advice to singers and choirmasters.

Philomathes’s treatise provides the foundation which ties together an examination of geographical and musical matters, overview of contemporary sources, and topics of performance practice, composition, counterpoint, and transtextuality. Through its examination, a richer picture emerges of music theory in Central Europe during the early 16th century.
CHAPTER 2

BACKGROUND: PHILOMATHE’S LIFE AND WORK

Early Days

Very little is known about Václav Philomathes. Jan Trojan’s dissertation, “Muzika Václava Philomatha z Jindřichova Hradce (1512)” (1950), discusses the political and cultural climate surrounding Philomathes’s life and includes what little is known of his life. The only other sources that contain bibliographical material are in the introductions of Philomathes’s Grammatyka česká by Gerd Freidhof (1974) and a Czech translation of the Musicorum libri quattuor by Martin Horyna (2003). Both contain considerably less detail than Trojan’s dissertation.13

Philomathes was born in approximately 1490 in Jindřichův hradec, in South Bohemia. He became involved with the church, whether it was through attending parish school or by becoming a choirboy. Involvement with the church was the surest way for a commoner to gain access to music education. It seems likely that Philomathes was in such a position given the dedication of the Musicorum libri quattuor to Jan Kaplický, a vicar in Jindřichův hradec.14 In the dedication Philomathes refers to Kaplický as “his lord,” and offers the only present he can afford—the treatise. It is unsure exactly what role Philomathes served for Jan Kaplický, but several authors have suggested reasonable hypotheses. In František Teplý’s The History of the Town of Jindřichův hradec, he

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13 There are early sources that mention Philomathes briefly, in the sense of encyclopedia entries: Josef Truhlář’s Humanismus a humanist v Čechách za krále Vladislava II [Humanism and Humanists in Bohemia at the time of King Vladislav II], Prague 1894, Antonín Truhlář’s Příspěvky k dějinám studií humanistických v Čechách [Essays in the History of Studies of Humanism in Bohemia] 1899, Vladimír Helfert’s Muzika Blahoslavova a Philomatova 1923, and František Teplý’s Dějiny města Jindřichova Hradce [The History of the Town of Jindřichův hradec] 1932.

14 Teplý, 40-8.
assumes that Philomathes was Kaplický’s chaplain; however, Horyna can find no record to substantiate a record of Philomathes being a priest in Jindřichův hradec. Jan Trojan assumes that Philomathes was Kaplický’s best student, which would have ensured Kaplický prioritizing the funding of Philomathes’s education.

Philomathes moved to Vienna around 1510 and wrote the *Musicorum libri quattuor* in the University of Vienna in 1512. Trojan says that in order to receive the best education, Philomathes had to travel to the University of Vienna (which was run by Catholics) because of concern over the Hussites controlling Prague University. Vienna was a much more attractive option for a Catholic scholar as it was flourishing due to an influx of great teachers and students; in the mid-15th century, the University had more than 6000 students. In addition, King Maximilian and the Catholic Church were focusing on protecting Vienna as a stronghold against the Ottoman armies threatening the Austrian empire.

### Protestantism in Bohemia

In order to understand why Vienna was the most attractive place for Philomathes to study, it is necessary to consider the impact of Protestantism in Bohemia. The start of the Czech Protestant reformation began in 1401 with the appointment of Jan Hus as rector of Prague’s Bethlehem Chapel. Hus believed that the Catholic Church had devolved into corruption on account of nearly the same list of grievances Martin Luther would argue for 100 years later. Hus also spoke against florid polyphony—instead

15 Teplý, 48.
16 Horyna, xxvi.
17 Trojan, 7-9.
18 See Chapter 4 for detailed discussion of the University of Vienna and its importance as a musical center.
favoring monophonic congregational singing in the vernacular. As Hus’s ideas gained popularity, one of his advocates, King Václav (Wenceslaus IV) of Bohemia, responded to the criticism of his support in the 1409 Council of Pisa by giving native Bohemians at Prague University more votes over the German faculty, this loss of power lead to the Germans returning home and King Václav placing Jan Hus as the dean of the university.\textsuperscript{19} Infuriated, the Germans fought to lead the Pope into banning preaching in independent chapels (including Bethlehem Chapel) and ending any further development of grievances against the Church. Jan Hus refused to comply, was excommunicated in 1411, and continued both teaching and leading worship as if nothing had changed.

Further dissatisfaction with the Church continued when King Ladislav of Naples, a proponent of the overthrown Pope Gregory, seized control of Rome and forced Pope John XXIII to flee the Vatican. Pope John sought to finance a war against King Ladislav by offering indulgences to his supporters, which then led to Hus publically attacking the Pope’s practice of selling indulgences. When the Archbishop Šbinko of Prague accused King Václav of harboring a heretic, Václav began a stalemate by threatening punitive measures against the clergy while, concurrently, Pope John threatened to excommunicate any who would follow the king’s orders.

Hoping to end the Schism and indictments of heresy in Prague, Sigismund, the Holy Roman Emperor, urged Pope John to summon the Council of Konstanz and resolve these problems. Sigismund offered Hus his protection, and so Hus eagerly arrived in November 1414 with a letter of safe conduct in hand, willing to defend himself against the accusations of heresy and to see the unification of the Church under the rule of one

\textsuperscript{19} Most of this history is sourced from Thomas Sovík’s “Music Theorists of the Bohemian Reformation: Translation and Critique of the Treatises of Jan Blahoslav and Jan Josquin” (Ph.D. dissertation, The Ohio State University, 1985), 2-11.
Pope. However, by July 1415, the council had turned against all three popes and executed Hus.

Outraged, 452 members of Czech nobility sent a letter of protest to the council in September but, as a response in May 1416, the council then executed Jeroným Pražký, a companion of Hus. This action fueled a revolt in Bohemia that broke out in 1419 with Jan Žižka leading the “Hussite” armies; many Catholic clergy were killed, and the country quickly divided between Protestant-friendly and Catholic-friendly towns.

After King Václav died in 1419, Sigismund, his brother and hereditary heir to the throne, tried to take hold of Bohemia, by mounting “crusades” in 1420 and 1431, but the Czechs refused to follow Sigismund because of his role in the execution of Jan Hus, and ultimately the Czech Protestant armies of Žižka and Prokop the Great repelled every attack launched by the Catholics. The Hussites compiled their demands in 1432 into the Four Articles of Prague; the demands were: religious freedom for their clergy, the right of laymen to accept both forms of communion (bread and wine), an abatement of the secular control of the clergy, and an exposure and punishment of sins committed by public officials. After several additional years of fighting, the Catholic and Protestant negotiators agreed on a modified version of the Four Articles as the Compactata de Basle in 1436. In Prague however, the Catholics still refused to accept a Protestant bishop as their leader, and when King Jiří z Poděbrady sought resolution through petitioning the Pope in 1462 to confirm the Compactata, the Pope dissolved the agreement and excommunicated Jiří. Suprisingly, the Czech Hussites and Catholics still managed to reach an informal truce and, despite occasional battles for control and power, enjoyed a period of relative peace.
On March 6th 1489, the Czech *literati* brotherhood was founded in Jindřichův hradec. The brotherhood was responsible for gathering educated citizens to assist with the educational needs of the town, and they began to take over responsibilities of church singing and song instruction. Jindřichův hradec was one of the few remaining cities in Bohemia that remained under majority Catholic control (in addition to Plzeň, České budějovice, and Český krumlov). Although Prague University would have been the closest major city for Philomathes to matriculate, it stands to reason that, on account of the rather bloody history between the two religious groups over the previous 90 years, Jan Kaplický must have felt uneasy about the loss of control from the *literati* and, fearing that the situation would be much worse in Hussite-controlled Prague University, urged Philomathes to reach out for schooling in the Catholic center of Vienna.

Vienna and Afterwards

Philomathes wrote the *Musicorum libri quattuor* after a short time of study at the University of Vienna. The motivations behind his work remain uncertain. It appears there was no commission; he was not writing the treatise as any sort of application to join the faculty at another university, and it seems constructed as a didactical tool to teach the basics of music theory and practice. He mentions in the dedication that the book comes from the classroom (*tironica palestra*), and due to limited references to speculative music theory, Horyna suggests that the completion of his studies at the university *bursa* might have been the impetus for writing the work.\(^{20}\) Despite the fact that its origins are shrouded in mystery, the *Musicorum libri quattuor* ended up as one of the most widely

\(^{20}\) Horyna, xxvi.
used theory textbooks of the 16th century throughout Central Europe.\textsuperscript{21}

After studying at Vienna, it is assumed Philomathes travelled back to Czech lands to become a priest; however, no record of his name exists in any church document.\textsuperscript{22} He was involved with several more publications throughout the rest of his life: Philomathes published a Latin \textit{Institutio grammatica} (Kraków, 1525) and later collaborated with Beneš Optát and Petr Gzel while working with them on their Czech translation of the New Testament (1533). In the same year he published his \textit{Etymologia} and combined it with Optát and Gzel’s \textit{Orthographia} to form the oldest Czech grammar, \textit{Grammatyka česká} (Naměšť nad Oslavou, 1533). Despite his absence from German lands, the fact that the \textit{Musicorum libri quattuor} continued to be published in Vienna, Leipzig, Strasbourg, and Wittenberg as late as 1543—long after he left the area—is a testament to the widespread influence and popularity of his text.

Further details of his life are purely speculative. It is unsure how well Philomathes was connected with figures such as Georg Rhau, Martin Agricola, Jan Blahoslav, or Adrianus Coclico; although these figures were active in the cities where Philomathes’s treatise was published (Vienna, Leipzig, Wittenberg, and Strasbourg), the details remain unknown. Perhaps the most convincing connection might be through Beneš Optát, who had direct contact with Blahoslav in or about 1550.\textsuperscript{23} It is possible that because Philomathes is suspected to have moved to Moravia after attending school in Vienna, these figures living in the same nearby locations might have been introduced each other. Another possibility is that perhaps Philomathes traveled to a more Catholic-friendly

\textsuperscript{21} This is discussed in depth in Chapters 3 and 4.
\textsuperscript{22} Trojan, 7-8. Although the reasoning behind this claim is not explained, it seems likely that he traveled back to Bohemia on account of his three subsequent publications—all in Czech lands.
Poland and maintained a position as priest for several years. The Latin grammar he wrote was published in Kraków, and Philomathes’s relative disappearance could be due to his desire to lead a quiet life working in Poland, free from Catholic-Protestant conflict.

Conclusion

Although the *Musicorum libri quattuor* was one of the most widely used and published didactic theory textbooks of the 16th century, surprisingly little is known of its author, Václav Philomathes. To be sure, we know that Philomathes was born in Jindřichův hradec, was sent by Jan Kaplický to study in Vienna, wrote the treatise, and then disappeared as a priest somewhere in Moravia. His work remained a valuable resource for many authors who quoted its passages and for one who even wrote a companion treatise explaining the short, poetic verses of the original.

The *Musicorum libri quattuor* of Václav Philomathes provides a window into early-16th century music theory; the innovation to be found in the text lies in a wholly original chapter on vocal technique, choir practice, and conducting. Its wide dissemination of 26 copies extant today of five editions makes it an important and yet, to date, largely ignored example of study in the history of music theory.
CHAPTER 3

ANALYSIS OF THE MUSICORUM LIBRI QUATTUOR

Comparison of the Editions

Being one of the most popular theory texts of the 16th century in Germany and the most popular manual in Poland,24 there are 26 copies of five separate editions extant today.25 The microfilms consulted in preparation for this translation of the Musicorum libri quattuor are as follows: (1) the 1512 Vienna edition from the Freiburg i.B., Universitätsbibliothek; (2) the 1518 edition Leipzig edition from the Berlin, Staatsbibliothek zu Berlin - Preußischer Kulturbesitz, Musikabteilung; (3) the 1523 Vienna edition from the Washington D.C., Library of Congress; (4) the 1534 edition from the München, Bayerische Staatsbibliothek; and (5) the 1543 edition from the München, Bayerische Staatsbibliothek.

Except for the 1518 edition, which contains only Book III of the treatise and lies

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25 RISM, series B-VI, vol. 2, François Lesure’s, Écrits imprimés concernant la musique, 1971, pp. 650-1 has a complete listing of all libraries holding the 26 copies of five editions of the Musicorum libri quattuor. The location of each library that holds a copy follows: Vienna 1512 edition, Hieronymus Victor and Johannes Singrenius, 22 folios. Held in Freiburg i.B., Universitätsbibliothek; Würzburg, Universitätsbibliothek; Paris, Bibliothèque nationale (fonds du Conservatoire); and Rochester, New York, Sibley Music Library, Eastman School of Music.


The Vienna 1523 edition, Johannes Singrenius, 22 folios. Held in Linz, Austria, Bundesstaatliche Studienbibliothek; Vienna, Österreichische Nationalbibliothek, Musiksammlung; Berlin, Staatsbibliothek zu Berlin - Preußischer Kulturbesitz, Musikabteilung; and Washington D.C., Library of Congress.


The Strasbourg 1543 edition, Jakob Fröhlich, 44 folios. Held in Vienna, Österreichische Nationalbibliothek, Musiksammlung; Basel, Switzerland, Universitätsbibliothek, Musiksammlung; St. Gallen, Switzerland, Stiftsbibliothek; Berlin, Staatsbibliothek zu Berlin - Preußischer Kulturbesitz, Musikabteilung; Bamberg, Germany, Staatsbibliothek; München, Bayerische Staatsbibliothek; and Paris, Bibliothèque nationale de France, Département de la Musique.
on 12 folios, the other four editions are identical in content. The 1512 and 1523 editions are on 22 folios containing at most 28 lines of text (20 x 14 cm) per page, and the latter two (1534 and 1543) have a larger font, fitting only 18 lines of text per page, and they require 44 folios. Each folio is divided into octavo format; the frontispiece of the first two editions is missing; however, a frontispiece is included on the latter three editions. Each edition does include a title, a location of publication, and the publication date.

The numeration of the folios in the five editions is sparse and sporadic to say the least. In the 1512 edition, folios a, a2, b, b3, c, c1-3, d, d2, d3, e, e1-3 are clearly marked, but the numerations for folios a3, a4, b2, b4, c4, d4, and e4 are missing. The 1518 edition has all numerations except the a, b4, c4, and all of the d folio numerations are missing. The 1523 edition is missing markings for folios a, a4, b4, c4, d4, f, and f2. The 1534 edition is missing markings for folios a, a6-8, b5-8, c6-8, d1, d2, d4-8, and e6-8. The 1543 edition is missing markings for folios a, a6-8, b6-8, c6-8, d6-8, and e6-8.

The most significant difference between the five editions is found in the 1518 edition, which contains only Book III and also includes a long series of epigrams attached to the end followed by six pages of handwritten notes on mensural notation. Christoph Hegendorff, a Protestant theologian who matriculated at the University of Leipzig, and Philippus Novenianus, a doctor who studied at Leipzig, wrote the epigrams. Georg Donat in Wittenberg may have handwritten the notes at the end of the printed text. A facsimile of the handwriting and a discussion of its content and meaning appears in Appendix A.

Each edition has a different dedication passage, which are given consecutively in chronological order in the translation. The dedications all speak to the greatness of the author and the text and generally show the widespread respect this book enjoyed among

26 Mention of this was discovered during research by Sovik while he was working on Jan Blahoslav.
contemporaneous musicians. Looking at the biographies of the authors in the dedication we find a host of educators, scholars, and printers. The 1512 edition has dedications from Christopher Crassus, Venceslaus Pictorius, and Joachim Vadianus; the 1518 edition has a dedication by Christoph Hegendorff (who writes at the end as well); the 1523 edition has a dedication by Rudberti Resch; the 1534 edition has a dedication by Georg Rhau to Johann Brossen; and the 1543 edition has a forward from Michael Toxites. Bibliographic details are largely absent, but a few of the names are mentioned in Grove or MGG. Joachim Vadianus was a Swiss born scholar and poet, who became the chair of poetry at the University of Vienna in 1512, and in 1516 was appointed dean. Georg Rhau is the most famous of the names and will be discussed in depth in chapter 4.

Beyond these issues, the separate editions have trivial differences in typesetting and case endings. As a common practice to save printing space, many words ending with a vowel + m or n are printed with a macron over the vowel and the consonant truncated. When possible if one edition uses, for example, cū and another uses cum, then the edition with less ambiguity is used in the translation.

Commentary on the Treatise

Philomathes states at the beginning of the *Musicorum libri quattuor* that he attempted to create a guide aimed at the novice. He emphasizes that his concise writing is offered only as a point of departure, and the student must look to other sources to extend their knowledge, although he offers no other treatises or authors by name. Despite this, his book contains substantially more than a discussion of plainchant theory and the basics of mensural notation. Instead, it reaches into issues of conducting and the composition of
four-voice counterpoint—topics that are beyond the needs of a mere beginner. Still, Philomathes omitted almost anything that could be considered speculative theory: tetrachords and their diatonic, chromatic, and enharmonic genus with intervals such as the diesis and comma; the Greek scale; and monochord theory. The treatise divides into the following four books: plainchant theory, mensural theory, choir performance practice and conducting, and counterpoint theory.

Philomathes’s poetry is generally well-written and free of grammatical errors; this is no surprise given his obvious expertise in languages. His second book is a Latin grammar, Institutio grammatica (Kraków, 1525), and his third book is the earliest Czech grammar book, Grammatyka česká (Naměšť nad Oslavou, 1533). The Musicorum libri quattuor also provides an emblematic window into Renaissance thought of aesthetic and evaluative judgments on musical ideas. His application of adjectives like amentis, decorus, dulcis, hilaris, horribilis, modestus, subtilis, tristis, aptus, rectus (foolish, elegance, pleasant, cheerful, awful, modest, fine, gloomy, proper, right respectively) and the adverbs apte, bene, recte, rite (fittingly, well, correctly, duly) shows that Philomathes had concrete ideas of what made music, or the performance of music, good or bad. As early as Franco of Cologne in 1260, theorists when describing meter, employed terms like perfectus and imperfectus. These terms show the origin of a long history of underlying subtle appraisals (through word choice) in describing aspects of music to be good or bad.

In addition, because of Philomathes’s strict Latin hexameters, he often employs multiple different synonyms for the same words. As an example, Philomathes employs many synonyms for “song” such as cantus, canor, canendum, canticum, Carmen, oda,
hymnus, melos, melodia, modulamen, and ars. These synonyms sometimes provide colorful translations. When Philomathes uses an uncommon word to explain a concept, every attempt has been made to remain true in this translation to Philomathes’s intent.

Music Theory According to Philomathes

As the seat of a university and the center of the King Maximilian I’s court choir (the imperial hofmusikkapelle), Vienna held an essential role in fostering musical and humanistic ideas throughout Central Europe. In this flourishing environment Philomathes learned about topics in musica theorica and musica practica. Because most music texts during the sixteenth century were destined for use in preparatory schools or bursas rather than the university, it is not surprising that Philomathes’s text and others from Central Europe from around the same period contain little more than basic music instruction. 27 The details of speculative music theory and technical discussions of temperament and advanced compositional ideas were left aside on being either too advanced or simply unnecessary. The 16th century author had been gradually abandoning Musica theorica, the philosophical identification and classification of the most inner processes of music; according to Atcherson, most of musica theorica discussed in these 16th century textbooks was simply a “sheer reiteration of ideas formulated as much as a thousand years earlier.” 28 Because of the general trend within the discipline and Philomathes’s desire to produce a book for beginners, he begins with the practical aspects of modal theory rather than a explanation on the origins of music (a more speculative venture).

27 A general trend of Philomathes’s writing is that it sometimes contains errors through his attempts to be brief and that it often contains little more than a rewording of ideas on older topics like plainchant theory and mensural notation. In general discussion of contemporary treatises or secondary literature will occur in Chapter 4.
28 Atcherson, 26.
The medieval hexachord system is at the center of Philomathes’s description of modal practice. This scale of 22 pitches is illustrated in many textbooks either as a ladder, on which pitches are located on various “steps,” or as the form of a “Guidonian” hand, on which pitches spiral around the various joints of the fingers. Philomathes mentions the physical aspect of the “hand” without providing an accompanying illustration and provides a written example utilizing the “ladder.”

The span of the medieval hexachord system ranges from a low G to an E two octaves and a major sixth higher. Any given pitch is identified by three factors: first by a letter (G, A, B, C, D, E, or F), then by the case of the letter (capital, lower case, or double lower case), and by the one or more solmization syllables assigned to that letter (ut, re, mi, fa, sol, or la). The letter specifies the particular pitch class of the note; the case of the letter designates the given octave of the pitch, and the syllables indicate the particular function of the pitch within the solmization process. Each pitch has its own distinguishable, unique designation that classifies it among the other pitches of the hexachord system.

The 22 pitch range, referred to commonly as the gamut, is divided into seven overlapping scalar segments (called hexachords) of six pitches each. Philomathes refers to hexachords as the sex voces. Each hexachord may initiate on a G, C, or F, and the intervallic content between each successive pitch remains the same: tone, tone, semitone, tone, tone. In order to follow this pattern on the F hexachord, the system requires the

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29 This process was invented by Guido of Arezzo in the Epistola de ignotu cantu (1025), where he sought to have his students sing any unfamiliar melody by aurally internalizing the starting pitch of each phrase of the chant “ut queant laxis, resonare…” as a mnemonic exercise; the process of singing at sight was accomplished by remembering the sound and syllable of a given modal scale degree. Each phrase of ut queant laxis ascended stepwise through the Medieval hexachord (tone, tone, semitone, tone, tone). See Oliver Strunk, “Guido of Arezzo, Epistle Concerning an Unknown Chant,” in Source Readings in Music History, New York: W.W. Norton & Company, 1998.
introduction a B-flat for the semitone between A and B. This alteration of the “B” was called b-\textit{molle}, or “soft b,” and was illustrated in text with a round b. In the G hexachord, the B-natural is called b-\textit{durum}, or “hard b,” and was illustrated with a square b. The identification between hard and soft is necessary to temper (soften) the tritone between F and B with a \textit{b rotundum}. Because the C hexachord does not use B—consisting of only the notes C through A—singing in this \textit{vox} is called \textit{naturale}.

Because the lowest sounding hexachord begins on the Greek letter \textit{gamma} (\textgreek{Gamma}) and the syllable \textit{ut} is attached to the first note of each hexachord, the lowest sounding pitch in the system is called gamma \textit{ut}. A hexachord begins on every G, C, or F after the gamma \textit{ut}, ending with the seventh hexachord’s last note, ee la (see Figure 1). Philomathes also mentions that five of the pitches can serve as clefs (\textgreek{Gamma} ut, F fa ut, c sol fa ut, g sol re ut, and dd la sol), but that two of these clefs (\textgreek{Gamma} ut, and dd la sol) are very rare.

\textbf{Solmization and Mutation}

Philomathes at first is very brief in his description of the hexachordal system, and strangely interrupts his discussion of the singing of solfege with a chapter on the church tones (chapter 4; discussion of church tones follows below at p. 25). Before his chapter on church tones, Philomathes explains that melodies larger in range than one octave must alternate between soft, natural, and hard hexachords and that the natural hexachord “holds the middle position between each.” This explanation is a cryptic reminder that when shifting between hexachords, a singer may only shift from soft to natural and vice versa, or they may shift from hard to natural and vice versa. This process was necessary as few compositions in the literature fit into the limited range of six pitches. In this brief
description the technical details are simply ignored by Philomathes, or perhaps he thought the diagram on a3v was a sufficient enough reminder on the specific details. However, after the intervening chapter 4, Philomathes returns to the discussion, providing the details of solfege singing.

![Figure 1: The Gamut of the Hexachord System](image)

<table>
<thead>
<tr>
<th>Modern pitch name</th>
<th>Hexachord</th>
<th>Medieval Designations</th>
</tr>
</thead>
<tbody>
<tr>
<td>e²</td>
<td>la</td>
<td>ee la</td>
</tr>
<tr>
<td>d²</td>
<td>la</td>
<td>sol</td>
</tr>
<tr>
<td>c²</td>
<td>sol</td>
<td>fa</td>
</tr>
<tr>
<td>b¹</td>
<td>fa</td>
<td>mi</td>
</tr>
<tr>
<td>a¹</td>
<td>la</td>
<td>mi</td>
</tr>
<tr>
<td>g¹</td>
<td>sol</td>
<td>re</td>
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<tr>
<td>f¹</td>
<td>fa</td>
<td>ut</td>
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<tr>
<td>e¹</td>
<td>la</td>
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<td>d¹</td>
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<td>c¹</td>
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<td>b</td>
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<td>a</td>
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<td>g</td>
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<td>d</td>
<td>sol</td>
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<td>c</td>
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<tr>
<td>B</td>
<td>mi</td>
<td>(N)</td>
</tr>
<tr>
<td>A</td>
<td>re</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>ut</td>
<td></td>
</tr>
</tbody>
</table>

The term *solmisatio* refers to the practice of assigning vocables to degrees of the hexachord scale rather than letters. The practice began in the 11th century and continued
long past the point where frequent occurrences of accidentals threatened to dismantle the entire system. The syllables ut, re, mi, fa, sol, and la were assigned to the beginning through the end of the given hexachord scale, and in order to reach notes of melodies larger than a sixth, a singer had to go through a process called mutatio (mutation). The principle of mutation allowed shifting to new hexachords (and therefore enabled wider-ranged melodies) by letting one pitch designation in a hexachord be “renamed” as a different degree in an overlapping hexachord in a process similar to a “pivot chord” found in later harmonic analysis.

Philomathes describes the common early-sixteenth-century process of mutation with several clever rhyming couplets. “Vocibus utaris solum mutando duabus/ Per re quidem sursum, mutatur per la deorsum.” Philomathes, b4v. This describes how, in order to preserve the use of B-natural, a mutation occurs by changing to the syllable “re” during ascent and changing through “la” during descent. For example, while ascending, the pitch D is altered from sol (in the G hexachord) to re (in the C hexachord) and the pitch A is changed from la (in the C hexachord) to re (in the G hexachord). On descent, the pitches E or A are changed into la syllables. Following these rules, a singer cannot accidentally shift into the soft hexachord and begin singing B-flats. Likewise, when singing with B-flats in the signature, mutation is made on D or G (becoming re) through ascent, and either D or A are turned into la syllables during descent.

Philomathes offers another rule to prevent improper shifting to hard or soft B’s. He cautions against certain leaps of a fourth, fifth, and octave when the syllable changes from fa to mi or vice versa. The reasoning is as follows: if singing an E as mi in naturale and leaping down to B-flat as fa in molle, then the singer has produced the tritone. To
avoid this, Philomathes advises singing the syllables from mi to mi—in other words E-mi to B-mi (B-natural mi of durum hexachord). This process of altering pitches in order to avoid the tritone, even when not notated in the music, is called musica ficta and was a process that every medieval and Renaissance singer was accustomed to. Philomathes warns the student that a B-flat will “lie there not signified [notated] and when signified, often hides [requiring alteration to B-natural].”

Solmization of musica ficta or coniuncta (conjoined) pitches, where accidentals beyond B-natural or B-flat are employed, is easily resolved by realizing each accidental as either a mi in cases of naturals and sharps, or a fa in cases of flats. Whether the melody is ascending or descending, the shift is made on the flatted note using fa, and on the natural or sharp pitch using mi. Philomathes observes that these types of alterations occur frequently in the singing of organa, where counterpoint often mirrors another voice at the fourth or fifth, thus creating tritones. The term “conjoined pitch” describes this behavior cleverly, as it demonstrates union and necessary alterations that must occur after joining two voices at a problematic interval. Philomathes’s examples on f. c1v illustrate the usage of up to five flats and two sharps, and he mentions that instrumental music frequently uses all of the musica ficta. Throughout the rest of the treatise, because Philomathes’s musical examples are conservative in nature, sharps and flats are used infrequently.

The Church Modes

Chapter four of Book I discusses Gregorian Chant and how to recognize specific melodic formulas corresponding to each of the eight modal scales. Philomathes uses the word tonus to define a church tone. Unfortunately, this word creates many problems in

31 Philomathes, b4v.
translation because it is often translated as mode, pitch, or interval depending on the context. The melodic formulae are categorized by several characteristics: ending pitch, range, contour, and repeated notes. Prior to Glarean writing the Dodecachordon in 1547, which posits that there are 12 modal scales rather than eight, the accepted convention specified eight modes arranged by ending pitch or finalis (D, E, F, or G) and whether they were “high” or “low.” A psalm that generally reached an octave above the finalis was called the authentic mode, and one that spanned from a fifth above and a fourth below the finalis was called the plagal mode. Many authors named authentic mode, acutos, or “shrill,” and the plagal mode, graves, or “low;” Philomathes refers to them as autentus and plagalis tonus. In addition to the standard authentic and plagal definitions, Philomathes also differentiates these from the tonus mixtus or mixed tone, which covers the range (ambitus or “revolution, border, orbit”) of both authentic and plagal modes, and the tonus neutralis, which has a limited range that extends to neither an authentic peak or a plagal low. Although modern scholars have generally translated the term ambitus as “range” when writing about modes, it makes sense to translate ambitus as “revolution or orbit.”32 More than simple boundaries of top and bottom, revolution and orbit imply a sense of motion through boundary pitches. Medieval composers conceived of the modes as being more complex than simple scales; modes were moving, breathing melodies.

After ascertaining the ambitus and finalis, the mode can properly be identified and numbered as mode 1-8. The authentic modes are odd numbers 1, 3, 5, and 7 with a finalis of D, E, F, and G respectively, and the plagal modes are the even numbers 2, 4, 6, and 8

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32 John Traupman, The New College Latin & English Dictionary, New York: Bantam Books, 1995, 55. Ambitus: winding, revolution; circuit, circumference, border; orbit; ostentation; circumlocution. Many English translations simply leave the word as its original Latin text or translate it as “range.” Using “revolution” or “orbit” makes greater sense, although it is without precedence in English translations.
with the same respective finalis. Therefore, an ending pitch is not enough information to classify the particular church mode, but rather the border tones surrounding the finalis complete the other half of that determination. Philomathes also allows transposition of any tone by a fourth or fifth, but offers no detailed instruction of this possibility.

Each mode has a characteristic “dominant” note (known as a tenor or repercussionis and sometimes called the reciting tone); it is the note most frequently repeated throughout a psalm melody. The authentic tenors are as follows: mode 1 on D repeats A, E – C, F – C, G – D; the plagal tenors are: D – F, E – A, F – A, G – C.

Each psalm tone is divided into four elements: the initium, a pattern that introduces the monophonic recitation of the melody; the mediatio, a figure that provides an intermediary cadence of the reciting tone; the terminatio, a figure that resolves the recitation of the psalm and ends on the finalis; and the Seculorum Amen (abbreviated EUOUAE from the vowels of Seculorum Amen), which is the words of a lesser doxology sung to a formula that ensures a smooth melodic retransition to the introit or antiphon. Philomathes mentions that there are several alternative EUOUAE for each mode, called differentiae tonorum. He provides examples showing five alternative differentiae for mode 1, four for modes 4, 7, and 8, three for mode 3, two for mode 5, only a single for mode 6, and mentions that mode 2 “is sadly discovered to have none.” Philomathes shows common examples of how the initium ends for each mode, how it begins, and how the responsories begin and end through their verses.

33 Nowhere does Philomathes refer to the modes as Dorian, Phrygian, etc. This was becoming more common in his time, as authors seemed to prefer referring to modes simply by number rather than the older terms associated with the Greek system.
34 Philomathes, b2v.
35 Ibid., b2v.
36 Ibid., b3v.
37 Ibid., b4'.
Philomathes addresses the affective qualities of the tones, noting that it is important to recognize the tones by ear because every tone carries a “special melody with its own property.” His description of each tone is as follows: the first tone is cheerful (*hilaris*), the second is sorrowful (*merore*), the third is austere (*austerus*), the forth is pleasant (*auctor*), the fifth is delighting (*delectans*), the sixth is lacrimose (*lacrima*), the seventh is indignant (*indignans*), and the last tone is appeasing (*placabilis*). These characteristics are similar to descriptions found in other contemporaneous texts such as Jan Blahoslav, Václav Solin, Andreas Ornithoparchus, or others. Therefore, throughout his examples and discussion, Philomathes presents a rather complete picture of standard modal practice, which certainly came about through years of training as a choirboy.

**Intervals**

The final chapter of Book I concerns the description and identification of intervals. It is curious that Philomathes refers to intervals throughout the first five chapters many times before defining them, but this demonstrates how closely a textbook such as his was related to classroom instruction. It seems clear that the reader would either have already been familiar with the fundamentals of music, or a teacher would be in the classroom, to explain every sentence to the student. Philomathes illustrates the unison, major/minor second, major/minor third, perfect fourth, tritone—citing that it must not be used, diminished fifth—which also is not to be sung, perfect fifth, major/minor sixth, major/minor seventh, a diminished octave—also a misuse, and the perfect octave. Aside from cautioning against the A4/d5 and diminished 8ve, there is no discussion about the quality or affect of either the allowable or forbidden intervals.

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38 Philomathes, b4v.
Notes, Ligatures, and Rests

Philomathes introduces the eight basic note shapes with a visual depiction of each shape and an accompanying explanation next to each shape (see Figure 2). The eight basic notes are the *maxima*, *longa*, *brevis*, *semibrevis*, *minima*, *semiminima*, *fusa*, and *semifusa*. He comments that only the *maxima*, *longa*, *brevis*, and *semibrevis* are commonly ligatured in music; however, nothing is to be said about the relationship of any of these notes to the *tactus*, the basic 16th-century temporal unit.

Figure 2: The Eight Basic Note Shapes According to Philomathes (c3r)

Philomathes goes on to explain how two or more notes are bound, grouped, or combined together into a single shape, called a ligature, and the collection of notes are made from square figures, slanting figures, or a combination of both shapes. The specific
arrangement of the notational cluster defines the rhythm of the enclosed notes.

Philomathes continues his discussion with several rules regarding square and slanted ligatures with accompanying examples (see Figure 3). He advises that if a square ligature has an ascending tail, the next two notes are *semibrevis*; if the tail is descending, the adjacent note is a *brevis*; if there is no tail, then the first note is a *longa*. The last note of a grouping is always a *longa*. Likewise, with the oblique figures, if the tail is ascending, the next two notes are a *semibrevis*; if descending, the adjacent note is a *brevis*; with no tail, the note becomes a *longa*. Philomathes’s rules however, are incomplete and have errors: Philomathes is correct about durations of the first notes, but in direct contrast to his rule of the last note of a grouping being a *longa*, if a binary ligature has an upward stroke, *both* notes should be semibreves. He offers no rules about the duration of notes in the middle of large groupings (three or more notes), and ignores the accepted practice that both a descending oblique and an ascending ultimate note result in a *brevis*, and not *longa*. To illustrating the rules, he gives a two-voice composition at the end of his explanation of ligatures as an example of common ligatures. Interestingly, if following correct rules of ligature notation, the voices align perfectly, but if only following what Philomathes describes, one is led astray. Two possible interpretations are possible here: either Philomathes understood the rules but, in an effort to stay concise and follow hexameter, perhaps misspoke his own knowledge of basic mensural rhythms, or he simply made a mistake and copied “correct” music from another source.

Philomathes describes three reasons to use a *pausa* (rest): (1) to avoid “ugly sound” (referring to a clash of dissonance), as decoration (for the art of melody), and to give musicians a break. Like many other authors, he equates *pausae* to the duration of the
other eight basic note shapes. A few of the notes are given specific names: the *pausa generalis* (general pause), which is the value of a *maxima*; the *modalis*, which takes the value of a perfect *longa*; the *suspirium* at the value of a *minima*; the *semisuspirium* at the value of a *semiminima*; and the *fusilis*, which takes the value of a *fusa* (see Figure 4).

Figure 3: Philomathes’s Examples of Ligatures (c4r)

![Image of Philomathes’s Examples of Ligatures]

Figure 4: The Eight Types of Rests According to Philomathes (c4v)

![Image of The Eight Types of Rests According to Philomathes]
Another symbol common to the mensural notation system was the *punctus*, which could be used to identify for the singer notes that should be perfected, imperfected, or lengthened. When marking points of perfection or imperfection, the dot was called a *punctus divisionis*; when adding one-half of the original note value to the existing note, the dot was called *punctus additionis*. Philomathes’s explanations are exceedingly sparse on this topic and offer no help for a reader who might be unfamiliar with this system. He merely provides a small example in the margins showing various situations of the *punctus divisionis* and *additionis* (see Figure 5).

Figure 5: Examples Demonstrating *Punctus* (c4v)

Although Philomathes offers no explanation of this example, it is simple to explain. The top row demonstrates how the *punctus divisionis* separates each note into a full perfection. Without each dot, the example would read as an imperfect *maxima* + an imperfect *longa* + an imperfect *brevis* + a *semibrevis*. Instead, the dot changes each note to hold a perfect value. The second row demonstrates how the normal rule applied to two notes in-between two perfections is altered because of the *punctus*. Each grouping of four notes would normally contain a perfect value note + a *recta/altera* pair\(^{39}\) + a perfect note.

\(^{39}\) The terms *recta* and *altera* are from a process called imperfection, which will be discussed shortly.
but the dot instead renders this grouping as containing imperfect notes imperfected by the notes in the middle. The last row simply demonstrates the punctus additionis, which adds one-half of the note value to the total duration of the note.

The Mensural System

In the mensural system, modus, tempus, and prolatio are used to identify how many divisions of a larger note value equal the duration of the next smaller note value. While the overwhelming majority of music written today uses a binary division on every level, in the mensural system, either two or three notes may constitute the value of the next larger note.

The term modus represents the relationship between the maxima and the longa; tempus describes the relationship between the longa and the brevis, and prolatio indicates the division of the brevis into semibreves. By the early-16th century however, the three terms were also used to indicate the divisions of the next smaller notes, meaning that prolatio instead described the relationship between semibrevis and the minima. Medieval authors typically referred to the former set of relations as modus maximarum when the maxima is the largest note value, and called the latter set modus longarum when the longa is the system’s largest note value. Philomathes compromises between both sets by saying that modus establishes the relationships of both the maxima and the longa.

Each of these relationships consists of the division into a 2-to-1 or 3-to-1 system; partitioning a larger note into two is called minor or imperfectus, while division into three notes of lesser value is called maior or perfectus.40 The two-part or three-part partitions

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40 The division of three referring to perfection and therefore the tripartite structure of the Holy Trinity has a long history in neo-Platonism, which looked to identifying the aspects of musica humana that were a
can be mixed and/or matched at any level of note. Therefore, it is possible to have major
modus (3 longa = 1 maxima and 3 brevis = 1 longa), imperfect tempus (2 semibrevis = 1
brevis), and perfect prolatio (3 minima = 1 semibrevis), or any other combination desired.

The composer made sense of these arrangements through a system of signa
(mensuration signs) that were designed to indicate every possible 3:1 or 2:1 relation of
modus, tempus, and prolatio. If a circle, a complete or “perfect” geometric shape, is used
as part of a mensural signature, it established that the tempus is perfectus (examples of
this include ○, ⊙, and ⌀); an incomplete circle indicates that tempus is imperfectus
(examples of this include □, △, and ▽). The point seen inside a circle signifies prolatio
maior (⊙ or □), while the absence of the point indicates prolatio minor (○ or △).

Normally the signs refer to tempus at the level of the brevis (modus longarum), but in
order to show division of prolatio, Arabic numerals can appear in subscript next to each
mensuration sign indicating that the prolatio is either perfect or imperfect (○₃ or △₃, for
example indicates perfect prolation, ○₂ or △₂ shows imperfect prolation). Finally
Philomathes observes that a line drawn through a circle or half-circle signifies a half-
measure (φ or ⌀). A summary of the mensuration signs is shown in Figure 6.

Before moving to a discussion of the tactus, Philomathes gives a few signs of
“lesser importance:” the repetitio, which is the standard repetition sign still used today,
the signum congruentiae, and the signum concordantiae. He describes the signum
congruentiae as a convention or coming together of voices. This symbol was commonly

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1 “shadow on a cave wall” representing an unseen presence...in neo-Platonism this was naturally the
presence of God.
2 Many other symbols and arrangements are possible. Anna Maria Busse Berger devotes an entire book to
this topic, Mensuration and Proportion Signs: Origins and Evolution, New York: Oxford University Press,
1993.
3 Philomathes, d2′.
4 Ibid., d2′.
used in canon compositions, where each voice was written on one staff; a singer knew when to begin singing at the point he saw the *signum congruentiae* (by starting at the beginning of the canon). The *signum concordantiae* told the singers to hold a certain note—usually one that was on agreeable harmony.

Figure 6: Mensural Signatures and Denotations

<table>
<thead>
<tr>
<th>Modus</th>
<th>Tempus</th>
<th>Prolatio</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\text{ Modi }_3 = \text{ maxima, perfect}$</td>
<td>$\text{ longa, perfect}$</td>
<td>$\text{ brevis, perfect}$</td>
</tr>
<tr>
<td><em>Modus</em></td>
<td>$\text{ C}_3 = \text{ maxima, imperfect}$</td>
<td>$\text{ longa, imperfect}$</td>
</tr>
<tr>
<td><em>Maximarum</em></td>
<td>$\text{ O}_2 = \text{ maxima, imperfect}$</td>
<td>$\text{ longa, perfect}$</td>
</tr>
<tr>
<td></td>
<td>$\text{ C}_2 = \text{ maxima, imperfect}$</td>
<td>$\text{ longa, imperfect}$</td>
</tr>
<tr>
<td></td>
<td>$\text{ maximarum }$</td>
<td>$\text{ maxima, imperfect}$</td>
</tr>
<tr>
<td></td>
<td>$\text{ modus }$</td>
<td>$\text{ longa, imperfect}$</td>
</tr>
<tr>
<td></td>
<td>$\text{ longarum }$</td>
<td>$\text{ longa, imperfect}$</td>
</tr>
<tr>
<td></td>
<td>$\text{ diminutum }$</td>
<td>$\text{ brevis, imperfect}$</td>
</tr>
<tr>
<td></td>
<td>$\text{ dim. }$</td>
<td>$\text{ semibrev, imperfect}$</td>
</tr>
</tbody>
</table>

The *tactus* is the basic pulse of the music and was usually assigned to the level of the *tempus*. Philomathes describes how the *diminutum* sign changes the *tactus* to each *brevis* rather than the *longa*. He notes that the *tactus* moves more quickly during *diminutum* passages in order to accommodate harmony.\(^{44}\) This thought shows an advanced understanding of rhythm because Philomathes was aware that harmonic rhythm changed accordingly with the tempo of a piece or with tempo changes. He later explains

\(^{44}\) Philomathes, d2v.
more about the *tactus* and how to follow it while conducting in Book III.

Philomathes’s rules on the process of *imperfection* and *alteration* are extremely brief and cover only what is absolutely necessary to understand the concept: when a note is divided into a ternary grouping, *imperfection* and *alteration* might be needed; when a long note value loses the last one-third of its duration to another note, it has been imperfected (this can only happen to the *maxima*, *longa*, *brevis*, and *semibrevis*); rests are always perfect; *coloration* (graphically filling in notes on the score) adds three imperfect values of notes into the duration of two perfect values—he classifies this phenomenon as *hemiola*; *alteration* occurs in order to create a perfection out of two notes; and the second note of a pair is always altered (doubled in duration). His rules might provide a sufficient explanation for someone familiar with the process, but these guidelines fail in explaining the complex rules necessary to fully realize rhythm. For example, Philomathes does not address the rule that if two *minima* surround a *brevis*, the *brevis* is imperfected by the value of a *minima* on both sides (see Figure 7). Many other minutia are left unanswered. It seems that Philomathes in an attempt to appeal to the novice, has left out the advanced teachings. To compensate for his lack of instruction in the text, he suggests that the heart will be able to recognize certain imperfections or alterations.45 Perhaps these failings are what led Martin Agricola to create a companion treatise that reaches a sufficient depth.

*Figure 7: One Example of Imperfection*

![Figure 7](image)

Philomathes continues with a brief chapter on the discussion of *proportiones*, which are diminutions or augmentations of note values according to a mathematical ratio

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45 Philomathes, d2v.
shown in a score. He illustrates six instances of *proportiones*, using three-voice musical examples on f. d4\textsuperscript{f}: *proportio dupla*, a 2:1 or 1:2 ratio in which each note is reduced to half of its usual value or augmented to twice its usual value; *proportio tripla*, a 3:1 or 1:3 in which notes are reduced or augmented by one-third; *proportio quadrupla*, a 4:1 or 1:4 ratio; *proportio sesquialterae*, in which a 3:2 or 2:3 ratio either reduces notes to 2/3 of their usual value or augments them to 3-halves their usual length; *proportio sesquiteria*, a 3:4 or 4:3 ratio; and sesquiquarta, a 4:5 or 5:4 ratio. Transcriptions of these examples appear in the translation of the *Musicorum libri quattuor* (See Part II of this dissertation).

Choir Singing and Conducting

Book III of the *Musicorum libri quattuor* on choir practice and conducting is the most original advancement of Philomathes to the discipline of *musica practica*. Although it is not known why he found the need to offer advice on good choir practice, but being able to offer such in-depth guidance demonstrates Philomathes’s ability as practicing musician as well as his familiarity with the techniques and habits of other directors.

Georg Rhau clearly cherished and understood the novelty of Book III; Rhau’s first reprint (1518) of the *Musicorum libri quattuor* consisted solely of Book III. Published only six years after the first edition (1512), it seems logical that Rhau realized the scholarly and perhaps monetary value in reprinting Philomathes’s innovative chapters on choir practice as quickly as possible. Later when he published yet another edition of the *Musicorum libri quattuor* in Wittenberg (1534), he printed the entire treatise but added a special title to Book III: “Venceslai Philomathes de nova domo liber musicorum tertius. De regimine utriusque cantus et modo cantandi,” or “The Third Book of Music of Václav Philomathes
of the New House (Jindřichův hradec), concerning the regimen of each song and the manner of singing.”46 See Figure 8 for a copy of this title page. With this special title to Book III, Rhau highlighted Philomathes’s name and the fresh contribution of the author to the discipline. The 1543 edition (published not by Rhau but Jakob Fröhlich also bears this special title. Philomathes divided Book III into three chapters: the direction of plainchant, the directing of figured song, and the manner of singing.

Figure 8: Title Page of Philomathes Book III 1534 Edition (e3r)

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46 Philomathes, 1534, e3r.
The style of language writing in the treatise changes in Book III; Philomathes abandons the concise, condensed explanations of technical jargon in favor of a descriptive and humanistic instruction of practical music. The first chapter describes the outstanding skill-level and presence required for the conductor—showing how much more proficiency is required by the cantor as opposed to the other members of the choir. Philomathes says that the conductor needs to be able to sing the highest notes as well as the lowest notes, and that his voice needs to be loud enough so that he is able to fix or reinforce any singer that might be missing notes or otherwise failing. He says that conducting needs to be a delicate art, rather than a brash, violent performance, and he offers several examples of the latter. He observes that some cantors conduct from a fighting stance with their hands held up like they are threatening injury towards another. Others will keep the tactus by stomping on the floor “like a horse that has eaten enough strikes the turf of green grass.” Others imitate vegetables, swans honking with the neck tilted back, or squat down while singing. It is hard to imagine how the nuance and expression of the composition could be shown while conducting in this manner, so Philomathes says that these cantors ought to go to the farm and till with a plow.

Philomathes then offers a series of advice on the most effective manner of conducting the choir. He calls for the use of a stylus (baton) in one hand to visually represent the leaps of notes and to touch the tactus with an assiduous motion (explaining, for the first time, the ictus of modern conducting). Performance of music must have been less formal than one is accustomed to today—he advises to stop conducting and let the choir stop singing if the cantor senses they are falling apart or having difficulty singing a complex passage. The cantor is responsible for bringing the group back together and,
only after he has accomplished that task, may he continue conducting.

Philomathes recommends a few stylistic guidelines. He suggests that if a song has an intense passage, it is incredibly pleasing to start it quietly and draw it out longer. He says that if the cantor wishes to sing harmony to plainchant, then the cantor must take the highest caution not to ruin the song, noting that this is hardly ever being done with taste. Another matter of style calls for the penultimate note, rather than the finalis, to be sung with a sustained note in plainchant.

The first chapter paints a somewhat surprising picture of conducting technique than otherwise might have been expected. With as many examples of poor conducting as proper conducting, it is hard to imagine if any of the mannerisms or techniques were standardized. But one can see that as early as 1512, the cantor was using a baton in a manner that resembled conducting technique. Philomathes tends to describe they way a cantor should look rather than the techniques involved in conducting. It seems that there was enough of a standard practice for him to say, “do it like X rather than Y,” which provided sufficient instruction for any experienced cantor reading this chapter. It is also interesting that Philomathes is able to provide so many examples of a choir failing, falling apart, or singing badly. Either this music might have been more difficult to perform than imagined, or maybe the reality was that it was hard to educate choirboys and men well enough to be able to sing together with any degree of proficiency. Philomathes observes that cantors are rarely able to sing a harmony to a plainchant without breaking rules; this shows that the practice of “singing above the book” (super librum) as Tinctoris described, challenged even the best cantors.47

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The second chapter of Book III is focused primarily on the proper balance and the art of bringing a choir together in mensural song.\textsuperscript{48} Philomathes begins the chapter with a description every musician has experienced at some point in their career: how one “mangy sheep” can harm the whole flock. He explains how, even if you, the director, are able to sing a part, one bad singer can drag the pitch slowly flat and lead everyone astray. He therefore cautions that the cantor needs to choose only the best singers with the most congruous voices to accomplish the best performance of a harmonic song.

Philomathes claims that a bass voice is the most fitting for the cantor because of its ability to direct polyphonic songs, because a sound is better heard “from the depths.” He claims that the tenor voice needs to be clear and serene, and when boys sing the highest part, that they should sing with a “subtle and tender sound.” As a metaphor, he says that wagons do not work when pulled by unequal horses, and so one cannot expect a choir to sing a hymn well with unequal voices. Philomathes considers the important factor to be that there must be a similar balance and tone quality among the members of the choir.

Philomathes also offers practical advice for the staging of a choir for a performance. He says that the tenor should stand with the boys (the discant voice), and that the altos should stand apart with the basses. The reasoning behind this is that Philomathes identifies these two group pairs to be joined by octave relationships. In order to begin a song, Philomathes calls for the cantor to softly sing, or perhaps hum, the incipit of each voice’s part so that the singers may understand their starting pitch and begin in symphony. He stresses that beginning the singing of a composition is fraught with difficulty and therefore the cantor must be most cautious to start correctly.

\textsuperscript{48} McGee, \textit{The Sound of Medieval Song} offers a thorough study of medieval descriptions on this topic.
Philomathes’s last two pieces of instruction apply to mensural song. He tells the director to be diligent in fixing errors when members of the choir get lost or waver. The cantor should start singing the failed member’s part and let someone else sing his part until they have fixed the error. In a surprising recommendation, he says that if it is not possible to get the singer back on track, he should simply stop the choir and let them end on whatever harmony sounds most appropriate as an ending. He says that this will avoid the cantor’s embarrassment and fool most listeners into thinking the composition was supposed to conclude in this manner. The second bit of guidance again covers techniques of conducting: the director should signify the beat through continuous motion. He says that although skilled singers might be able to handle singing a composition without a conductor, it is too difficult for novices to manage performing without a conductor.

The second chapter demonstrates that Philomathes had a deep appreciation for the proper balance and performance of mensural music. Given the many observations of how difficult it must have been for a choir to stay together, it is clear that not every church choir was capable of performing mensural music well. Philomathes’s examples of authentic performance offer an invaluable window into music making in the 16th century.

Chapter three is an in-depth discussion of the proper manner of singing. Many examples contain metaphors to animals. These examples are often quite humorous:

If anyone belches forth forcefully from his throat a voice in the manner of oxen, or if he paws the ground with quivering foot so that the voice returns a horrible sound with the lungs pushed back, or if he grimaces with discordant lips, or if he who stays awake all day long and night yawns, it would be displeasing in song.49

He says that proper singing should sound like the lowest notes of a nightingale; he says to avoid singing with a “vibrating tongue” (i.e. without vibrato) or singing with open, or

49 Philomathes, e29.
mostly open, lips (in the manner of a stork). Even with as many colorful examples as he provides, Philomathes says that the reader must seek out other good habits on their own.

With Philomathes’s inventive Book III, he dispenses a wealth of practical instruction based on authentic performance experience. Although Book III is not theoretical in nature, its honest assessment of how to perform the music of his period is invaluable. Philomathes depicts a common scene where the cantor, the singers, and even the audience are struggling to understand and hear music properly. Although the theory behind concepts of modality and rhythm had existed for centuries before his time, it seems clear that music instruction was still lacking across Central Europe and left many musicians ill-equipped to deal with the realities of performing mensural music. Against this backdrop, it is only natural that so many basic, didactic treatises appeared during the time period of Philomathes. Innovations like the printing press made music making more common and caused a vast demand for textbooks that could teach music’s nuances.

Counterpoint

Within a textbook written for the novice musician, it is difficult to imagine how the complexities of counterpoint and composition fit into the picture; the *Musicorum libri quattuor*, however, offers a few rules of counterpoint. At the beginning of Book IV, Philomathes cautions the reader that his words will require ample supplement and only offer an opening into the discipline (although the reader should still consult his text). While Book IV lacks a thorough explanation of every aspect of counterpoint, this section nevertheless covers a wide range of topics for an early-16th century didactic text.

Philomathes begins, as do many other writers of the period, with a description of
consonance and dissonance. While these topics might have been appropriate in Book I within a discussion of intervals, Philomathes offers the topics for the musician seeking more knowledge. Philomathes’s arrangement of simple intervals into categories of perfect or imperfect consonance and dissonance follows the standard practice of the time. He identifies the consonant intervals as fifths, octaves, thirds, and sixths, and the dissonant intervals as fourths (unless occurring in the middle voices), seconds, and sevenths. The only perfect intervals are fifths and octaves, and thirds and sixths are imperfect. He offers no explanation as to the theory of these classifications (which would have been in the domain of musica speculativa) and ignores the seeming contradiction of a fourth being perfect, yet also dissonant. He avoids discussing inversions of intervals.

The logical next step might have been explaining rules of note-against-note counterpoint or punctus contra punctum, but Philomathes skips that subject and jumps straight to theory of consonances and dissonances in four-voice counterpoint. This fast track of instruction is reasoned to be because a song of four voices is “above every composition.” Like other authors, he follows the convention that a fourth can never occur above the bass, but fits perfectly in-between the other voices. The combination of a fifth, octave and a third above the base is according to Philomathes the most pleasing harmony. He also forbids parallel fifths, octaves, and unisons, and cautions composers of the danger of placing mi against fa (tritones). These limited instructions are his only rules for the basics of motion and consonance. Authors like Franchinus Gaffurius, Ramis de Pareia, and others provide more detail by way of additional rules when discussing two-voice counterpoint. They both describe how consecutive imperfect consonances function and address the oblique motion of voices.

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50 Philomathes, e3v-x.
Philomathes outlines how the final cadence in a four-voice composition should appear: the tenor voice should descend by step in opposition to the soprano voice, which ascends through a leading tone into an octave (after holding a suspension); the bass voice should leap in a “5 to 1” type of motion or from “5 to 5;” the alto should not move, but remain on “5” (see Figure 9).

Figure 9: Transcription of Philomathes’s 4-Voice Cadence (e₃⁴)

From the transcription it is clear that Philomathes is demonstrating an example of a Burgundian cadence stylistically typical of composers such as Ockeghem or Josquin. The bass either exhibits a clear V to I motion or makes a leap of an octave, which allows the tenor voice (sounding below the bass) to be heard as completing the V to I motion; the soprano has a four-three suspension that resolves to the leading tone, and Philomathes allows the alto to sound both a 3rd and 5th at the cadence.

Before Pietro Aaron advocated composition of all voices simultaneously, Philomathes advises a sequential ordering of composition like many authors of his time. He instructs the composer to write the tenor voice first; after marking bar lines (tractu

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51 This creates the standard *ternorzans* and *cantizans* patterns, which are common for Flemish school of composition.
perpendiculari) at each tempus, he suggests writing the soprano voice, followed by bass, and finally the alto.\footnote{It is curious that Philomathes calls for bar lines within the ten-line staff. For the composer writing in this “score format,” it would be obvious where the tempus is, but perhaps this is a step towards further clarity and prescriptive notation within composition practice. See p. 146 of this document for the original notation.} The example on folio e3\textsuperscript{v} shows that although Philomathes calls for sequential and not simultaneous composition, the bar lines and “score” format demonstrate a clear trajectory towards the later focus on “score writing” of Pietro Aaron and the partimento/basso seguente tradition found in Italy shortly after Philomathes’s treatise. Philomathes’s only advice for writing consonances vs. dissonances is that whenever the notes reach a tactus, they should preserve harmony and concordance. He allows dissonance between each tactus, but does not explain the proper method to prepare or resolve these dissonances. This lacuna is another area where Philomathes left the reader to seek out supplementary texts on the missing details of contrapunctus diminutus.

Philomathes includes a brief passage about the composition of fugues and says that creation of fugues requires genius and that nothing is nobler. He allows any voice to begin. Subsequent voices may enter at either the octave, unison, fourth, or fifth. Although he offers no instruction on how to actually construct a fugue, Philomathes submits four examples of this style, including a four-voice fugue, three-voice fugue, two-voice fugue separated by one tactus, and even a clever two-voice fugue of retrograde at the octave in which the second voice reads notes in reverse order (a crab cannon).\footnote{Modern transcriptions of these are included in Part II of this dissertation.}

Philomathes provides the reader brief advice on several topics at the end of his treatise. He argues for a mixture of white notation with black notation and to vary the types of cadences in a composition, as too many repetitions confuse the listener. He urges the composer to find the appropriately affective harmony to mirror the nature of the song.
A “dirge is consistent with sadness; the symphony with joy.”\textsuperscript{55} As passing encouragement, Philomathes says that if one is diligent in practicing composition, all manners of song will eventually be manageable. One should first master two voices, then three, and eventually master up to six voices (which is then shown as an example). A composer has “only” to make sure that the mistakes committed yesterday and today are not the mistakes committed tomorrow.

Conclusion

Philomathes’s guide for the novice, while at times bordering on an incomplete account of musical practice, is nonetheless an invaluable contribution to the history of theory. It is evident that Philomathes was a skilled practicing musician and composer who wished to pass on his knowledge to others. For this reason, his book became extremely popular in the 16\textsuperscript{th} century, influenced many students, and served as a basis for subsequent authors; Philomathes’s writing is directly quoted in many other treatises of the 16\textsuperscript{th} century, and Agricola was interested enough in the treatise to write an accompanying guide of his own to follow, line by line, the dense and sometimes cursory instruction found in the \textit{Musicorum libri quattuor}.

Although Philomathes’s first two books of the \textit{Musicorum libri quattuor} are straightforwardly canonical for the time, the innovations of his third book cannot be understated. Prior to Philomathes, there was no equivalent source that addressed the many of conducting, choir practice, and balance. After Philomathes, there is a notable and obvious inclusion of chapters and books on the subject of good singing and performance. In terms of \textit{musica practica} his treatise was an essential advancement.

\textsuperscript{55} “Nenia moerori, iubilo simphonia quadrat.” Philomathes, e5\textsuperscript{v}.
While not an exhaustive study of counterpoint, the fourth book of the *Musicorum libri quattuor* perhaps gave musicians hope or served as a model of some amount of genius to strive to. As a pedagogue, his kind words that even the beginner can achieve mastery through practice were undoubtedly a welcome inspiration for a generation of future musicians.
CHAPTER 4
CONTEXTUALIZATION

Having discussed the technical details of Philomathes’s music theory in the previous chapter, it is necessary to address the network of concepts that contribute to understanding how, why, and where the *Musicorum libri quattuor* and its various editions came into existence. Identifying and placing the treatise within the context and milieu of the early-16th century will provide a more complete picture of how later authors such as Heinrich Glarean may have developed their theories. The first area of contextualization is a discussion of the musico-theoretical situations of Vienna, Wittenberg, Strasbourg, and Leipzig—the major cities of learning in which an edition of Philomathes’s text was published. The second task is an analysis of which treatises Philomathes may have used in preparation for writing his treatise. The third discourse addresses the traces of influence on other authors’ musical texts throughout the 16th century.

Musical Life in Vienna, Wittenberg, Strasbourg, and Leipzig

The culture of music in Vienna, where Philomathes acquired most of his advanced training in music, is much different than the other three cities of influence addressed in this study. While Wittenberg, Strasbourg, and Leipzig all became centers of Protestant learning, Vienna remained a center of Catholic instruction throughout the 16th century. Musical education in Vienna was deeply tied with the Catholic Church beginning as early as its establishment of the University of Vienna in 1365. Education was controlled of the Church of St. Stephan, and, after the founding of the university, education remained under its control because the teaching staff consisted of only teachers
Notable teachers through the 14th and 15th centuries included Nikolaus von Neustadt in 1393, Georg von Hob in 1397, Johann Geuss von Teining in 1421, and Paul Troppauer in 1431, and evidence of Nikolaus von Dinkelsbühel and Thomas Ebendorfer’s writings exist. In 1380-1385, Catholic professors from Paris were called to the university to assist in reorganizing the structure and curriculum of education at the university.

Vienna enjoyed a long history of court-employed musicians and choirs. The earliest cantors and choir were employed under the reign of Albrecht II (died in 1439) and included such musicians as Erasmus Adam, Johannes Brassart, Martin Galer, Johannes de Sarto, and Johannes Touront. Both Friedrich III (1439–93) and Maximilian I (1493-1519) maintained active rosters of court musicians and cantors. During Philomathes’s time, a student in Vienna could have studied with Othmar Luscinius, an organ student of Wolfgang Greffinger, who taught music theory at the university from 1505 to 1509. Greffinger was St. Stephan’s church organist and registered at the university as a student in 1509. Both Heinrich Grammateus (1507-1514) and Erasmus Heritius (1501-1514) served the faculty in musica speculativa and specialized in teaching the speculative theories of Ptolemy, Boethius, and Jehan des Murs.

Maximilian I was perhaps the most important patron to support a wide expansion of the arts in Vienna. One of his early endorsements was to bring the poet Conrad Celtis to Vienna so that he might supervise the production of the drama, with accompanying music, Rhapsodia laudes et victoria Maximilianus de Boemannis. Celtis, the composer

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57 Ibid.
58 Horyna, xxxi.
Petrus Tritonius, and other humanist poets and musicians formed a group called the *Litteraria sodalitas Danubiana* (1502-1508), which would later establish the genre of the humanistic ode.\(^{59}\) The ode was primarily a genre of poetry set to homorhythmic four-part music and became popular throughout Central Europe. Philomathes certainly was aware of this genre and given the prestige poetry held in Vienna, may have influenced Philomathes to write in Latin hexameter throughout his treatise.

Maximilian I also funded the first printing of music in Vienna. Johannes Winterburger published a *Missa de Requiem* in 1499, and the first music textbook in Austria,\(^{60}\) Simon de Quercu's *Opusculum musices* (1509) was published just three years before the *Musicorum libri quattuor*. After Winterburger’s success, Hieronim Wietor and Johann Singrenius likewise founded a printing press; these two published Philomathes’s first edition, and Sigrenius published the third.

Vienna had a thriving musical and art scene during Philomathes’s matriculation at the University of Vienna, and his contribution to music theory is certainly a reflection of the prosperous environment of a city dedicated to the promotion of the arts. Philomathes’s work is indebted to Maximillian I’s strong promotion of Vienna as a cultural capital in Central Europe in the early-16\(^{th}\) century.

Wittenberg was perhaps the city where Philomathes had the greatest influence. An extraordinary number of talented musicians matriculated, taught, and published in the city at the time Rhau published the third edition of the *Musicorum libri quattuor* (1534): Adam von Fulda, Sixt Dietrich, Heinrich Faber, and Hermann Finck taught at the university; Adrianus Petit Coclico also taught privately in the city, although he never

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\(^{59}\) Horyna, xxxiv.

\(^{60}\) Theophil Antonicek, “Vienna.”
received a position at the university; Georg Rhau, Johannes Frosch, Jan Blahoslav, Andreas Ornithoparchus, Nikolaus Listenius, and Lucas Lossius matriculated as students; finally Rhau published many works from this active sphere from Wittenberg, including most of the treatises of Martin Agricola.61

The University of Wittenberg was founded in 1502 by Frederick the Wise and quickly became one of the most important centers of the Protestant Reformation. Martin Luther obtained his doctorate in theology from the university and was appointed to its faculty in 1512; his famous 95 Theses, presented to the Schlosskirche in Wittenberg, meant that the city and university would both become permanently associated to the Reformation. Luther led such an important role in the university that, today, the university bears his name (the Martin-Luther-Universität Halle-Wittenberg). Georg Rhau, working closely with Luther, published a series of editions on music for the school and church; these included the first polyphonic settings of Luther’s hymns. As part of its role in the Reformation, a large portion of the earliest instruction at the university and Luther’s hymnology was focused around monophonic practice, and in this light—the fact that Philomathes’s treatise covers polyphonic composition and was written by a Catholic—it is remarkable that Philomathes was held in such high regard among the musicians in Wittenberg. Certainly Georg Rhau, who both quoted Philomathes in Rhau’s own theory treatise and published two editions of Philomathes’s text, was largely responsible for asserting the importance of Philomathes to other musicians in Wittenberg.

In the 16th century, Strasbourg was host to over 20 printing presses, and in 1538 Johannes Sturm founded a Gymnasium, which became a university in 1567. Strasbourg

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became an important hub in the propagation of the Reformation, and the humanist musicians Johann Rudolphinger, Symphorianus Pollio, Thomas Sporer, and Sixt Dietrich (Georg Rhau’s assistant) settled in the city. As alternative city key to the Reformation, it is important to note that Philomathes’s treatise was published here.

As the seat of a university founded in 1409, Leipzig was another important center of music-theoretical learning. Georg Rhau began a teaching career in Leipzig when he left Wittenberg upon completion of his studies at the University of Wittenberg (1512-14) and his work at the Johann Rhau-Grunenberg’s publishing house. He moved to Leipzig in 1518 to become the cantor of both the Thomaskirche and Thomasschule, and he joined the faculty of the University of Leipzig in September of that same year. This was a busy year for Rhau, as he moved to the city, took up two separate teaching positions, published his own theory text, and published Philomathes’s treatise in the same year.

A student at the University of Leipzig, Andreas Ornithoparchus matriculated in 1516 and published his treatise, *Musicae activae micrologus* in 1517 (Leipzig). Before moving to Leipzig, Ornithoparchus, like Rhau, had studied at the University of Wittenberg. Ornithoparchus’s treatise is divided into four books with the same subject matters as Philomathes’s treatise, making his work the second major study on aspects of choral singing style. Perhaps, with Rhau and Ornithoparchus moving to Leipzig within one year of each other and both publishing a work that included choir practice guidance (Rhau, an edition of Philomathes; Ornithoparchus, a treatise of his own), these two colleagues both had come across the *Musicorum libri quattuor* while in Wittenberg and

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mutually saw value in copying the important innovations found in Book III.

As details of the musico-theoretical scene in the important cities associated with the *Musicorum libri quattuor* unfold, they begins to reveal just how such an extremely popular book in one location could reach so many cities and influence so many authors. The central figure of this spread of Philomathes’s treatise is certainly Georg Rhau, who, early in his career, may have obtained a copy of the treatise in Wittenberg while working at the publishing house and shown it to several theorist colleagues. In the third part of this chapter, it will become clear just how far and wide Philomathes’s ideas were spread.

The Origins of Philomathes’s Ideas

A large topic still unaddressed is the source or sources Philomathes may have used as potential templates in the writing of his *Musicorum libri quattuor*. While it is certainly clear that no single source was used, there appears to be a network of sources that were important in the preparation of the document.

A discussion of the term *transtextuality*, formulated by the French literary theorist Gérard Genette, is useful for the purposes of understanding the network of relationships involved between Philomathes’s treatise and others. In a trilogy of works (*Introduction à l’architexte* 1979, *Palimpsests: Literature in the Second Degree* 1982, and *Paratexts. Thresholds of Interpretation* 1997) Genette outlines the concept of *transtextuality*, which stands for every way that texts may be connected to one another, whether that connection

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64 His first edition of the *Enchiridion utriusque musicæ* (1517), published in Wittenberg, contains many direct quotations of Philomathes, proving that Rhau had access to Philomathes shortly after the Vienna first edition.
be clear or veiled. Genette defines five subtypes of transtextuality: intertextuality, paratextuality, architextuality, metatextuality, and hypertextuality.

Intertextuality is the result of direct copying from one text to another, which could appear as a quote, plagiarism, or even allusion; one can find intertextuality through identifying sources or quotations for the poetry in Philomathes. Paratextuality is the comparison between one source and the paratext that surrounds the main body of the text, such as titles, headings, or prefaces; an obvious visual example of paratextuality in the *Musicorum libri quattuor* is the addition of the new title page for Book III in the 1534 edition by Rhau. Architextuality is the more abstract reference of how a text relates as an example of a genre; Philomathes’s Latin hexameter verses provide an unusual type of format for a didactic music treatise of the 16th century and provide an example of architextuality. Metatextuality is the explicit or implicit commentary of one source on another source; one example is the praises of Philomathes’s genius that are found in Rhau’s *Enchiridion utriusque musice*. Hypertextuality refers to any association uniting one text (the hypertext) to an earlier text (the hypotext) in a manner that transforms, modifies, elaborates, or extends the meaning of the hypotext; one observed example of this is how Philomathes’s treatise modifies the form of a typical didactic treatise of the 16th century through his addition of Book III the subjects of on choir practice and conducting.

In seeking the origins of Philomathes’s ideas, examples of intertextuality and paratextuality offer intriguing ways to describe the relationship between texts. As the first

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66 Horyna, xxviii. The verse format was popular much earlier throughout history; see Guido of Arezzo *Regulae rhythmicae*, 1025, *Summa musicae*, 1200, Hugo Spechtshart *Flores musice omnis cantus Gregoriani*, Strasbourg: 1488.
At the end of the 15th century through the beginning of the 16th century, music theory treatises were typically divided into four books. Philomathes’s books cover modal theory, mensural theory, choir practice and conducting, and composition/counterpoint. Looking to the organization of earlier treatises through paratextuality shows how Philomathes either built on traditions or perhaps even copied a paratext. Trojan’s dissertation points to similarities in four main texts (cf. Figure 10): Adam von Fulda’s *De musica* (1490), Franchinus Gaffurius’s *Practica musice* (1496), Nicolaus Wollick’s *Opus aureum musicae* (1501), and Johannes Cochlaeus’s *Tetrachordum musices* (1511). Simon de Quercu’s *Opusculum musices* (1509) has also been added to Figure 10.

Figure 10 demonstrates the extent to which Philomathes’s Book III on choir practice and conducting digresses from tradition and how unique its creation must have been. Philomathes took the usual four-book structure and combined two books in order to open room for the new subject material in Book III. Although Simon de Quercu’s treatise is the closest geographically (Vienna 1509), it has the least in common with both Philomathes and the other texts because it only contains three books. In comparison to the above treatises, Philomathes’s book on mensural notation and proportions is often divided into two separate books. Adam von Fulda and Johannes Cochlaeus both contain a book “about music” that Philomathes did not choose to include in his treatise, and Jan Trojan claims that Wollick’s *Opus aureum musicae* and Cochlaeus’s *Tetrachordum*
Musices are the most influential source material for Philomathes. Wollick’s order of plainchant, tones and solmization, mensural music, counterpoint and composition seems to align most closely with Philomathes’s order of subjects.

Figure 10: Ordering of Books in Fulda, Gaffurius, Wollick, Quercu, and Cochlaeus

<table>
<thead>
<tr>
<th></th>
<th>Book 1</th>
<th>Book 2</th>
<th>Book 3</th>
<th>Book 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam von Fulda</td>
<td>De Musica</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Invention of chant</td>
<td>Guidonian hand, solmization, modes</td>
<td>Mensural music</td>
<td>Proportions and consonances</td>
<td></td>
</tr>
<tr>
<td>Franchinus Gaffurius</td>
<td>Practica musice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plainchant</td>
<td>Notation</td>
<td>Counterpoint</td>
<td>Proportion, modes, and prolation</td>
<td></td>
</tr>
<tr>
<td>Nicolaus Wollick</td>
<td>Opus aureum musicae</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plainchant</td>
<td>Tones and solmization</td>
<td>Mensural music</td>
<td>Counterpoint and composition</td>
<td></td>
</tr>
<tr>
<td>Simon de Quercu</td>
<td>Opusculum musices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidonian hand, solmization, modes</td>
<td>Mensural music and proportions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johannes Cochlaeus</td>
<td>Tetrachordum musices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>About music</td>
<td>Plainchant</td>
<td>Church hymns</td>
<td>Mensural music</td>
<td></td>
</tr>
</tbody>
</table>

The ordering of chapters between different sources reveals similar titles but an inconsistent ordering. Despite similarities in the sense of paratextuality, neither Trojan,

69 Jan Trojan, 9-10.
nor Horyna find any direct quotations from any earlier source (intertextuality). The incongruent nature of the various chapter headings casts doubt that any text would have served as a template for the *Musicorum libri quattuor*. Regardless, Philomathes’s first book is so consistent with the standard practice of the time that discovery of a parent source would hardly reveal much. His second book on mensural notation and proportions roughly follows the same outline as Cochlaeus and Wollick’s treatises.\(^7\) (See Figure 11)

**Figure 11: Chapter Orders of Books on Mensural Music**

<table>
<thead>
<tr>
<th>Philomathes</th>
<th>Cochlaeus</th>
<th>Wollick</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td>About Mensural Music</td>
<td>About Mensural Music</td>
</tr>
<tr>
<td>Ligatures</td>
<td>Notes</td>
<td>Notes</td>
</tr>
<tr>
<td>Rests</td>
<td>Ligatures</td>
<td><em>Modus, tempus, prolatio</em></td>
</tr>
<tr>
<td><em>Punctus</em></td>
<td>Rests and <em>Punctus</em></td>
<td>Ligatures</td>
</tr>
<tr>
<td><em>Modus, tempus, prolatio</em></td>
<td><em>Modus, tempus, prolatio</em></td>
<td>Rests and <em>Punctus</em></td>
</tr>
<tr>
<td>Mensural signs</td>
<td>Signs and <em>Tactus</em></td>
<td><em>Modus, tempus, prolatio</em></td>
</tr>
<tr>
<td><em>Tactus</em></td>
<td>Augmentation</td>
<td>Rests</td>
</tr>
<tr>
<td>Imperfection</td>
<td>Imperfection</td>
<td>Ligatures</td>
</tr>
<tr>
<td>Alteration &amp; Augmentation</td>
<td>Alteration and Syncopation</td>
<td>Imperfection</td>
</tr>
<tr>
<td>Proportions</td>
<td>Proportions</td>
<td>Alteration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proportions</td>
</tr>
</tbody>
</table>

Despite the extremely close alignment of the ordering of topics used by Philomathes and Cochlaeus, Cochlaeus and Wollick have more in common with each other.

\(^7\) Trojan, 12-14.
other due to direct quotations: Wollick appears to heavily copy Cochlaeus (from the first edition of *Musica* from 1500), although the ordering of his chapters are reordered. For example, when describing the shape of a maxima, they both use the word “quadrangularis” instead of the common “quadratus,” which Philomathes uses. Another instance of almost verbatim copying is in description of the longa. Cochlaeus says, “longa est figura quadrata” (f5r), and Wollick describes it using quadrata as well: “longa autem est figura quadrata” (f5r). In their discussion of rests, both offer the same three reasons as does Philomathes for the application of a rest: to avoid dissonance, for beauty, and to give the singer a break. Their description of the pausa generalis is nearly identical:

Cochlaeus (e1v): *Pausa generalis est virgula simplex vel duplex per omnes lineas ducta, vocis finem declarans.*

Wollick (g2v): *Generalis est virgula simplex vel duplex per omnes lineas chori ducta designatque finem vocis.*

Furthermore, their description of alteration is exactly the same: “alteratio est proprii valoris secundum notulae formam duplicatio” (Cochlaeus e4r, Wollick g3v); the majority of the last three chapters are either direct quotations or extremely similar. Because the concordance between these two works is so apparent, it seems that either Cochlaeus was a blueprint for Wollick or, perhaps, there is a source no longer extant, which served as the model for both authors.

In general, Philomathes follows the same chapter outline as Cochlaeus and Wollick. Philomathes leaves out the chapter “about mensural music,” and he divides the chapter on rests and dots into two separate units. He seems to trace the same order of topics within each chapter, and, although there are no direct quotations within Book II, it

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71 These examples contain common language used by many theorists, so it is possible they might not be borrowing directly from one another, but rather from other common sources.
appears that Cochlaeus or Wollick at least served as his basic guideline. An example of metatextuality occurs when Philomathes says, “Hic illam doctor declarabit studiosus;” here the “learned doctor” (studiosus doctor) most likely refers to Tinctoris.72

Although there is no direct correspondence between Book III of the Musicorum libri quattuor and another source, Philomathes’s thoughts on choir practice and conducting have some precedence in earlier texts. Conrad von Zabern’s De modo bene cantandi choralem cantum (Mainz, 1474), which includes a discussion of vocal technique and practice, predates Philomathes by over a quarter-century. This work mentions six main tenants of good choral singing: (1) chants should be sung as one voice (una voce), (2) with equal rhythmic values and steady tempo, (3) in the middle of the vocal register, (4) at an appropriate tempo according to the specific function of the chant, (5) without embellishment or polyphony, and (6) without a faltering quality of voice from issues like nasal singing or raucous behavior.73 Few parallels to the Musicorum libri quattuor exist; Philomathes also calls for balance and blending through the choir, although he never mentions una voce; he mentions tempo in his instructions on conducting, but says nothing about how steady the tempo should be. He mentions nothing about points 3 or 4, and only cautions against improper performance in relation to point 5. Philomathes’s thoughts on point 6 are somewhat similar, but von Zabern surpasses the depth of content found in the Musicorum libri quattuor by dividing the last precept into ten separate issues.

Conrad von Zabern’s ten points of singing with proper refinement are: (1) avoid the addition of an “h” sound before any vowel, (2) avoid nasal singing, (3) sing syllables and vowels with a clear diction, (4) avoid changing vowel sounds during a melisma, (5)

72 Horyna, xxx.
73 For a more complete summary, see Joseph Dyer, “Singing with Proper Refinement from De modo bene cantandi (1474) by Conrad von Zabern,” Early Music 6, no. 2 (1978), 207–27.
sing intervals correctly, (6) avoid singing with a forced voice, (7) avoid belting out high notes, (8) take care to match the incipit of each responsory to the proper tone of its verse, (9) avoid singing lifelessly, and (10) avoid singing while swaying, tilting one’s head, opening one’s mouth too wide or distorting the shape of the mouth. Philomathes touches only upon points five and ten, and in contrast to Conrad von Zabern, Philomathes includes many more animal metaphors in relation to singing.

Conrad von Zabern hardly covers the breadth of performance advice found in the *Muisorum libri quattuor*. He does not say anything about polyphonic music (in fact, he appears to be against it entirely), conducting, directing an ensemble, arrangement of the choir, or how to begin and keep the choir together. Conrad von Zabern only focuses on the personal experience of each choir member, while Philomathes provides instruction largely for the head of the choir. Rutgerus Sycamber of Venray, a student of Conrad von Zabern also publishes a book on refined singing in 1500, but this text merely repeats the same points as von Zabern’s treatise and was not likely a source for Philomathes.

Several secondary sources provide accounts of music making in the Renaissance and offer an additional perspective on Philomathes’s thoughts. Dyer’s “Singing with proper refinement from De modo bene cantandi (1474)” is the main study of Conrad von Zabern’s treatise. Harrán’s “Directions to Singers in Writings of the Early Renaissance” (1987) discusses some of the issues surrounding the “northern school” of singing instruction and analyzes examples from Rutgerus Sycamber of Venray and an Italian author (Biagio Rossetti) post-Philomathes. Several other monographs address methods of choir practice garnered from the various authors’ own personal performance experience (and often are unfortunately not supported with historical analysis); these include:

In contrast to the above works that rarely look to contemporary theory texts for descriptions of performance practice, *Performance Practice: Music before 1600* (1990), edited by Brown and Sadie and *Renaissance Music* (2011), edited by Kenneth Kreitner consist of a large collection of scholarly articles related to performance practice during medieval and Renaissance periods that support performance methods through theory treatises and court records of the time. One of the major groundbreaking articles in performance practice methodology is David Fallow’s, “Specific Information on the Ensembles for Composed Polyphony, 1400-1474,” in which official records, pictures, descriptions, theoretical treatises, and musical sources were gathered as evidence to describe the form and makeup of Renaissance choir groups. His article confirms Philomathes’s description of a “larger-sized choir” consisting of more than four to eight singers (one or two on each part). Most subsequent research follows this same methodological trend, and one article in particular stands out for correlations to Philomathes’s ideas. Richard Sherr’s article, “Performance Practice in the Papal Chapel

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during the 16th Century,\textsuperscript{76} includes quotations from many administrative and accounting records that describe specific scenarios where singers were fined, fired, or disciplined. From the scenario portrayed in Philomathes’s Book III, it seems clear that the practice of music making was never a perfect endeavor, and it might have been more difficult to perform well than previously thought. Even within the pope’s own chapel, there is ample documentation of musician false starts, missed notes, wrong notes, and general antics.

Sherr gives an example of a record that describes arrangement of the choir. In notes taken by Antonio Calasanz during a meeting of papal singers in 1564, he records a directive from the \textit{maestro di cappella} to arrange the choir with tenors and sopranos on the left (sopranos in front) and altos and basses on the right (basses in back). This description mirrors that given by Philomathes, who calls for a similar pairing and positioning of voices. Sherr points out that this arrangement mirrors the choirbook layout found in Renaissance manuscripts, and so this positioning makes logical sense.\textsuperscript{77} This alignment of singers led to several practical problems however, such as the altos not turning pages on time or singers starting on the wrong voice when the choirbook format on a given page of a score broke the conventional layout. In addition, soloists would sometimes not know whether or not they should double singers on a line providing an amusing account:

At the Benedictus, Cesare Bellucius [a bass] began to sing because Marinus Lupi [another bass] told him to. Johannes Baptista Martini [a bass] also sang because Paulus de Magistris [a bass] told him to sing, such that neither one of them wanted to stop or make way for the other. Cesare Bellucius did not know the rules of the chapel, but Johannes Baptista acted badly, as Martinus reported, because he was often told to sing and never wanted to, but today because Marinus told Cesare

\textsuperscript{77} \textit{Renaissance Music}, 181.
to sing, he [Martini] wanted to sing; thus, after the Benedictus they had much discussion about this.\textsuperscript{78}

Philomathes’s advice conforms to this tradition of a somewhat amateur scene of music making. Several of his examples of poor singing and conducting seem to reinforce the notion that there was indeed a demand for a solution to fix these problems. With such a poor history of vocal practice in the pope’s own chapel, it raises the question of how rough music making in smaller Central European towns and cities might have been.

There seems to be no model for Philomathes’s Book IV on counterpoint. While most prior authors do include a chapter on counterpoint, perhaps the only thing in common between all authors is the subject of consonance and dissonance. Cochlaeus systematically moves through consonance and dissonance, to note-against-note counterpoint, to four rules of 3-voice composition, and finally to five rules of 4-voice counterpoint with a footnote on text setting; Wollick explains only two-voice counterpoint. Earlier authors like Franchinus Gaffurius, Ramis de Pareia, and Ugolino of Orvieto cover only two-voice and imitative techniques. Perhaps the brevity throughout Book IV of the \textit{Musicorum libri quattuor} occurs from the lack of sufficient writings on four-voice counterpoint, which is the main type of composition he describes. The half-century following the \textit{Musicorum libri quattuor} saw the development of many multi-voice counterpoint conventions; these will be discussed in the next section.

Impact and Influence of Philomathes on Other Authors

Describing the nature of Philomathes’s influence on a generation of music theorists throughout Central Europe requires more than the brief discussion of

\textsuperscript{78} Ibid., 186.
transtextuality that was presented above. For authors writing after the *Musicorum libri quattuor*, Philomathes’s treatise serves as the hypotext, and changes or modifications to his thoughts are examples of hypertextuality. Furthermore, many examples of intertextuality occur through direct quotations of his treatise; paratextuality occurs through the inclusion of choir practice chapters, and metatextuality is found through various references to Philomathes himself. Just as the possible origins or blueprints for Philomathes’s text primarily showed a network of intertextuality and paratextuality through older sources, the same concepts show the network of relationships the *Musicorum libri quattuor* has to later music theory texts.

By far the most frequent source of intertextuality occurs in Georg Rhau’s *Enchiridion utriusque musicae* (Wittenberg, 1517), which contains an extraordinary amount of quotations from Philomathes. Rhau frequently refers to Philomathes by name, matches many chapter titles with those of Philomathes, and offers several verses at beginnings of topics as a prefatory quote for subsequent information (see Figure 12).

Figure 12: Examples of Intertextuality in Rhau

“Venceslao” in text and Philomathes in margins (b1′)
The direct quotation not only provides a bookend for subsequent material, but its smaller typeface and somewhat bolded appearance serves to highlight Philomathes as an authoritative master on the subject. Rhau certainly held the upmost appreciation for Philomathes's level of craftsmanship.

Johannes Galliculus’s *Libellus de compositione cantus* (Wittenberg, 1538) also contains many quotations of Philomathes, employed in much the same manner as Rhau. Furthermore, it is significant that Rhau published Galliculus’s treatise; this illustrates the extent to which Rhau promoted Philomathes’s *Musicorum libri quattuor* to fellow students and colleagues. Martin Agricola, a close friend of Rhau, also quoted Philomathes in both his *Quaestiones vulgatiores in musicam* (Magdeburg 1543) and his *Rudimenta musices* (Wittenberg, 1539; published by Georg Rhau).

At some point prior to both of Agricola’s treatises, Georg Rhau must have shown Philomathes to Agricola, leading Agricola to create the unpublished *Scholia in Musicam planam Venceslai Philomatis* (1538), which progresses line-by-line through Philomathes’s treatise and explains his cryptic passages and even occasional errors. The *Scholia* has several mysteries, however; there are occasional passages in italics, which
appear to be quotations from the *Musicorum libri quattuor*, but no corresponding text occurs in any of the known editions of Philomathes’s text; this points to the possibility of an edition of Philmathes that is no longer extant. Agricola’s text also lacks musical examples; headings are presented and gaps are left for examples, which often follow the titles of examples contained in Philomathes’s treatise, but it appears that the copyist never added them.\(^7\) Missing examples are a somewhat common occurrence throughout the 16th century—Weiss describes how most copies of Wollicks *Opus aureum* survive with blank staves, and rather than this simply being attributed to a publishing error, it points to the treatise’s function as an educational text where students might, during a lesson, fill in the examples according to the teacher’s instructions.\(^8\)

Perhaps the most concrete example of Philomathes’s influence is through paratextuality in music textbooks that appeared after the first edition of the *Musicorum libri quattuor*. Many authors after Philomathes saw fit to write about choir practice as well; although this list is not definitive, it includes: Andreas Ornithoparchus’s *Musicae activae micrologus* (Leipzig, 1517), Sebald Heyden’s *De arte canendi* (Nürnberg, 1540), Hermann Finck’s *Practica musica* (Wittenberg, 1556), and Jan Blahoslav’s *Musica: to gest knjižka zpěwákům náležité zprávy v sobě zavírající* (Olomouc, 1558).

Ornithoparchus, Finck, and Blahoslav were all known to have interacted with Georg Rhau, and so they might have learned about and followed Philomathes’s precedent of including chapters on choir practice as a direct result of their collaboration with Rhau. While Heyden’s treatise consists of only two books and intersperses instructions on good singing practice throughout, the other three treatises contain four books and mirror the

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\(^7\) A detailed study of Agricola is needed to fully understand Philomathes’s impact, but to date, no scholars have studied Agricola’s *Scholia*; this treatise will be the subject of my future research.

\(^8\) Susan Forscher Weiss, *Music Education in the Middle Ages and Renaissance*, 230-1.
organization of the *Musicorum libri quattuor* (see Figure 13).

**Figure 13: Subject Matter of Books III and IV in Philomathes, Ornithoparchus, Finck, and Blahoslav**

<table>
<thead>
<tr>
<th></th>
<th>Book III</th>
<th>Book IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philomathes (1512)</td>
<td>Choir practice</td>
<td>Composition</td>
</tr>
<tr>
<td>Ornithoparchus (1517)</td>
<td>Singing Accents in Chant</td>
<td>Composition and Chant Practice</td>
</tr>
<tr>
<td>Finck (1556)</td>
<td>Composition</td>
<td>Singing Church Tones</td>
</tr>
<tr>
<td>Blahoslav (1558)</td>
<td>Choir practice</td>
<td>Composition</td>
</tr>
</tbody>
</table>

Even though the organizations of these treatises are similar to one another, there still is not sufficient proof to say that these authors were sourcing Philomathes. It is possible that there was a chain reaction of influence created out the series of treatises of Philomathes, Conrad von Zabern, Rutgerus Sycamber of Venray, and Matthaeus Habernus, who all wrote on choir practice within a short period of each other. Helfert, in comparing Philomathes and Blahoslav, claims that Philomathes served as a blueprint for Blahoslav, but looking at the order of their chapters, it is easy to see how different Blahoslav’s choir practice instruction is from the corresponding chapters written by Philomathes (See Figure 14).  

**Figure 14: Blahoslav’s Third Book Chapter Order**

1. Taking care of the voice
2. The difference between soft and hard hexachords
3. *Occursus* at ends
4. Shorting notes

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81 Jan Trojan dismisses Helfert’s claims and provides this list as proof, 35.
While Blahoslav’s subjects have little in common with Philomathes’s advice, there are similarities within the discussions of bad starts, tempo considerations, and the physical organization of where the choir ought to stand. Trojan notes that although Philomathes and Blahoslav both offer depictions of choirs performing poorly, Philomathes provides solutions whereas Blahoslav merely observes problems. Trojan also presents other contradictions between Philomathes and Blahoslav in terms of choir positioning, affect of modes, and how long one should hold the last two notes of a chant. Although there might not be a direct correlation between Philomathes and Blahoslav, there is still, however, a discernable path from Philomathes’s ideas through figures like Ornithoparchus, Rhau, and Agricola.

Beyond the examples of intertextuality, it is difficult to trace any other influence of Philomathes on the topics of plainchant, mensural music, and composition. These

82 Jan Trojan, 39.
subjects were standard presentations in every treatise from c. 1400-1600, and it is
unfortunate that Philomathes’s treatise was quickly overshadowed by groundbreaking
ideas originating in Pietro Aaron’s Toscanello in Musica (1529), Henrich Glarean’s
Dodecachordon (1547), and Gioseffo Zarlino’s Le istitutioni harmoniche (1558). In these
treatises, the concepts of the modal system and composition are transformed and updated
to more closely reflect the needs and function of contemporary polyphony.

In order to understand where Philomathes sits in the overall perspective from the
basic concepts of modal practice to Glarean, a short history of modal practice is relevant.
Medieval modal practice first developed as a result of monks and priests in the early
Carolingian era struggling to invent ways of matching and organizing antiphons with
psalm tones, and as a solution, created the first tonaries to do just that. Aurelian of
Réôme’s Musica Disciplina, from the ninth century, is one of the earliest treatises to
outline this practice and lays out new terminology of protus, deuterus, tritus, and tetrads
modes. After centuries of development, the anonymous Alia Musica (c. 10th century)
assigned specific pitches to the modes after (falsely) claiming to follow the ancient Greek
system. Finally, Marchetto of Padua’s Lucidarium (1317) solidified the conception that
modes divide into a combination of a fifth species and a fourth species. The upper/lower
fourth concept solved the contradiction that both D dorian and G hypomixolydian were
bounded by D, but represented two separate modes. After the Lucidarium, advances in
modal theory slowed until Glarean redefined the eight-mode system as a twelve-mode
system; he described, based on observations of current music practice, how the theorist
should recognize an authentic and plagal mode based on each note of a scale from D

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83 Aurelian of Réôme, Musica disciplina, ed. L. Gushee as Aureliani Reomensis Musica Disciplina, CSM
through C, instead of the way the previous, medieval system ignored plagal and authentic modes based on the pitches A, B, and C. Glarean’s system recognized 14 modes with the inclusion of an authentic and plagal mode on B, but Glarean discarded those two modes because of the B-F tritone. Eleven years after Glarean promoted the 12-mode system, Zarlino rearranged the order of modes to begin with modes 1 and 2 on the pitch, C. This began to closely align speculative theory with practical music, as the majority of music by 1550 was already in a transposition of “C mode” (major, or *ionian*).

Philomathes anticipates the gradual transition to the 12-mode system with his discussion of “mixed tones” and “neutral tones.” Although Tinctoris mentions these terms in his *Terminorum musicae diffinitortum* (1483), recognizing mixed tones and neutral tones demonstrates the awareness that not all music fit into a perfect pattern of authentic or plagal; Philomathes was part of a gradual admittance that music theory did not always work with real music—an idea that eventually led to Glarean’s reclassification of the modes.

Philomathes also belongs to the trajectory leading to the innovations of Pietro Aaron, and specifically to his recommendations that composers write “vertically” rather than successively. Prior to Aaron, it is clear that authors discussed a proper order of successive composition of voices; Philomathes also belongs to this school of thought. He advocated starting with the ten-line staff and writing the tenor voice, followed by soprano, then bass, and finally an alto voice, which only needed to agree with the bass voice.\(^{84}\) Prior to Pietro Aaron’s suggestions, theorists generally accepted this style of successive composition, but it challenged composers’ ability to write convincing

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\(^{84}\) Smith, *The Performance of 16\textsuperscript{th} Century Music*, 11-12, mentions how Philomathes’s ten-line staff is actually a close precursor to simultaneous composition in that its arrangement of voices in score format shows Philomathes was thinking more about “harmony” than previous authors.
harmonic mensural music. Aaron’s reasoning for simultaneous composition was that composers would be able to focus more effectively on harmonic concordances by considering the vertical aspect of their music. Shortly after Aaron’s treatise, other authors began to focus on identifying cadential patterns—a development supported by a newfound spotlight on harmonic function, and thus Aaron’s innovations led to a new era of thought within the discipline of music theory.

Conclusion

Placing the *Musicorum libri quattuor* within a theoretical and cultural framework of early to mid-16th century Central Europe helps solidify our knowledge of how early-16th century musical-theoretical thought developed. This development was, in part, due to the advancements and elaborations of music theory in the *Musicorum libri quattuor*. Two major discussions in this dissertation establish the framework for approaching and understanding Philomathes: the first area consists of an investigation into the musical milieu of cities directly involved with the publication of Philomathes’s works; the second is an examination of sources written from close to the beginning of the 16th century through the mid-16th century, which in turn enables a study of the network of relationships through the transtextuality of Philomathes’s treatise.

In considering the importance of the musical milieu surrounding Philomathes, the most essential detail between Vienna and the German centers of learning—Wittenberg, Leipzig, and Strasbourg—is that Vienna was a hub of Catholic humanism while the German schools are staunchly Protestant. The fact that Philomathes remained such a key figure in Protestant circles is a testament to the originality and value of his work.
Countless students, many of whom would go on to write their own treatises, received their training through Wittenberg, and it is unfortunate that to date, Philomathes’s influence on these students and other authors has largely been ignored.

The *Musicorum libri quattuor*, while largely a standard didactic text from the early-16th century with few modifications on canonical thought on plainchant, mensuration, and counterpoint, remains an invaluable resource for early developments of choir practice and conducting. It seems that while Cochlaeus or Wollick were possible sources for Books I and II of Philomathes’s treatise, any possible correlation of text between Conrad von Zabern or Rutgerus Sycamber of Venray in the development Book III of the *Musicorum libri quattuor* appears minimal. The introduction of Philomathes’s choir practice book then creates a precedence that leads into a new type of didactic treatise for the mid-16th century as evidenced by the insertion of performance practice details in Ornithoparchus, Heyden, Finck, Blahoslav, and other authors.

Tracing the chain of influence behind Václav Philomathes leads to Georg Rhau, who is perhaps the epicenter for all the promotion for Philomathes. Through Rhau, Reformation Germany certainly noticed the *Musicorum libri quattuor*. Rhau undoubtedly introduced many students and colleagues to Philomathes’s ideas and played a pivotal role in the intertextuality of the *Musicorum libri quattuor* through his publishing direct quotations of Philomathes. Other authors also took part in intertextual quotations. These include Johannes Galliculus and Agricola, who even dedicated an entire text to unraveling every detail necessary to understand the music theory of Philomathes. Although the innovations and connections of Philomathes to the discipline of music theory in Central Europe are important developments to the history of music theory, a
larger study of issues related to performance practice, composition education, and connections between all of the authors writing on those topics in the 16th century would be a valuable course of study for further research.
PART II - TRANSLATION
CHAPTER 5— THE MUSICORUM LIBRI QUATTUOR

Integerrimo viro D. Ioanni Brossen Monasterii in Obirswymar prefecto, amico & Patrono suo singulari.

Georgius Rhau, S.D.

To the most upright man, John Brossen, prefect of the monastery in Obirweimar, from his friend and singular patron.

Georgius Rhau, S.D.

* 

Inter disciplinas liberales, quae aliquam cum utilitatem tum iucunditatem vitae hominum adferunt, optime vir citra controversiam, ipsa canendi scientia, quam vulgo Musicam vocant, non postremum locum obtinet. Quam enim varios ea habeat effectus, quamque sit potens & efficax in rebut humanis, hic recensere supervacaneum puto, & nimis longum esset. Non autem arbitror ullum hominem tam esse stipitem, aut tam alienum a musis reperiri posse, si audiat illam pulcherrimam & suavissimam concentuum harmoniam, qui non commoneatur, & aures arrectas teneat. Ego vero, ut nostri, hanc artem praecipiie ab ineun te aetate, cum aliis honestis disciplinis, magna quadam auiditate complexus sum, idque maxime tuarum fortunarum tunc temporis communicatione. Quapropter cum ante multos annos, noster amor & familiaritas, ab ipsa musica incium inter nos coepit, cuius rei testis est Enchiridion quoddam musices manu mea scriptum, quod tranque μηνύσονον amiciciae nostrae, etiam hodie apud te conseruas, eam ipsum amicitiam porro huius artis opera fouere & colere mihi visum est. Et cum dudum aetatem mecum in animo constituissem, aliquo officio, mutuam meam erga te benevolenciam, amoremque meum declarare, quo genere

Among the liberal disciplines that bring both some usefulness and some pleasure to the life of man, oh good man, without dispute, the very science of singing, which men commonly call music, holds not the last place. For how it has various effects, and how it is powerful and efficacious, I think it superfluous to reiterate, and it would be too long a task. However, I do not think that any man is such a blockhead, or is able to be so removed from the Muses that, if he should hear that most beautiful and most sweet harmony of singing together, would not be moved and would not hold his ears erect. But I, as you know, have embraced this particular art even from an early age, as well as other honest disciplines, and with a certain great avidity. Wherefore, when before many years our friendship and familiarity made its beginning between us from music itself, the testimony of which thing is in the Enchiridion of Music, written by my hand and which you hold dear in rememberance of friendship, the work of this art seemed to me to foster and cultivate the friendship itself. And when after a while I had established myself as a scholar, there was a duty to declare my mutual benevolence and my love toward you. And I

* 
Venceslaus Pictorius
TO THE READER

If anyone demands to make known, with true art, to a few, the strain of the sounds of Calliope, let him read thoroughly the writing of more recent men that the Thalia [Muse] Philomathis brings with his verse.

*

Venceslaus Philomathes

A Reverend man, to the devoted to God, master John Caplicensis, Ecclesiastical moderator in the most worthy Nova domo [Jindřichův Hradec, Bohemia], lord and father. S.P.D.

It was a custom not only among the ancients, oh most illustrious man, but also among certain more recent men and writers of arts, to dedicate their lucubrations to great men or to those from whom they have at sometime received some benevolence, in order that they might attract these great men more to themselves. Again, in another time, [this is done] in order that the material might thrive with great authority; then again, in order that the thing itself might emerge into light. Likewise, I have thought it worthy to dedicate this little book to your excellence, this little work that I have recently published in the most flourishing Viennese Academy, approved by the genius of most learned men, on account of your past benefits toward me (whence it is necessary that I be bound to you forever), and also on account of the condition of your future love toward me. Therefore, these first

*  
Idem, ad eundem  

Non minus ipse tibi sancte dicor atque libellus Munera ni spernis, me quoque sperne nihil.

*  
Joachimus Vadianus  

LECTORI  
Musica si quisquam terso praecopta nitore Harmonicumque velit noscere rite melos Philomathe tersa facilem brevitate libellum Pellegat, & dulces discet ab arte sonos.

*  
Christophorus Crassus Helvetius  

LECTORI  

fruits coming from a learned beginner, (since I am not able to approach you with another service) in place of a most pleasing little gift, I beg you to deem worthy to accept with willing mind. Would that I obtain more honor and praise from this. Farewell! And begin to love me again, if any forgetfulness of me has come upon you up to this time. August 1, 1512.

*  
The same, to the same  

This book and I are equally holy to you. Do not spurn the gift nor me; spurn nothing.

*  
Joachim Vadianus  

TO THE READER  
If anyone wishes to know musical precepts with polished sheen, and harmonics and song rightly, let him read thoroughly the little book of Philomathes, easy with terse brevity, and he will learn the sweet sounds from the art.

*  
Christopher Crassus Helvetius  

TO THE READER
One desiring to know the melodic arts of Apollo, or one who rejoices to deliberate briefly on the modes, let him come here with a mature proficiency in singing. He is able to learn best (unless I am mistaken).

* 

INTRODUCTION

As Orpheus moved the shades below, and the rocks and even more, with song, so too every kind that partakes in life [may be moved]. Did not the fallacious Siren soothingly compel with soporific modulation the sailors in [Odysseus'] ship to take, as an example, how music profited Arion. All living creatures rejoice exceedingly in song.

Is there anything more excellent that music (which alone measures harmony of sound with numbers)? Indeed, it is worthier than all women, for even that greatest one of the Gods, Jupiter, is pleased often by the harmonies of Camena [home of the Muses].

However, [music] is twofold, old and new, or choral and mensural. That which is old is by Ambrose and Gregory, who founded songs plain and rude and whose notes are neither able to be diminished nor increased. That music which is new we measure by threefold grades, and thence it has the name mensural, and will be able to be rightly called figured, for it enjoys and uses various figures, and because they suffer increase and decrease. Hence, it is termed new music.
Augmentum & decrementum, hinc nova musica fertur.

I will treat first the old, and finally the new. Then I will teach about singing, the rules and the modes of singing, and finally I will teach how to fabricate the harmony of voices. And I wish to be brief. Hopefully, these summaries will be pleasing.

*CAPUT PRIMUM
DE VOCIBUS*

**Vocis diffinitio**

Quo melos effertur signum modulaminis est vox.

**Vocis divisio**

Et sunt sex voces quibus omne melos modulamur. At repeti toties debent, quoties opus urget.

**Ordo vocum**

Infima vox est us, re sequens, mi teria, quarta extat in ordine fa, est sol quinta, suprema la fertur.

**Vocum proprietates**

Ut cum fa mollis vox est, quia contica mollit
Vocum mutua mutation

In duram mollis vocem nunquam neque contra vox vero naturalis mutatur utrinque.

* 

**CAPUT SECUNDUM**

**DE CLAVIBUS**

**Descripotion clavis**

Iudicium vocum prestans est littera clavis.

**Eiusdem divisio**

Viginti porro claves man in digitorium Articulis claudit, Capitales octo, minutas Septenas, quinas geminatas, quinque vocantur signatae, signatur enim, gamma & geminum dd Rariter, F, capitale tamen solito & C minutum. Sepius in cantu quoque signatur G minutum. Linea signatas sustentat scilicet omnes Et distant inter se mutuo per Diapenten F tamen ab gamma distinguat septima quamvis. Quattuor ex octo capitalibus inferiores Esse gravis, reliquas finales dicit claves.

[goes] with la, and it makes the tunes hard. Sol and re are natural (because these do neither).

**CHAPTER TWO**

**ABOUT THE KEYS**

**Description of a Key**

The judgement of voices is manifest by the letter of the key.

**Division of the Same**

The hand encloses twenty keys in the joints of the fingers: eight capital, seven small, five doubled. Five are called signed [used as signatures]; but Gamma and doubled dd rarely indicate these positions [as clefs]. Customarily, [the signatures are] capital F and small c. More and more, small g is also signed. A line may certainly sustain all signed keys [clefs]. These stand apart from one another by a fifth; except that a seventh separates F from Gamma. The lower four of the eight capitals are called the graves; the remaining keys are called the finals.
Ordine quo sistant omnes quot queque seorsum possideat voces, quam linea, quam spociumve sustentet clavem, si scire voles, lege scalam.

Exemplum

If you wish to know in what order all stand, and that which separates the voices from one another, and which key a line or a space holds, read the scale.

EXAMPLE

There are four key signatures: 
Γ (rare), F (𝄢 Ordinary), C (𝄡 Ordinary), G (𝄣 Frequent), dd (Rare)
Plures esse claves in cantu mensurali quam chorali

Quas modo legisti claves, pro simplice quovis. Sufficiunt cantu, nec pluribus est opus uti. At mensuralis cantus (quoniam geminatas Transgreditur claves & sepe subit capitalis) Usurpat plures, quorum signacula produnt octave (facile hoc scitu est) si linea clavem Sustinet, octava in spacio iacet, & viceversa.

Regula de Clavium transpositione

Transpositas unam per normam discute claves Quantum conscendit clavis, tantum nota rursus Descendit, verso quoque sic intellige sensu.

Exemplum

![Example Notation]

CAPUT TERTIUM
DA NATURA TRIOUM CANTUUM

Est naturalis vocis modulatio cantus instrumentalisve camenae subdita legi

More Keys are in Mensural Song than in Choral

Now, whatever keys you have, for simplicity, they suffice for any song you wish. Nor is there need for more. But mensural song (because it ascends beyond doubled keys and often descends below the capitals) usurps more, whose signs produce an octave (this is easy to know). If a line sustains a key, the octave lies in the space and vice versa.

Rule Concerning the Transposition of Keys

Accomplish transposed keys through one manner. A key ascends as much as a note and descends back, also vice versa. Understand this in this sense.

EXAMPLE

![Example Notation]

CHAPTER THREE
ON THE NATURE OF THE THREE [TYPES OF] SINGING

The natural modulation of the voice for singing or instrumental song is subject to a law. Because there are three voices, there are also three types of singing. The strength of the cantus is known.
Quandoquidem triplices voces, cantus quoque triplex. Cantus ab extrema sortitur voce decenter Nomen, ob hoc mollis vox molles, duraque; duras Et naturalis, naturales facit odas. Dicitur hinc mollis, quinti sextique tonorum Hinc durus Triti & Tetardi, quattuor illinc Vult naturalis cantus dici reliquorum Clarius in capite hec duxi reserare futuro

Insuper est scitu dignum, quia quisque tonorum in b tonare, fa mi que potest, sed non simul ambo. Si quinti sextique toni cantus situatur. In regione sui, tum rite fa postulat in b. At cum per quintam transponitur, efflagitat mi. Judicium sit idem reliquo de quoque tonorum. Non variat cantum translatio sed melodia. Seu transponatur seu non, semper tonus idem est

Molliter incedit mollis, durusque vagatur Duriter, at neutram naturalis melodiam cantus habet, quando medium tenet inter utrumque si b regit cavis, variatque toni melodiam Cantus ab illius dici modulamine vocis nempe potest, cantum fa b mollem, mique durum. Hinc facit, at molles duras neutrasque camenas sola toni finalis vox denominat apte.

from the last voice and is named on account of this: a soft voice makes songs soft, and a hard voice makes hard songs, and a natural voice makes natural songs. Hence the fifth and sixth tones are called mollis; hence the third and fourth are harsh. Thence the four remaining wish to be called natural song. I have decided to refer to this more clearly in a future chapter.

Moreover, it is worthy to know that each of the tones is able to sound in bfa/mi, but not both at the same time. If the song of the fifth or sixth tone is situated in the region of itself [untransposed], then rightly it demands fa on b; but when it is transposed at the fifth, it demands mi. The judgement becomes the same concerning the rest of the tones. The transposition does not vary the song, but the [position of the] melody. Whether it is transposed or not, the tone is always the same.

The soft tone proceeds softly, and the harsh tone proceeds harshly. But the natural song has a neutral melody, because it holds the middle position between each. If b rules the key and varies the melody of the tone, the song is able to be named for the modulation of that voice, cantus bfa is soft and bmi is harsh. But the voice of the final tone names properly soft, harsh and neutral songs.
Exemplum de cantu Molli quinti toni, in propria sede positi

Example of Soft Song of the Fifth Tone, Placed in its Proper Position

Exemplum de cantu Molli quinti toni transpositi per quartam

Example of the Soft Song of the Fifth Tone, Transposed by a Fourth

Exemplum de cantu Molli quinti toni transpositi per quintam

Example of the Soft Song of the Fifth Tone, Transposed by a Fifth

Exemplum de duro quarti toni, in propria sede positi

Example of a Harsh [Song] of the Fourth Tone, Placed in its Proper Position
De Duro quarti toni transpositi per quartem

Example of the Harsh [Song] of the Fourth Tone, Transposed by a Fourth

De Duro quarto toni transpositi per quintam

Example of the Harsh [Song] of the Fourth Tone, Transposed by a Fifth

De Naturali primi toni in propria sede posit

Example of the Natural [Song] of the First Tone, Placed in its Proper Position

Naturalis primi toni transpositi per quartam

Natural [Song] of the First Tone, Transposed by a Fourth
CAPUT QUARTUM
DE TONIS

Toni diffinitio

Regula principii tonus est, finis, mediique.

Tonorum divisio

Ponimus octo tonos quamvis veneranda vetustas. (Teste Severino) fuerit contenta quaternis.

De tono autento

Impare de numero tonus est autentus in altum Cuius neuma salit sede a propria, Diapason Pertingens, a qua descendere vix datur illi.

CHAPTER FOUR
ABOUT THE TONES

Definition of a Tone

The measure of the beginning, middle, and end is the tone.

Division of Tones

We consider eight tones, with which four the venerated ancients were content (according to the testimony of Severinus [Boethius]).

About the Authentic Tone

The authentic tone is disproportionately of high measure. Its neumes jump from the proper place, touching the diapason, from where it is scarcely given the opportunity to descend.
Exemplum

De tono plagali

Vult pare de numero tonus esse plagalis in ima
Ab regione sua descendens ad diapentem
Cui datur ad quintam, raroque ascendere sextam.

Exemplum

De tono mixto

Qui velut autentus conscenderit, utque plagalis
Depressus fuerit tonus ipsum dicitum mixtum.
De tono neutrali

Qui non autenti ascendit, neque lege plagalis
Deprimitur tonus, is neutralis rite vocetur.

Tonus cognoscitur tripliciter

Initio, medio, tonus est & fine notandus.
Fine per extemas voces. Nam desinit in re

About the Neutral Tone

That tone that does not ascend like the authentic and is not depressed by the law of the plagal is rightly called neutral.

The Tone is Recognized in a Threefold Manner

The tone must be noted by the beginning, the middle, and the end. By the end, [it is meant] through the last voice. For the first
cum deuto primus, cum quarto tertius in mi
Quintus cum sexto in fa, octavo septimus in sol.
Exitus est idem, variatur origo tonorum.

De propriis sedibus tonorum

In D protus deuterque sedet, cum quarto in E tritus
Quintus in F cum sexto, octavo septimus in G.

De tonorum trasnpositione

Per quartam tamen aut quintam transponimus illos
Sedibus in propriis, si non possunt modulari.

De tonorum repercussionibus

Noscitur ex medio, dum cantus vocibus ullus
Saepe repercuitur propriis versandus in illis.
Nam tonus omnis habet proprias, quas saepe relidit.
Per re la, nosce tonum primum, sape re fa, deurtum.
Tritum per mi fa, & quartum per mi la notato.
Ex fa sol quintum, cognoscito per fa la sextum.
Septimus ex sol sol, per sol fa tonus patet exter.

De capitalibus tonorum tenoribus

Noscitur initio, dum mox ab origine cantu
Euouae suum petit, ut versetur in illo.
tone, as with the second, ends on re. The third with the fourth
ends on mi. The fifth with the sixth ends on fa. The seventh with
the eighth ends on sol. The ending is the same, but the origin of
the tones varies.

Concerning the Proper Seats of the Tones

The first and second sit on D, the third and the fourth sit on E, the
fifth with the sixth sit on F, and the seventh and the eighth sit on
G.

Concerning the Transposition of Tones

If they are not able to be modulated, we transpose those tones
from their own positions by a fourth or a fifth.

Concerning the Repercussions of the Tones

While any song is being resounded and turned upon by its own
pitches, it often may be recognized from the middle. For every
tone has its own that it often strikes. Through re and la, recognize
the first tone; know the second tone through re and fa; the third
through mi and fa; the fourth through mi and la; the fifth through
fa and sol; the sixth through fa and la; the seventh through sol
and sol; and the last tone is visible through sol and fa.

Concerning the Chief Tenors of the Tones

The tenor is recognized by the incipit, while the cantus seeks its
origin from the Euouae with the result that it is versed upon it.
In quinta primus, quintusque & septimus, ast in
Tertia habet Deuter, proprium sextusque tenorem.
Tertius in sexta, sed postremusque tetrardusque
In quarta, extremam supra notulam residentem.
Sed quod in Introitu sexti modulamur, ab ima
Euouae nota, qua clauditur, iniciatur.

The first and the seventh are on a fifth, but the third and sixth
have a tenor on the third. In contrast, the second tone and the
fourth are on a sixth, but the last tone and the fourth are on a
fourth above the resting tone. But because we modulate in the
introit of the sixth tone, there is a beginning from the lowest note
of the Euouae, with which it is closed.
These are the melodies, ranges, and dominants of the tones.
**De differentialibus tonorum tenoribus**

Primus habet citra capitalem quinque tenores
Maiores quibus atque minores psallimus odas.
Quatuor octavus, totidem quartus, totidemque
Septimus, adde quos quinto, sexto datur unus.
Sed nullum tristis reperitur habere secundus.

Euouae duplex etiam citra capitale
Primus habere solet quod in Introitu reperitur.
Tertius & quintus, tantumque novissimus unum.
Septimus & quartus, sextus nullumque secundus.

**Concerning the Different Kinds of Tones**

The first tone, short of the capital, has five tenors with which we sing greater and lesser songs. The eighth tone has four, the same number has the fourth tone and the seventh tone. Add to these that one given to the fifth and sixth tones. But the second tone is sadly discovered to have none.

Even within the capitals, the first tone is accustomed to have a double Euouae, which is formed in the introit. The third, fifth, and eighth tones have only one. The seventh, fourth, sixth, and second have none.
The differentiae of each tone’s psalm intonation
How the introits of verses close in each tone
Concerning the Intonation of the Psalms and the Incipits of Introit Verses

A minor psalm must be started in the Euouae, but the beginning of major ones is varied. For the first and the third (as is customary) begin on the third above the closing notes of its neume, but the second itself always begins strongly in its second position. The fourth and the eighth tones, and the fifth and the sixth, begin on the note on which they close. The seventh tone begins to sing major psalms on the fifth residing above its seat. Moreover, the verse of the introit begins from this same place. Nevertheless, they step from a fourth to a seventh and a fourth.

The Intonations of Psalms Follow
Cognitio tonorum in Responsoriis per Versiculos

Pandere difficile est quo Responsoria pacto Incipiant claudantque suos Versus, quia formis Diversis variisque fit ortus & exitus horum. Noscere quippe sat est formas tantum generationales, Que solito fiunt, per Responsoria namque Singula nemo potest formas dare versiculorum.

Sequentur generales melodiae Versuum, ex quibus Responsorioum toni facile cognoscuntur

Recognition of Tones in the Responsories Through the Verses

It is difficult to lay open in what way responsories begin and end their verses, because their beginning and ending occur in diverse and varied forms. It is enough to know only the general forms that are accustomed to occur, for through single responsories no one is able to give the forms of the verses.

General Melodies of the Verses, from which the Tones of the Responsories are Easily Recognizable
These are the forms of the Verses in the Responsories of the Tones
De tonorum proprietatibus

Insuper auditu cognosce tonos, quia quivis proprietate sua specialem fert melodiam.
Primus enim est hilaris, merore secundus habundat.
Tertius austerus, quartus blandiminis auctor.
Quintus delectans. Sextus plenus lachrimarum
Septimus indignans, tonus est placabilis exter.

* CAPUT QUINTUM
DE SOLFE

Solfæ descriptio

Scribere de solfa super est modulamine vocum.
In qua mutari voces opus est, quia cantus
Aut nimis ascendit, descendit, vel variatur.

Notabile 1

Vocibus utaris solum mutando duabus
Per re quidem sursum, mutatur per la deorsum.

Notabile 2

Quam profers vocem modulando in clave minuta
Sumere non spernas (quamvis ibi non sit) eandem
In simili capitali clave vel in geminata.

Concerning the Properties of the Tones

In addition, we must recognize the tones by ear, because everyone carries a special melody with its own property. For the first tone is cheerful, the second abounds in sorrow, the third tone is austere, the fourth is the source of pleasantness, the fifth is delighting, the sixth is full of tears, the seventh is indignant, and the last tone is appeasing.

* CHAPTER FIVE
CONCERNING SOLFA

Description of Solfege

It remains to write about the modulation of the pitches, in which it is necessary to change the pitches because the chant either ascends, descends or varies too much.

Note 1

Use only two pitches, by changing through re upward, and by changing through la downward.

Note 2

With whatever pitch you offer by modulating in a diminished key, do not spurn assuming the same pitch (although it might not occur there) in a similar capital key or in a doubled key.
Notabile 3

Per quartam, quintam simul octavam fugere saltum
Ad mi manantem de fa, nec non viceversa.

Si talis quando saltus tibi venerit ipsum
De mi duc ad mi, de fa que salubrius ad fa.

Notabile 4

A, d, e, g habet claves in quis mutatio vocum
Rite solet fieri, quod sic intellige lector.

Regula prima

Quando b signatur tanquam senaria cifra

Note 3

Avoid, in a leap to a fourth, fifth, and likewise the octave,
flowing from fa to mi and vice versa.

If ever such a jump comes to you, take it from mi to mi or from
fa to fa.

Note 4

A to g has keys in which the change of pitches is accustomed to
happen rightly, which thing, reader, understand thusly.

First Rule

Whenever b is signified by the sign, it orders re to be sung on g,
In g cani re iubet, vocemque la postulat in d.

Regula secunda

Mandat in a re cani (cum non signatur in odis)
Et la decenter e. Sed clavis praefata frequenter
Tunt docti causa, partim scriptoris inertis,
Non signanda patet, signandaque saepe latescit.
Arbiter huius eris cum concipies melodiam.

Regula tercia

In d re preterea sumas cum pergis in altum.
Et cum descendis modulabere semper in a la.

Regula quarta

At coniuncta solet dici, vel musica ficta
Dum peregrina cui vox clavi iungitur, in qua
Non habet hospicium, verum tamen optat habere
Haec per mi, vel per fa patet, cum venerit, illam
Exprime more suo, veramque subinde redito
Ad scalae solfam, coniunctis organa multis
Indigeant opus est, propter variamina cantus.

and la is demanded on the pitch in d.

Second Rule

Orders re to be sung on a in a song (when there is no signature),
and la properly on e. But the aforementioned key, at times
because of the learned writer, frequently lies there not signified,
and when signified, often hides. You will be the judge of this
when you see the melody.

Third Rule

Moreover, take re on d when you begin in high register. And
when you descend, you will modulate la on a.

Fourth Rule

But the fourth rule is accustomed to be called conjoined, or
musica ficta, while the stranger to which the pitch is joined in the
key in which it does not have an abode, it nevertheless seeks to
inhabit. This is evident through mi or through fa, when it has
come. Express this in its own manner, and there having been,
return to the true solfege of the scale. Organa need many such
conjoined [pitches], and this is necessary on account of the
varieties within the singing.
Reperiumtur quoque plures coniunctae in instrumentis musica libus, sic.

Many conjoined [pitches] are also found in musical instruments thus.

* 

CAPUT ULTIMIM DE MODIS

Unius ad reliquam modus est progressio vocis
Et sunt quinque decemque modi, quos ordine dicam.

FINAL CHAPTER CONCERNING THE MODES

Mode is the progression of one pitch to the remaining. And there are five and ten modes, which I will name in order.
**Unisonus**

Unisonus Fertur cum vox eadem duplicatur.

**Exemplum**

![Example of Unisonus](image)

**Semitonus**

Semitonus progressio debilis immediatam ad vocem gradiens, exemplo sit tibi, mi fa.

**Exemplum**

![Example of Semitone](image)

**Tonus**

Fortiter ad vocem graditur tonus immediatam. Et ( nisi mi cum fa demptis) fit ubique locorum.

**Unison**

A unison is brought forth when the same pitch is duplicated.

**EXAMPLE**

![Unison Example](image)

**Semitone**

A semitone is a weak progression, stepping to the next immediate pitch; let mi fa be an example for you.

**EXAMPLE**

![Semitone Example](image)

**Tone**

A tone steps strongly to the next immediate pitch and (with the exception of mi with fa) happens everywhere.
**Semiditone**

A semiditone exists when a minor third is seen. A tone with a semitone makes it whole, and is twice in the singing. It is possible to exist when its species are re to fa, and mi to sol.

**EXAMPLE**

```
\[\text{Ascending} \quad \text{Descending}\]
```

**Ditone**

A ditone is the leap that a major third forms, for it is composed rightly of two tones, and fa to la are its species. No additional [ditones] are found.

**EXAMPLE**

```
\[\text{Ascending} \quad \text{Descending}\]
```
Exemplum

Diatesseron

Debilis in quartam saltus diatesseron uno semitono geminisque tonis constans perhibetur illius ut fa, re sol, species, & mi la, vocantur.

Exemplum

Tritonus

Duriter in quartam tritonus meat, unde tonos tres continet, a fa ad mi gradiens, sed abutimur illo.

EXAMPLE

Diatesseron

A weak jump into a fourth is called a diatesseron, standing with one semitone and with twin tones. Species of this are fa to re, re to sol, and mi to la.

EXAMPLE

Tritone

A tritone goes harshly into the fourth, whence it contains three tones, stepping from fa to mi. But this is a misuse for us.
Semidiapente

In quintam saltum (quem semi facit diapente)
Cantores vitant, nam de mi tenditur ad fa
Semitonos geminos, totidemque; tonos reserando.

Diapente

Unum semitonum effert trisque tonos diapente
Dulciter in quintam saliens, ut sol, re la, mi mi
Et fa fa, testis erit species quamcunque resolves.
Exemplum

Semitonus cum diapente

Sextam semitonus dat euntem cum diapente
Molliter, ex geminis quia semitonis, tribus atque
Vult constare tonis, cuius species, re fa, prima est.
Altera mi fa, subest, mi sol postreme vocatur.

Tonus cum diapente

At fortem sextam tonus edit cum diapente
Quattuor ergo tonos & semitonum facit unum
Atque duas tantum species habet, ut la, re mique.

EXAMPLE

Semitone with a Diapente

A semitone with a fifth gives a soft sixth, as it wishes to stand
from twin semitones and three tones. Its first species is re to fa,
another is mi to fa, and a last is called mi to sol.

EXAMPLE

Tone with a Diapente

A tone with a diapente produces a major sixth. Therefore, it is
made from four tones and one semitone. It has only two species,
ut to la and re to mi.
Semiditonus cum diapente

Semique ditonus est progressio cum diapente debilis, & nihil est aliud nisi septima mollis Semitonis geminis composta, tonisque quaternis Ut fa, re sol, re fa, mi la, quadruplex septia mostrat.

Ditonus cum diapente

Septima fortis erit quam profert cum Diapente Ditonus, unde tonos quinos & semitonum unum Continet, exemplis ut mi, fa la que probanda est.
Exemplum

Semidiapason

Est octav quidem, quam semi tonat Dyapason
At sonitu turpis, nam de mi tenditur ad fa
Semitonos ternos claudendo, tonosque quaternos.

Exemplum

Diapason

Dulcis in octavam saltus fertur Diapason
Quem duo semitoni quinique toni statuunt &
Quandoquidem voces sunt sex, species tot habet
Arsis & ipsa thesis pare iudicio trutinanda.
Exemplum

EXAMPLE

LIBER PRIMUS EXPLICIT

END OF BOOK I

* * *

* * *
LIBER SECUNDUS
CAPUT PRIMUM
DE FIGURIS NOTARUM SIMPLICIBUS

Materia harmoniae diversa figura notarum
Forma, modus, tempus, prolatio, namque figuris
Cantum signamus, gradibus componimus illum.
Octo notae variis signantur quippe figuris
Maxima formatur tetragonica imagine cuius
Crassa superficies latam ter continet, & fert
In dextro caudam latere, at si quando notarum
Congeriem ingreditur poterit cauda fine scrili.
Maxima particulas in tris divisa, figuram
Constituit longa, cauda ablata breviatur,
Semibrevis vero formam sortitur obesam
Hinc Minimam facies, si caudam iuxteris illi.
Ex qua seminimam si totam tinxeris, unde
Fusa solet dici cum in cauda unum gerit uncum
Semi tamen fusa est, si duplex iungitur uncus
Seminimam fusam si tingere semique fusam
Displiceat, fiant vacuae, verumtamen haec vult
In cauda cifram ternariam habere, proinde
Ista duos uncos, illa unum desuper orta
Cauda potest sursum vergi aut pedere deorum
Dextera pars cauda cifranque unicosque retentat.

BOOK II
CHAPTER ONE
ABOUT THE SIMPLE FIGURES
OF NOTES

The matters of harmony and song - the notes, the mode, the time
- are signified with diverse figures. And we will compose these in
steps. The eight notes are signified by various figures. Maxima
(the longest) is formed by a quadrangular image whose solid
surface contains a broad stroke three times and carries on the
right side a tail, but if ever it is found in a bundle of notes, it may
be written without a tail. A maxima, divided into three parts,
contains the figure of a longa. With the tail taken away, it is a
brevis. A semibrevis obtains a fattened form, and from this you
will make a minima if you join a tail to it. From a minima you
will make a semiminima if you color the whole thing. Further, a
fusa is accustomed to be called when it carries one hook on the
tail; it is a semifusa, both still remaining empty, but this one
requires having a third figure in the tail, therefore it has two
hooks. That tail rising above [the note] is able to be turned
upward, or to hang downward. The right part of the tail retains
the line and the hooks.
CAPUT SECUNDUM
DE LIGATURIS NOTARUM

Ista Super Simplis perstrinximus octo figuris
Iamque ligatureae quae sunt subinde necesse est.

Ligaturae descriptio

Scire Ligatura est connexio facta notarum
Ex quadris, aut obliquis, vel utrisque figuris
Maxima, longa, brevis, nisi semibrevisque; ligantur
Quarum sic poteris, lector congnosse valores.

Regula de Quadratis

Si quadra fert caudam ascendentem in parte sinistra
Semibrevis notula & sibi proxima dicitur esse.
Si Descendentem brevis est, longam valet autem
Prima carens cauda, si pendet & ultima semper.

Regula de obliquis

Caudam obliqua gerens deversam in parte sinistra
Semibrevis fertur cantando metaltera, verum
Pendula cauda brevem facit, ast ubi stat sine cauda
Prima valet longam, brevis altera quolibet esto
Prima ligatureae nota & ultima discutiendae

CHAPTER TWO
CONCERNING THE LIGATURES
OF THE NOTES

We have spoken of such things briefly related to the eight figures. Now it is likewise necessary to know about the ligatures.

Description of a Ligature

A ligature is the connection of notes made from square or slanting figures, or both. The maxima, longa, brevis, excepting the semibrevis, are all ligatured, whose values you, the reader, will be able to recognize thus.

Rule about the Square Figures

If a square carries an ascending tail on the left part the note, the one closest to it is said to be a semibrevis. If [it has] a descending [tail], it is a brevis. The first note, lacking a tail, is valued as a longa if it hangs. The last one is always [a long].

Rule Concerning Oblique Figures

An oblique figure, carrying a tail opposite of the first [i.e., descending], on the left part, is called a semibrevis by the singers, but a hanging tail makes a brevis. But where it stands without a tail, the first has the value of a longa, any other is a brevis. The first note and last note of an ending ligature is a maxima when
Maxima nexa notis, neque langa potest variari.

joined with other notes, although the longa is not able to be varied.

Exemplum de Ligaturis

Examples of Ligatures

*
Pause siunt propter tria.

Pause silere iubet, tractu signata, canentem
Quam tribus et merito causis reor esse repertam.
Nam turpem vitat sonitum, cantumque decorat
Et modulatorem recreat, Pausa est generalis
Prima, chorum totum transcendens lineolarum
Et solet in vocum signari fine, notaeque
Aequivalet comptae diademate, Deutra modalis
Perfectae similis longae, & spacio insita trino est
Tertia longa duo spacia occupat, atque notae par
est imperfectae longae, fertur brevis autem
Quarta brevi similis notulae, & spacio tenet unum.
Quintam semibreven dicunt, Nam signat idipsum
Quod nota semibrevis, tractus demergitur eius
Ad spacii medium, sexta est suspirium, & illa
Ascendit spaci centrum, minimeque vicem fert
Septima semi solet suspirium in ordine dici
Seminimam valet, & tractu signatur adunco
Ultima pausarum vocitatur fusilis, unco
Scribitur haec gimino, fusaeque vicaria fertur.

Pausa tacet, Nota profertur, ferme valor idem.

* 

CHAPTER THREE
ABOUT THE PAUSES

Rests happen because of three things.

A pause orders the singer - the duration having been signified - to be silent, which thing I think is deservedly discovered for three reasons. For it avoids an ugly sound, and it decorates the song, and it refreshes the musician. A general pause is first, transcending the entire chorus of lines, and it is accustomed to be signified at the end of the pitches and is equal to a note adorned with a crown. The second [type] is similar to a perfect long and is situated on the third space. The third [type] occupies two long spaces and is equal to an imperfect long note; it is, however, called a brevis. The fourth [type] is similar to a brevis and holds one space. They call the fifth [type] a semibrevis, for it signifies that very thing which a semibreve note does. Its mark is pushed down into the middle of the space. The sixth [type] is a suspirium, and that one ascends to the center of the space and carries the value of a minima. The seventh [type] is accustomed to be called, in order, a semisuspirium; it has the value of a semiminima and is signified by a hooked mark. The last of the pauses is called the fusilis. It is written with a twin hook, and is considered a substitute for a fusa.

Although the pause is silent and the note is brought forth, the value is the same.

*
Pausæ siue, poë tria

Generalis.

Modalis.

Longa.

Brevis.

Seivbrevis.

Suspiriū

Seissuspiriū

Susilis.
CHAPTER FOUR
ABOUT THE PUNCTUS

A punctus has a threefold duty in harmony, for it perfects, it adds a middle part, and it divides; hence it carries three names. Perfecting and adding notes it clings directly to the right side, separated from and a little higher than these [notes]. You will find a perfecting punctus and a dividing one on the perfect notes; the punctus of addition happens everywhere. But a punctus of addition alone is sung just as the note whose value it represents.

* 

CHAPTER FIVE
CONCERNING THE THREE GRADES OF MUSIC

Let us return to a form of the song to which I have earlier referred. There are three grades by which each mensural song is weighed - modus, tempus, and prolatio.

Modus is duple, it can be either major or minor. A modus is a perfect major when a maxima has the value of three longas and a long note has the value of as many breves. However, let a modus be a perfect minor when a maxima measures two longas and a longa is measured as three breves. In the same manner, it is called perfect time when one brevis has the value of three semibreves. And, likewise, a prolatio is called perfect when a semibrevis note corresponds with three minimas. For modus
Maximam enim lonamque modus, tempus brevem, obescam
vero semibreven tantum prolatio taxat
Perfectus gradus est numerus ternarius in quo
Fundatur, binarius autem imperfect illum.

In proprio si quando gradu nota non reperitur
Perficienda, vicem suplebunt equivalentes.

Quomodo gradus cognoscitur intrinsecus

Signa per haec tempus perfectum noscitur intus
In medio brevium numero ternario oberrant
Semibreves notalae, punctoque due resecantur
Postque brevem pausam fit semibrevis dupla pausa.
Atque coloratur triplex brevis Hemiola instar
Judicio simili modus & prolatio scitur
Perfecta esse, notis saltem & pausis variatis.

governs the maxima and longa, tempus governs the brevis, but
prolatio governs only a meager semibrevis. A grade based on a
ternary number is perfect; a binary number, however, makes it
imperfect.

If ever a note is not found to have been perfected in its own
grade, equivalents will supplement the change.

How the Intrinsic Grade is Recognized

Perfect time is recognized within and through these signs.
Semibreve notes wander amid a ternary number of breves. Two
are cut off by a punctum, and after a brevis pausa a double
semibreve rest occurs. And the triple brevis is colored like a
hemiola. By a similar judgement is the modus and prolatio
known to be perfect, with their own notes and rests varied.

Example of the Three Grades of Music

*
CAPUT SEXTUM
DE SIGNIS

Extera signa quidem graduum tria sunt, puta cifra Circulus, & punctus, quorum sit regula talis.

Signa modi

Si pleno numerus circo ternarius heret Maiorem modum, item binarius esse minorem Monstrat perfectum. Sed cetera cuncta minorem.

Signa temporis


Signa prolationis

In quacunque rota est punctus, prolatio ibidem Perfecta est. Sed privatim imperfecta notatur cifra gradum signat circo lateraliter herens Cui dum subrictitur, mensura est significatrix.

De Signis minus principalibus

Linea diminuit mensuram, aut semiditatem

CHAPTER SIX
ABOUT THE SIGNS

There are three external signs of the grades, namely numbers, circle, and points. Their rules are such.

Signs of the Modus

If a ternary number clings to a full circle, it shows that the major mode is perfect. Likewise, a binary number shows that a minor mode is perfect. But all others the minor.

Signs of the Tempus

Signs of the tempus may be imperfect. A ternary number added to a circle signifies a perfect tempus; a binary number signifies that it is imperfect. A whole circle without a number marks a perfect tempus; a half circle marks an imperfect tempus.

Signs of the Prolatio

In whatever circle there is a punctus, the prolatio in that very place is perfect; but apart from that, an imperfect [prolatio] is designated. A number clinging laterally to a circle signifies a grade to which it is subjoined; it is the signifier of the measure.

About Signs of Lesser Importance

A line diminishes a measure, signifying a half-measure. This is
Significat, postque per circum ducitur jullum
Insuper occurrit tractus perpendicularis
Simplex, vel duplex, punctis circundatus, hortans
Cantorem harmonicas modulando redincipere odas
Punctus ubi triplex, ibi sit conventio vocum
Quam diadema notam cingit, mora fiat in illa
Aut ubi cancellus vel signatur quadratum.
Exprime mi dure. Verum scripto b rotundo
Et molli & blando fa tenore canatur ibidem.

* 

**CAPUT SEPTIMUM**
**DE TACTU**

Omnibus in signis non profertur nota tactu
Quaeque sed in signis certis nota certa, proinde
cifra rotae dextro lateri binaria iuncta
Innuit, ut tactu nota prendatur brevis uno.
Si quoque semi rotam cifra quacunque vacantem
Linea pertransit, mensuram signat eandem,
Quod vulgo signum vocitatur semiditates.
In duplo crescit numero veniente duali.

Semibrevis vero tactu perpenditur uno,
Quando rotae dextro lateri ternaria cifra,
Additur, aut cum sola patet. Minimam cane tactu
In quacunque rota est punctus centri vice factus.
Perfectis tamen in gradibus plerumque notarum

done when a line is drawn perpendicularly through any circle or
half-circle. Wherever there is a line encircle by puncti, this urges
the singer to begin again. Where a punctus is triple, a convention
(coming together) of voices is there. A delay happens on that
note that a crown circles. Or when there is a lattice [sharp sign]
or a quadratum [square b], mi is expressed harshly. But when a
round [round b] is written, fa is sung with a soft and gentle tenor
at that place.

* 

**CHAPTER SEVEN**
**ABOUT THE TACT**

Under all signs, each note is produced not by touch, but in certain
signs a certain note [is brought forth] by the tactus.

A binary number of a circle, joined to the right side, gives a sign
so that a brevis is seized by one tact. If a line crosses through a
half-circle, devoid of any number, it signifies the same measure;
and this sign is commonly called "semiditates." It is of dual
number, with a dual presentation [of the tact].

A semibrevis is weighed out by one tactus when a ternary
number is added to the right side of the circle, or when it [the
circle] lies open alone. Sing a minima by the tactus in whatever
circle a change has been made by a center punctus. Nevertheless,
in the perfect grades of notes, for the most part, a ternary number
Profertur tactu numerus ternarius uno. Cifra sub orbe iacens quotacunque est, tot iubet uno comprehendi notulas tactu eiusdem speciei.

Linea perfectum per signum ducitur unque Ocius harmoniae causa ut tactus moveatur. Diminuensque huiuscemodi signum vocitatur.

Quolibet in signo si scire libet nota tactus Singula quot valeat gradibus perpende valorem Ipsius, emerget subito numerus tibi certus.

* 

CAPUT OCTAVUM
DE NOTARUM INPERFECTIONE

Dum nota tris alias valet, est perfecta necesse est Namque ubi ternio ibi perfectio. Tertia vero Pars ab ea si tollitur, imperfecta vocatur Maxima, longa, brevis, tantummodo semibrevisque Perfectae fiunt, reliquae non perficiuntur Unde minor species, maiorem imperfectit apte Pausa imperfectur nunque ast imperfect illa Perficienda imperfectur nota tincta colore Tertiam enim tunc illius partem color aufer Quamvis & Minima in gradibus nota tingitur unque Perfectis, tamen hinc nullam partem color aufer.

is brought forth by one tactus. A number lying under an orb, however great it is, orders so many notes to be seized by one tactus of the same species.

A line, at any time, may be led through a perfect sign so that the tactus moves more quickly for the sake of the harmony. The sign of this kind is called a diminisher[?].

In any sign whatsoever, if it is pleasing to know how much value a single note has, weigh the value by the grades. Suddenly a certain number will emerge to you.

* 

CHAPTER EIGHT
ABOUT THE IMPERFECTION
OF NOTES

As long as a note has the value of three others, it is perfect. For where there is a ternary, it is necessary that there is perfection. But if a third part is taken from it, it is called imperfect. Only the maxima, longa, brevis, and semibrevis may become imperfect; the rest are not perfected, whence a minor species aptly makes a major imperfect. A pausa is never imperfect, but it makes imperfect those perfect notes painted with color to become imperfect. For them, color brings a third part of that; although even a minima note is colored at times in perfect grades. Nevertheless, color brings no part hence. From one or each part, imperfection happens. But is it for the heart to recognize a certain
Ex una aut utraque fit imperfectio parte
si vero certam cordi est cognoscere partem?
Incipe ab inicio seriem numerare notarum
Ostendet numerus partem ternarius illam.

part? Begin from the beginning to enumerate the series of notes.
A ternary number will show that part.

*CAPUT NONUM*

DE DUPLICATIONE SEU ALTERATIONE

Ars perhibet quandoque notae, duplicare valorem
Sed non cuiuscunque notae, nisi quae sit alius
Tertia pars, duplicatur enim species minor ante
Maiorem. Pausam nunque varia, nota queris
Cur duplicatur? Ut efficiat ternarium arithmum
Cum preeunte nota, sine quo perfectio nulla est.
Quandocunque ultra numerum ternarium habundat
In gradibus nota perfectis, imperficit illa
Aut precedentem notulam, aut omnino sequentem
Hoc divisivo poteris cognoscere puncto
In partem imperfectio quam cadit, haec duplicetur
Sique duae superant, duplicanda est ultima tantum.

*CHAPTER NINE*

ABOUT DUPLICATION, OR ALTERATION

Art, at the same time, allows a note to duple its value. But this is
not in all cases, only in the third part, for a minor species duples
before a major. Never vary a pausa. So, you ask, why is a note
duplicated? In order to make a ternary number with a previous
note, without which there is no perfection. Whenever a note
abounds beyond the ternary number in perfect grades, it becomes
imperfect. You will be able to recognize either the preceding note
or the following note by this divisive punctus. In the part into
which imperfection falls, this is duplicated, and if two survive,
only the last ought to be duplicated.
Tantum proportiones inaequaliteratis musicus confiderat

Diversi numeri, eiusdem vero speciei
Mutuo si coeunt notulae proportio fertur
Ipsa quidem duplici cifra signatur in odis
Sub maiore minor (cum construitur) minor autem
Supra maiorem (cum destructur) situatur
Cum numerus maior numerum bis rite minorem.
Continet, est dupla, si ter? Tripla. Quaterque? Quadrupla.
Si semel, & mediam partem, sesquialtera fertur.
Tertia, tertiam, item si quartam? quarta vocatur
Sic ad crementum numeri proportio crescit.
Infinitus enim est numerus proportia tanta.
Hic illam doctor declarabit studiosus
Que supplenda meum proportio carmen abhorret.
Que numerum ternarium habet proportio cumque
Accidit & duplicatio, & imperfectio eidem
Perfectis tanque gradibus, punctusque, colorque
Accidit. Hemiolam vero vulgo vocitare
(Quando colorantur notulae) consueverat usus.

Music Considers Also the Proportions of Inequality

Diverse numbers, but of the same species if notes move mutually, is called proportion. It is signified by a double number in songs. A minor is constructed when it is situated under a major; however, when a minor is situated above a major, it is destructed. When a greater number contains duly a minor number twice, it is double. If three times? Triple. Four times? Quadruple. If once and a half, it is called sesquialtera. A third and a third, a third, And likewise a fourth, it is called a fourth. Thus proportion grows to the increment of number. For an infinite number is so much proportion. Here the studious doctor will declare that which the proportion to be completed shrinks from my poem. When proportion holds a ternary number, and when both duplication and imperfection happen to the same as though by perfect grades, and the punctus and color happens. But use has made it the custom to call it commonly a hemiola (when notes are colored).
Sequitur exemplum de proportionibus

FINIS LIBRI SECUNDI

Examples of Proportions Follow

END OF BOOK II

* * *

* * *
Quadrupla:

Sesquialtera:
Sesquitertia:

Sesquiquarta:
Third Book of Music of Venceslaus Philomathis of the New Cathedral [Jindřichův Hradec], concerning the regimen of each song and the manner of singing.

CHAPTER ONE
ABOUT THE DIRECTION OF PLAINSONG

To the extent that is it is common to produce divine sounds in song with both inexperience and experienced voices, it is important for the director to have the voice himself by which it is possible to touch both the lowest and the highest notes. His voice ought to be heard above all in the group of singers in order that he might set, and repair, and rule those wishing to deviate with the asperity of sound. And let him sing [be familiar with] the newest things in plainsong.

Correction

There are those for whom it is a custom to direct songs with base gestures, thinking that they know outstanding customs and the exquisite condition of singers. Certain directors moderate the measure with both hands spread apart, at fighting distance, just as when in a lawsuit one of the two people is not able to jump upon the hair of the other with his fingernails, he threatens a lethal contest with his twofold palms unarmed and extended. Also I have seen many signifying the measure by stamping their foot, like a horse that has eaten enough strikes the turf of green grass and salaciously leaps about. Many imitate a vegetable while directing neumes, like the one who sings like a swan with his
Neuma gubernantes, velut hic cervice reflex & Drensat, ita soliti conquiniscunt modulando.

**Inuictio**

Hui pudor, in campo satius decuisset eosdem si stiva liras regerent patienter arantes.

**Doctrina**

Gregorii cantum recturo congruit una Ferre stilum palma, seriem, saltumque notarum Pandere, & assiduo mensuram tangere motu.

**Praeceptum 1**

Inprimis moneo, si cantus ubi variatur Immineatve modus cuius progressio torva est. Ante locum concentores terrendo minaci Siste stylo, cantu ne latius egrediantur Et sileant donec tu solus iter dabis illis

**Praeceptum 2**

Sive notae praeter morem quandoque canoris Prosiliant, usque velis cantare, tegantur Officio palmae, neque enim hactenus aspicientur Quatenus ad cantum non perveniatur amenum Tu tamen interea virga solitum rege cantum.

neck tilted back, or that one accustomed to squat down while singing.

**Invective**

Shame to these. It would have been more fitting for those same ones in a field if, plowing patiently, they were to cut the furrows with the handle of the plow.

**Teaching**

It is fitting for the director of Gregorian chants to hold a stylus with one hand and to disclose the series and the leap of the notes, and to touch the measure with an assiduous motion.

**Precept 1**

I especially advise, if the chant is ever varied or if the mode whose progression is sharp places a terrifying threat before the singers, stop with the baton lest they proceed further with the song, and let them be silent until you alone give the way to them.

**Precept 2**

If the notes of the singer ever jump beyond the custom, and you wish to correct this use by singing, dutifully let the palms be covered and do not allow them to be seen for as long as there is not an arrival at pleasant chant. You, thereafter, direct the accustomed chant with the baton.
Praeceptum 3
Quo magis intense melos it, subtilius ipsum
Debiliusque iuvat depromere, quo mage contra
Deprimitur cantus, graviore sono modulari.

Praeceptum 4
Harmoniam nequicque in plano fingere cantu
Aude cantando, vitio quia vix caret illud
At si fingere scis hanc finge in fine tonorum
Qui facis oppositum, rudis es, praeceptaque nescis
Musica que statuit cantoribus usque tenenda.

Praeceptum 5
Praeterea nota sit plani penultima cantus
Nedum finalis, longo prolata tenore.

*  
C P A R T S E C U M D U M  
D E R E G I M I N E  F I G U R A T I V I  C A N T U S

Dissonat omne melos, dum rectis vocibus ipsum
Non canitur, quantum sit cunque poematis alti
Quo cecinisse modo recte potes, & regere odas

Precept 3
By however so much intensely a song proceeds, by so much more it is pleasing to draw it out subtlety and weakly. But how much a chant sinks down, on the contrary, by so much graver a sound is it pleasing to sing.

Precept 4
In vain dare to fashion harmony in plainsong by singing, for hardly ever is this without vice. But if you think to fashion this, fashion it at the end of tones. You who do the opposite are crude, and you are ignorant of the precepts that music has established for singers.

Precept 5
Moreover, let the penultimate note of the plainsong, not the final, be drawn out by a long tenor.

*  
C H A P T E R  T W O  
C O N C E R N I N G  T H E  D I R E C T I N G  
O F  F I G U R E D  S O N G

Every melody is dissonant when it is not sung with correct voices. It is as much when it is a high poem, correct for you who can sing correctly and direct songs, when the pitch is correct for
Cum tibi vox recta est, concentori tamen aegra,
More toni incipies, concentor voce suapte
Illico te secum trahet, ima petens quasi saxum
Cum quo vix median, partem cantus cecinisti,
Visus es ab coepto descendere sub diapente,
Et mage si tandem finem cantaveris usque.

Comparatio

Officit una gregi scabiosa ovis, & pecus omne,
Contaminat, si cum formosis pascitur agnis.
Num vox bubonis voci bene quadrat alaudae?
Harmonicas igitur quisquis moderare camoenas
Delige dumtaxat concentores, quibus est vox,
Congrua, Melpomenesque accedere pulpita nemo,
Audeat, absurda qui voce crepare videtur.
Musicus arte viget, sed cantor voce probatur,
Si quis utrumque sciat, genio donante beatus.

Qualis vox rectori convenientissima

Vox gravis in fundo versanda regentibus odas
Harmonicas frugi est, & conducit vehementer.

Comparatio

Nam sicut strepitum melius sentimus ab imo,
Altorum quoque sic deliramenta sonorum
Percipimus melius dum in pressa voce moramur.

you but incorrect for your companion, you will begin in the
manner of the tone and your companion will drag you from it
with his own voice, seeking the depths. It will be as if with rock
with whom you have sung with difficulty the middle part of the
song, you seemed to descend from the beginnings under the
diapente, and more, until finally you have sung all the way to the
end.

Comparison

One mangy sheep harms the flock and contaminates the entire
herd if it grazes with beautiful lambs. Does the voice of an owl
blend well with the voice of a lark? Therefore, you who direct
harmonic songs, choose only singers who have a congruous
voices, and let no one dare to approach the Stage of Melponiene
[Melpomene, the muse of singing] who seems to squeak with a
harsh voice. Music thrives on art, but the singer is approved by
his voice. If anyone knows both he is happy that such has been
bestowed.

What Sort of Voice is Most Fitting for the Director

A grave voice in the low register may be turned to profit for those
directing harmonic songs, and it assists in leading well.

Comparison

For just as we hear a sound better from the depths, so also do we
better perceive the absurdities of the high voices while we delay
on a moderate pitch. When the alto is thought to have a raucous
Cum raucam, at claram vocem succentor habere, 
Cogatur, tum vox occentorem aspera, recta, 
Et sincera decet, qua voces sustineantur, 
Indiget arguta excentor voce, atque serena, 
Si liceat pueros vocem cecinisse supremem, 
Subtili tenuique sono modulentur eandem.

but outstanding voice, then a harsh, right and sincere voice befits the singer, by which voices are sustained. The tenor needs a clear and serene voice; if it is permitted for boys to have sung the highest voice, let them sing it with a subtle and tender sound.

Comparatio

Disparibus male tractantur carpenta caballis 
Nec bene disparibus resonabit vocibus hymnus. 
Sint ergo parium concentores tibi vocum 
Quotquot habere sat est, modulantes unius instar.

Comparison

Wagons are pulled badly by unequal horses. No less well will a hymn resound with unequal voices. Therefore, let your choir members, however many it is sufficient to have, be of equal voices and be modulating as one.

De situ modulantium

Cum pueris occentores simul atque seorsum, 
Et succentores stent cum excentoribus una, 
Hi simul, hique simul quia concordare videntur. 
Sicut acuta gravi vox voci subiicienda est. 
Sic mediae voci debet parere suprema. 
Et propriis formis cantando regantur in unum.

Concerning the Arrangement of the Choir Members

Let the tenor stand with the boys, at let the altos stand apart with the basses; these stand together because they seem to correspond. Just as an high voice ought to be subjoined to a low voice, so the highest voice ought to obey a medium voice, and by the proper forms they are directed into one by singing.

Quomodo exordium fieri debeat

Pars ubi queque sua voce est correcta adamussim 
Voce levi fiat praecentio carminis ante 
Initium, tonus ut proprium per neuma notetur 
Voce subinde susurranti da cuique seorsum 
Initium parti quo concepto, incipe tandem

How the Exordium Ought to Happen

When each part is correct by its own pitch accurately, let a pre-singing of the song with a light voice take place before the beginning of the song. So that a tone might be noted through its own neumes, give with a whispering voice the beginning of each part separately which, having been understood, begin finally.
Incipe sic inquam, quod pars comprehendere vocem Quaeque suam possit. Nam si simphonia pressis Increpat, aut resonans nimium si tinnit acutis Vocibus, absurda est, quare sis cantus in orsu.

**De errorum cautione**

Etsi contingat partes titubare canendo, Ocius instaura nutantem voce tuapte Harmoniam intereaque tuam vocem canat alter Si vero exiluisse tua de voce nequibis. Suppetias simul erranti nescis dare parti, Illico siste melos, finem simulando canoris Harmoniamque sibi fingat pars quaelibet aptam, Qua modicum sustentata, imbue denuo cantum Dedecus euades, intentas decipiesque Auriculas, quo ni medio salvabis honorem Fronte verecunda sannam paterere pudendam.

**Concerning the Caution of Errors**

And if it happens that parts are wavering in their singing, quickly latch upon the wavering harmony with your own voice, and meanwhile let another sing your voice. But if you will not be able to jump out of your own voice and you do not know how to give help to the wandering part, stop the song there, and by simulating the end of the tune, let whatever part fashion for itself the fitting harmony. You will evade disgrace and deceive intent ears. If you do not save honor in the middle you will experience a shameful grimace with a blushing forehead.

De mensura moderanda

Perpetuo motu tactum signare necesse est A metri puncto concenitores alioqui Mon declinarent, esset simphonia discors. Absque manus motu quamvis cantare periti sint soliti, tamen intentatis difficile esto.

**Concerning Moderating the Measure**

It is necessary to signify the tactus by perpetual motion. Otherwise, the singers would soon depart from the punctus of the measure and the symphony would be discordant. Although skilled singers are accustomed to sing without the motion of the hand, it is nonetheless difficult for the unskilled.
CAPUT TERTIUM
DE MODO CANENDI

Est modus eximius modulandi voce modesta
Neu pars offuscet partem clamore sonoro
Quaelibet audiri debet, per seque notari.

Correctio

More boum si quis vocem de gutture per vim
Eructet, vel si trepido pede cespitet, ut vox
Horribilem reddat sonitum pulmone repulso
Aut si discordis labiis sannaverit, ac si
Oscitet is, qui perdius & pernox vigilarit
Displicet, in cantu est gestus servare decentes.

Cantorum conditiones

Discite qui vultis cantores nomine reque
Et dici, & fieri, notulas modularier imo
Gutturae lusciniae volucris, vel achantidos instar
Turpe sonat lingua vibrante nimis modulari
Et labiis vocem formare ciconia tanque
Quae pro voce sonum rostris quacientibus effert.
Labda etiam cismum nedum fugere Poetae
Nedum oratores, sed & ipse hilarodicus ordo.
Unico item nota sit prolata tenoris hiatu

* CHAPTER THREE
ABOUT THE MANNER
OF SINGING

There is an outstanding manner of singing with a modest voice,
nor let any part obscure with sonorous clamor another part which
ought to be heard and noted in itself.

Correction

If anyone belches forth forcefully from his throat a voice in the
manner of oxen, or if he paws the ground with quivering foot so
that the voice returns a horrible sound with the lungs pushed
back, or if he grimaces with discordant lips, or if he who stays
awake all day long and night yawns, it would be displeasing in
song. It is necessary to preserve fitting gestures.

Conditions of Singers

Learn, you who wish to become and be called singers, both by
name and in fact, to sing notes from the lowest throat like a swift
nightingale. It sounds base to excessively modulate with a
vibrating tongue and to form a voice issued forth with the lips
like a stork, in place of a voice, a sound from a quacking beak.
Neither poets nor orators have yet shunned Labda. Nevertheless,
should a note be prolonged by a single continuance of a tenor, it
would change the harmony with the value if the notes divided.
Harmoniam viciat divisa valore notarum.

De sonorum variatione

Sicut in hidraula variamina crebra sonorum
Mirandum reddunt cantum, nimiumque decorum
Humanis itidem cannis mutatio vocum
Congrua si fieret, cantus iucundior esset.
Multa queunt praecpta dari, sed cetera supple.

Concerning the Variation of Sounds

Just as in a water organ multiple variations of sounds return a
wondrous and excessively beautiful song, likewise the change of
voices by human windpipes, if it should become congruous,
would make song more pleasant. Many precepts are able to be
given, but you must supply the rest of them.

FINIS LIBRI TERCII.

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END OF BOOK III

* * *
INCIPIT LIBER QUARTUS

Harmoniam vocum qui condere vis, prius esto
Musicus argutus, postremum hanc consule musam.
Quae quanquam brevis est, supplemento tamen ampio
Indiget, & verbis in talibus orsa patescit.

De concordantibus

Perficit harmoniam diapason, sic diapente.
Tertia, vel sexta adveniens imperficit illam.
Septima confundit, viciat secunda, proinde
Non valet in tactu poni, sed circiter illum
Nec resonet valide, cursu tamen effluat acri.
Quarta nequit poni, nisi tertia quintave secum
consona sit, solam nunquam posuisse licebit.
Quinta tamen quartam, quam tertia plus iuvat, illa
Nam sonat octavam, tonat haec tantumodo sextam.
Harmoniam dulcem cum quarta quinta tonabit,
si quartam supra, quintamque locaveris infra.

Regulae vitiorum

Regula 1

In quartis, quintis, octavis, unisonisque
Ponere mi contra fa cave qui conficis odas.
Salvatur peregima voce reposte.

BEGINNING OF BOOK IIII

You who wish to find the harmony of the voices, first be a clear
sounding musician, and then consult this music [treatise]. For
although it is brief, it needs ample supplement, and it is only the
beginning of such words. It opens [the discipline].

Concerning Harmonies

A diapason perfects a harmony, as does a diapente. A third or a
sixth approaching these imperfects it. A seventh confounds it,
and a second changes it. Therefore, it is not valued to be placed
on the tactus, but around it, for it does not resound strongly.
Nevertheless, it flows with a sharp course. A fourth is not able to
be placed unless a third or a firth is consonant with it; it will
never be pleasing for it to place it alone. A fifth, nevertheless,
helps a fourth, and a third helps more, for the latter sounds an
octave, the former sounds only a sixth. A fifth will sound sweet
harmony with a fourth, if you locate the fourth above and the
fifth below.

Rules of Vices

Rule 1

In fourths, fifths, octaves and unisons, you who compose songs,
beware of placing mi against fa.
Regula Secunda

Non licet ire duas voces una gradio
duo nomina. pluribus in octovibus, unisonique
Equivalens quae sit cognoscitur ex diapason.

Quod cantus quattuor vocum sit optimus

Quattuor est vocum cantus super omne poema,
clamosusque satis dum plene cuditur, in quo
vox gravis, & media est, et acuta, supremaque, voces
Praeter eas, quecunque (superflua dicitur) esto
Nam regione caret propria, passimque vagatur
si quam in fine tenet formam concessit eandem
altera vox illi, propriam nequit edere sola.

De formis vocum sive clausulis finalibus

Forma gravis vocis diatesseron, aut diapenten
Depressam tonat, aut facit intensum diapason
At mediae vocis vult forma tonum generare
Semitonomve modos gradientes desuper apte,
Unisonum vulgo forma edit vocis acutae
Vox suprema tenet formam sursum gradiendo
Semitonique tonumve facit, praestantior est que
Per praecedentem notam erit sustenta parumper
Ecce liquet formam notulis constare duabus.

Second Rule

It is not permitted for two voices to go together by stepping in
many fifths, octaves, and unisons; whatever is equivalent is
recognized as the diapason.

The Fact that a Song of Four Voices is Best

A song of four voices is above every composition, and clamorous
while it is beaten fully enough, in which there is a grave voice
and a medium voice, and acute and supreme voices. Beyond
these, let there be another (which is called superfluous), for it
lacks its own region and wanders here and there. If it holds any
form in the end, another voice has conceded the same [location]
to it; it alone cannot issue its own.

Concerning the Form of Voices of the Final Clausulas

The form of the grave voice sounds as a diatesseron or a lower
diapente, or it makes an upper diapason. But the form of the
medium voice wishes to generate a tone or a semitone. In modes
stepping aptly from above, the form of the acute voice commonly
issues a unison. The supreme voice holds form by stepping up
and makes a semitone or a tone; it is more excellent if it had been
sustained a little from the preceding note. Behold, it is clear that
the form exists from two notes.
De formarum mutua convenientia

Vocis forma gravis cum forma vocis acutae
Conveniunt simul in diapente extra diapason
Disposita, vel in unisono, aut solum in diapason
Cum forma mediae vocis vult forma supremae
Semper in octava finiri. Sique vicissim
Mutantur formae, subtilior est melodia.

Concerning the Mutual Accord of the Forms

The form of the grave voice with the form of the acute voice meet at the same time in the diapente located above the diapason, or in unison, or alone in diapason. The form of the supreme voice wishes always to be ended in the octave with the form of the medium voice. And, if in turn, the forms are changed, the melody is more subtle.

EXAMPLE

De vocum generatione

Supremam media, & vocem gravis edit acutam
Quo suprema modo mediae subiecta videtur
Sic subiecta gravi vox voci fiat acuta.

Concerning the Generation of Voices

The medium voice issues the supreme voice and the grave issues the acute voice. In this manner the supreme voice seems to be subjected to the grave voice.
De vocum concordia

Vox gravis harmoniam cum vocibus omnibus optat
At cum voce gravi solum concordat acuta.

In praxim manuductio

Incipe sic, trahe per pluteum bis quinque literas
In certisque locis signatas construe claves
Denum quae primum tibi vox ponenda videtur.

De ordine vocum formandarum

Pone, sed in primis mediam posuisse licebit
Nam basis est vocum, sine qua tepet omne poema
Qua recte posita, tractu perpendiculari.
(Ne seducaris) distingue a tempore tempus.
Supreman cura vocem posuisse subinde, ut
cum media resonet quovis in tempore recte
tum gravis harmoniam vocis suppone decenter
Sic ut cum media sonet & cum voce suprema
postremum tandem vocem formabis acutam
Ut cum voce gravi tantummodo consono fiat
Et forme coeant ubi congruit, utque videtur.

De Notarum resolutione

Dumque relaxantur notulae ut currant seriatim.

Concerning the Concordance of Voices

The grave voice hopes for harmony with all voices. But the acute voice is concordant only with the grave voice.

Leading the Hand into Action

Begin thus: drag through the writing board ten strokes. Construe keys signified in various places, and at length place that voice which seems that you ought to place first.

Concerning the Order of Forming the Voices

But it will be pleasing to have placed the medium voice first, for it is the base of the voices, without which every song is tepid. With this voice, having been positioned rightly, distinguish time from time by a perpendicular tract [bar line]. Take care to have positioned the supreme voice next, so that it might resound rightly with the medium voice in whatever time you wish. Then, supply fittingly the harmony of the grave voice in such a way that it sounds with the medium voice and with the supreme voice. Finally, you will form the acute voice so that it is only consonant with the grave voice. And the forms move where it is congruous, and as it seems [best].

Concerning the Resolution of Notes

And while notes are stretched out so that they run in a series.
Regula 1

Impar quam tangit numerus sit consona saltem.

Regula 2

Quae cadit in tactum semper quoque sit nota concors
De reliquis (quia cum primis resonant) tibi cura
Nulla sit, harmoniam si cunctis condere nolis
Nullaque fastidit medium servare decorum est
Harmoniam turbat resolutio summa notarum.

Rule 1

At least the unequal ones, which a number [tact] touches, are consonant.

Rule 2

Whatever note falls on the tactus is always concordant. Let there be no care to you concerning the remaining; these resound with the first ones. If you do not wish to find harmony with all, and none disdains it, it is fitting to preserve the medium. Resolution on the highest note disturbs the harmony.

EXAMPLE

De fugarum formatione

Concerning the Formation of Fugues

Fuga potest esse quadrifariam

The Fugue is Able to be Fourfold

Insert fugues often and your composition will be subtle.
Whatever voice will have seemed best to you, place first. This voice proceeds, fleeing, and another follows it by fleeing with the similar modulation that the diapason or unison creates, or the diatesseron or diapente.

He who wishes to create good and subtle fugues needs genius, for
Indiget ingenio qui subtilesque, bonasque
Vult fabricare fugas, nam nil nobilius illis.
Quattuor ex una voces emergere crebro
Vidimus, atque huiuscemodi compegimus olim.

nothing is more noble than these. We see four voices emerge one after another from one, and from such as this we have constructed [a fugue].

Fuga quatuor vocum in diapason, diapente et diatesseron
Fugue of Four Voices in Diapason, Diapente, and Diatesseron

Fuga trium vocum in unisono
Fugue of Three Voices in Unison
Fugue of Four Voices in Diapason, Diapente, and Diatesseron
Fugue of Three Voices in Unison
De notarum coloribus

Contra mensurae tactum notulis resecatis,
Est color, & cantum (quansi flores prata) decorat
Eximius color est proportio posta decenter.
Cum sint innumerae, non omnis idonea cantus est
Nempe voluptatem quandoque reciprocus affert
Concentus modulatori, nohilominus atque.
Lectori carmen, quod progreditur pede varo
Omne quidem insolitum mirabile sensibul esto.
Multiplices autem fiunt varique colores
In cantu, sed eos (quando faveo brevitati)
Transeo, noscuntur canonum velamine noto.

Exemplum contra tactum resectionis

About the Colors of Notes

Color is against the tactus of the measure, with the notes cut off, and it decorates the song (as flowers decorate a meadow). Outstanding color is proportion rightly. Because these are innumerable, not every one is suitable in song. Indeed, when the choir is singing together, it brings delight to the director. This is not less than the delight brought to the singer when the song proceeds at a varies pace. Indeed, every unaccustomed thing is wondrous to the senses. However, there are many and varied colors in song, but (because I favor brevity) I pass them by; they are recognized by the demonstrated thoughts in the canons.

Example Against the Tactus of Resection
Example Against the Tactus of Resection

Seek cancer at the Octave
De vocum pluralitate

Multarum poteris vocum componere cantum
Si te exercebis, Tyruncule disce duarum
Primitus, inde trium, tum quattuor edere recte.
Motibus alternis fiet confectio tota
Quattuor exacte dum voces condere noris
Tum demum plures tenta componere cantus.

Preceptum primum

Utere permixto varioque colore notarum.

Preceptum secundum

Clausula saepe loco repeti non debet in uno.
Namque frequentatum turbat, recreat variatum.

Doctrina

Vis auditores exulinent compositura?
Harmoniam certis (qui proprietate suapte
Exhilarant) fabricare tonis memori esto, tonisque
(Quorum natura est lugubris) reddere mestos.
Nenia moerori, iubilo simphonia quadrat.

Sex Vocum Harmonia

Concerning the Plurality of Voices

You will be able to compose songs of many voices if you
exercise yourself. Beginner, learn to issue those first of two, then
of three, then of four [voices] rightly. Total composing will
happen by alternating movements. When you know how to place
the four voices exactly, then try to compose more songs.

First Precept

Use a mixed and varied color of notes.

Second Precept

A clausula ought not to be repeated often in one place, because it
confuses the frequent and recreates the varied.

Teaching

Do you want your hearers to exalt in your composition?
Remember to fabricate harmony with certain tones (which
exhilarate by their own property) and to render them full of tone
(whose nature is mournful). The dirge is consistent with sadness,
the symphony with joy.

Harmony of the Six Voices
De usus acquisitione

Post artem praxim studio venabere tali.
Discute diversi prius exemplaria cantus
In quibus egregia harmonia est, variique colores
Extiterint, donec proprio fantasinate frustra
Cudere tentabis, successu temporis usus.
Queritur, instanti pereunt quae tempore fiunt.
Nemo poeta fuit, qui se non novit habere
Ante poetastrum, quare non imputo lector
Primitias artis si condideris viciose.

Doctrina

Hanc artem parvo si tempore vis adipisci,
Fac quod heri patristi hodie vitium fuge, quodque
Commisisti hodie, ne cras commiseris ipsum.
Alternis crescent studiis quaecumque repente.

Annus editionis

Ne liber in magnum (satis est cecinisse) volumen
Crescat, & hoc versu cognosce poematis annos.


Concerning the Acquisition of Experience

After art, venerate practice with similar zeal. First, strike examples of diverse song in which the harmony is outstanding and various colors exist. In the succession of time, you may try to strike in vain, unable to create the proper image. Those things that happen in our time will perish. No one was a poet who does not know that he is held before the master, wherefore I do not reckon you a reader if you have already discovered the first elements of the art.

Teaching

If you wish to conquer this art in a small time, make sure that today you avoid the mistakes that you committed yesterday, and the mistakes that you committed today, do not commit tomorrow. All things whatsoever increase rapidly by alternating studies.

Year of the Edition

Lest this book grow into a great volume (it is enough to have sung), recognize by these verses the poem in [future] years.

APPENDIX A: HANDWRITTEN NOTES IN THE 1518 EDITION

Folios c4v and d1f
The tradition of handwritten notes within margins and blank pages has received little scholarship over to date. There are a few well-known treatises that contain handwritten notes by theorists such as Franchinus Gaffurius, Giovanni Spataro, Heinrich
Glarean, and Gioseffo Zarlino, and a relevant discussion of this practice during the Renaissance occurs in Susan Forscher Weiss’s *Music Education in the Middle Ages and Renaissance*. She describes how many texts contain handwritten notes or annotations that serve to highlight information or particular words within the main treatise and how some contain information that is not even relevant to the subject matter of the main text. The act of copying notes in textbooks establishes evidence of active consumption of the source treatise.

The handwritten notes in the 1518 edition of the *Musicorum libri quattuor* are written in the script of a talented student but are mostly too small and therefore illegible. An adequate number of words are legible enough to establish a thorough context but not enough to facilitate a translation of any sort.

The big picture is important: the 1518 edition by Georg Rhau contained only book three of the *Musicorum libri quattuor*, and while this is possibly to highlight the importance of its revolutionary information on choir practice and conducting, it lacks any of the other instructions typical of a didactic treatise. Philomathes’s books on plainchant, mensural music, and composition are noticeably absent. The handwritten notes are perhaps an attempt to quickly fill these lacunae. The script briefly sketches out the basics of mensural notation. The important question is, why did the writer only insert directions on mensural notation?

Considering that it was possible for the writer to write about any topic from plainchant and intervals to composition, the selection of mensural notation demonstrates that perhaps mensural notation was the most important subject matter that was lacking in a treatise that only discussed choir performance practice. Alternatively, it could mean that
the concepts of mensural music were the most difficult to grasp for an early 16th century musician, and so the notes were written as an attempt to reinforce any previous instruction they may have received on the topic. It is an interesting dilemma and one that remains speculation.

The top of f. c4v says “Octo Sunt Species Notarum” or “there are eight species of notes.” The author of the notes was not following the first edition of the *Musicorum libri quattuor*, which calls them eight *figuris*, rather than *species*. Afterwards the writer outlines the *maxima, longa, brevis, semibrevis, minima, semiminima, fusa, and semifusa* and provides both the basic shape and examples of ligatured shapes. Following this, he outlines the division of notes found in *modi maioris* and *modi minoris*. These diagrams and the diagrams on the following page also do not match with Philomathes, as they show both smaller note values above the main note, and a number that represents the total number of *semiminimae* that fit into the duration of the *maxima, longa, brevis, and minima*. Folio d1r continues with the divisions of *prolatio* and *diminutum*.

Folio d1v offers an explanation of ligatures. It seems to follow the common rules, explaining how upward stem makes the following two notes *semibreves*, describing the values of other combinations of shapes and the values of notes in the middle of complex ligatures. He explains the *quadratum* shapes and the *obliqua* shapes. The following list of signs has explanations about the *tactus* in relation to each sign. The column on the left says something about how the *tactus* normally follows the value of the *semibrevis*, and the right two descriptions discuss values of the *tactus* in augmentation and diminution.

Folios d2r-v provide rules for the process of imperfection, but the handwriting becomes too small to distinguish many details of instruction. Lastly, the end of f. d2v and
f. d3⁵ describe and demonstrate the various *pausa*. Folio d3⁵ ends with an explanation of the *punctis additionis* and the *punctis divisionis*. In general, the notes seem so brief and incomplete that it is improbable they were copied from another textbook but, rather, are the result of a student or teacher’s effort to quickly fill in the gaps left by the shortened 1518 edition of the *Musicorum libri quattuor*. 
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