

THE THEORETICAL WRITINGS OF PIETRO AARON

by

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ABSTRACT

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Pietro Aaron, the most important Italian music theorist between Franchino Gafori and Gioseffe Zarlino, was born about 1480 in Florence, resided thereafter in Imola, Venice, and Bergamo, and died in the latter city about 1550. The present study comprises an analysis and discussion of his five published treatises: Libri Tres de Institutione Harmonica (1516), Toscanello in Musica (1523; revised edition 1529, 1539, 1563), Trattato...de tutti gli tuoni di canto figurato (1525; Supplement, 1531), Lucidario in Musica (1545), and Compendiolo di molti dubbi (ca. 1550). Of his surviving correspondence, a substantial portion is reproduced.

Since Aaron's ideas changed little over the years, a study of his work is best ordered topically. Among Aaron's most famous achievements is the earliest description of a meantone temperament, but apart from this description he always uses the traditional Pythagorean tuning. Evidently the latter remained a theoretical standard through the sixteenth century, while it was largely supplanted in practice; Aaron thus offers one of the earliest examples of a split between theory and practice such as has increasingly plagued theory ever since. He devotes considerable space to notation,

but this is perhaps the least interesting part of his work; like most theorists of his time, Aaron writes at great length about intricacies that had found little practical application for over a century.

His studies of the modes are of the highest interest. Aaron was the first theorist to consider explicitly and in detail modality in contrapuntal music, and his discussion is enhanced by citation of numerous compositions as examples. His work was ultimately unsuccessful, partially because he retained the traditional system of only eight modes, but mainly because the modal system was developed to explain monophonic music and does not consider the relationships among voices in a polyphonic complex. Nevertheless, Aaron's pioneering effort contains much of value to any study of the problem.

In Renaissance theory, the study of counterpoint was concerned more with chord construction and progression than with voice-leading. Aaron relates this fact to practice by being the first to observe that composers of his time now write the voices of a composition simultaneously, rather than successively as had been the earlier custom. In Toscanello he gives an extensive table showing how to construct chords in four parts, one of the first of several that appeared in various treatises through the sixteenth century. He gives precise instructions, among the earliest, for constructing cadences in four parts, and he even considers some aspects of chord succession at points other than the cadence.

Aaron is one of the first theorists to state a preference for notating all accidentals, rather than leaving some to be supplied by the performer according to the practice of musica ficta. He does discuss the application of musica ficta though, in more detail than most contemporaneous theorists, and gives some helpful suggestions about how it should be applied in specific situations. His interest in chromaticism also extended to working out a system of solmization for chromatic tones; the system was too cumbersome to find acceptance but is a testimony to Aaron's interest in new currents of thought and in their assumption into a theoretical framework.

Aaron's writings show him to be a theorist of considerable acuity, alive to the accomplishments of his contemporaries, well versed in tradition and the writings of his predecessors but a slave to neither, and with a practical orientation that makes his work of considerable value and interest to the serious student of the music of the Renaissance.

TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
PREFACE	iii
I - INTRODUCTION, BIOGRAPHY, BIBLIOGRAPHY	1
II - PHILOSOPHY, SOLMIZATION, INTONATION	74
III - NOTATION	122
IV - THE MODES	224
V - COUNTERPOINT	315
VI - ACCIDENTALS AND <u>MUSICA FICTA</u>	388
CONCLUSION	462
BIBLIOGRAPHY	472
ABBREVIATIONS AND SHORT TITLES	484
APPENDICES	485

PREFACE

The present study is, to my knowledge, the first comprehensive examination of the work of Pietro Aaron, one of the most important music theorists of the sixteenth century. If it fulfills its purpose, it should be of value as a clarification of Aaron's historical position, as an introduction to major problems that faced music theory in the early sixteenth century, and as a starting point for studies of other theorists, such as Giovanni Spataro, whose work deserves a similar investigation. Aaron's writings are herein considered in their relationship to both theory and practice, with principal reference to the scene in northern Italy, where Aaron spent his entire life. The emphasis throughout is on problems of musical technique; in the writings of Aaron, as of many other theorists of his time, little reference is made to the broader cultural background, of which music was an important and honored component.

Detailed examinations of Renaissance music theory are not numerous, and this study is thus based largely on

primary sources. Direct quotations from all sources reproduce the original exactly, except that abbreviations are written out in full; the sources' inconsistent or archaic spellings and their haphazard use of accents are unaltered. Mūsica ficta has not been added to the musical examples except as it appears in a modern printing of the composition. In Chapter III many of the examples originally appeared on a staff, but they have been reproduced in campo aperto, since pitch is irrelevant to the discussion of rhythm.

Numerous libraries assisted in the preparation of this dissertation by supplying microfilm and answering queries. I should like to acknowledge in this regard the kindness of the Biblioteca Apostolica Vaticana; the British Museum; Bibliothèque Nationale, Paris; Biblioteca Musicale "G. B. Martini," Bologna; Deutsche Staatsbibliothek, Berlin; Library of Congress, Washington; University Library, University of Michigan, Ann Arbor; Biblioteca Nazionale Centrale, Florence; Biblioteca Estense, Modena; Biblioteca del Conservatorio di Musica, Parma; Gemeentemuseum, 's Gravenhage; Bibliothèque Royale de Belgique, Brussels.

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CHAPTER I

INTRODUCTION, BIOGRAPHY, BIBLIOGRAPHY

Pietro Aaron¹ has long been recognized as one of the most important figures in sixteenth-century music theory. He is particularly well known for his clear accounts of the practice of counterpoint, for his insistence on indicating all accidentals rather than leaving some or all for the performer to supply, for describing a mean-tone temperament for the first time, for being one of the first to discuss the modes with specific reference to counterpoint, and for his preference for writing in Italian rather than Latin. He was one of the most prolific theorists of his period; his five published treatises are Libri Tres de Institutione Harmonica (1516), his only work to appear in

¹ Aaron's name is spelled with either one or two A's, seemingly depending on personal taste. Aaron himself used both spellings in his letters, as do the published treatises and his correspondents. The disagreement has been perpetuated by all other writers since. The present writer has chosen to use two A's, following the new Dizionario Biografico degli Italiani, but the alternate spelling is equally justified.

Latin rather than Italian; Toscanello in Musica² (1523; revised edition, 1529, 1539, and 1562); Trattato della Natura et Cognitione de tutti gli tuoni di canto figurato (1525; a supplement was published separately in 1531); Lucidario in Musica (1545); and Compendiolo di molti dubbi (ca. 1550).³ Of an extensive correspondence, at least nine letters written by Aaron and over forty addressed to him survive.⁴ These letters indicate that he was also active as a composer, but only one work can now be ascribed to him even tentatively. Aaron's published books and his

² The first edition spelled the title Thoscanello, and its spelling throughout is archaic compared to the three later editions; the more modern spelling has been preferred here.

³ Full bibliographical descriptions of all these works appear below in this chapter.

⁴ The principal source is Biblioteca Apostolica Vaticana, Ms. Vat. Lat. 5318, which is described in Knud Jeppesen, MusThKorr. Other letters are in Paris, Bibliothèque Nationale, Ms. Ital. 1110; Berlin, Deutsche Staatsbibliothek; and Bologna, Biblioteca Musicale "G. B. Martini," Ms. B.107,3; copies of most of the letters are in the Bologna library. All letters and documents pertaining to Aaron appear in Appendix B, with the exception of Giovanni Spataro's thirty-three letters to Aaron. These are not transcribed in full because of their great bulk, but they are quoted extensively when pertinent. The letters are hereafter designated by the numbers assigned to them in Jeppesen's table of contents of VL 5318, op. cit., p. 12-20.

letters are the primary sources for the present study, which examines his work in topical rather than chronological order; the latter would be unwieldy, since most of the books are comprehensive in content and the same subjects are discussed several times.

Aaron is by no means an isolated or peripheral figure in the history of music theory; the Renaissance was an exceedingly fruitful period for theory, and most of the prominent theorists between 1450 and 1600 were active in Italy. The conjunction of important new developments in musical style, the temper of the age that encouraged questioning time-honored concepts, the invention of printing which made communication so much easier, and the flowering of a more secularly oriented culture, all encouraged extensive developments in theory during this century and a half.

Changes in musical styles during the Middle Ages were an important source of new concepts in theory, as writers attempted to describe and categorize the achievements of composers. This continued to be true in the Renaissance, and pronounced changes in musical style early in the fifteenth century, exemplified in the works of Dunstable,

Dufay, and Binchois, brought about correspondingly increased activity on the part of theorists. The latter were well aware of the changes in practice, as is evidenced by the famous statement of Johannes Tinctoris in his Art of Counterpoint, 1477, that the only music worth performing was written within the previous forty years.⁵ Musicians shared the sense of newness and exploration that characterized other activities in the fifteenth century, with the results described by Tinctoris; the immediate past was completely rejected and the present felt to be infinitely superior. In more technical terms, several features that distinguish Renaissance from Medieval music are reflected in the theoretical writings of the period.

One of the most notable characteristics of the new style is a marked increase in euphony in almost every respect. Much more attention was given to harmony; complete triads were used much more frequently, in preference to the predominant open fourths, fifths, and octaves

⁵ Johannes Tinctoris, The Art of Counterpoint, translated and edited with an introduction by Albert Seay (s. l., American Institute of Musicology, 1961), p. 14; also Oliver Strunk, Source Readings in Music History (New York, Norton, 1950), p. 199.

characteristic of much medieval music. This trait is particularly evident in the fauxbourdon style of the early Renaissance and is reflected throughout the period by the use of a chordal texture as an alternative to the more linear style in which individual voices stand out rather sharply; the latter was characteristic of almost all medieval music. Renaissance composers also became increasingly fastidious in the use of dissonance, a development that culminated in the highly controlled style of Palestrina. Another notable change from the late Middle Ages to the early Renaissance was a marked simplification of rhythm; the late fourteenth and early fifteenth centuries used rhythmic complications that have hardly been matched by the most inventive of twentieth-century composers, but succeeding generations came to favor a simpler style in which the metrical background was relatively unobscured, and the rigid framework enforced by isorhythm was loosened by abandoning this device. The theorists reflected the latter developments in a gradual simplification of their explanations of notation, although many of them continued to describe in great detail some of the more awesome complications which were still possible in the notational

system in use after 1450. The proportions, imperfection, and alteration were especially productive in this respect; the theorists considerably overstepped the bounds of practice in discussing these areas, perhaps out of a delight in displaying their learning, but surely out of an at least equal interest in abstract pursuit of the boundaries of the system regardless of practicalities.

Other notable developments in Renaissance music were the extensive use of imitative techniques from the late fifteenth century on, and the increased interest in and attention to the values of the literary text to which music was set. Imitation was first described by theorists towards the turn of the century, but in no great detail until after Aaron's time, and the principles of setting the text were treated only after the mid-century.

Theory broke with its own past most conclusively in the field of speculative philosophy. Renaissance theorists by and large had little to do with the concept of music as a liberal art, a way-station on one's progress towards philosophy or theology, which had been a central interest of so many medieval theorists. Many writers paid some lip service to the concept, but discussions of musical technique

obviously interested them much more and occupied most of their attention. Though musical philosophy is by no means absent from Renaissance theory, the trend is towards leaving it to the philosophers and others whose contact with musical practice was relatively peripheral and who were thus not so deeply involved in the technical problems.

In those areas of musical technique where no traditional concepts could be applied, the theorists were perhaps most successful in coming to terms with the new style. This is notably true of most of the material that can be considered under the heading of counterpoint, such as cadences, construction of chords, treatment of dissonance, and imitation. Each generation was able to discuss these subjects rather adequately, taking notice of developments that had been made by recent composers. Where medieval categories seemed to apply, a conflict with the realities of practice sometimes took place, since there was an evident reluctance to break with tradition when present practice seemed to conform with it, even if the conformity was illusory. This may be observed in discussions of the modes and solmization. Theories of intonation, on the other hand, saw radical breaks with the past; the development of new systems of tuning was one

of the most active areas in Renaissance theory. Theoretical attention to tuning may well have been stimulated by experimentation on the part of performers, as Franchino Gafori suggested.⁶ Evidently a general dissatisfaction with the traditional Pythagorean tuning forced its general abandonment despite the opposition of conservatives; the principal reason was the harshness of triads, notably the thirds, in that system. A renewed acquaintance with the documents of classic Greek theory also was influential in the development of new tunings; these sources furnished ample precedent for departures from the Pythagorean system and indicated a variety of approaches to the construction of new systems. The influence of Greek theory on the Renaissance was perhaps less happy in the concept of the three genera, the diatonic, enharmonic, and chromatic. Numerous writers in the sixteenth century pursued the chimera of relating this concept to the musical language of their own time, with little success.

The time-honored concepts of the modes and the Guidonian solmization system retained their force throughout the Renaissance, to the detriment of theoretical penetration of

⁶ Gafori, Practica Musicae (Milan, 1496), III, 5.

the musical literature. Both concepts were essentially diatonic and linear and failed to account for chromatic tones and harmony, two prominent factors in the tonal structure of Renaissance music. The chromatic tones could easily enough be incorporated into any system of tuning, although the system was thereby complicated to some degree, but the modes and the solmization system creaked and groaned under the burden of accommodating as many as ten chromatic tones, the number found in Pythagorean tuning as well as other systems. The modes are perhaps the area in which Renaissance theory is least successful, mainly because modality was essentially a linear concept, developed to explain the monophonic Gregorian chant. The combination of several lines in polyphony complicated modality immeasurably by introducing the harmonic element, and as harmonic relationships acquired greater force in the fifteenth and sixteenth centuries, the music became less and less amenable to analysis in terms of the modes. Aaron was one of the first theorists to attempt to describe mode in polyphony; he adopted a compromise in which the most important line in the complex of voices, usually the tenor, was considered to denominate the mode of the whole, but this was an unsatisfactory solution, even in the extension of the modal

system introduced by Henricus Glareanus in his Dodekachordon of 1547. Even a single line might depart from the modal system through the use of chromatic tones or scale formations that were not part of the system, while harmony was completely ignored. A theory of modality which takes harmony into account might conceivably be formulated, but this was not done in the Renaissance, and such a theory in any case would need to extend the concept of mode considerably to account for all aspects of tonal structure displayed at one or another time in the music of the Renaissance.

A crucially important development in the history of music theory was the invention of printing. Writers on music began to benefit very early from the opportunity thus afforded for their works to circulate more widely than was possible for manuscript copies, and considerable number of treatises exist as incunabula. The polemical tone of Italian humanism is evident in many of these works; the theorists undoubtedly welcomed the opportunity to argue more publicly than had been possible before. But the most important effect of printing was to make a larger audience accessible. Through the Middle Ages and early Renaissance it would seem that most treatises were intended as texts for serious students in such places as choir schools and universities, for the future professional. The sixteenth century saw music become one of the social graces, a widely practiced and highly esteemed recreation, and any number of

instruction books addressed to the unskilled amateur were published. Texts on theory reflect this approach to a considerable degree; many no longer seem directed to the profession exclusively, but are written also for the layman who wants to know something about music, perhaps even to compose. At least some of Aaron's works seem to have this public in view, notably Toscanello and Compendiolo. It is of course true that speculative, recondite treatises continued to be published throughout the century, but their market must have been quite restricted in comparison to the more elementary works, many of which were reprinted frequently, even after the death of their authors.

Some treatises continued to circulate in manuscript only. Getting into print may sometimes have been the result of knowing a rich patron; the dedicatory prefaces to most of Aaron's works suggest as much. It would appear that Giovanni Spataro, for instance, may have been unable to publish his many treatises for want of a patron who would bear the expense, since many of his works remained in manuscript at his death. Another medium of exchange of ideas among theorists was of course letters, and in the case of Aaron we are fortunate in having substantial portions of his correspondence to augment our picture of his activities and ideas.

The leading center of musical theory in the fifteenth and sixteenth centuries was Italy; France lost the dominant position she had held in the Middle Ages. The flowering of culture which marked the Italian Renaissance was no less

marked in music than in other areas, and major centers of musical activity and patronage were found in Venice, Florence, Milan, Rome, Naples, and several other smaller Italian cities at various periods during the Renaissance. The thriving activities at these centers drew musicians from all other parts of western Europe in addition to keeping the native-born well occupied. Remarkably enough, no Italian composers contributed significantly to the rich musical production of the fifteenth century; the almost complete dominance of Northerners during this period was overcome only during the 1500's. The situation was different in music theory, where from the beginning Italian writers contributed substantially to the development of the subject. Theorists such as Franchino Gafori and Giovanni Spataro are among the most important of the late fifteenth century. Other nations also contributed to the developments in Italy; the Fleming Tinctoris, the Spaniard Ramos de Pareja, and the Englishman John Hothby were also active in Italy during the fifteenth century. Besides its concentration of musical activity, the fact that Italy was a leading center of printing must also have contributed to the Italian dominance in music theory; although France and Germany produced many treatises during the sixteenth century, those published in Italy around the turn of the century established the main lines which theory pursued for

some time afterward, and subsequent writers were highly dependent on Gafori especially. Aaron and Zarlino are among the most important writers of succeeding generations, even at a time when foreign writers did become more prominent.

In view of this Italian dominance, it is to be expected that the chief sources of Aaron's ideas are to be found in Italy itself. No foreign influence is apparent in his work; in every respect in which he builds on tradition or simply hands it down without change, the tradition is specifically Italian if it can be said to have any national character at all. Aaron's only mention of a foreign source is a passing reference to the Compendium Musices of Lampadius in Compendiolo, published about 1550.⁷ This reference when balanced against the frequent citations of Italian writers in all five books suggests that although Aaron may have been acquainted with some foreign works, this acquaintance was probably made only late in his life, after his ideas had been formed, and no direct influence seems likely. Of the writers active in Italy immediately before Aaron, the most prominent are Tinctoris, Gafori, Ramos, and Spataro, and they should be introduced briefly before speaking of Aaron himself.

The oldest writer of these four is Tinctoris (ca. 1435-1511), a Fleming who spent a considerable portion of

⁷ Comp. I, 21.

his career in the service of Ferdinand I, King of Naples. It was in Naples that Tinctoris wrote his twelve treatises on music theory, which were possibly intended to be grouped into one comprehensive work which discussed all aspects of the practice, science, and philosophy of music.⁸ His discussions of musical practice are exceedingly thorough and in general quite up to date; his interest in the music of his own time has already been pointed out. Although most of his works were not published until the nineteenth century, they were an important authority through the later Renaissance. He was, like practically every other theorist of the period, active as a composer, but his theoretical writings have loomed larger in the history of music.

Ramos de Pareja (ca. 1440-after 1491) was the first theorist to challenge some of the most sacrosanct ideas of traditional theory, notably in the field of tuning and solmization, in Musica Practica, his only published work.⁹

⁸ The treatises are listed and described in some detail in Reese MR, p. 140-148; all but one are printed in CS IV. English translations are Tinctoris, op. cit., and Albert Seay, "The Proportionale Musices of Johannes Tinctoris," Journal of Music Theory, I (1957), p. 22-75.

⁹ Musica Practica Bartolomei Rami de Pareia (1482), ed. Johannes Wolf, (Publikationen der Internationalen Musikgesellschaft, Beihefte, II) Leipzig, Breitkopf und Härtel, 1901. Further on Ramos, see MGG X, 1909-1912.

His simplified system of tuning was the first serious challenge to the previously unquestioned dominance of the Pythagorean system; this and his bitingly scornful rejection of Guido's solmization system ("Guido was perhaps a better monk than musician")¹⁰ provoked a furious controversy that involved most of the prominent theorists of the day and continued after Ramos's death with a considerably broadened field of controversy.

One of the central figures in the squabbling was Franchino Gafori (1451-1522; his name is also spelled Gaffurio, Gaffurius, and otherwise), who spent most of his career in Milan. His major theoretical writings are Theoricum Opus musicae disciplinae (1480; substantially revised in 1492), Practica musicae (1496 and several reprints), Angelicum ac divinum opus musice (1508; despite its Latin title, an Italian translation and abridgement of portions of Theoricum Opus), De harmonia musicorum instrumentorum (1518), and Apologia adversus Ioannem Spatarum (1520).¹¹ Many of his compositions also survive and have

¹⁰ Ramos, Practica, p. 11: "Guido, monachus fortasse melior quam musicus." All page references are to Wolf's edition.

¹¹ The dates of publication are given, but some of the treatises were written some years earlier.

been recently reprinted in a complete edition.¹² Gafori was one of the first theorists to benefit from the invention of printing; his authoritative and clear discussions of all aspects of musical practice, particularly in Practica, gained him justly a wide reputation that spread well beyond Italy. Theoricum Opus and De harmonia are more speculative, concerned with such subjects as the mathematical bases of music and the modes and tunings of Greek antiquity. He was rather conservative in his approach to some problems, and thus incurred the wrath of Giovanni Spataro, a pupil of Ramos, when he criticized Ramos's treatise by annotating a copy Spataro had loaned him. This and Spataro's harsh criticism of De harmonia provoked a vitriolic exchange in which Apologia was one of the principal salvoes.¹³

¹² Franchino Gaffurio, Messe (v. 1-3); Magnificat; Motetti (Milan, Venerando Fabbrico del Duomo, 1958-60); also Collected Musical Works, ed. Lutz Finscher (Rome, American Institute of Musicology, 1955-).

¹³ Further on Gafori, see MGG IV, 1237-1243, and Alessandro Caretta, Luigi Cremascoli, and Luigi Salamina, Franchino Gaffurio (Lodi, Archivio Storico Lodigiano, 1951). The controversy with Spataro is related in considerable detail in Gaetano Gaspari, "Ricerche, Documenti, e Memorie risguardati la Storia dell' Arte Musicale in Bologna," Atti e Memorie della Regia Deputazione di Storia Patria per le Provincie di Romagna, Serie I, VI (1868), but this account is somewhat biased in favor of Spataro.

Spataro (ca. 1458-1541) was a singer and later maestro di cappella in San Petronio at Bologna. He too was an active composer, and many of his works survive in manuscripts still existent at San Petronio. His theoretical works were not all published, as indicated above; his letters to Aaron and others mention several treatises that were never printed. Only his Tractato di musica...nella quale si tracta de la sesquialtera (1531) went to press, thanks in part to the assistance of Aaron; his other published works are polemics in defense of Ramos, Honesta defensio in Nicolai Burtii parmensis opusculum (1491), Dilucide et probatissime Demonstratione (1521), and Errori de Franchino Gafurio (1521). The Tractato presents some exceedingly eccentric ideas on notation, but his many letters show Spataro to be a theorist of acute penetration and a generally progressive cast of mind. He was a close friend of Aaron for many years, and Aaron evidently saw most of his unpublished treatises. Aaron's published books were criticized in Spataro's letters; some of this criticism, as well as other ideas expressed in the letters, find their way into Aaron's later works. Spataro is undoubtedly the most easily traceable influence on Aaron's writings, probably owing to their prolonged intimacy. Though Aaron by no means stands in Spataro's shadow

and even differs with him on various points, he was always firmly on the side of Spataro and Ramos in all the controversy arising from the work of these two men.

For Pietro Aaron, as for many other personages of his era, biographical information is rather sparse. The outlines of his career can be pieced together from his own published works, from his correspondence, from the works of other writers, and from documentary records, but the story is still notably incomplete towards the beginning and end of his life.

Although the year of Aaron's birth is decidedly uncertain, the place is not. The title page of each of his published works describes him as "Pietro Aaron Musico Fiorentino;" he also named his most popular book, Toscanello, after his native land, Tuscany.¹⁴ His pride in his native Florence is natural enough, considering that he must have grown up in that city's heyday under the leadership of Lorenzo de' Medici. Even though Florence did not regain the splendor of this period during the remainder

¹⁴ Tosc. I, 6: "Il nostro Toscanello, che cosi ho voluto fargli il titolo in gratia de la terra patria & nativa..."

of Aaron's life, he obviously felt himself honored by having been associated with the city by birth and upbringing, despite the fact that, so far as is known, he never again resided in Florence once he had left the city in his youth. Nothing is known of his family beyond his own statement that he was born in poor circumstances.¹⁵

An approximate date of Aaron's birth is suggested by some statements in his first published book, Institutione Harmonica, and a frottola, "Io non posso piu durare," published in Petrucci's Frottole Libro quinto¹⁶ with an ascription to "Aron." No positive proof for or against Aaron's authorship of this composition can be advanced. If he did write it, he must have been at least in his twenties and therefore born in 1485 or earlier. Alfredo Bonaccorsi has remarked that the training of a composer in Aaron's time was a slow process, and for this reason suggests that Pietro Aaron could not have written this frottola, since he was at most sixteen years old in 1505.¹⁷ Bonaccorsi gives the year

¹⁵ Tosc., dedicatory preface. See Appendix A below.

¹⁶ Venice, 1505.

¹⁷ "Pietro Aaron," Dizionario Biografico degli Italiani (Rome, Istituto della Enciclopedia Italiana, 1960-), I, 2. In this he follows August Ambros, Geschichte der Musik, 3rd ed. (Leipzig, Leuckart, 1887-1911), III, 501.

of Aaron's birth as ca. 1489, a date which frequently appears in reference works. The date seems to derive from Fétis' Biographie Universelle,¹⁸ where it is supported by the citation of a letter which Fétis says appears at the head of the 1539 edition of Toscanello.

This letter, dated October 7, 1539, presumably states that Aaron was twenty-six years old when his first book was published, in 1516; thus he was born in 1489 or 1490.

Unfortunately, the letter Fétis describes does not seem to exist. The 1539 edition of Toscanello is textually identical to that of 1529, and neither contains such a prefatory letter; this is true of Fétis' own copies of these editions, which are now in the Bibliothèque Royale de Belgique, Brussels.¹⁹ Further, the 1539 edition is dated March 19; it would be rather odd for the prefatory letter to be dated seven months later. It is not at all clear where Fétis could have found the statement, save in some manuscript source now lost or in a garbled second-hand report. A

¹⁸ François Joseph Fétis, Biographie universelle des Musiciens, 2nd ed. (Paris, Didot Frères, 1868), I, 1.

¹⁹ Personal communication from the Bibliothèque Royale.

letter from Aaron to Giovanni del Lago in Venice dated October 7, 1539, does exist, but it says nothing that would establish Aaron's age.²⁰ It is thus not beyond possibility that Aaron composed "Io non posso piu durare," since 1489/90 need not be accepted conclusively as his year of birth; if he were born some five years earlier, he would have been old enough to have written the frottola.²¹ Since no other Aron or Aaron is known to music history from this period, it is at least convenient to assume that the theorist and composer are one person rather than two. It is known that Pietro Aaron was active as a composer later in his life; several of Spataro's letters to him comment on compositions that Aaron had sent to Spataro for his examination.

²⁰ The letter is now in the Deutsche Staatsbibliothek, Berlin. It was published in Johannes Wolf, "Ein Brief Pietro Arons an Giovanni del Lago," Von Büchern und Bibliotheken, ed. Gustav Abb (Berlin, Struppe & Winkler, 1928), p. 65-70, and appears in Appendix B of the present study. It is number 111 in Jeppesen's catalogue of VL 5318 in MusThKorr; presumably it was once part of that manuscript but was separated from it and went to Berlin in the sale of the Heyer collection.

²¹ The piece itself is of the type "frottola proper" described by Reese, MR., 162-3. Its style is quite typical of the genre and suggests no further conclusions as to its author. It appears in Appendix B below.

The evidence of Institutione Harmonica is hardly more informative than the frottola. The prefaces contain some general statements about Aaron's situation at the time of publication, 1516, while a chance remark later in the book has given rise to a veritable labyrinth of speculation. In the course of an important discussion of compositional procedure Aaron says,²²

We also do this often, imitating the greatest men in the art, especially Josquin, Obrecht, Isaac, and Agricola, with whom we had the greatest familiarity and intercourse in Florence.

If one accepts Aaron's statement at face value, it should be possible to determine something about his age by determining when he could have known these four famous composers in Florence. Alas, the facts are not so simple. In the case of Josquin, "no definite information is available for a dating" of such an association;²³ no documentary evidence establishes that Josquin was employed in Florence, though the possibility does exist. The years in which he had a

²² IH. III, 10, f. 39v: "...quod nos quoque crebro facimus: summos in arte viros imitati praecipue vero Iosquinum. Obret. Isaac. & Agricolam: quibus cum mihi Florentiae familiaritas: & consuetudo summa fuit." The context of this statement is discussed in Chapter 5 below.

²³ MGG. VII, 197: "...doch sind für eine Datierung keine sicheren Anhaltspunkte vorhanden."

post elsewhere in Italy are not excluded, since he might have obtained leave to go to Florence for a time. The possibilities are much narrower with Obrecht, since he spent almost all of his life in northern Europe, except for visits to Ferrara in 1487-88 and 1504-5; in the latter journey he died of the plague.²⁴ Isaac spent many years in Florence; he came there first in 1474 as a student of the organist Squarcialupi, and by 1480 was in the service of Lorenzo de' Medici, remaining in Florence until the expulsion of the Medici in 1494. Thereafter he resided in the north until 1512 but visited Florence frequently during that period; he spent his last years, 1512-1517, in Florence again.²⁵ Information on Agricola is somewhat indefinite; he was in Florence in 1470 and 1474, again after 1476. From 1500 until his death in 1506 he was in the service of Philip the Handsome, King of Castile.²⁶ In short, it is uncertain when Aaron might have known Josquin, on only two occasions could he have met Obrecht, he had ample opportunity to know Isaac, and he must

²⁴ MGG. X, 1815.

²⁵ MGG. VI, 1417-1427.

²⁶ Reese, MR., 207-208.

have met Agricola before 1500.

These somewhat inconclusive dates are complicated by further questions. Does Aaron mean that he knew all four composers at the same time? What was the quality of his familiaritas and consuetudo? If it is assumed that all four composers were in Florence at once, the problem would be greatly simplified. Edward R. Lerner has examined the question from this point of view and concluded that the late 1480's, probably 1487, would be the most likely time for such a conjunction.²⁷ Obrecht's career sets the most severe limitation; he was in Italy only twice, about six months each time, and during his second visit Agricola had seen Italy for the last time at least four years earlier.²⁸ Thus Lerner's date can hardly be questioned; Isaac was definitely in Florence then, and Josquin presumably could have been. Aaron does not seem to specify simultaneous acquaintance, however, and in such a case the possibilities

²⁷ Edward R. Lerner, "The Sacred Music of Alexander Agricola," unpublished Ph.D. dissertation (New Haven, Yale, 1958), p. 29.

²⁸ Obrecht's Italian visits both had Ferrara as their destination; Florence is obviously not on the most direct route from Flanders to Ferrara, but Aaron's testimony indicates that Obrecht must have made the side trip at least once.

are manifold. One could then assume that Aaron met Obrecht in 1504/5, and the other three could have been in Florence within a few years of that time, some of them even afterwards. Some of the encounters then could be dated almost twenty years later than 1487 without eliminating the possibility of an earlier date for one or more of the others.

As to the nature of Aaron's association with these men, his text is also vague. The chapter in which this remark appears is concerned with the order in which the several voice parts of a composition are composed, and Aaron cites the practice of these four men as justification for his statements. This would indicate that at the time he knew them he was old enough to associate with them as at least a student of composition if not a young, fully-trained colleague, rather than as a mere performer, for instance, a young choir boy, under their direction. He must then have been old enough to be a serious student, probably nearly twenty, and he would then have been born about twenty years before he knew these composers. On this basis Lerner suggests that Aaron may have been born about 1465.²⁹ The

²⁹ Op. cit., p. 30.

latest possible date would be 1480, twenty years before the last time Agricola could have been in Italy. One thus arrives at a date somewhere between 1465 and 1480, rather approximate to be sure, but definitely earlier than the 1489/90 proposed by Fétis.³⁰

The possibility also exists that Aaron was boasting, since most of the principals were dead when his book was published and in no position to contradict him. It would seem at least improbable that he formed such a close association with Obrecht during the latter's brief Italian visits, though the association with Isaac on the other hand is highly likely. On the whole, the statement cannot be considered helpful in establishing Aaron's age; the variables are too complex.

The dedicatory preface of Institutione Harmonica also suggests conclusions about Aaron's age. In it he states that he has worked hard at music and earned no little fame from it; "almost numberless witnesses" were glad to have

³⁰ Friedrich Blume, as cited by Reese, MR., p. 178, suggests 1470 as Aaron's date of birth, presumably on grounds similar to those given above; his article was inaccessible during the preparation of this dissertation. Since he wrote about Josquin, the article in MGG. presumably duplicates or supersedes the information used by Blume.

him as a teacher.³¹ Despite the obvious exaggeration, it is clear that Aaron had been active for some time as a teacher of music and had earned at least a local reputation in Imola, where he was employed at the time of the book's publication. Such a reputation and such activity would presuppose that Aaron was at least thirty at this time, which would place his birth no later than 1486. Thirty, in fact, might be a rather precocious age for the production of such a comprehensive treatise as Institutione Harmonica. Comparison to other theorists is somewhat instructive on this point; Gafori was twenty-nine when his first published work appeared in 1480, but Tinctoris was almost forty when he began writing his series of treatises, and Ramos was probably over forty when his Musica Practica was published. Aaron also speaks of the long delay in the appearance of his work, which suggests that he had written it some years before it was published (a not uncommon practice at this period), and thereby implies that he may have been somewhat older than thirty. Thus ca. 1480 seems rather likely on

³¹ IH., dedicatory preface, f. 2r; see Appendix A below.

the basis of these passages as the year of Aaron's birth.

All the evidence then points towards a date somewhere within the period 1465-1480 as the time of Aaron's birth. As to a choice within this period, the latter part seems somewhat more likely because of the length of Aaron's life. He was almost certainly alive when his Lucidario was published in 1545; the privilege granted for the book speaks of him in no sense that implies he was dead. If he were born as early as 1465, he would then have been eighty years old when Lucidario was published, and he very probably lived five years after that. It is of course possible that he could have attained such an advanced age, but probability favors a date closer to 1480. Accepting 1465 would also mean that he published nothing until he was fifty, indeed that there is almost no record of him until that age, which itself is somewhat remarkable. The most probable time of Aaron's birth seems to be ca. 1480, but our present knowledge makes this a rough approximation at best.

The earliest firm date in Aaron's life is 1516, the year in which he published Institutione Harmonica. The preface to the book supplied by Aaron's translator, Giovanni Antonio Flaminio (Ioannes Antonius Flaminus) of

Imola, makes it clear that Aaron was at that time resident in Imola and had been so for at least a year before the book was published.³² In the preface, Flaminio relates that Aaron when visiting Flaminio saw a volume of Flaminio's poetry that had just been published³³ and lamented the fact that he himself had no monuments which would ensure his fame when he was gone. Flaminio asked him about his treatise which was eagerly awaited by their friends, and which he himself had read and admired greatly. Aaron responded that he had delayed publishing the work for some time, partly for fear of rushing into print too rapidly and partly because the work was not in Latin and would not be respected by the learned for that reason; he said he lacked the facility in Latin to translate it himself. Flaminio thereupon offered to do so for him, and the two agreed to begin meeting daily for that purpose. The preface speaks of the respect and affection all felt for Aaron, in such terms that he must have been a regular member of a circle of friends which also included Flaminio, and thus a resident of Imola

³² See Appendix A below.

³³ Probably Sylvarum Libri II... (Bologna, Hieronymus de Benedictis, 1515).

rather than a visitor to the town. Flaminio also says that they love Aaron for his "priesthood" (ob sacerdotium), indicating that he was in the service of the church, though in what sort of orders is uncertain.³⁴

The publication of Institutione Harmonica occasioned a controversy between Aaron and Gafori which still echoed in Aaron's Lucidario, published almost thirty years later. The initial course of the dispute is reported in some detail by a letter of Gafori to Flaminio dated March 24, 1517, and Flaminio's reply of May 1, 1517.³⁵ The sequence of events is set out by Flaminio as follows: when the translation was complete, he circulated it among some competent judges for criticism prior to publication; among them was Spataro, who made some suggestions which were evidently among those accepted before the book was printed. After publication, Spataro sent a copy to Gafori without the knowledge of Aaron or Flaminio, thinking this would please all concerned.

³⁴ Bonaccorsi, op. cit., I, 1, says Aaron founded a choir school in Rome in 1516; this statement also appears in Gerber's Neues Historisch-Bibliographisches Lexicon (Leipzig, A. Kühnel, 1812-1814), I, 1. There seems to be no evidence that Aaron was in Rome at this time.

³⁵ Both letters were published in Joannis Antonii Flaminii, Epistolae Familiares (Bologna, 1744), p. 461-464; they appear in Appendix B below.

Gafori thereupon wrote to Aaron about various errors he thought the book contained, not too temperately, according to Flaminio, and Aaron answered in kind. This provoked Gafori's letter to Flaminio, to whom he sent an annotated copy of the treatise and asked Flaminio to judge the truth of his criticism. If Gafori's annotations of the Musica Practica of Ramos are any indication, Aaron was justified in reacting strongly; Gafori minced no words in his criticism of Ramos.³⁶ Flaminio tried to smooth over the situation by blaming the printer for most of the mistakes, but also asked Gafori to excuse Aaron's intemperate language, since he was concerned about his reputation after Gafori's attack. Flaminio was plainly worried about the damage an eminent man such as Gafori could do to Aaron's career in the position of adversary. The book is inaccurately printed in places, and some of Gafori's objections must have been to novel ideas presented by Aaron and which can easily be defended, but other parts of the book are definitely in error by any standards. These will be discussed in the appropriate places in the following chapters; it may be noted here that

³⁶ Wolf included Gafori's annotations in his edition of Ramos's Practica; Spataro's was the only copy known to survive at that time.

Aaron's early training was perhaps deficient, since he did not repeat the questionable statements in his later books after he was presumably made aware of them. The two letters are interesting in that they establish a connection between Aaron and Spataro at this date; the first indication of any acquaintance between them after this is from 1521. Oddly enough, Spataro wrote a friend in 1517 that he had read Aaron's book and that he neither praised nor condemned it; he evidently did not wish to acknowledge any association with the author or the book after the dispute arose.³⁷ But soon after that he was drawn into the fight, as he relates himself:³⁸

I remembered that in the year 1516 (through your envy and petulance) a musical dispute arose between you [Gafori] and Pietro Aron, a most learned Florentine musician, and because in his own defense he showed you many of

³⁷ VL 5318, no. 100, f. 240r, August 1, 1517, to Marc Antonio Cavazono (Cavazzoni): "Uno Pietro Aron fiorentino ha fatto stampare qui in bologna una opera la quale non laudo ni vitupero."

³⁸ Spataro, Errori di Franchino Gafurio, (Bologna, Benedictus Hectoris, 1521) V, 32, f. 39r: "...me venuto a memoria che de l'anno 1516 (per la tua invidia & petulantia) tra te & Petro Aron Florentino Musico doctissimo naque litigio musico: & perche Petro Aron (per sua diffessa) te demonstro multi toi errori, tu scrivesti a me che da te era compreso che io era quello che te respondeva & non Petro: per tanto tu lassasti de scrivere al prelibato Petro & con meco volesti la lite; per laquale cose (come tu sciai) tra nui acadere multe desputatione."

your errors, you wrote me that you realized that it was I who answered you, and not Pietro; thus you stopped writing to him and wanted to quarrel with me. For these reasons, as you know, many disputes arose between us.

Gafori died in 1522, and Aaron, as noted above, was sufficiently annoyed to present his side of the story many years later, perhaps in answer to rumor or gossip.

In 1521 three independent sources testify that Aaron was in Imola, and the supposition is strong that he had remained there since 1516, though the intervening years are unaccounted for. The first testimony is contained in a document published by Angelo Catelani;³⁹ the original was presumably found in Imola, but Catelani did not indicate the source. The document is a notarial attestation setting forth an agreement reached between Aaron and some of the clergy in the church at Imola, where Aaron was employed as cantor. Aaron had evidently not received his salary on time and had been obliged to petition the clergy to pay him as previously agreed. A settlement was reached whereby some of those present (a number of the clergy did not deign

³⁹ "Pietro Aron," Gazzetta Musicale di Milano, IX, 17 (April 27, 1851), p. 77-78.

to attend the meeting) pledged to pay Aaron a stated quantity of grain for the year beginning on the coming Kalends of March (March 1), in consideration of which Aaron would not press for payment of back salary for the past year. His situation could not have been very desirable under the circumstances, one would imagine, when after serving for five years he was so badly neglected as to be obliged to make a formal protest.⁴⁰

The other two sources placing Aaron in Imola both are from Giovanni Spataro. One is a letter dated March 7, 1521, addressed to Aaron at Imola, at the residence of the Rev. Provost de la Volpe, one of those who pledged to make good Aaron's salary in the coming year.⁴¹ The other source is Spataro's Tractato di musica published in 1531 and dedicated to Aaron. At the end of the treatise is a sort of postscript addressed to Aaron in which Spataro exhorts him to guard this treatise, full of truth and subtle considerations set down by learned antiquity and ignored by the moderns:

⁴⁰ The document appears in Appendix B below.

⁴¹ VL 5318, no. 74, f. 199r-200v.

I know that your excellency, to whom I have dedicated this treatise, is not unaware of these things, because you are the reason that I decided to discuss this subject, namely that in the year of our salvation 1521, when your excellency was in Bologna you visited me (through your kindness) in the musicians' residence at our San Petronio. There we discussed many exalted and subtle considerations about the musical art....But at that time we reached no conclusions because your excellency had to return to Imola soon, where at the time you had your residence. ⁴²

One further citation from Aaron's writings has been taken to mean that he was also in Rome in 1521, the dedicatory preface to Toscanello, addressed to Sebastiano Michele (or Michiel), the Grand Prior in Venice of the Order of St. John of Jerusalem, also known as the Knights of Rhodes or Knights of Malta, into whose household Aaron had become employed when Toscanello was first published in 1523. The

⁴² Spataro, Tractato di musica...de la perfectione de la Sesqualtera (Venice, Bernardino di Vitali, 1531), Ch. 34: "...so che non è ignorata da tua Excellentia, a laqual ho dedicato tale mio Tractato, perche quella fu causa che io mi disponessi a pertractare di tale materia, & questo fu perche del anno de la nostra salute MDXXI trovandosi tua Eccellentia in Bologna fui (per tua benignitata) da te visitato nel musico habitacolo del nostro divo Petronio, & alhora tra noi di molte alte & sottile consideratione de l'arte musica fu facto discorso.... M alhora nulla fra noi fu concluso, perche tua Eccellentia presto convenne tornare a Imola, dove (in quel tempo) era la tua residentia."

passage reads:⁴³

There is no doubt, my most gentle lord, that princes are the cause of the greater part of the benefits and evils that men experience, and the ancient and modern histories show this to us plainly. Nor is it at all far from reasonable for man to believe that those who have power over others can perform many acts, either useful or harmful, to many persons, rather more easily than any private person. And, just as in other fields, this is abundantly clear in each faculty of the intellect, since we see in every age that men are most desirous of those virtues of which the prizes are fondest, so that everyone more willingly busies himself about them in order to please a prince from whom he hopes to receive some reward for his labors. In order not to give your signoria ancient examples of such things, because they might have less pertinence, I shall content myself with mentioning only one from our own time, Pope Leo X, who, although he was crowned with every virtue and desirous of them, nonetheless was pleased by none so much and favored and praised none more than Music. Thus under his pontificate many exerted themselves, each according to his abilities, to make progress in it on account of the ample rewards which they saw offered for their work. Among them was I, who, born in slender means, seeking some honest way to sustain my meagerness in the study of music, put forth every effort (though not so successfully as I would have hoped) at least as much as my intellect and industry allowed, and I would have completely lost the reward for my work by the unfortunate death of Leo, if your lordship had not offered me a rare refuge for my afflicted fortune.

⁴³ The original appears complete in Appendix A below.

Fétis and other writers have assumed on the strength of this preface that Aaron went to Rome some time in 1521 to seek his fortune at Leo's court, but was frustrated in this by Leo's death on December 1, 1521. Fétis even says that Aaron was returning to Rome, but there is no evidence that he was there before 1521. The preface hardly establishes that Aaron was in Rome in that year. Aaron mentions Leo X mainly to furnish a flattering comparison to the generosity of his own new patron, Michiel; the reference to Leo says nothing more than that Aaron had some hope of a reward from Leo, perhaps a reasonable hope in view of his own Florentine ancestry, since Leo was of the Medici family. The reward hoped for might have been anticipated as the fruit of dedicating Toscanello to Leo, but Aaron's connection with Michiel, formed shortly after Leo's death, afforded him a different opportunity to have the book published. The reference may not say even this much, since Aaron might have mentioned Leo simply in order to flatter Michiel, the rest of the statement being embroidery. In any case, the dedication to Toscanello hardly establishes that Aaron was in the service of Leo X, and there seems

to be no other evidence of such a connection.⁴⁴ It seems most likely that Aaron went directly from Imola to his new position in Venice; an intervening stay in Rome appears unlikely on the basis of present evidence.

It was evidently within a year after Leo's death that Aaron formed the highly important connection with Michiel, in whose service he remained until the latter's death in 1535. In 1492 Michiel was elected Grand Prior in Venice of the Order of St. John of Jerusalem, a post which he held the rest of his life. The Grand Master of the order confirmed his rank with a bull dated April 6, 1492, and a Papal Bull of the same year gave him permission to distribute the benefices of the priory himself.⁴⁵ Aaron is not known to have benefited directly from this permission, but Toscanello in 1523 and all his subsequent books describe him as a canon at Rimini, and Michiel may well have been influential in obtaining this benefice for Aaron. The first secure

⁴⁴ The records of Leo's musical establishment survive incomplete; Aaron's name does not appear in them. See Hermann-Walther Frey, "Regesten zur päpstlichen Kapelle unter Leo X," Die Musikforschung VIII (1955), 58-73, 178-199, 412-437; IX (1956), 46-57, 139-156, 411-419.

⁴⁵ G. Sommi-Picenardi, "Del Gran Priorato dell'Ordine gerosolimitano in Venezia," Nuovo Archivio Veneto, 2nd series, IV (1892), 151.

date in Aaron's stay in Venice is April 8, 1523, on which day Spataro wrote him a letter addressed to Venice,⁴⁶ but another undated letter probably predates this one. The earlier letter is addressed to Aaron in Venice⁴⁷ and closes with the request that Aaron ask his protector, Michiel, to allow Spataro to consider him as his protector also.⁴⁸ Almost every other letter from Spataro to Aaron at Venice, beginning with that dated April 8, 1523, closes with the statement, "recommend me to your and my protector" or "to our protector," so the undated letter must predate all the others, which were written after Spataro's request was granted. This letter is from February, since it refers to a letter from Aaron received recently and dated January 15, but it is uncertain whether the year is 1522 or 1523.⁴⁹

⁴⁶ VL 5318, no. 76, f. 203r-204v.

⁴⁷ Ibid., no. 73, f. 198v: "le lettere vostre vano presto a bologna: ma le mie non sano cercare la via de venire qua in vinetia."

⁴⁸ Loc. cit.; "al vostro Reverendo protectore me recomando: El quale (perche e rimplente de virtu) voglio, che etiam sia mio protectore se pure sua signoria se vole dignare connumerarmi nel numero de li soi servitori."

⁴⁹ Jeppesen, MusThKorr., p. 25, says that this letter cannot be dated, but the facts stated above would seem to establish it fairly closely.

Aaron's entrance into Michiel's service is then to be dated some time in 1522 with fair certainty, Leo X's death being the terminus a quo and January 15, 1523, the terminus post quem.

Aaron's service with Michiel must have been rather uneventful, if the surviving letters are any indication. The nature of his duties is rather uncertain; some light is shed by the title page of Trattato, published in 1525, which describes him as maestro da casa of Michiel. This would indicate that he had the responsibility of running the household, and he may have had little or nothing to do that was directly connected with music. An eminent figure such as Michiel would probably have had some sort of a private musical establishment, though, and it would seem likely that Aaron would have been involved with it in some way. He was evidently inducted into the Order of St. John by 1529 as is indicated by the title page of the 1529 edition of Toscanello.

His musical activities in Venice are illuminated to some extent by statements in his own and Spataro's letters. Four of Aaron's own letters date from the Venetian years, in addition to all but one of Spataro's to him; eight of

the latter are from 1522/3 to 1524, the remaining twenty-four from 1531 to 1533. Spataro was one of Aaron's closest friends throughout his life; Aaron's treatises always refer to Spataro in highly complimentary terms, and as will be shown, Spataro had considerable influence on some aspects of the treatises themselves. Their friendship suffered a rupture during the six or seven years from which no letters survive, a rupture which was evidently caused by Aaron's publication of Trattato. Spataro in a letter to Giovanni del Lago in Venice dated August 23, 1529 tells his side of the story. After Spataro sent a number of letters to Aaron which contained criticisms of Toscanello, he received no answer for some time, then only one letter acknowledging the critique and promising a reply. Thereupon Spataro wondered if Aaron would publish a polemic against him as Gafori had done after Spataro's similar criticism of De Harmonia instrumentorum, but Aaron did not go to this length. Spataro asks del Lago to send a copy of the new edition of Toscanello; he wants to see if Aaron incorporated his suggestions (Aaron did use a few of the more valid ones, but to no considerable extent), but he does not want to write Aaron himself. Aaron is angry at him for trying to restrain the publication of

Trattato, which Spataro says came out as he expected, "without order or truth." He wrote some hundred pages in criticism of it, "not out of malice, but so that the uneducated, reading his uncultivated writing and erroneous ideas, will not fall into the way of darkness."⁵⁰

⁵⁰ VL 5318, no. 45, f. 161v: "[Frate Petro Aron]... (fedandosi troppo in se stesso) ha producto in luce tri musici tractati de liquali lui ha havuto asai poco honore apresso a li intelligenti. Io gia li scripsi dimostrandoli multi errori da lui comessi in quello suo Toscanello, et mai (in sua difensione) non me dite alcuna risposta. Ma pure a l'ultimo lui me scripse che lui haveva compreheso el tuto de quello che io li scrivesti, et che circa tale mie demonstratione che lui per una sua epistola me daria plena risposta del tuto, per el quale scrivere suo non poco dubitai che lui non volesse fare come nostro Franchino Gafurio, el quale per .18. mie epistole fu da me advertito de multi soi errori comessi in quello suo tractato de harmonia instrumentorum; del quale Franchino mai non hebi alcuna risposta sino al fine de l'opera. Da poi lui me fece una apologia contra....Ma da nostro reverendo Frate Petro predicto non ho havuto risposta alcuna, et anco poco me ne curo, perche con lui cosa alcuna non posso guadagnare, perche circa questa faculta lui non è solamente mendico, ma è la propria miseria. Potria essere che se lui ha facto ristampare quel suo Toscanello predicto con qualche emendatione, che tal emendatione seria tolte da li mei scripti a lui missi, per tanto ho grande desiderio videre il tractato noviter impresso. Per la quale co-(f. 162r)sa prego vostra excellentia faccia forza de mandarme uno de tali soi tractati noviter impresse et datime adviso del pretio, che del tuto ve satisfaro. Al Reverende Petro non voglio scrivere di tale cosa, perche lui è al tuto sdegnato con me, et questo nasce perche io asai cercai retrarlo de la impresa de quello suo tractato de tonis ultimamente da lui impresso, el quale è reuscito proprio come io li scripsi, cioè senza ordine et verita, contra el quale ho scripto apresso

Apparently Aaron was put out by Spataro's criticism of Toscanello, much of which was inconsequential, but Spataro's interference with or opposition to the publication of Trattato must have been the last straw. Though Trattato is not without defects, it is a remarkable work for its time, and there is no reason to believe Spataro could have improved on Aaron's discussion of the modes. The last chapters, on the solmization of chromatic tones, were possibly Spataro's chief target, and when he resumed correspondence with Aaron about a year later, his criticism impelled Aaron to publish the Supplement to Trattato, which substantially improved these chapters. Spataro was notably pugnacious, as Jeppesen has observed;⁵¹ within two years after the above letter to

a cento foglii, li quali scripti sono apresso da me, et questo non è stato facto da me per livore, ne etiam per odio et invidia che io porti al mio Reverende frate Petro, ma solo acio che li rudi (li quale facilmente credono) legendo li soi inculti scripti et erronee sententie non caminano per la via de le tenebre et de li errori in li quali (veramente) per la sua poca advertentia et troppo existimarsi, resta immerso. Ma io ve conforto che non stati a litigare con lui, perche tali homini sono da fugere et andare con loro a placentia, acioche restano in la sua ignorantia et pertinatia...."

⁵¹ MusThKorr., p. 38.

del Lago he was again intimate with Aaron but completely estranged from del Lago. Aaron probably had ample provocation for the break with Spataro, and the latter's account is undoubtedly biased. Despite the acrimony, a reconciliation took place, and Spataro's second series of letters is noticeably warmer than the first in its expressions of devotion and affection. There is no apparent reason for the cessation of the correspondence in 1533; if no more letters actually were written, it could have been because Spataro's vision became too bad to continue writing, since he complains about his eyes in many letters. There is no apparent deterioration in his handwriting, however, to support this hypothesis.

Spataro's letters to Aaron are devoted mainly to the exchange of theoretical ideas, and these will be discussed in due course in the following chapters. Other aspects of their relationship and of Aaron's life in Venice come through in somewhat less detail. Spataro several times enlisted Aaron's help in getting his treatises published, since Aaron lived in a major center of printing, but only once was their joint effort successful, with the Tractato di musica of

1531.⁵² Unfortunately, none of Spataro's other treatises were printed; one would hope that the manuscripts might still be found in the archives of San Petronio. The letters also show that Aaron was acquainted with the prominent musicians active in Venice during his residence. Spataro once asked Aaron to try to find Marcantonio Cavazzoni, the noted organist, since Spataro had been unable to reach him by letter for some time.⁵³ Adrian Willaert, the eminent maestro di cappella of San Marco from 1527 to 1562, is mentioned several times; Spataro once asked Aaron to try to get Willaert to set three stanzas of a hymn in honor of San Petronio for that saint's festival, which was to be celebrated in Bologna later in the year.⁵⁴ Other letters ask Aaron to deliver or pick up music from Willaert. Aaron's own letters are less informative about his associations; a few survive from the period after 1535, when he no longer lived in Venice,

⁵² It took a long time to get this book into print. Spataro in 1523 told Aaron he was translating it into Latin with the help of an Augustinian brother and would send it to him presently (VL 5318, no. 76, f. 204r-v), but the book was eventually published in Italian.

⁵³ VL 5318, no. 76, f. 204r.

⁵⁴ Ibid., no. 104, August 29, 1533, f. 248r.

addressed to Giovanni del Lago in that city. Del Lago was evidently a close associate of Aaron's; after Aaron had left Venice and taken the habit of the Crociferi,⁵⁵ he expressed indignation that del Lago did not write to him for almost three and a half years. Spataro corresponded extensively with both men, and in 1531 and 1532 used Aaron as an intermediary to communicate with del Lago after he had broken with the latter over the return of several treatises. Aaron received a letter from Giovanni Maria Lanfranco which appears to be one of a series, but no other survives.⁵⁶ Aaron in a letter to a fellow Crocifer, Fra Gregorio de Corbegli,⁵⁷ passes on some gossip to the effect that Lanfranco lost his position in Verona and had to flee to a poor monastery near Bergamo because he corrupted a boy

⁵⁵ Aaron usually spelled it Crosæchieri. The Crossbearers were a military order, or hospitalers, so called from their practice of carrying a cross in their hand or on their breast. The Italian Crossbearers were established in the twelfth century and abolished in 1656 (Enciclopedia Italiana XII, 19). Carlo Schmidl, Dizionario Universale dei Musicisti (Milan Sonzogno, 1926), I, 72, confuses the Crossbearers with the Order of St. John of Jerusalem.

⁵⁶ VL 5318, no. 109, f. 254r-v, August 10, 1534. Aaron himself indicates that other letters were exchanged (in Paris, BN, Ms. It. 1110, f. 29r; see Appendix B).

⁵⁷ Ibid., no. 52, f. 172r, December 26, 1538; see Appendix B.

("per aver guasto un putto.")

Aaron evidently travelled occasionally during his service to Michiel. Spataro in 1523 mentioned a trip Aaron made to Rome and expressed his own interest in seeing that city, which he did not expect to do because of his advanced age.⁵⁸ In 1535 Aaron himself wrote from Padua to del Lago and mentioned briefly an encounter he had with another musician, Giovanni Sanese, master of the boys in the service of Giovanni Cornaro, a Venetian patrician. Aaron felt offended by a statement made by Sanese, who said one could learn theory only through practicing composition. Aaron took issue with him and apparently argued him down, but was finally routed by a riposte of Sanese which provoked general ridicule of Aaron. He promised to tell del Lago more about the exchange when he returned to Venice; a "captain" with whom Aaron was travelling would not let him return as soon as he wanted. The unnamed captain was perhaps a member of Michiel's order; the letter in any case shows that Aaron was still situated in Venice when he wrote.⁵⁹

⁵⁸ Ibid., no. 76, f. 204r. Jeppesen, MusThKorr., p. 38, has observed that Spataro complains throughout his letters about the infirmities of old age, but gives the impression of a man of great vigor.

⁵⁹ Ibid., no. 51, f. 171r, May 12, 1535; see Appendix B.

The date of this letter is of some importance, since it is the last positive link to Venice in Aaron's career. It is generally assumed that Michiel died in 1535, perhaps on the authority of Fétis, although Sommi-Picenardi stated that the date of his death was unknown. This event would seem to be the logical reason for Aaron's departure from Venice in that year or early in 1536. On March 13, 1536, Aaron wrote to del Lago from the monastery of San Leonardo in Bergamo, where he had entered the order of the Crociferi. He says he is much better off than he was before, with a magnanimous patron, comfortable living quarters, and in the company of many learned men, whereas in Venice he would not even have been cared for if he became ill. Clearly his first enthusiasm for Michiel had dulled. The letter speaks of fifty ducats left by "Monsignore" perhaps in reference to a legacy from Michiel, which would be a further indication that the latter's death caused Aaron's change of location. The same letter describes the ceremony in which he took the habit, which took place on the feast of St. Gregory, March 12, the preceding day. Messer Gasparo and twenty-three singers performed a Veni creator which would have been good enough for Venice and psalmi spezzati, psalms for double

chorus, to a crowded church, and later a madrigal in Aaron's honor was sung at a dinner given by the prior. He notes that he did not change his name when he entered the order.⁶⁰

A letter two and one-half years later to a fellow Crocifer in Venice berates del Lago for failing to write since Aaron left Venice; a heated postscript says that if Aaron is now a brother, he is still Pietro Aaron and does not deserve such treatment from his old friend.⁶¹ Del Lago finally did write,⁶² asking Aaron a question about mensural time signatures, and Aaron's answer again contrasts his present enjoyable situation to the sixteen years he wasted with "Monsignore of San Giovanni,"⁶³ whom he wishes he had never seen. He describes a visit to Brescia where he divided a month between the Counts Martinengo and Cavriole, constantly

⁶⁰ Ibid., no. 62, f. 183r-v; see Appendix B.

⁶¹ VL 5318, no. 52, f. 172r, December 26, 1538; see Appendix B.

⁶² Ibid., no. 61, f. 184r-v, August 27, 1539; see Appendix B and Chapter III below.

⁶³ San Giovanni del Tempio was the seat of the Grand Priorate of Venice. Aaron spent only twelve years with Michiel; it was sixteen years before he wrote that he entered Michiel's service.

making music; his hosts almost adored him, took no note of his habit, and sent him back to Bergamo with a horse and servant and an invitation to return during Carnival.⁶⁴ He says he is loved in Lombardy as never in Venice and advises del Lago to leave that unhealthy, marshy city. Del Lago had evidently vowed to cease association with anyone who entered a monastery, hence his silence to Aaron, but Aaron reminds him that kings and dukes have taken the habit, and that priests and brothers are esteemed by God, while the ignorant have no place in the Kingdom of Heaven.⁶⁵

The correspondence with del Lago continues afterwards for an indeterminate period. Del Lago answered several months later, enclosing a copy of a treatise he had just published, Breve Introduttione di Musica Misurata (Venice, 1540), with the request that Aaron send his opinion of the work.⁶⁶ A letter from Aaron dated July 17, 1540, indicates that the commentary was sent,⁶⁷ and it seems to be contained

⁶⁴ This is another reason for assuming Aaron was born nearer to 1480 than to 1465; only a remarkably vigorous man of seventy-five could ride horseback from Brescia to Bergamo.

⁶⁵ Ms. letter, Deutsche Staatsbibliothek, no. 111 in Jeppesen's list in MusThKorr.; see Appendix B.

⁶⁶ VL 5318, no. 63, f. 184r-v, May 12, 1540; see Appendix B.

⁶⁷ Ibid., no. 56, f. 176v; see Appendix B.

in an undated letter and several accompanying leaves in the Paris manuscript.⁶⁸ This letter states that Aaron has taken great pains, since del Lago has sent reassurance of his undying friendship. But Aaron is nonetheless hesitant for fear of losing del Lago's friendship again through his criticism, as happened earlier with Lanfranco, who took offense at Aaron's criticism of his book (Scintille di Musica, 1533), but later reconsidered and wrote a conciliatory letter. Aaron says Lanfranco intended to issue a revision of his treatise, but that he died before he could do so. Lanfranco died in November, 1545,⁶⁹ but it does not seem likely that this letter is from that year. Besides the fact that it apparently predates the letter of July 17, 1540, it also refers to the letters of 1539 which discussed time signatures. Aaron was probably misinformed of Lanfranco's death five years before the fact. Lanfranco in 1540 left the monastery near Bergamo for a position in Parma, where he died;⁷⁰ Aaron must have heard only that he was no longer at

⁶⁸ Bibl. Nat., Ms. It. 1110, f. 29r-v (letter) and f. 30r-35r (commentary); see Appendix B.

⁶⁹ MGG. VIII, 173.

⁷⁰ Ibid., 174.

Bergamo and come to the mistaken conclusion that he was dead. It is possible that his fears of a breach with del Lago were realized, since no further letters between them exist. Del Lago's treatise seems from Aaron's criticisms to be incompetent in some respects, and the author may well have resented having this fact pointed out so unequivocally.

After these letters, Aaron's life can be traced only through his publications. In 1545 Lucidario was published in Venice, and the privilege for its publication was granted to Aaron on August 30 of that year by the Venetian authorities.⁷¹ This would indicate that Aaron was alive at the time, or at least believed to be so in Venice, but it need not prove that he was again resident there, since the publisher or some other friend of Aaron might well have obtained the privilege on his behalf. Lucidario is dedicated to Count Fortunato Martinengo, of the family with whom Aaron had such a pleasant visit six years earlier; this indicates that he was still friendly with the Martinenghi and that he probably was still in Bergamo.

⁷¹ See Appendix A.

Aaron's last book, Compendiolo, was published in Milan, his only work to appear in the city of Gafori, which accounts for a much larger number of approving references to Gafori in this than in Aaron's other books. The book is not dated, but it refers to Lucidario several times and was thus written and probably published after the latter. A clue to its date is furnished by the dedication to "Monsignore Traiano of San Celso, honored patron." San Celso, an abbey in Milan, was founded in 996 by the Benedictines and abandoned by them in 1534 after it had been damaged in the wars. On May 13, 1549, Pope Paul III granted possession of the abbey to Bartolomo Capranica and Traiano de Alicorni, on behalf of the Augustinian observance of the regular canons Lateran of San Salvatore.⁷² If Alicorni was not associated with San Celso before 1549, Compendiolo must have been published after that year. However, a conflicting account of San Celso states that Alicorni was given command of the abbey some years earlier and renounced it in favor of Capranica on January 1, 1539;

⁷² Storia di Milano (Milan, Fondazione Treccani degli Alfieri, 1953-62), IX, 954.

Capranica then ceded it to the regular canons on March 13, 1548, in an act approved by Paul III.⁷³ On the basis of this evidence alone, the conflict cannot be resolved conclusively, but the dedication of Compendiolo makes no sense if Alicorni left San Celso in 1539, since the book could not have been published before 1545, so the first account above is more plausible by virtue of external supporting evidence.

The date of Aaron's death is unknown. A motto on the title page of Compendiolo has been taken to mean that he was dead when the book was published; it reads, "In memoria aeterna erit Aaron, Et nomen eius nunquam destruetur." ("Aaron will be in eternal memory, and his name shall never be destroyed.") This could mean that Aaron was recently dead, but it might equally well be an encomium of the sort that now appears on dust-jackets. The only positive statement that can be made about Aaron's death is that it took place before Toscanello was reprinted in 1562, since that edition is described as "newly revised before the author's death." On the assumption that Compendiolo appeared before

⁷³ Carlo Marcora, "Ippolito II Arcivescovo di Milano (1519-1550)," Memorie Storiche della Diocesi di Milano, VI (1959), p. 434.

his death and not before 1549, one might assume that Aaron reached the Biblical three-score-and-ten years and assign his death to approximately 1550.

The place of his death is equally unknown. Fétis and later writers state that Aaron lived in Padua after Bergamo, then in Venice, where he died.⁷⁴ The only evidence placing him in Padua is the letter of 1535, written during a journey, while nothing indicates a return to Venice after 1535 except the privilege for Lucidario. Even if Aaron did obtain it in person, he need not have moved to Venice to do so. Lucidario and Compendiolo both describe him as belonging to the Crociferi, which in the absence of any evidence to the contrary is a strong indication that he remained in Bergamo in the monastery of that order and died there. Another possibility is that he entered the monastery of San Celso in Milan and died there, but the dedication to Traiano Alicorni would not prove conclusively that Aaron came under the physical protection of that worthy. San Celso is certainly the most likely place Aaron went if he did leave Bergamo.

⁷⁴ Fétis, op. cit., I, 3.

It would remain to be explained why Compendiolo then describes him as belonging to the Crociferi when San Celso was occupied by a different order.

On this inconclusive note Aaron's biography must end. Despite considerable information about his whereabouts and associations, we know very little about his daily activities or about the man himself. Jeppesen has observed that in his few letters Aaron shows himself clearly as "quite open and almost childishly unrestrained."⁷⁵ He never was pugnacious, provoking disputes in the manner of Spataro, although he must have had somewhat of a temper, as is indicated in the letter describing his encounter with Giovanni Sanese, and even more by the dispute with Gafori, which kept Aaron angry for thirty years. On the other hand, he was sufficiently fair-minded to cite or quote Gafori in other works than Compendiolo when Gafori's authority served his purpose; he did not always acknowledge this source, though. Even allowing for the hyperbolic style of some of the testimony, that of Spataro and Flaminio notably, it would seem that Aaron was highly esteemed and loved by most of his associates, no mean achievement in the acrimonious world of

⁷⁵ MusThKorr., p. 38: "[Aaron] gibt sich immer sehr offen und beinahe kindlich ungehemmt."

Renaissance music theory.

As indicated above, Pietro Aaron's chief interest to the history of music lies in his published treatises. Since some inaccuracies have existed in previous descriptions of his publications, the following pages present all the bibliographic information presently available about his works, together with a description of the contents of each treatise.

1. Libri tres de institutione harmonica editi a Petro Aaron Florentino interprete Jo. Antonio Flaminio Foro Cornelite. Bologna: Benedictus Hectoris, 1516. 62 l.

Some confusion about this work had existed in early accounts, but it was clarified by more recent writers. Fétis lists an Italian version of this book published in the same year as the Latin;⁷⁶ it was of course written in Italian, but the original was never published. Fétis' error probably arose from an Italian catalogue entry in which the title was translated; he might well have received the entry at second hand without having visited the library himself. It

⁷⁶ Fétis, op. cit., I, 1.

has also been stated that this work is a translation of Compendiolo,⁷⁷ but the latter is a completely different treatise; its presentations are highly condensed, while those in Institutione Harmonica are fully detailed, even verbose at times. The content is to some extent identical, but only because the same man wrote both books and they cover the same material; Schmidl pointed out the mistaken identification some years ago.⁷⁸

The work is divided, as the title indicates, into three books; the first containing thirty-five chapters; the second, thirty-three; and the third, sixty-two. The first book discusses plain-song, describing solmization, the intervals, and the modes. The second book discusses the solmization of counterpoint, insofar as it differs from that used in plain-song; a single chapter on the three Greek genera precedes the explanation of mensural notation which comprises the bulk of the book. The third book, almost as long as the first two combined, is on counterpoint, beginning with

⁷⁷ By Johann Nikolaus Forkel, Allgemeine Literatur der Musik (Leipzig, Schwickert, 1792), p. 295. He qualifies this by adding that Flaminio's work amounts to a complete revision rather than a straightforward translation.

⁷⁸ Op. cit., I, 72.

a description of consonance and dissonance. The remainder of the book treats such matters as the order in which the parts of a composition are to be written, how to construct chords, how to make cadences, and how canons (fugae) may be constructed. The last few chapters describe the use of proportions and ligatures, a topic that might more properly have been discussed in Book II with the other aspects of notation.

2. Toscanello de la Musica di Messer Pietro Aron Fiorentino, Canonico da Rimini. Venice: Bernardino and Matheo de Vitali, July 23, 1523. [53] 1.

Toscanello in Musica di Messer Piero Aron fiorentino, dell'Ordine Hierosolimitano et Canonico in Rimini, nuovamente stampato con l'aggiunta da lui fatta et con diligentia corretto. Venice: Bernardino and Matheo de Vitali, July 5, 1529. [63] 1.

Toscanello in Musica di Messer Piero Aron Fiorentino, dell'Ordine Hierosolimitano e Canonico in Rimini. Nuovamente Stampato con la Gionta da lui fatta e con diligentia corretto. Venice: Marchio Sessa, March 19, 1539. [36] 1.

Toscanello, Opera dell'Eccellentissimo Musico M. Pietro Aron, fiorentino, dell'Ordine Hierosolimitano, et Canonico di Rimini. Nella quale, dopo li laudi, la origine, la difinitione, et la divisione della Musica; con essatissimo, et agevolissimo trattato s'insegna tutto

quello che alla pratica del cantare,
 et del comporre canti in Musica, et
 a devenire perfetto Musico è neces-
 sario. Con l'aggiunta fatta dall'
 autore stesso, innanzi che morisse.
 Hora nuovamente con sommo studio,
 et diligentia riveduta, ricorretta,
 et ristampata. Venice: Domenico
 Nicolino, 1562. 2, 32 1.

The above are the only four editions of this work that can be confirmed. Several others are listed in various reference works and library catalogues, but they all seem to be non-existent. The earliest, a supposed edition of 1525, is the most widely quoted, appearing in such works as the recent editions of Baker's Biographical Dictionary and Grove's Dictionary. The error seems to extend back to Georg Panzer's Annales typographici⁷⁹ which lists such an edition, but with the title page that appears on the 1529 edition, including the reference to the Supplement. The source of the error is probably that the 1529 Toscanello was bound together with the 1525 Trattato, and that Panzer quoted the title page of Toscanello and the colophon of Trattato. Similar misquotations have produced other misleading dates in modern printed catalogues of some libraries, none of which, however, claim possession of a 1525 Toscanello.

⁷⁹ Nuremberg, 1793-7, 1798-1803, vol. VIII, no. 1278 under Venice.

A supposed edition of 1531 listed by the catalogue of the Conservatory of Music in Parma⁸⁰ is the 1529 Toscanello bound together with the 1531 Supplement to Trattato described below.⁸¹ A 1557 edition is listed by Eitner, Quellen-Lexicon I, 22, in the collections of the Biblioteca Nazionale Centrale in Florence and the Bibliothèque du Conservatoire (now in the Bibliothèque Nationale), Paris. Both libraries state that they possess no such edition.⁸² A 1572 edition is mentioned in an account of the purchase of the Stellfeld Library by the University of Michigan,⁸³ but the librarian writes that this was a misprint for 1562. Claudio Sartori mentions an edition of 1589 printed by "Sessa B. & Bernardino,"⁸⁴ but no other trace of this edition can be found; perhaps it is a misreading for 1539.

⁸⁰ Associazione dei Musicologi Italiani, Catalogo Generale: Città di Parma (Parma, Zerbini & Fresching, 1911), p. 6-7, under the call number "Sez. mus. bibl. pal. 17631."

⁸¹ The Library of Congress has the same double binding but mentions both items in its catalogue.

⁸² Personal communication. Eitner probably got the date 1557 from Weckerlin, Catalogue de la Bibliothèque du Conservatoire (Paris, Firmin-Didot, 1885), p. 2.

⁸³ "The University of Michigan's purchase of the Stellfeld Library," Notes, XII (1954), p. 55.

⁸⁴ Dizionario degli editori musicali italiani (Florence, Olschki, 1958), p. 143.

Toscanello was the only book of Aaron to be reprinted, and its circulation must have been much wider than any of the others.⁸⁵ This is to be accounted for partly by its concern with practical matters, but also by its appearance in the vernacular. It is one of the first treatises to defy the prejudice against the vernacular which Aaron himself described in the preface to Institutione Harmonica; one of its few predecessors was Gafori's Angelicum et Divinum Opus Musicae, which the author rather grudgingly issued as a concession to those who lacked a proper education.⁸⁶ The advent of printing brought a radical change in

⁸⁵ It is known to have circulated in manuscript at least three years before publication. Del Lago refers to it in a letter of January 6, 1520, to Giovanni dal Legge (VL 5318, no. 8, f. 54v: "li dubbi quali vi occorano sopra il Toschanelo composto per Don Pietro Aron fiorentino.").

⁸⁶ Gafori, Angelicum et Divinum Opus Musicae (Milan, Gothard da Ponte, 1508), "Perchè molti illiterati fano professione de musica et con grande difficultade pervengono a la vera cognitione de li praecepti harmonici per non intendere le opere nostre et de altri degni auctori latini quale son scripture con qualche ornato et alquanto obscuro stillo: havemo consyderato subvenire non solamente a lor voti et desiderii, ma anchora a la devotione de molte donne religiose intente ad laudare lo eterno Dio con tuta la corte celeste imitando le angeliche ierarchie et ad ornamento del culto divino; per il che con intercessione del nostro divo protectore Ambrosio, implorato il suo divino subsidio dal quale procede ogni bene et gratia, descrivaremo

the theorist's potential audience; many more readers could be reached than was possible by circulation in manuscript, and the growing interest in music among non-professionals led to a demand for treatises that would discuss practical problems as clearly as possible and without the added obscurity of the Latin language. Aaron's treatises to some extent are aimed at such an audience, not addressed to professionals only as was true of many earlier treatises, and thus he uses Italian rather than Latin (aside from the fact that he was by his own admission unable to write well enough in Latin). But the scholarly prejudice died hard, and even in 1545 when Aaron published Lucidario, a somewhat more recondite work than Toscanello, he felt it necessary to justify writing in Italian by reference to Dante, Boccaccio, and Petrarch, as well as to the Romans, who had a comparable attitude towards the Greek language, but still wrote often in their own native tongue, Latin, in order to be better understood; Aaron also wants to be understood, so writes in Italian.⁸⁷

in lingua materna con brevitade molte degne consyderatione necessarie a chi è studioso de pervenire ad perfecta cognitione de questa angelica doctrina."

⁸⁷ Luc., preface; see Appendix A.

Toscanello then is a basic manual for composition, although Aaron specifies that he has omitted some elementary material that is included in Institutione Harmonica, to which the reader is referred if he is not yet familiar with it.⁸⁸ In the first of Toscanello's two books, chapters 1 to 5 contain the praises, origin, description, and definition of music mentioned in the title of the 1562 edition; the remaining thirty-five chapters are a handbook on notation. Book II is on counterpoint and describes intervals, nods briefly towards the Greek genera, then discusses the question of simultaneous or successive composition of the parts, the construction of chords, the proportions, and finally the tuning of keyboard instruments. The supplement added in 1529 goes into great detail about the use of accidentals in counterpoint and concludes with a discussion of the modes in plain-chant. Apart from the addition of the supplement, the later editions are little changed from the first. The most extensive emendations are found in

⁸⁸ Tosc. I, 6: "Dobbiamo hora sappare che la presente opera nostra, ha il suo fondamento sopra la musica harmonica, de laquale non mi pare ridire quegli primi principii, che da noi nel primo de l'institutione harmonica in latino son stati dichiarati."

Book II, Chapters 13 and 18, but even these are not substantial. Other slight revisions add or delete words here and there, sometimes in response to suggestions made by Spataro in his letters commenting on Toscanello. The supplement itself was in partial response to Spataro's critique, but went beyond the matters Spataro specifically mentioned. The last three editions are identical to one another word for word; the only differences are in the layout of the pages and the more extensive use of abbreviations in the 1539 version, which is in general more crowded on its page and not printed so attractively as the 1523 and 1529 editions. All four editions seem to have used the same plates for the musical examples and diagrams, which appear identical, even to superficial flaws in the engraving, except that the printed words within the diagrams are always reset.

3. Trattato della natura et cognitione di tutti gli tuoni di canto figurato non da altrui più scritti, composti per Messer Piero Aaron musico fiorentino canonico in Rimini maestro di casa del reverendo et magnifico cavaliere hierosolimitano Messer Sebastiano Michele priore di Vinetia. Venice: Bernardino de Vitali, August 4, 1525. [24] 1.

Supplement to the above, published separately without title page or indication of the author. Venice: Bernardino de Vitali, 1531. 5 printed leaves.

Trattato, despite some statements to the contrary,⁸⁹ was published only once, in 1525. The Supplement was issued separately in 1531, as is shown by the fact that Spataro spoke of it as a separate "tractatetto" (see Chapter 6 below), and that in some libraries it is now bound with Toscanello rather than with Trattato. Some library catalogues nonetheless call the two a 1531 edition of Trattato, probably because the book and its supplement were bound together before the catalogue was written.⁹⁰ A 1529 edition of Trattato results from the same sort of double binding that produced the 1525 and 1531 Toscanello, except that Trattato appears at the head of the volume and supplies the title, while Toscanello supplies the colophon.⁹¹

Trattato, as its title indicates, is one of the first attempts to define the modality of contrapuntal music.

⁸⁹ E.g., Sartori, op. cit., p. 168.

⁹⁰ E.g., the Scheurleer Collection, now in the Gemeente Museum, S'Gravenhage, The Netherlands. See the printed catalogue of the Scheurleer collection, I, 71.

⁹¹ As in the Catalogue of the Biblioteca Estense, Modena, p. v, under the call number a.D.1-21.

This subject occupies its first twenty-five chapters, while Chapters 26 to 45 inexplicably shift to a discussion of the solmization of chromatic tones outside the normal gamut. Aaron came to feel that the latter chapters were unsatisfactory, partially under the criticism of Spataro, and issued the Supplement to pursue the matter further, achieving a much clearer treatment in the second attempt. The genesis of the Supplement is described in more detail in Chapter 6 below.

4. *Lucidario in Musica, di alcune oppenioni antiche, et modernè con le loro Oppositioni; et Resolutioni, con molti altri secreti appresso, et questioni da altrui anchora non dichiarati, composto dall' eccellente, et consumato Musico Pietro Aron del Ordine de Crosachieri, et della città di Firenze. Venice: Girolamo Scotto, 1545. [12], 41 l.*

Lucidario appeared in one edition only and was never reprinted. As the title indicates, it is not a systematic discussion of one or more subjects, but a compilation of Aaron's opinions on a variety of theoretical problems, largely of a specialized nature. It is divided into four books containing ten, fifteen, sixteen, and twelve chapters respectively. The first three books follow the plan

indicated in the title; each chapter is divided into an Opinion, Opposition, and Resolution, stating arguments for and against each proposition presented and finally Aaron's own conclusion. Book IV abandons this procedure and simply discusses each topic without the formal division. Book I is concerned with the modes and solmization in plain-chant, the remaining three books with counterpoint. Book II deals with notation, the use of consonance, solmization, and canon, in no purposeful order. Book III is mainly about notation, and Book IV about the solmization of chromatic tones; much of this last book is essentially a reprinting of the Supplement to Trattato. The printed foliation of Lucidario begins only in Book II, for no apparent reason. The book as a whole is rather a mixed bag; it appears that Aaron towards the end of his life gathered together all his miscellaneous notes on every aspect of theory and put them on record in Lucidario. It would be reasonable to assume that the dedicatee, Count Fortunato Martinengo, of the family which Aaron mentioned in his letter cited above, financed the book's publication. A few chapters rehash his dispute with Gafori thirty years earlier, and a great many others, especially

those on notation, restate ideas that come from Spataro, who is cited with great approbation in each such instance. The book is decidedly uneven in value; the sections on notation are distinctly antiquarian, while some of the observations on counterpoint are of considerable interest, and the material on solmization in Book IV treats a subject discussed by few other writers of the period.

5. Compendiolo di molti dubbi, segreti, et sentenze intorno al canto fermo, et figurato, da molti eccellenti & consumati Musici dichiarate, Raccolte dallo Eccellente & scienzato Autore frate Pietro Aron del ordine de Crosachieri & della Inclita Citta di Firenze. Milan: Io. Antonio da Castelliono, [ca. 1550]. [38] l.

The confusion between this work and Institutione Harmonica has been noted above; suffice it to repeat that the two are quite distinct and that the Italian original of Institutione Harmonica is not known to exist. Compendiolo is divided into two books, the first discussing plain-chant and the second, counterpoint, in fifty and seventy-three chapters respectively. Book I takes up solmization, intonation formulas for various types of chants, and the modes. Book II begins with notation then proceeds to intervals, rules of counterpoint, and finally proportions. The

discussions in general are extremely condensed; only the simplest possible statement of the material is given with no elaboration or explanation. Several times, however, Aaron refers to his other works and to Gafori's Practica for justification or for a more extended discussion. The book consequently says almost nothing that Aaron did not say before. It would certainly have been valuable to the student of music as an outline of the subject, in much the same sense that published outlines are used by modern students, but it adds little to Aaron's accomplishment.

6. "Delli principij de tuti li tono (sic) secondo mi Pietro Aaron." British Museum, Ms. bound in Printed Book K. 1. g. 10. 10 1.

The Museum's Catalogue of Manuscript Music, III, 314, suggests that this manuscript is the original draft for Trattato. It contains on f. 1 to 5 lists of the notes on which each mode may begin "secondo mi Pietro Aaron," "secondo Frate Stephano," and "secondo Franchino." F. 6 is blank, and f. 7 to 10 contain examples of syncopes and cadences. The latter seem to have no connection with f. 1-5; they are in an entirely different hand, and the treatment of the syncope strongly suggests that these pages are

from the later sixteenth century; Aaron nowhere displays such a thorough understanding of the concept. Neither this hand nor that of the first five leaves is that of Aaron, which may be seen in his letters in the Vatican and Paris manuscripts. The list of initial notes is probably from a period later than Trattato, because the "Frate Stephano" referred to is Stephano Vanneo, the author of Recanetum de Musica Aurea, published in 1533, which is the source of the list given in the manuscript. These pages would thus seem to be a copy by another hand of some notes Aaron made several years after Trattato was published, comparing his own statements with those of Vanneo and Franchino Gafori, the latter as they appear in his Practica. Aaron's lists of initial notes are discussed in Chapter 4 below, but I have not included the syncopes in the present study, since they do not appear to be by Aaron.

Aaron's correspondence has been mentioned above; his surviving letters are all included in Appendix B of this study, and any further description of the manuscripts in which they are contained is superfluous in view of Jeppesen's admirably thorough study.⁹² Aaron's activity as a composer

⁹² MusThKorr.

has also been discussed above. One work has been attributed to him beyond the frottola and the lost sacred music; Joseph Fröhlich⁹³ printed a "Gloria sit Deo" with the comment that the composition represents a progress in harmony through the free introduction of the diminished fifth, previously forbidden. The piece, only six measures long, seems to be a revision of three musical examples from Lucidario, II, 7, with added text and dynamic indications. Aaron's discussion was devoted to the use of the diminished fifth, but he probably had nothing to do with the version of his examples printed by Fröhlich.

EXAMPLE 1 - (a) Fröhlich, Beiträge zur Geschichte der Musik, II, 129; (b) Aaron, Lucidario, f. 7v.

(a)

Glo-ri-a sit De-o, in sae-cu-la

Glo-ri-a sit De-o, in sae-cu-la

Glo-ri-a sit De-o, in sae-cu-la

⁹³ Beiträge zur Geschichte der Musik (Wurzburg, Stahel, 1868-74), II, 129.

glo-ri- a

glo-ri- a

glo-ri- a

Detailed description: This block contains three staves of music in 3/2 time. The top two staves are for soprano and alto voices, both starting on a whole note G4. The bottom staff is for the bass line, starting on a whole note G2. The lyrics 'glo-ri- a' are written below the first two staves. A double bar line is present after the first measure of each staff.

(b) glo- ri- a

Detailed description: This block shows a piano accompaniment in 3/4 time. The melody is written on a treble clef staff, and the bass line is on a bass clef staff. The lyrics 'glo-ri-a' are written above the melody. The piece begins with a treble clef, a common time signature (C), and a first ending bracket labeled '(b)'. The melody consists of eighth and quarter notes, while the bass line consists of chords. The piece ends with a double bar line.

CHAPTER II

PHILOSOPHY, SOLMIZATION, INTONATION

Music theory in the Middle Ages and Renaissance can generally be divided into two categories, speculative and practical. The former is concerned with music primarily as a mathematical or philosophical object of contemplation, the latter with concrete problems of musical composition, performance, or analysis. Some individuals wrote treatises of both types, such as Franchino Gafori in his Theorica Musicae and Practica Musicae, and elements of both approaches may appear juxtaposed in single works. Certain medieval treatises, such as the Speculum Musicae of Jacques de Liège and the Declaratio Musicae Disciplinae of Ugolino d'Orvieto, intended to compile all knowledge about music and thus treated practice extensively, although their ultimate goal was philosophical. Throughout the Middle Ages, musical philosophy and mathematics consistently held a higher place than practice in the accepted hierarchy of intellectual values, so a treatise dealing with practice often began by

paying its respects to philosophy before descending to the mundane concerns of the composer or performer. The speculative tradition continued in the Renaissance, although philosophy lost its primacy over practice. The introductory material in many Renaissance treatises continued to lay a philosophical groundwork for the practical material and usually consisted of "the typical discussions of the nature and effect of music in antiquity" cited by Hans Albrecht as the chief manifestation of humanistic thought in the music theory of the Renaissance.¹

Pietro Aaron was definitely a practical theorist; his treatises include almost nothing of a philosophical nature and very little else that does not pertain to some problem of musical practice. In his three comprehensive treatises, Institutione Harmonica, Toscanello, and Compendiolo, he follows tradition by including chapters that discuss music in philosophical terms as an introduction to the technical material; their content is largely as described by Albrecht.

¹ Hans Albrecht, "Humanismus," MGG., VI, 913: "Wo in der Musiktheorie des frühen und mittleren 16. Jahrhunderts humanistisches Gedankengut durchschimmert, begegnet es und (soweit wir bis heute unterrichtet sind) in den typischen Erörterungen über Wesen und Wirkung der Musik in der Antike und dergleichen."

The most extensive such passage is Toscanello I, 1-5 which will be examined briefly before proceeding to Aaron's theoretical ideas; similar material in Compendiolo II, 55-58, and Institutione Harmonica, translator's preface, needs no separate comment.

The first chapter of Toscanello is entitled "Praises of music," and has the purpose of demonstrating that music is a subject worthy of discussion, a proposition whose supporting arguments are derived almost exclusively from ancient history or mythology. Music's esteem in antiquity is demonstrated by reference to the myths of Orpheus, Amphion, and others, and by citing the importance assigned to music by poets such as Homer and Vergil.² The effects of music are a further index of its value. As an educative tool, music makes man politic, warlike, or peaceful, and molds character for better or worse, according to Plato and Aristotle. Its curative powers are alleged.

² Neither in this nor the four following chapters are the authorities quoted directly.

in many of the favorite stories, such as Timotheus and Alexander, Thales lifting the plague by means of his lyre, Ismenias, the flutist who cured sciatica among the Boeotians, and David and Saul, the latter the only Biblical reference in the chapter. A related passage in Chapter 25 of Trattato considers the reasons why music gives pleasure. Aaron gives several opinions, beginning with Aristoxenus's idea that a harmony results from the joining of the bodily members which predisposes one to take pleasure in the harmony of music. This, Aaron, says, is disputed by others who believe that the soul was created in Heaven and even when placed in the body on earth remembers something of the harmony of the spheres, thus taking pleasure in earthly music as a poor imitation, but the closest possible, of this vaguely remembered perfect harmony. Modern theology, however, says the soul was not created in Heaven, since God would not create a pure being and then send it to earth to be soiled by sin. Aaron thereupon concludes that it is simply the perfection of number and sound joined together in music that gives us pleasure. Only music that

is perfect, attractive, and striking pleases our souls and lets us forget some of the miseries of the world.

Toscanello I, 2, discusses the origins of music and the earliest musicians, according to legend and the ancient authors. Amphion, Linus, Antheus, and others famous for musical accomplishments are mentioned, while Pythagoras' discovery of the ratios underlying musical consonances is given its customary homage. The alternative theory that a god invented music is also stated, Apollo and Mercury being the chief candidates for the honor. Finally Aaron states his own belief that Christian tradition is correct, that Tubal was the first musician.³

Chapters 3 and 4 define and classify the subject. Music is defined as the science that shows the way to sing rightly and with smooth delivery, a definition that refers to music as an art rather than as a science.⁴ Its name comes from musa, which may mean "song" or "muse." The muses sang when in the company of Dionysus or Jove, so music was named after

³ All four editions of Tosc. say "Tubal," but Gen.

4:21-22 describes Jubal as the first musician and Tubalcain as the first smith. The confusion was common in the Middle Ages and Renaissance, though Aaron would have found the correct name used by Gafori.

⁴ Both attitudes towards music have their roots in Classical antiquity; see MGG. IX, 975-978.

them. The divisions of music are those handed down by Boethius, musica mundana, humana, and instrumentalis.⁵ Aaron simply repeats the older writers on the first two, saying musica mundana is made by the revolutions of the heavenly spheres, citing Plato, Cicero, and Boethius as authorities. Contrary to Tinctoris,⁶ Aaron expresses no doubt as to the real existence of such music, going so far as to say that such a great machine as the heavens could hardly move silently. The slight attention he gives to the subject indicates, however, that he considered it of no practical importance. Musica humana is explained as resulting from the conjunction of soul and body. Here he cites "wise men" as saying that no real sound results from this conjunction; if there is any proportion it is hidden, not apparent. It lasts during our lifetime and ceases at death when the soul and body are separated.

Musica instrumentalis is the music that we hear performed by voices or instruments. In Chapter 4 it is divided

⁵ A. M. T. S. Boethius, De Institutione Musica libri quinque, ed. Gottfried Friedlein (Leipzig, Teubner, 1867), I, 2; English translation in Strunk, Source Readings, 84. All references to Boethius follow the chapter divisions of Friedlein.

⁶ The Art of Counterpoint, p. 14.

into two categories, natural and artificial, corresponding to music made by the voice, which is the natural instrument, and by fabricated instruments respectively. There are in fact nine natural instruments: the throat, tongue, palate, four teeth, and two lips, which are considered the sources of the voice. Vocal music is considered the most valuable music and the voice the most perfect instrument. Artificial instruments are grouped in three sub-classes, string, wind, and percussion instruments.

Chapter 5 classifies the various types of sounds that may be used in a musical composition, and in effect gives a different classification of instruments. The three categories are harmonic, comprising vocal music; organic, comprising music of wind instruments; and rhythmic, comprising music produced by an external physical impulse, i.e., strings and percussion. Each category is discussed at some length, with various qualities of voices and kinds of instruments described, while classical tradition is cited as to their origins. The instruments themselves are largely those of antiquity; no mention is made of keyboard instruments, viola, or lutes, and the wind instruments are the ancient forms rather than their sixteenth-century descendants.

Not a bit of the foregoing is original. Aaron simply gathered it together from the traditional ideas and stories about music that had been current, in many cases, since Boethius. His purpose, at least in Toscanello, was to give those who did not read Latin the opportunity to become acquainted with at least a small part of their musical tradition:⁷

Just as it is written that Pythagoras recognized the size of the body of Hercules from his foot alone, so I will allow that any alert intelligence, though not learned in Greek or Latin, but not alien to the Muses nor Graces, if shown the smallest part of another subject, may form a judgement of the extent of the rest.

Evidently Aaron had not intended to discuss these topics at all in Institutione Harmonica, and they appear only in Flaminio's preface. Compendiolo has a small section near the end of the book, apparently condensed from Toscanello and included almost as an afterthought. Plainly enough, in each book this material was included more from a sense of obligation than of interest.

⁷ Tosc. I, 1: "...si come si scrive, Pythagora dal pie solo haver gia raccolto quanto fussi la grandezza di tutto il corpo di Hercole, cosi lasciero io, che ogni svegliato ingegno, se ben non e dotto in greco, o latino, non pero ne da le muse, ne da le gratie alieno, da una piccolissima particella in altro proposito mostrata, faccia giudicio di tutto il resto."

Other extra-theoretical topics provoked a more individual response from Aaron. Lucidario IV, 1, contains a long discussion of national characteristics in music. The ancient Greeks are treated first, with the music of the Dorians, Lydians, and Phrygians described according to traditional notions; the church modes are said to have been named after them because the modes resemble the ancient music in character. He then proceeds to modern nations, quoting the old saying that the French sing, the English jubilate, the Spanish weep, the Germans howl, and the Italians shudder (caprezzare).⁸ Aaron takes exception to this treatment of the Italians; not only are they mentioned last but they are also insulted. This is hardly fair, he says, because though they may have no other special grace from nature, they do excel in music; the French, Germans, and "other barbarians" lack this gift and come to Italy to perfect their knowledge. There are so many excellent Italian musicians, he says, that it would be impossible to name them all, but he does mention a few in order to show

⁸ Strunk, Source Readings, 105, refers to this passage and one in Ornithoparcus, Musicae Activae Micrologus (Leipzig, 1516), IV, 8, in noting a similar remark in the dedication of Tinctoris's Proportionale musices.

the falseness of such notions about Italy and to celebrate at least some of her favored children. The list below then follows; as many names as possible are further identified:

CANTORI A LIBRO

Il Signor Conte Nicolo d'Arco [1479-1546, a Latin poet and the father-in-law of Fortunato Martinengo, to whom Lucidario was dedicated.⁹ His Exastichon in praise of Aaron appears at the beginning of Lucidario; see Appendix A.]

Il Signor Lodovico Strozzi da Mantova

Messer Bidone [Perhaps "the temperamental singer in Pope Leo X's chapel."¹⁰ Schmidl says he is French,¹¹ but Aaron would hardly have included a Frenchman in this list.]

Messer Costanzo Festa [d. 1545, the noted composer]

Messer Don Timoteo [Perhaps the "Timoteo" Einstein mentions as a frottolist]¹²

Messer Marc'Antonio del Doge da Vinegia [M. A. Cavazzoni, ca. 1490-1559, the noted organist and composer]

⁹ Conte Giammaria Mazzuchelli, Gli Scrittori d'Italia (Brescia, Giambattista Bossini, 1753), I, 697. See also Dizionario Biografico degli Italiani, III, 793-794.

¹⁰ Alfred Einstein, The Italian Madrigal, translated by Alexander H. Krappe, Roger H. Sessions, and Oliver Strunk (Princeton, Princeton, 1949), I, 107.

¹¹ Carlo Schmidl, Dizionario Universale: Supplemento (Milan, Sonzogno, 1938), 98.

¹² The Italian Madrigal, I, 41.

Messer pre Francesco Bifetto da Bergamo
[Maestro di cappella of the Basilica di
Sancta Maria Maggiore, Bergamo, from 1554-
1561.¹³ His first published work was a
book of madrigals in 1546 or 1547.¹⁴]

Messer pre Gioan Maria da Chiari

Messer Gioanni Ferraro da Chiari

Messer fra Pietro da Hostia [a frottolist
whose work was published in 1526 by Giunta
in Canzoni, Frottole et Capitoli]¹⁵

Messer Giolamo Donismondo da Mantova

Messer Girolamo Lorino da Chiari, maestro
di Cappella in Brescia

Messer Lucio da Bergamo

Messer Biasino da Pesaro

Messer Bernardino, over il Rizzo della
Rocca contrada

CANTORI AL LIUTO

Il Signor Conte Lodovico Martinengo [pre-
sumably a relative of Fortunato. A man
of the same name was captain of the
"armati" of Venice,¹⁶ where Aaron could
have known him; the Martinengo family
was so large, though, that the two may
not be identical.]

¹³ Giuliano Donati-Petteni, L'Arte della Musica in Bergamo (Bergamo, Banca Mutua Popolare di Bergamo, 1930), p. 15.

¹⁴ Einstein, op. cit., I, 294.

¹⁵ Ibid., I, 141.

¹⁶ Vittorio Spreti, ed., Enciclopedia Storico-Nobiliare Italiana (Milan, Ed. Enciclopedia Storico-Nobiliare Italiana, 1928-35), IV, 427.

Messer Ognibene da Vinegia

Messer Bartholomeo Tromboncino [d. after 1535; the noted frottolist]

Messer Marchetto Mantoano [Marchetto Cara, date of birth and death unknown; the noted frottolist]

Messer Ipolito Tromboncino ["A well-known lute-player at Venice" about 1550]¹⁷

Messer Bartholomeo Gazza [perhaps the Venetian musician active ca. 1550 mentioned by Einstein]¹⁸

Il Reverendo Messer Marc'Antonio Fontana, Archidiacono di Como

Messer Francesco da Faenza

Messer Angioletto da Vinegia

Messer Iacopo da San Secondo [A Giacomo Sansecolo "cantava alla viola" early in the sixteenth century;¹⁹ his identity with this man is conjectural.]

Il Magnifico Messer Camillo Michele Vinitiano [The son of Sebastiano Michiel, Aaron's Venetian patron. He is mentioned by name in some of Spataro's letters to Aaron.]²⁰

¹⁷ Einstein, op. cit., I, 49.

¹⁸ Ibid., I, 50.

¹⁹ Bramante Ligi, "La cappella musicale del duomo di Urbino," Note d'Archivio, II (1925), 10.

²⁰ One such letter is VL 5318, no. 105, f. 249v.

Messer Paolo Melanese [Robert Eitner says this is the lutenist Paolo Borrono, who was active ca. 1530-1565.²¹ Schmidl gives the name as Pier Paolo Borroni and says he was also known as Pier-Paolo Milanese.²²]

DONNE A LIUTO ET A LIBRO

La Signora Antonia Aragona da Napoli
[mentioned by Einstein as a noted cantatrice
of Venice]²³

La Signora Costanza da Nuvolara

La Signora Lucretia da Coreggio

La Signora Franceschina Bellaman
[mentioned by Einstein]

La Signora Ginevra Palavigina

La Signora Barbara Palavigina

La Signora Susana Ferra Ferrarese

La Signora Girolama di Sant'Andrea

La Signora Marieta Bellamano [mentioned
by Einstein]

La Signora Helena Vinitiana [mentioned
by Einstein]

La Signora Isabella Bolognese [mentioned
by Einstein]

²¹ Robert Eitner, Quellen-Lexicon (Leipzig, Breitkopf und Härtel, 1898), VII, 312.

²² Schmidl, Dizionario Universale, I, 226.

²³ The Italian Madrigal, II, 843.

The list is a negative testimony to the domination of Italian music by the Northerners towards the middle of the century; few names are at all prominent, and most of those are from the older generation, contemporaries of Aaron like Festa, Cavazzoni and Tromboncino. Aaron's outburst gives some idea of the jealousy felt by Italian musicians towards the talented hordes from the north.²⁴

Another peripheral matter on which Aaron expresses himself is the difference between a musician and a singer. In Institutione Harmonica II, 2, and Lucidario II, preface, he repeats the teaching of Boethius and Guido that the musician knows music rationally while the singer simply performs mechanically without understanding what he does. He condemns those of his contemporaries who are ignorant of the principles of the art but compose nonetheless, and also opposes the idea that the singer is a musician, which he says is derived from the notion that the effect of the music is due to the performer rather than the composer. As the correct view, he asserts that the performer is to the

²⁴ Spataro expresses a similar view in a letter to Aaron in which he declines the offer of a position in Venice that had been relayed to him by Aaron, saying he was too old to move and in any case would not find it pleasant to serve under the "tedeschi." (VL 5318, no. 103, f. 246r, March 4, 1533).

composer as the town-crier to the mayor, the former making the wishes of the latter known. Lucidario indicates that the singer can be considered a musician if he really knows music; he is at least a better singer for it. The composer is definitely a musician, though, because he should know something of music to compose properly.

The status of the composer is elaborated upon in Lucidario II, 15, which begins as a response to the opinion that since a composer needs little training, his art is superficial and consists only of practice. Aaron states that practice is insufficient to make a composer, since some write better early in their careers than others who have practiced throughout a long life. On the other hand, thorough grounding in theory is not crucial; a suggestion of Spataro is cited to the effect that familiarity with the simple sonorities of consonances, not profound knowledge of their measurements, is sufficient. The composer then will arrange them pleasingly through "a certain art and practice." In other words, the composer's ear must be trained so that he can anticipate the result of his writing, but he does not need to know the mathematical bases of these results. Aaron also notes that a complete knowledge of

theory is beyond mortal powers in any event and hardly to be expected of a composer or anyone else. The ability to compose is a divine gift, which is improved by training in the fundamentals of music. The composer, according to Aaron, expresses in sound what the theorist contemplates with the intellect. Evidently the composer occupies a complementary position to that of the theorist, rather than a subordinate one, which was the typical medieval view. As Einstein remarked, Aaron clearly expressed "the new role of music as an art of men of genius,"²⁵ a typically Renaissance conception.

After the requirements of an introduction had been suitably fulfilled, the theorist usually began the main body of his treatise by describing the pitches and pitch names which constituted the musical material. Aaron followed tradition in this, adhering to the system that had been in use for some five hundred years, which consisted of a gamut of twenty notes (or twenty-two if the two B-flats are counted separately), from G to e", omitting the first

²⁵ The Italian Madrigal, I, 226. A letter from Spataro to Aaron which states a similar view is discussed below in Chapter V.

B-flat and including the upper two, but otherwise completely diatonic.²⁶ The various octaves were traditionally described by capital, small, and double letters thus:

Γ
A
b
C
D
E
F
G
a
b
c
d
e
f
g
a
b
c
d
e
a
b
c
d
e

with low G designated by Greek gamma. The second and third octave show B-flat and B-natural by round and square letters respectively; Aaron frequently uses the signs *b* and *Ⓛ* also, which are derived from the two forms of the letter. In Compendiolo I, 10, he says that the moderns consider it superfluous to use different sizes of letters to distinguish octaves, possibly because notes above or below the gamut were more frequently used and the old system was thus becoming inadequate. In Toscanello, however, he had used the traditional capital letters for the lowest octave and small letters for all higher notes.

Notes in the gamut were also distinguished as belonging to the grave, acute, or superacute registers. The grave

²⁶ Helmholtz pitch designations (c' is middle C, b' the B next above it, c'' the octave above middle C, c the octave below, etc.) will be used to designate specific registers; capital letters will sometimes refer to no specific octave. Aaron generally used the Guidonian syllables and registers, which will generally be avoided because they are so cumbersome.

traditionally extended from G to g, sometimes with G (gamma) considered a separate subgrave register; the acute extended from a to g', and the superacute from a' to e". Aaron followed this nomenclature in his later works, but in Institutione Harmonica I, 2-3, he describes two different divisions. The first is into four registers: G, subgrave; A-d', grave; b-natural to b'natural, acute; b'natural to e", superacute.²⁷ The overlapping of the acute and grave registers leads to the suspicion that the printer might have made an error in this passage, but it is so unlike any usual division that no emendation seems possible.

The second division describes three registers: grave, G-g, acute, g-g'; superacute, g'-e". The statement follows that there are seven graves, seven acutes and six superacutes; thus the two former extend only to f and f' respectively. This division is used throughout Institutione Harmonica. Aaron gave it up later, since in Lucidario I, 2, he concludes that g is indeed the last of the graves, not the first of the acutes. The terminology in Toscanello is inconsistent. Most often Aaron gives first the ancient

²⁷ IH. I, 2, f. 8v.

Greek names of the notes, which are distinctive for each octave, followed by the letter and syllables, without mentioning register, but using upper and lower case letters. When he does mention registers, there is confusion. In successive chapters he refers to the fourth from D grave to G acute and the sixth from G grave to e acute, that is d-g and g-e', thus assigning g to two different registers.²⁸ It is not clear why Aaron should have insisted on introducing new ideas into such an inconsequential subject. His system is no improvement over tradition, which starts each register on A, the logical place in alphabetical terms. Perhaps this is another instance of his faulty early training.

The syllables derived from the Guidonian system of hexachords were equally important in specifying register. The hexachords throughout the Middle Ages and Renaissance were the basic tool used in learning to sing and in learning new music. Gafori's Practica gives an idea of their use. He says notes may be performed in three ways: singing the syllables, which is how boys are taught to sing; singing

²⁸ Tosc. II, 7 and 8.

only the notes, or vocalising, which the cantor can easily do; and singing notes with a text, which is the aim of the cleric.²⁹

The system was based on a series of six notes, named in ascending order ut, re, mi, fa, sol, and la. The interval from one note to the next was always a tone except from mi to fa, which was always a semitone. The series could begin on either G, C, or F, within the traditional gamut: G-A-B-C-D-E, C-D-E-F-G-A, F-G-A-Bb-C-D. Thus mi-fa would fall at each of the three semitones available in the gamut. The hexachords beginning on G and F were called "hard" and "soft," or "square" and "round" respectively, after the shape of the B each used; the C hexachord was "natural" since it did not include B. Seven hexachords could be derived within the limits of the gamut and were often depicted in a diagram

²⁹ Gafori, Practica, I, 3: "Tribus insuper modis voces quas notulas declarant pronuntiari solent. Primo modo solfizando idest syllabas ac nomina vocum exprimendo.... Quem quidem pronuntiationis modum tanquam legem initiandis pueris praeponendam tradunt.

Secundo modo: sonos ac voces tantum emittendo omissis penitus litteris ac syllabis & dictionibus: quod exercitatus cantor facile persequitur....

Tertio modo: quascumque dictiones ut antiphonas & responsoria: & ipsarum verba cantilenarum notulis ipsis subscripta pronuntiando: Ad quem tanquam ad finem electi modulaminis clerici deducuntur."

like Table 1.³⁰ Each note was named by its letter followed

e						la
d					la	sol
c					sol	fa
♭						mi
b					fa	
a					la	mi re
g					sol	re ut
f					fa	ut
e					la	mi
d					la	sol re
c					sol	fa ut
♭					fa	mi
b						
a					la	mi re
g					sol	re ut
f					fa	ut
e	la	mi				
d	sol	re				
c	fa	ut				
♭	mi					
a	re					
♮	ut					

Table 1 - The Guidonian hexachord system

³⁰ Aaron nowhere gives such a diagram, but it has been included here for ease in explanation.

by the syllables which it could represent, given in order from the lowest hexachord involved to the highest. These names are found by reading across Table 1 from left to right; e.g., Gamma ut, A re, C fa ut, D sol re, G sol re ut, D la sol re, etc. Some names, such as G sol re ut and A la mi re, appear in two different octaves, and here the names of the registers are used to distinguish them, or sometimes simply "first" and "second" for the lower and higher octave respectively. \flat fa \sharp mi was used as a generic name for the two B's, though they did not have the same pitch; if one was to be specified, it was mentioned by itself, or perhaps called something like "fa in \flat fa \sharp mi." \flat fa \sharp mi could sometimes refer to B-natural, since the latter was the more legitimate form of the note, B-flat being an exception to the diatonic order. The lowest \sharp mi had no correlative flat, since F below gamma would be required to build a hexachord including that B-flat. Lower and higher hexachords were of course added whenever extended range required them; they were called "accidental" hexachords because they used "accidental" notes; any note not in the gamut, whether between, above, or below the regular notes, was considered accidental.

As noted above, the main purpose of the syllables was

to aid in learning music. The theory was that all semitones were sung as mi-fa and the other notes were derived from those two; thus, in a melody which was centered around E-F, those notes would be mi and fa in the natural hexachord, G would be sol, D would be re, and so on. If the syllables were sung correctly, one would automatically sing tones and semitones in the proper places while learning a melody and presumably speed the learning process considerably.³¹ In Gregorian chant, for which the system was devised, semitones occurred only at B-C, E-F, and A-B flat, and the system worked admirably. Polyphonic music used other accidentals and thus semitones occurred elsewhere, but even then the chromatic tones were often transitory and could be sung under the general rule that all sharps are sung as mi, all flats as fa. In the fifteenth and early sixteenth centuries, however, theory considered the possibility of hexachords beginning on other notes than G, C, and F, a practice which will be discussed in Chapter VI below.

³¹ Guido himself so claimed in his Epistola de ignoto cantu; see Strunk, Source Readings, p. 121-125.

When a melody did not stay within the range of a single hexachord, one changed to the syllables of a higher or lower hexachord, a process known as mutation (mutatio). For example, to ascend an octave from C, using B-natural, one would sing ut-re-mi-fa-sol-la (becomes re) -mi-fa, mutating on A from the natural to the hard hexachord. To sing the same octave using B-flat, one would sing ut-re-mi-fa-sol-la (becomes mi) -fa sol, mutating from the natural to the soft hexachord. Aaron explains solmization and mutation in Institutione Harmonica and Compendiolo, but he gives far less detail than, for instance, Tinctoris in his Expositio Manus.³² Tinctoris gives the mutations possible on each note in the gamut, lists the various places where each syllable may change to another, then gives a diagram showing how many times each change of syllable may occur. Gafori in Practica, I, 1-4, is equally detailed. Aaron in Institutione Harmonica I, 10-14, is more concise, giving only the basic principles of mutation and ending with two simple rules: never mutate unless necessary, and always defer mutation until the last possible note.³³ There is

³² CS. IV, 1-15.

³³ IH. I, 13, f. 10v.

no disagreement with Tinctoris, but Aaron seemed to find the extensive detail of the latter inappropriate or unnecessary.

Institutione Harmonica I, 12, notes that since fa [Bb] and mi [Bq] of *bfahmi* are not on the same pitch, no mutation is possible there, but the possibility of a permutation rather than a mutation is admitted. In this a single written B is sung first as B-flat, then changed to B-natural, or vice versa. In a succession of two downward leaps, E-B-F, one must first sing B-natural, mi, and then change it to B-flat, fa, in order to avoid the melodic tritone which would result if only B-flat or only B-natural were sung, i.e., E-B-F or E-Bb-F. Gafori in Practica I, 14, mentions the same device, giving an extended example literally studded with leaps E-B-F and F-B-E. Neither writer recommends permutation unless it is absolutely necessary; such a melodic progression would probably be quite difficult to find in chant or in polyphonic compositions of the period, so the necessity was not likely to have arisen.

Besides condensing his explanations of the rules of mutation, Aaron also tried to simplify them. Institutione

Harmonica II, 3-8, gives rules for mutation in contrapuntal music that are simpler and more explicit than those for chant which he presented in Book I. He prescribes specific notes on which mutations should always be made, thus making them automatic and freeing the singer from the necessity of constant concern with finding a suitable place to mutate. The notes to be used depend on the signature; one set of notes is used in pieces with no signature and another in pieces with one flat. With no signature, ascending, A changes from la to re, D from sol to re; descending, A changes from re to la, E from mi to la. With a flat in the signature, ascending G changes from sol to re and D from la to re; A changes from mi to la and D from re to la descending.³⁴ If a leap omits those notes, the mutation is imagined to take place there nonetheless, and the other notes are sung accordingly. Thus with no signature only the hard and natural hexachords are to be used, and with one flat, only the natural and soft. Aaron does mention that with B-natural

34

Aaron repeats the rule for each of the four voice parts in a polyphonic work, giving precise registers for the points of mutation in each voice; they differ only in their octaves.

written, B-flat may sometimes be sung instead, thus requiring a temporary shift to the soft hexachord even when there is no signature. Ambros calls this a new system of solmization,³⁵ but its newness may be questioned. The approach is basically that of Tinctoris; Aaron's contribution amounts to a simplification rather than fundamental change. But it may not even have been his own contribution. Riemann notes that the same rules occur in an anonymous Introductorium Musicae (Venice, ca. 1507),³⁶ but he states that Aaron perfected the simplified solmization.³⁷ It is not clear in what respect Aaron perfected the system when it had appeared complete in the earlier work, but he perhaps gave it wider circulation. Evidently the new rules became accepted, even more than Aaron preferred, for in Lucidario I, 3, he felt obliged to emphasize that they applied only to counterpoint, and that it was incorrect to use them in chant, for which the old rules were still valid.

³⁵ August Wilhelm Ambros, Geschichte der Musik, 3rd ed., ed. Otto Kade (Leipzig, Leuckart, 1893), III, 83.

³⁶ "Anonymi Introductorium Musicae," ed. Hugo Riemann, Monatshefte für Musikgeschichte, XXIX (1897), 157. The rules are given in the condensed form used above rather than voice by voice as in IH.

³⁷ Riemann, MusTh., 305.

When the available notes within the gamut were set forth, the distances between them required more precise definition, and such a definition often followed the explanations of solmization in elementary texts. The distances between notes are within the province of the theory of intonation, and in the Middle Ages this theory may be said to have been the practical application of mathematical speculation in music. The simple ratios of the intervals now known to comprise the harmonic series were discovered in antiquity, by Pythagoras according to tradition. These ratios were the ultimate basis for the inclusion of music among the seven liberal arts; with arithmetic, geometry, and astronomy it comprised the quadrivium, all four branches of which explored the numerical relationships which underlay natural phenomena. In this connection music was prominent in the philosophical writings of late Antiquity and the Middle Ages,³⁸ and many theoretical treatises approach intonation from this viewpoint primarily.

³⁸ See MGG. I, 737-742, s.v. Artes liberales, for a list of writers who discuss music in this sense.

The importance of the practical applications was by no means overlooked. In any musical system the size of intervals should ideally be stabilized, or at least referred to a norm, and the simple natural relationships furnished this norm in the Middle Ages. Antiquity knew a wide variety of tunings, but the Middle Ages chose Pythagorean tuning as a standard, so called after its presumed discoverer.³⁹ In this tuning all intervals are derived from the two most perfect consonances, the octave with ratio 2:1 and the perfect fifth, ratio 3:2. As transmitted by Boethius, this tuning was extensively explored by medieval theorists; the interrelationships possible were set forth in ratios that could be measured off on the monochord, so that the appropriate lengths of its vibrating string could sound the intervals desired as a standard for singing or for tuning other instruments. Ratios in medieval and Renaissance treatises thus referred to string lengths rather than to frequency in cycles per second, a concept unknown in those periods. The ratios are true for frequency as well as string length, but the

³⁹ The earliest description of Pythagorean tuning is found in Euclid's Sectio canonis; see MGG. X, 1790-2. The system was of course known earlier; incomplete descriptions are found in Plato's Timaeus and the fragments of Archytas.

former is the inverse of the latter for any interval.

The Renaissance saw extensive exploration of alternatives to the Pythagorean tuning, largely because of the harshness of the excessively large major third in that system. As a result, in the sixteenth century acoustical mathematics became a matter of intense practical concern, no longer a repetition of well-known facts whose application was cut and dried, or a type of numerology in which the cosmic implications of the proportions rather than their sonorous value was the chief interest. The tunings described by the ancient theorists were restudied in considerable detail in the search for alternatives to Pythagorean tuning; some theorists went beyond the bounds of practicability in this quest, but their impulse was fundamentally practical.

Aaron was relatively conservative in this area, perhaps out of a disinclination to discuss systems that were not in practical use, and perhaps because of a limited ability in mathematics. Whatever the reason, his works always discuss intervals in traditional, Pythagorean terms, with one notable exception. He defines intervals in Institutione Harmonica I, 16-25, Toscanello II, 1-10, and Compendiolo I, 32-33, and II, 46-54. In all three he gives the combinations

of tones and semitones that form the larger intervals, while Toscanello and Compendiolo II, 72, also give ratios of string lengths for most intervals. All describe a scale in Pythagorean tuning which is derived from an ascending series of pure fifths from E-flat to G-sharp;⁴⁰ the remaining accidentals in the tuning are thus B-flat, F-sharp, and C-sharp. The intervals are listed in Table 2 in both ways that Aaron describes them, together with their equivalent size in "cents."⁴¹

<u>Interval</u>	<u>Composition</u>	<u>Ratio</u>	<u>Size in Cents</u>
Minor semitone (mSt)	--	256:243	90
Major semitone (MSt)	--	*2187:2048	114
Tone (T)	mSt & MSt	9:8	204
Semiditone (minor third) (SDt)	T & mSt	32:27	294
Ditone (major third) (Dt)	2T	81:64	408
Perfect fourth	2T & mSt	4:3	498
Tritone (Augmented fourth)	3T	729:512	612
Diminished fifth	2T & 2mSt	*1024:729	588
Perfect fifth	3T & mSt	3:2	702
Minor sixth	3T & 2mSt	128:81	792
Major sixth	4T & mSt	27:16	906
Minor seventh	4T & 2mSt	*16:9	996
Major seventh	5T & mSt	243:128	1110
Octave	5T & 2mSt	2:1	1200

Table 2 - Intervals (Pythagorean) as described by Aaron⁴²

⁴⁰ Extensions of Pythagorean tuning to include more than the minimum of five chromatic tones are discussed in

All of Aaron's descriptions are quite matter of fact and differ in no significant respect from numerous similar descriptions in older texts. The only exception is his description of the octave in Institutione Harmonica I, 25, in which Aaron stresses the perfection of this interval and the fact that it contains all the other intervals, which therefore "submit to it as to a prince." Edward E. Lowinsky⁴³ has pointed out that attaching such importance

Chapter VI below.

⁴¹ The cent is a logarithmic division of the octave devised by Alexander Ellis for convenience in measuring the size of intervals. One octave equals 1200 cents, and each semitone in equal temperament thus equals 100 cents. Since the division is logarithmic, one can add and subtract cents when adding and subtracting intervals, rather than multiplying and dividing as is necessary when combining ratios.

⁴² The ratios marked (*) are not given by Aaron. The sizes in cents are those given in Willi Apel, Harvard Dictionary of Music (Cambridge, Harvard, 1944), 362. All the ratios are derived by adding together as many pure fifths as necessary, then subtracting excess octaves. For instance, to compute the ratio of the minor semitone E-F, an ascending series of fifths from F reaches E two octaves and a minor seventh higher (it is impossible to ascend from E to F by pure fifths); three octaves must then be subtracted to reduce the interval to a minor semitone. Thus E-F equals $(3:2)^5 - (2:1)^3 = 3^5:2^8 = 243:256$. It is immaterial whether the larger or smaller number is given first unless one wishes to distinguish between ascending and descending intervals; hereafter ascending intervals will have the larger term first whenever any distinction is made.

⁴³ Edward E. Lowinsky, "The Concept of Physical and Musical Space in the Renaissance," Papers of the American Musicological Society, 1941, 75ff.

to the octave was relatively new in theoretical writing, although Johannes Gallicus⁴⁴ anticipated Aaron somewhat in the preceding century. Lowinsky notes an analogy between the circle in painting and the octave in music, both of which gained new importance in an expanded conception of space which was characteristic of both arts in the Renaissance.⁴⁵

When Aaron describes intervals smaller than a semitone in Institutione Harmonica I, 17, he deviates from the Pythagorean standard. First he says the tone equals four dieses and one comma, the major semitone equals two dieses and a comma, the minor semitone equals two dieses. This much is Pythagorean, or rather Boethian, since it derives from Boethius' De Institutione Musica, III, 6 and 8. The diesis is a theoretical concept that has no rational ratio, since the minor semitone, 256:243, cannot be divided arithmetically into two equal parts.⁴⁶ The comma referred

⁴⁴ CS. IV, 373-4.

⁴⁵ This is only one facet of Lowinsky's discussion and should be evaluated in conjunction with the other evidence his article presents. Reese, MR., 182, cites Lowinsky's article with the implication that Aaron rejected the hexachord in favor of the octave, a conclusion which seems supported by neither Aaron's nor Lowinsky's own words.

⁴⁶ Boethius used the term diesis as a synonym for minor semitone; the quantity Aaron refers to as diesis, Boethius called diaschisma. The terminology of small intervals was inconsistent throughout the Middle Ages and Renaissance.

to is the Pythagorean or ditonic comma, which is the difference between the major and minor semitones; its ratio is thus $2187:2048 - 256:243 = 3^7:2^{11} - 2^8:3^5 = 3^{12}:2^{19} = 531441:524288$, approximately 24 cents. Aaron then states that the comma equals one-ninth of a tone. This would imply that the diesis equals two commas, the minor semitone four, and the major semitone five. Boethius, however, had proved in Institutione Musica III, 14-15, that the minor semitone was more than three and less than four commas, the major semitone more than four and less than five, and the tone more than eight and less than nine. Without repeating his long proof, it can be easily shown that nine commas do not equal a tone by considering that they equal the ninth power of $531441:524288$, which is $3^{108}:2^{171}$, which cannot possibly equal 9:8.

Aaron must have been perfectly well aware of the correct size of the comma; it had been repeated by many theorists after Boethius, whose works themselves were available in a 1492 edition.⁴⁷ Later in his life, Aaron had some

⁴⁷ Boethius, Opera (Venice, Johannes and Gregorius de Gregoriis, 1491-2), I, f. 174r-205r.

correspondence on the subject with Don Lorenzo Gazio, a pupil of Gafori,⁴⁸ in which he speaks of the comma quite correctly. Gazio had asked Aaron what is the proportion by which eight commas lack being a tone or that by which the tone lacks being nine commas. Aaron first put Gazio off, and finally excused himself from answering altogether, saying that he lacked time to calculate such large numbers, and that the result could not be expressed as a rational proportion in any case. He concludes by saying that only God can have such knowledge and that mortal men should recognize their limitations. Evidently Aaron intended his earlier definition of the comma as a convenient approximation. Martin Ruhnke⁴⁹ states that such an approximation was occasionally used, but I have found no example prior to Aaron's. It seems possible that he may have been the first to publish the approximation.

This particular problem is not overly important in itself, but is indicative of Aaron's attitude towards more fundamental aspects of tuning. In this, as in most other

⁴⁸ VL 5318, nos. 84, 53, and 107, f. 217r, 173r, and 252v; see Appendix B.

⁴⁹ "Interval," MGG. VI, 1342: "Mitunter gab man zur Vereinfachung dem Ganzton neun volle Commata und teilte davon dem grossen Halbton fünf und dem kleinen vier zu."

matters, he was eminently practical, taking a lively interest in new developments in tuning that occurred in the early sixteenth century. As observed above, these developments were chiefly concerned with finding an alternative to the Pythagorean major third, which is so sharp that it is not satisfactory as the third of a triad. This deficiency caused little concern in the Middle Ages, when the third was relatively unimportant as a harmonic interval, but when the fifteenth century saw the triad used more prominently, the harshness evidently became obtrusive. The Pythagorean third had been questioned as early as the fourteenth century by Walter Odington in his De Speculatione Musicae, in which he notes that the perfect fifth is proportionally divided by the ratios 5:4 and 6:5, the just values of the major and minor thirds respectively, and that the Pythagorean major third is larger than the just third by the Didymic or syntonic comma, $81:80$ ⁵⁰ (not to be confused with the Pythagorean comma mentioned above). Later he remarks that, in general, simpler ratios are more consonant, suggesting that the Pythagorean third is actually dissonant and the just third

⁵⁰ CS. I, 191.

consonant, and that just thirds are in fact used in performance and sound quite smooth.⁵¹

The first theorist to propose using the just third in a tuning was Ramos de Pareja in his Musica Practica, which offered a simplified method of tuning which located some notes by means of just major thirds, whereas Pythagorean tuning uses perfect fifths exclusively. Ramos's tuning required only threefold division of the monochord, while the traditional tuning required ninefold division. Ramos obtained four just major thirds located above B-flat, F, C, and G, where they could be used in the most frequently occurring triads. Though his tuning differed less from Pythagorean than he or his contemporaries thought,⁵² it was revolutionary in abandoning pure fifths as the sole basis of tuning, and was roundly chastised by his more conservative contemporaries; the new tuning contributed substantially to stirring up the polemical disputes that raged through the next forty years over his work. Systems of tuning that combine pure thirds and fifths, a number of

⁵¹ Ibid., 198-9.

⁵² Further on this see J. Murray Barbour, Tuning and Temperament, 2nd ed., (East Lansing, Michigan State, 1953) p. 90-92, where Ramos's tuning is discussed in detail.

which have been proposed since Ramos, fall into the category of "just intonation." Such tunings have attracted numerous theorists, but they have been found to be deficient in practice;⁵³ one major deficiency is that they cause the major third to be composed of tones of two different sizes, 9:8 and 10:9, thus smoothing out harmony at the expense of irregularities in melodic progressions.

This defect could be overcome by dividing the just major third equally to find the two tones within it. No interval expressible as an integral ratio can be halved arithmetically, but Jacques LeFèvre had shown in his Elementa Musicalia⁵⁴ how it could be done geometrically, thus furnishing the theoretical basis for such a division. The obstacle to accepting such a division was that it involved tempering the pure fifth, flattening it enough to make a series of four fifths which would add up to a pure third, 5:4, instead of the Pythagorean third, 81:64. Such a system would have been exceedingly repugnant to a

⁵³ Further on this see J. Murray Barbour, "Just Intonation Confuted," Music and Letters, XIX (1938), 48-60.

⁵⁴ Jacques Le Fèvre d'Étaples (Jacobus Faber Stapulensis), Elementa musicalia, in Jordanus Nemorarius, Arithmetica (Paris, Johannes Higman and Wolfgang Hopyl, 1496), III, 35.

conservative theorist of the Renaissance because it would abandon the pure fifth altogether, but it is exactly the system Aaron described in Toscanello II, 41. He was the first theorist to describe such a temperament, which is called "mean-tone" because the tone ($\sqrt{5:4}$) is the mean of the just major third (5:4), and he is justly famous because of it.⁵⁵

It is likely that this temperament was discovered empirically rather than by theoretical calculation. Gafori's Practica in a passage first noticed by Hugo Riemann,⁵⁶ states that organists sometimes temper the fifth, though Gafori as a strict Pythagorean, hardly condoned the practice.⁵⁷ Aaron makes a similar statement in Institutione Harmonica III, 16, which begins by pointing out that the diminished fifth from B to F can be made perfect by changing F to F-sharp, thus adding a major semitone to it; F-sharp

⁵⁵ Barbour, Tuning and Temperament, p. 25-26, rejects claims that Ramos and Arnold Schlick had described mean-tone temperament before Aaron.

⁵⁶ Riemann, MusTh., 340.

⁵⁷ Gafori, Practica, III, 3, in Rule 2: "Tamen quinta ipsa (quod organistae asserunt) minimae ac latentis incertaeque quodammodo quantitatis diminutionem patienter sustinet, quae quidem ab ipsis participata vocatur."

divides the tone F-G so that F to F-sharp is a major semitone, F-sharp to G a minor semitone. But, Aaron continues, the minor semitone can also perfect the fifth when the major is not available, since it is only a comma smaller, and the comma is such a small interval that its absence will not offend the ear. Aaron plainly had little regard for the sanctity of the pure fifth, and Gafori probably would have taken strong exception to this particular statement. Aaron's assertion that the comma is an inaudible interval is incorrect; it is quite perceptible to the trained ear, although, as he says, it changes the size of an interval very slightly.

The chapter then continues with the statement that "monochords and similar instruments" are tempered so that thirds, fifths, and sixths are a little flat, in effect using minor semitones in place of major, which is "a secret not to be taken lightly, drawn out from the innermost art; the knowing in the art may judge for themselves how much it should be done."⁵⁸ This description, more explicit than

⁵⁸ IH. III, 16, f. 42v: "Dicimus quidem mi Flamini semitonium maius esse in parte toni superiore, neque id unquam mutare locum, semitonium vero minus sedem in inferiori parte semper habere. Quod autem addito etiam

Gafori's, can refer only to a mean-tone temperament because of the mention of the tempered fifth; the Pythagorean major

minori semitonio, sicuti supra ostendimus, plena reddi quinta videatur quae prius adeo quidem imperfecta & discordans erat; duplici quidem ratione fieri monstrabimus, quarum altera est quod inter semitonium maius & minus ea tantum differentia est quod semitonium maius uno tantum commate semitonium minus superat. Comma vero (ut iam monstravimus) minima est quidam toni particula, ut pote nona. Nam tonus (ut dictum est) in novem commata dividitur. In Monachordo igitur atque similibus instrumentis licet in semitonio minori illud comma desit, attamen adeo quidem exigua res est ut etiam si absit, nullam dissonantiam ingeneret quae aureis offendat, sic quidem ut quinta illa quae adeo discors erat ad suavem concordiam redacta videatur. Quod tamen in semitonio maiori plenior consonantia fiat, supra quidem ostendimus cum de semitonio quod inter A re ac hmi est locuti sumus ubi quia semitonium maius suum locum obtinet, hoc est superiorem, resonantius quidam propter socium comma & magis aures demulcens emittit. Altera vero ratio est quod Monochordi ac talium instrumentorum voces a peritis artis illius sic temperantur ut neque tertias neque quintas neque sextas ad summum vocis intendant & minimum nescio quid adimant, sic quidem ut semitonia illa minora tali temperamento in tantum iuventur ut in concentu concordent ac nihil aures offendant. Habes arcanum Flamini minime contemnendum & ex intima quidem arte depromptum; quod quanti faciendum sit, ipsi artis periti iudicent." The term "monochord" could refer to keyboard instruments, especially the clavichord, as well as to the monochord proper; see Curt Sachs, The History of Musical Instruments (New York, Norton, 1940), p. 271. Note that Aaron is led to make this statement by his prior assumption that the tone is always divided with the major semitone above and the minor semitone below, but this is another of the misstatements to be found in IH. The division of the tone in Pythagorean tuning depends on whether the chromatic tone desired is a flat or a sharp; see Chapter VI below further on this.

third would be reduced to its just size, and the major sixth would also become smaller. The minor third and minor sixth in meantone temperament are larger than their Pythagorean equivalents, as may be seen in the following table:

	<u>Pythagorean</u>		<u>Meantone</u>	
	<u>Ratio</u>	<u>Cents</u>	<u>Ratio</u>	<u>Cents</u>
Minor third	32:27	294	$25\sqrt[4]{5}:32$	310
Major third	81:64	408	5:4	386
Perfect fifth	3:2	702	$\sqrt{5}:1$	696
Minor sixth	128:81	792	8:5	814
Major sixth	27:16	906	$64:25\sqrt[4]{5}$	890

Table 3 - Comparison of Pythagorean and Meantone thirds, fifths, and sixths

Pythagorean tuning was plainly losing ground in practice when Aaron wrote. Another indication of this is provided by Spataro, who suggests that while Pythagorean tuning remained the theoretical standard, the just major third had replaced the Pythagorean third in practice.⁵⁹ But he does not

⁵⁹ Spataro, Errori di Franchino Gafori, IV, 22, f. 21v: "Ma nel capitolo .34. del predicto tuo tractato (De Harmonia Instrumentorum) dove tu dici ut hic scilicet. Hinc falso arbitratus est Bartolomeus Ramis Hyspanus tertio tertii suae practicae circa finem: qui integrum ditoni intervallum in chordotono sesquiquarte indifferenter ascribit dimensioni. Circa questo (in la undecima mia

describe the system which replaced Pythagorean. Aaron was the first to do so explicitly for the meantone temperament, in Toscanello, and his description deserves quotation in full:⁶⁰

The following sets out briefly, as easily as I can, how much is necessary for the performer to know about the temperament and union of the notes, because there are

epistola) sei stato da me advertito che quanto piu tu cerchi reprehendere Bartolomeo Ramis mio preceptore, tanto piu te vai intricando et fai manifesta la tua ignorantia, poco sapere, malignita, et obstinatione; & di questo dai sententia clarissima contra de ti, dove di sopra tu dici ut hic...: impero che tu demonstri che da Bartolomeo Ramis e stato dicto che (solo in practica o vero in la Musica usitata & activa) el ditono cadere in la comparatione sesquiquarta [5:4] & non in la Musica speculativa, scilicet non in acto aducta, in laquale cade el ditono tra .81. ad .64. comparati." Later in the same chapter Spataro reproves Gafori's statement that the difference between these two major thirds, the syntonic comma, 81:80, cannot be heard; Spataro insists that it is audible, for otherwise the harsh Pythagorean third would not need to be tempered.

⁶⁰ A condensation of this and the preceding chapter of Toscanello appears in VL 5318, no. 69, f. 189r-191v, without date, signature, nor addressee, in Aaron's hand. It is probably a copy of a letter he sent in response to a query; the style is similar to the two letters to Gazio. Presumably he condensed the chapters for the letter, or alternately, he expanded the letter for Toscanello. The intriguing possibility also exists that the letter was addressed to Aaron and that someone else first described a meantone temperament. In the absence of any other evidence, it seems reasonable to leave the credit with Aaron.

many who proceed in such matters with little or no system and not much practice. Therefore, note that we make our accord and temperament in three parts. If you want to tune and temper your instrument, you must first consider the string or position called C fa ut, using whatever intonation you please. When you have decided this, take the octave above C fa ut and make it always just. Then the major third above, E la mi, wants to be sonorous and just, that is, as pure as possible. When this is done, take the fifth in the middle, G sol re ut, and make it a little flat. Then another fifth above follows, d la sol re, tuned in the same way as G sol re ut. Then tune D sol re as the octave to d la sol re. Following that, take the fifth above D sol re, a la mi re. It should lack as much from E la mi as from D sol re, that is it should be equally distant from each. All the fifths fall short of perfection, the note above being flat, so that the fifths above C fa ut, D sol re and E la mi, which are G sol re ut, a la mi re and bfaḥmi, always fall short and lack their perfection.

For the second series, tune the fifth below c sol fa ut, which is perfect and just, tune F fa ut, which has to be the opposite of the others mentioned above, that is, it is tuned a little high, passing a bit beyond perfection, from which results a just and good temperament. The thirds and sixths are diminished by this temperament. [Note that the passage in Institutione Harmonica also makes this statement.] Tune the semitone of bfaḥmi [Bb], below F fa ut, and that of E la mi [Eb], below bfaḥmi, which is a fifth, in the same manner as that between F fa ut and c sol fa ut.

In the third and last series, tune major semitones ~~between~~ between their thirds, such as the semitone of C fa ut [C#] above A re, which

you should tune together with the fifth, e la mi, so that it is a major third with A re and a minor third with E la mi. The same is to be done with the third between D sol re and a la mi re, the semitone of F fa ut [F#], just as the previous tone. Proceeding thus to the end of your instrument, tune every octave justly, and this arrangement will bring about the true temperament of the notes.⁶¹

⁶¹ Tosc. II, 41: "Seguita che con quella facilità che a me sarà possibile, brevemente espedisca quanto sia necessario al sonatore d'intorno la participatione, & unione de le voci, perche molti si truovono che con niuna o pochissima ragione, & minor pratica a tale essercitio siano atti. Adunque avertirai che in tre parti faremo il nostro acordo & participatione, perche volendo tu che non sai, acordare & partecipare il tuo instrumento, bisogna che prima tu consideri la chorda over positione, chiamata C fa ut, con quella intonatione che a te piacerà, & quando sarai deliberato, piglia l'ottava sopra a C fa ut, & fa che sempre sia bene unita; di poi la terza maggiore di sopra, quale è E la mi, vuole essere sonora & giusta, cioè unita al suo possibile; & fatto questo, piglia la quinta in mezzo cioè G sol re ut, & fa che sia alquanto un poco scarsa; così seguirai a l'altra quinta sopra, quale è d la sol re, di simile acordo & natura medesima, quale è stato G sol re ut detto; dipoi accorda D sol re ottava a d la sol re, & seguitando piglia la sua quinta sopra di D sol re, formata nel luogo di a la mi re, la qual bisogna mancare tanto da E la mi, quanto da D sol re, cioè che sia tanto eguale da una, quanto da l'altra, lequali son tutte quinte che non si tirano al segno de la perfettione, mancando dal canto di sopra. Si che le quinte di sopra da detto C fa ut, D sol re, & E la mi, quali sono G sol re ut, a la mi re, ¶fa#mi, sempre discadono & mancano de la sua perfettione. Per il secondo ordine & modo è, che sempre a te bisogna sopra la chorda di c sol fa ut quale è unita & giusta, accordare F fa ut quinta di sotto, laqual bisogna essere a l'opposito de le altre dette di sopra, cioè che sia partecipata & alzata, tanto che passi alquanto del perfetto,

Aaron does not mention G-sharp or A-flat, but as Kinkeldey says, he probably intended to use G-sharp in the third series, forming the third between E and B;⁶² as noted above, he used G-sharp whenever else he expressed a preference. (The preceding chapter of Toscanello II, 40 describes a keyboard in Pythagorean tuning which includes G-sharp, it may be noted.) The effect of this temperament is that all the fifths are flat by one-fourth of the syntonic comma, or about 5.5 cents, giving the fifth the value of about 696 cents. This is a small difference from the

& di qui nasce la participatione & acordo giusto & buono; per laqual participatione, restano spuntate overo diminute, le terze & seste. Et cosi acorderai il semituono di \flat fa \natural mi, sotto di F fa ut, & quello di E la mi, sotto \flat fa \natural mi, ilquale è quinta con quel medesimo ordine & modo, che acordasti F fa ut con c sol fa ut. Il terzo & ultimo modo avertirai di acordare gli semitوني maggiori tra le sue terze, come è il semituono di C fa ut toccando A re; lo acorderai insieme con e la mi quinta, tanto che resti in mezzo terza maggiore con A re, & minore con E la mi, & cosi da D sol re ad a la mi re la terza in mezzo, & il semituono di F fa ut, cioè il simile che fu la passata; & cosi seguendo insino al fine del tuo instrumento, ciascuna ottava acorderai, de laqual consideratione, ne nasce la vera participatione de le voci."

⁶² Otto Kinkeldey, Orgel und Klavier in der Musik des 16. Jahrhunderts (Leipzig, Breitkopf und Härtel, 1910), p. 76.

Pythagorean value of 702 cents, and the thirds are so much improved that triads are appreciably more harmonious in meantone temperament than in Pythagorean tuning.⁶³

The chief defect in Aaron's temperament is the enharmonic fifth from G-sharp to E-flat (or from C-sharp to A-flat, if A-flat is chosen over G-sharp). The accumulated distance by which all the other fifths were shortened is added to this interval, giving it a value of 737 cents, which is almost a quarter-tone too sharp. It is commonly called the "wolf" fifth because of the ferocious discord, almost a howling, it produces when sounded simultaneously, especially on an organ. Aaron's temperament is thus not practical in music that requires many accidentals, but is much smoother than Pythagorean tuning in relatively diatonic music, which would include almost all music written before his time and much of that written within the following two centuries.

Despite its defects, the meantone temperament was universally accepted during the sixteenth century and

⁶³ The Pythagorean major third, 408 cents, is closer to equal temperament (400 cents) than the just third, 386 cents, but this interval is acknowledged to be rather large in equal temperament, and some sensitive ears still find it objectionable.

thereafter as the standard tuning for keyboard instruments, and remained the most serious opponent of equal temperament for the next two or three hundred years.⁶⁴ Later theorists proposed modifications in Aaron's temperament to "muffle the voices of the howling wolves,"⁶⁵ and the acceptance of equal temperament eventually put it out of use altogether. It was for its time, though, a considerable step forward, and Aaron, though only one of the many writers of his age who was concerned with problems of intonation, deserves credit for being the first to describe such a widely accepted solution.

⁶⁴ Barbour, Tuning and Temperament, p. 10.

⁶⁵ Ibid., p. 11.

CHAPTER III

NOTATION

It is hardly surprising that Pietro Aaron's writings on musical notation contain no new conceptions or formulations such as he contributed in other areas. The basic principles of notation had undergone little change in the preceding two hundred years, and rhythmic usage after the massive complications of the late fourteenth and early fifteenth centuries had gradually become simpler. The process of simplification in fact continued through the fifteenth and sixteenth and well into the seventeenth century, by which time notation corresponded essentially with that in current use. Notation thus differed from the other areas of Aaron's concern in that theory was not impelled to develop new concepts because there were no new phenomena that could not be explained in traditional terms. On the contrary, theorists presented in more or less detail a highly developed system of notation whose more complex features were gradually becoming obsolete. The

theorists naturally were unable to reflect the precise state of these developments, even assuming that the latter could have been defined precisely at any given moment. Many treatises of the late fifteenth and early sixteenth centuries made some attempt to define current practice as well as give the traditional rules, citing the works of prominent composers, but a time lag between practice and its description was inevitable. Other works frankly assume the part of lawgiver rather than reporter, mentioning practice only to condemn its errors; various works and authors range between the two poles of description and prescription, in notation as in other aspects of theory. A distinction may also be made with respect to the intended audience of a work, whether the uninformed or the learned were addressed. For the former, fundamentals were set forth fairly clearly, while highly abstruse problems generally were dissected for the delectation of the latter. Such problems decreased in practical importance as they gained in complexity.

Aaron's discussions of notation embody a mixture of these attitudes. As is true with other topics, his approach is basically practical; he avoids material that has no

practical application, notably the complicated proportions described by Tinctoris and Gafori. At the same time, he treats notation somewhat retrospectively; he suggests that though certain practices are no longer current one may still encounter them in older music so it is helpful to describe them.¹ Much of what he describes as modern practice pertains more to the generation of Josquin and Obrecht than to Aaron's contemporaries, since the more involved aspects of mensural notation were falling into disuse while Aaron wrote. Indeed, the older generation is Aaron's chief source when he turns to composers for authority; when he speaks of recent practice, he most often criticizes it for departing from the established rules. Despite this retrospective quality, Aaron's works are clear and concise and were probably more immediately accessible to the performer than those of his great predecessors, Tinctoris and Gafori, partly through his use of Italian rather than Latin.

Of Aaron's four treatises which consider notation, all are instructional manuals except Lucidario, which treats fine points in some detail. It has valuable information

¹ Tosc. I, 27; Lucidario III, 10, f. 26r.

about mistaken practices current around 1545, but it devotes most attention to complexities which had little practical importance at that time. Toscanello contains much the best of Aaron's treatments of notation; the subject is presented clearly and completely in the first of its two books with a minimum of complication. Only the discussion of coloration leaves something to be desired. Compendiolo's exposition is typically condensed, sometimes too much so, and contains much the same material that had appeared in the earlier books. The discussions in Institutione Harmonica are markedly unclear in comparison to the others, partly because of Flaminio's ornate translation but mainly because of Aaron's own confusion on the subject. There are a number of mistakes in the book which clearly indicate Aaron's sketchy training in his youth, but they are not repeated in Toscanello and the later books.

Aaron's own letters contribute little to his presentation of notation; indeed, one of them contains confusion about the signs of mensuration that is not present in his printed books. The letters he received from Spataro are an extremely important source, however. Aaron's association with Spataro may date from as early as 1516, the year of

publication of Institutione Harmonica, and the correction of Aaron's mistaken notions may well be owing to Spataro. The letters furnish substantial evidence that Aaron's formulations were derived from Spataro; Lucidario contains numerous passages echoing Spataro's letters of ten or twenty years earlier, as well as many statements of indebtedness to him or invocations of his name for confirmation of a position. Spataro's letters criticizing Toscanello dealt at length with notation and tended sometimes to ignore practice in favor of speculative theory. In this Spataro was at the opposite pole from Aaron, but some of the former's criticisms, especially about coloration, are well founded. His influence was not entirely beneficial, since certain of his ideas were radically at variance with practice and accepted theory. Aaron's clear view of practice usually kept him from following Spataro into these byways, but on a few occasions his respect for his old friend led him into uncomfortably equivocal positions.

Apart from the correction of the misstatements in Institutione Harmonica, perhaps owing to Spataro's tutelage, Aaron's ideas undergo no significant change during his lifetime; his basic position is stated in Toscanello and

amplified in Lucidario. These two books will thus be the principal sources for the detailed discussion which follows.

Aaron uses the conventional shapes and Italian names for the different note values; in descending order they are massima , longa , breve , semibreve , minima , semiminima , croma , and semicroma .² The Latin for croma and semicroma was fusa and semifusa, but Aaron used the Italian terms even in Institutione Harmonica.³ The terminology of the notes smaller than the minim had been variable in the generation before Aaron; Gafori preferred minima, seminima, semiminima, and diesis, constructing an analogy between these values and the tone, major semitone, minor semitone and diesis.⁴ Tinctoris spoke of the minima and minima in dupla (and perhaps by extension minima in quadrupla and minima in octupla), maintaining the older idea that the minima was the smallest legitimate note and the others only fractions of it rather

² The Latin equivalents customary in modern writings will be used hereafter, as well as the abbreviations Max, L, B, S, M, Sm, Cr, and SCr.

³ See, for instance, II, 31, f.32v.

⁴ Practica II, 4.

than independent values.⁵ The terms given by Aaron, which had been in use before 1500,⁶ became standard in Italy during the sixteenth century, and Aaron is evidently one of the first to use them.

The shapes themselves of the smaller values were not entirely stabilized at the turn of the century. The semi-minima and croma had alternate white shapes: , and Aaron as late as 1545 suggests using the white semiminima when there is a possibility of confusing the black one with a colored minima.⁷ This is his only direct reference to the shapes of notes, a subject which he apparently considered too self-evident to illustrate. Toscanello I, 9 gives tables of values of the notes under different signs of mensuration in which all the values from maxima to croma are illustrated. The latter there appear in a common alternate shape with a hook in a single flag rather than two separate flags: .

⁵ Albert Seay, "The Proportionale Musices of Johannes Tinctoris," Journal of Music Theory, I (1957), 30.

⁶ See Ernst Praetorius, Die Mensuraltheorie des Franchinus Gafurius und der folgenden Zeit bis zur Mitte des 16. Jahrhunderts (Leipzig, Breitkopf und Härtel, 1905), p. 9.

⁷ Luc. III, 7, f. 2lv.

Aaron describes the corresponding rests as follows:⁸

perfect longa , imperfect longa , brevis ,
 semibrevis , minima , semiminima ,
 croma , semicroma . These signs were given by all theorists in essentially the same form. There was no maxima rest, a silence of this length being shown by as many longa rests as necessary, according to how many longae were contained in each maxima and how many breves in each longa. These quantities were variable, since each of the four largest notes could contain either two or three of the next lower note. The longa rest itself filled two or three spaces, depending on how many breves it contained, and the rest of a maxima was in turn shown by two or three longa rests of the appropriate value. There were four possible combinations: , the maxima containing three longa and the longa three breves; , the maxima containing two longae and the longa three breves; , the maxima containing three longae and the longa two breves; and , the maxima containing two longae and the longa two breves. Aaron did speak of a maxima rest in Institutione

⁸ Comp. II, 6; IHII, 31, f. 32v. gives all but the perfect longa rest.

Harmonica II, 31, but in Lucidario takes pains to explain that he did so only for easy comprehension, that such a rest had the value but not properly the name of a maxima.⁹ A later chapter elaborates on this idea, noting that the maxima can contain nine, six, or four breves, and if a single sign had to represent all these possibilities, great confusion would result.¹⁰ Aaron opposes the idea that the brevis rest should by analogy be represented by three or two semibrevis rests, rather than a single invariable sign, stating that all other rests are derived from the brevis rest, and the latter should thus be invariable.¹¹ This statement refers not only to the shape of the rests themselves, but is derived from a theory presented by Ramos and Spataro in which the brevis is considered the fundamental note value from which all others are derived by multiplication or division. This notion and its consequences, as will be seen, adversely affected Aaron's discussions of notation in several instances.

⁹ Luc. II, 1, f. lv.

¹⁰ Luc. III, 13, f. 28r.

¹¹ Ibid., f. 28v.

In addition to appearing singly, the maxima, longa, brevis, and semibrevis could be combined into ligatures, groups of two or more notes appearing as a single figure, either square or oblique:  or  . In square ligatures each square represented one note, in oblique ligatures the beginning and end only of the oblique figure each represented a note, however long the middle portion may have been. Ligatures could contain as many notes as desired, and the same ligature could include both square and oblique notes:   . The values of notes in ligature were determined by their shape, their position in the ligature, and the presence or absence of a stem. The basic principles of evaluating ligatures had been set forth by Franco of Cologne around 1260 in his Ars cantus mensurabilis¹² and since then there was no serious disagreement about the meaning of the most frequently used ligatures. Those shapes which occurred only rarely caused disputes among theorists in the absence of a well-established practice.

Aaron's explanations of ligatures are found in Institutione Harmonica III, 60-62, Toscanello I, 40, and

¹² English translation in Strunk, Source Readings, p. 139-159.

Compendiolo II, 43-45, appearing in all three books as the last item in the discussion of notation. His cumbersome and unsystematic explanations of ligatures bear out Apel's characterization of the treatment of this subject in fifteenth and sixteenth-century treatises.¹³ Toscanello benefits greatly from a table giving numerous examples in which the value of each note in all the ligatures is indicated above it by the letter L, B, or S (the table gives no example of the ligated maxima). The descriptions in Institutione Harmonica are particularly circuitous and unclear, partly because of Aaron's misuse of the term "propriety." Franco and most theorists after him referred by "propriety" and "perfection" to the shape of the first and last notes respectively of a ligature and whether or not they were stemmed.¹⁴ Aaron takes propriety to refer to the stem itself¹⁵ and does not speak of perfection at all in connection with ligatures. In his other books both terms are avoided altogether, a policy which may thus be conveniently followed

¹³ Willi Apel, The Notation of Polyphonic Music 900-1600, 4th ed. (Cambridge: The Mediaeval Academy of America, 1953), p. 91.

¹⁴ A full explanation appears ibid., p. 88-90.

¹⁵ IH. III, 60, f. 60r: "Ergo proprietatem in ipsis notis esse dicimus: virgulam illam: sive caudam malis appellare quae in ipsis est notis in parte dextra/vel sinistra ascendens supra notam/ vel infra descendens."

in discussing his work.

Table 4 gives a complete summary of Aaron's explanations of the values of ligatures, together with those of Gafori and Tinctoris. The three general rules at the foot of the table are accepted by all three authors except as noted. Aaron is consistent with himself and with Gafori and Tinctoris in almost every detail. The only exception is the initial of the rare ascending oblique ligature without stem  (lines 3 and 11, Table 4). Toscanello says  is usually considered LB and  BB, which agrees with Gafori, but that against this is the fact that both  and  are BB and both  and  SS, and thus both  and  should by analogy be LB, which is Tinctoris's position.¹⁶ As Table 4 shows, Aaron favored Gafori's interpretation in Institutione Harmonica, questions it in Toscanello, and goes over completely to Tinctoris's opinion in Compendiolo.

As was noted above, the four largest notes could contain either two or three of the next smaller. These four relationships were called modus major, the number of longae

¹⁶ Tosc. I, 40. See also Apel, Notation, p. 90-91 fn.

	<u>Inst.</u> <u>Har.</u> III, 60-62	<u>Tosc.</u> I, 40	<u>Comp.</u> II, 45	<u>Gafori,</u> <u>Prac.</u> II, 5	<u>Tinctoris,</u> <u>De notis</u> <u>et pausis,</u> II, 8-14
Initials:					
Ascending	B	B	B	B	B
	L	L		L	L
	B	B or L	L	B	L
	B	B	B		B
	B	B	B		
Descending	L	L	L	L	L
	B	B	B	B	B
	L	L	L	L	L
	L	L	L	L	L
Finals:					
Ascending	B	B	B	B	B
	B	B	B	B	B
	L	L		L	
Descending	L	L	L	L	L
	B	B	B	B	B

Table 4

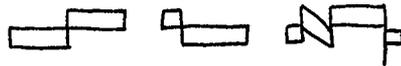
The complete note is that whose value is given, while the incomplete note joined to it shows the direction and shape of the ligature. This system is derived from Apel, Notation, p. 92.

GENERAL RULES

1. Any ligature with ascending stem to the left begins with two semibreves, whether square or oblique, ascending or descending:



2. Any rectangular note, with or without a stem, is a maxima:



3. All middle notes are breves unless rule 1 or 2 may be applied. Aaron and Tinctoris say a middle note with a descending stem to the right is a longa:  . Gafori disapproves of this, but examples  are abundant in practical sources.

contained in the maxima; modus minor, the number of breves in the longa; tempus, the number of semibreves in the brevis; and prolatio, the number of minimae in the semibrevis. All four could be either perfect, in which case the larger note contained three of the next smaller, or imperfect, containing only two. One would then speak of, for instance, modus major perfectus, tempus imperfectum, or prolatio perfecta, and the three notes comprising a perfect note would be called a "perfection." Prolatio was also frequently called major or minor rather than perfect or imperfect; Aaron and Gafori disapproved of this

terminology, though both often used it. Aaron acknowledged in Toscanello that each set of terms is in use,¹⁷ and he sometimes would say "prolatione perfetta over maggiore," as Gafori also did. Gafori's disapproval was based on the resulting inconsistency in usage between modus and prolatio and on an old practice he alleged of giving both perfect and imperfect values to the minima. The division of the semibrevis into minimae was then prolatio major and the division of the minima into semiminimae was prolatio minor, each of which could be perfect or imperfect.¹⁸ Aaron's objection resulted from the previously mentioned theory of Ramos and Spataro which took the brevis as the fundamental note value. Modus major and minor were then the multiplication of the breve into larger or smaller compound values, while prolatio major and minor were the division of the brevis into a larger or smaller number of parts, the smaller number resulting from its division into two or three semibreves, the larger number from division into four, six, or nine minimae. The terms modus, tempus, and prolatio in

¹⁷ Tosc. I, 9: "...haremo la prolatione perfetta, & imperfetta, la quale da gli autori & compositori, alcuna volta e chiamata maggiore, & minore...."

¹⁸ Practica II, 9.

this sense often referred to the notes themselves rather than to their interrelationships; the brevis was the tempus, the longa and maxima modus minor and major, and the semibrevis and minima prolatio minor and major respectively.¹⁹ Aaron therefore preferred to speak of prolatio perfecta and imperfecta when designating the number of minimae in the semibrevis.

A variety of signs was used to show whether perfect or imperfect mensuration of modus, tempus, and prolatio was in force, and they were a subject of dispute among theorists in direct proportion to their infrequency in practical use. The brevis, semibrevis and minima appeared so often that tempus and prolatio were almost always indicated, and there was thus universal agreement on their signs. Tempus perfectum and imperfectum were shown by a circle or semicircle respectively, while prolatio perfecta and imperfecta were shown by the presence or absence of a dot within the circle or semicircle of tempus:

19

Ramos, Musica Practica, III, i, 1, p. 78: "Supra quidem tactum est notulam simplicem dici tempus. Modus ergo minor habebit longam, maior vero maximam, quae duplex longa a plerisque est appellata; prolatio minor semibreve, quae et minor est nuncupata, sed maior minimam." To this Gafori added a marginal note: "Inaudita et intolerabilis, iudicio meo, duplicis prolationis demonstratio." Comp. II, 12, says essentially the same, citing Ramos and Spataro's Tractato di Musica, Ch. 3.

- ⊙ tempus perfectum and prolatio perfecta
- tempus perfectum and prolatio imperfecta
- ◐ tempus imperfectum and prolatio perfecta
- ◑ tempus imperfectum and prolatio imperfecta²⁰

Modus major and minor were shown by longae rests. According to Aaron, who followed Tinctoris's teaching,²¹ the following rests were placed at the beginning of the piece to show the modi:

-  Modus major perfectus and modus minor perfectus
-  Modus major perfectus and modus minor imperfectus
-  Modus major imperfectus and modus minor perfectus
-  Modus major imperfectus and modus minor imperfectus²²

The mensuration of maximae and longae was thus graphically indicated by the number and size of longa rests. These signs could be combined with those for tempus and prolatio

²⁰ Tosc. I, 8 and 9.

²¹ Tractatus de regulari valore notarum, Ch. 7-10, in CS. IV, p. 49.

²² Tosc. I, 6.

to give sixteen different combinations of modi, tempus, and prolatio. If the signs for modus occurred by themselves, they not only indicated the modi but also showed that the part began with a rest; if they occurred with the signs of tempus, however, they functioned only as signs, not rests.²³

It was a general principle that any mensuration was imperfect in the absence of a sign to the contrary.

Lucidario explains that "two" is first among the numbers (not counting "one," which is the beginning of number but not strictly speaking a number itself), and is called "natural." A piece of music with no sign of mensuration is then "naturally" entirely binary. If any division of time is removed from this natural state, this must be shown by a sign of "accidental" division into three rather than two.²⁴ By this principle modus major imperfectus with

²³ Ibid., I, 9.

²⁴ Luc. III, 1, f. 15v. See also VL 5318, Letter 77, Spataro to Aaron, September 19, 1523, f. 205v: "La Maxima, la longa, la breve et la semibreve son governate da dui numeri scilicet dal binario et dal ternario, de li quali el binario è dicto naturale perche è prima invento e considerato, et perche el ternario è fondato supra el binario, o vogliam dire che el ternario (in questo loco) ha origine dal binario. Per laquale cosa esso binario

modus minor perfectus may be shown by a single rest of a perfect longa indicating that the longa contains three breves while the maxima contains only two longae because of no indication to the contrary. Gafori gave another system of signs for the modi that was based on this principle and was simpler though perhaps less logical than that of Tinctoris. No sign was given for either modus when it was imperfect, one perfect longa rest for modus minor perfectus, and two perfect longae rests for modus major perfectus. When both modi were perfect it did not matter whether the three rests appeared in the same or different spaces on the staff:



Oddly enough, Tinctoris's motet "Difficiles alios delectet pangere," along with Dunstable's motet "Veni Sancte Spiritus" were cited as examples. Gafori states, as does

(per essere naturale) po essere compreheso senza signo, scilicet, che quando in li canti non appare signo alcuno, tali canti son cantati per binario o vogliam dire per imperfecto. Ma quando (ultra tale binario, o vero numero naturale) el canto sera modulato scilicet per ternario, alhora bisogna che tale modulatione ternaria sia apparente per signo; per la quale cosa (in questa faculta harmonica) ogni ternaria consideratione è dicta accidentale, perche tale ternario respecto al binario sta come lo accidente nel subiecto, come appare de le note perfecte, le quale tanto possono imperficererai che siano pervenute al naturale binario et non piu ultra."

Aaron, that with no sign of tempus or prolatio the rests are to be counted as rests as well as mensuration signs.²⁵ He thus manages with fewer signs than the system of Tinctoris and Aaron, and his examples indicate that he may be closer to practice.²⁶ The differences probably arose because modus major had almost no practical importance at this period, while modus minor appeared mainly in tenors in which the melody appeared in extremely long note values. Only in the fourteenth century was the full range of modi, tempus and prolatio systematically combined in single compositions.²⁷

Aaron gives another set of signs which he says was used by the "ancients" (antiqui), which combines the circle and semicircle with the numerals 2 or 3. Accompanied by one numeral, the circle or semicircle refers to modus minor

²⁵ Practica II, 8.

²⁶ Gafori's description does not make clear whether Tinctoris used the signs according to his own or to Gafori's rule. It would be peculiar if Tinctoris's theory differed from his practice; it would also be peculiar if Gafori cited an example that contradicted his own rules. Their rules do coincide when both modi are perfect.

²⁷ Apel, op. cit., p. 99. Under signs of diminution the modi were of course more often encountered, but in place of rather than in addition to tempus or prolatio. The signs for such diminutions are different from those discussed above.

and the numeral to tempus; with two numerals, the circle or semicircle refers to modus major, the first numeral to modus minor and the second to tempus. A dot in the circle or semicircle still shows prolatio perfecta. Gafori also describes these signs, without ascribing them to the ancients, but disapproves of them because rests show the modi more simply and the use of the circle now for tempus, now for modus minor and now for modus major is confusing.²⁸ Tinctoris does not mention them at all, giving only the previously mentioned signs for modi. In practice, the signs O3, O2, C3, and C2 had proportional significance and rather than being older were probably themselves derived from the basic signs O and C; their meaning was as Aaron said, but they also were used proportionally rather than as equivalents of the "newer" signs using longa rests. They will be discussed further below with other proportional signs.

Table 5 collates all of Aaron's descriptions of mensural signs and compares them to descriptions given by other theorists. The numbers in the column headed

²⁸ Practica II, 8.

	Modern signs		Ancient signs		
	Tosc I, 10 (1)	Tosc I, 11-26 (2)	Tosc I, 27 (3)	Tosc I, 28; Luc III, 9 (4)	Luc III, 10 (5)
III, iii, 3, 3					033
III, ii, 3, 3					023
II, iii, 3, 3				03	C33
II, ii, 3, 3				C3	C23
III, iii, 2, 3					032
III, ii, 2, 3					022
II, iii, 2, 3				02	C32
II, ii, 2, 3				C2	C22
III, iii, 3, 2			033		033
III, ii, 3, 2					023
II, iii, 3, 2			C33	03	C33
II, ii, 3, 2			C23	C3	C23
III, iii, 2, 2					032
III, ii, 2, 2					022
II, iii, 2, 2			C32	02	C32
II, ii, 2, 2			C22	C2	C22

TABLE 5

	Anc. Mod. Suppl. Letter lll			Mod. Anc. Lanfranco, Scintille		Vanneo, Recanetum
	(6)	(7)	(8)	(9)	(10)	(11)
III, iii, 3, 3	16.033	16.		1.	1. 033	1.
III, ii, 3, 3	- - -	- - -	23.	2.	2. 023	2.
II, iii, 3, 3	15.C33 036	15.	8.	3.	3. 03	3.
II, ii, 3, 3	C36	7.	21.	4.	4. C3	4.
III, iii, 2, 3	- - -	- - -	21.	5.	5. 032	7.
III, ii, 2, 3	14.022	14.		6.	6. 022	8.
II, iii, 2, 3	026	6.	22.	7.	7. 02	9.
II, ii, 2, 3	13.C22 C25	13.	5.	8.	8. C2	10.
III, iii, 3, 2	12.033	12.		9.	9. 033	13.
III, ii, 3, 2	- - -	- - -	19.	10.	10. 023	14.
II, iii, 3, 2	11.C33 034	11.	4.	11.	11. 03	15.
II, ii, 3, 2	C33	3.	17.	12.	12. C3	16.
III, iii, 2, 2	- - -	- - -	20.	13.	13. 032	19.
III, ii, 2, 2	10.022	10.		14.	14. 022	20.
II, iii, 2, 2	2.02	2.	18.	15.	15. 02	21.
II, ii, 2, 2	9.C22 C2(1)	9.	1.	16.	16. C2	22.

TABLE 5 (continued)

"Mensuration" indicate modus major, modus minor, tempus, and prolatio respectively in each instance; "three" indicates perfection, "two" imperfection. The system is borrowed from Apel, Notation, page 100. The signs given in Aaron's letter (no. 111) deserve some comment. The letter was written by Aaron to Giovanni del Lago on October 7, 1539, in response to del Lago's letter of August 27, 1539, in which he asked Aaron to explain the signs for the modi used by the ancients and moderns. Aaron answered in a long letter which was not fully enlightening; del Lago asked for further clarification on May 12, 1540, but no reply exists.²⁹

Aaron first notes that the varying explanations given by Hothby, Eloy [d'Amerval], Tinctoris, and himself differ only in the enumeration, since all four give the same sixteen signs. He then proceeds to criticize the signs given by Gianmaria Lanfranco in his Scintille di Musica of 1533 (Table 5, columns 9 and 10), which Lanfranco says he took from Lorenzo Gazio; Aaron says Gazio must have found them

²⁹ All three letters appear in Appendix B.

"at the bottom of a barrel."³⁰ The signs using longa rests are exactly those described by Gafori, which is not surprising since Gazio was Gafori's pupil.³¹ Aaron does not comment on these, however, but addresses himself to Lanfranco's signs secondo gli antichi (Table 5, column 10). He objects to intermingling into one system signs combining circle or semicircle and one numeral and signs using two numerals, saying that the circle with only one numeral never refers to modus major. The fact is that Lanfranco chose simplicity over consistency, since modus major is imperfect in each sign that Aaron criticizes, and no sign is required to show this. From this viewpoint all signs with the semicircle and two numerals are superfluous, but Aaron seems to imply that with no specific reference to it one can't tell the value of modus major, a contradictory notion in view of some of his other statements.

Aaron's own list of signs in the same letter is not as complete as Lanfranco's. Aaron does distinguish between signs with one numeral and those with two, but his final

³⁰ Letter lll: "Lui l'ha trovato in un fondo d'un Tanburo."

³¹ VL 5318, Letter 98, Spataro to Aaron, July 19, 1532, f. 238v.

list (Table 5, column 6) fails to show four possible combinations of modi, tempus, and prolatio, while four others are shown twice each, with one numeral and with two, a duplication which Lanfranco avoids. Aaron's equivalent "modern" signs (Table 5, column 7) have the same omissions, which are the four signs under which modus major is perfect while modus minor and tempus are neither both perfect nor both imperfect (III, ii, 3, 3; III, iii, 2, 3; III, ii, 3, 2; III, iii, 2, 2). After taking note of the "superfluous" signs given by Staphano Vanneo in his Recanetum de musica aurea³² (Table 5, column 11), Aaron gives eight supplemental signs (Table 5, column 8) which can be formed by "variations" made in the first and second numbers, i.e., using both 2 and 3 in the same sign with 0 or C; these signs fill the gaps in his original list of 16. He says they are not in current use except for those showing modus minor, tempus, and prolatio. This last statement is particularly unclear, since all eight supplementary signs show these three quantities; further, none of the eight were in extensive use when he wrote. If he meant to say that only the signs with 0 or C

³² Rome, Valerius Doricus, 1533; II, 7, f. 50r-53v; see Table 5, column 11.

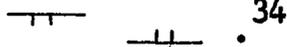
and one numeral were in use, i.e., those in which modus major is imperfect and not indicated, the statement would be more understandable.

The entire discussion in this letter is confused through Aaron's unsystematic organization. His first eight signs are in logical order, all with modus major imperfect and that sign simply omitted, but signs 9 through 16 are formed by repeating the numeral that appeared in signs 1 through 8 (in the letter the signs are arranged in two vertical columns; see Appendix B). This procedure causes the duplications and omissions shown in Table 5, columns 6 and 7. Only by the addition of the eight supplementary signs is Aaron able to represent the full range of possible combinations of perfection and imperfection. The twenty-four signs in the original and supplementary lists are identical to those given by Vanneo and to those shown in Toscanello I, 10-26 (Table 5, columns 1 and 2). Aaron's criticism of Vanneo is therefore unjustified and inconsistent with his own previous statements.³³ The reason for these contradictory statements is unclear; one can hardly suggest anything more

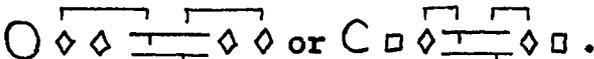
³³ Del Lago remarks on this in his reply, Letter 63.

convincing than haste and inattention, especially since *Lucidario* III, 9 and 10, published six years later, gives the signs of the ancients just as he had published them in his earlier books.

Although the absence of a sign theoretically denoted imperfect mensuration, in practice this was by no means always true. Through oversight or carelessness a sign was sometimes omitted in perfect mensurations, frequently enough in fact that most theorists gave rules for the recognition of perfect mensurations in the absence of the signs. The two *modi* usually caused no problem, since the size and grouping of the *longa* rests, even if they did not appear at the beginning of a part, clearly showed the perfection or imperfection of the *maxima* and *longa*. The determination of *tempus* and *prolatio* was more difficult, since the shape of notes or rests showed nothing. Aaron discusses the problem in *Institutione Harmonica* II, 17, repeating the rules given there in *Compendiolo* II, 15 and 17.

Perhaps the clearest indication of perfection was a group of two *semibrevis* or *minima* rests:  ³⁴

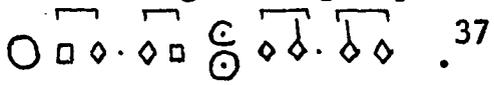
³⁴ *IH.* II, 17; *Comp.* II, 15 and 17.

These were generally accepted as infallible indications of tempus perfectum or prolatio perfecta respectively, since they would not appear in imperfect mensurations where they would be equivalent to a brevis or semibrevis rest respectively and would appear as such rather than as two smaller rests. If the two rests were not on the same line, this rule was not valid, since the separated rests belonged to notes preceding and following them rather than with each other, and such configurations could appear in both perfect and imperfect mensurations: . ³⁵

A second indication of perfect meters was coloration, or blackening of notes that are ordinarily white. Coloration reduced the value of a note by one-third, thus making a perfect note in effect imperfect by reducing its value from three to two of the next lower value. Aaron therefore states in Institutione Harmonica that a complex of black breves and semibreves shows tempus perfectum, while black semibreves and minimae show prolatio perfecta. Compendiolo is more explicit, stating that three black breves or semibreves together show tempus perfectum or prolatio perfecta

³⁵ Tosc. I, 37, cautions against writing the two semibrevis rests in the latter example as a brevis rest since this would obscure the syncopation.

respectively.³⁶ Unfortunately, neither statement is correct, since this type of coloration was used in imperfect as well as perfect mensurations, as Aaron himself explains in Toscanello I, 35-36 and Compendiolo II, 28-30.

The third indication of perfect mensuration was the appearance of a dot between two semibreves or two minime, the former showing tempus perfectum, the latter prolatio perfecta. Such a dot showed that the notes between which it appeared belonged to groups of three on either side of the dot: .³⁷ In these examples the bracketed brevis plus semibrevis have the duration of a perfect brevis, while the semibrevis plus minima have the value of a perfect semibrevis. The dot, generally known as a dot of division, will be more fully discussed below. It is as Aaron says a reliable sign of perfection, since a dot rarely if ever appears in such a position in imperfect mensurations. Only in theoretical cases of syncopation would this rule be inapplicable, but such cases would have been extremely rare in practice in Aaron's time.

³⁶ IH. II, 17, f. 26v; Comp. II, 15 and 17.

³⁷ IH. II, 17, f. 26v; Comp. II, 15 and 17.

In the preceding example above the breves and semi-breves, though appearing under signs showing them to be perfect, were in fact imperfect, having the value of two, not three, of the next lower note. Naturally it was frequently desirable to represent a note with the value of, e.g., two semibreves in tempus perfectum. This was done in two ways, either by reducing the value of the brevis to two semibreves or by doubling the value of the written semibrevis, procedures which were called "imperfection" and "alteration" respectively. Theorists customarily gave extended explanations of the rules for both, especially for imperfection. The latter was rather more complex, since it could take place in several different ways, and even on more than one level at a time; alteration by contrast was quite circumscribed in its application. Further, imperfection involved the complementary concept of perfection and rules had to be given for the recognition of either; alteration had no such complement. Accordingly, Aaron's discussions of imperfection and perfection are among the most extended and complex portions of his writing on notation; they are

contained in Institutione Harmonica II, 14, 16, and 20-27, Toscanello I, 29-31, Lucidario III, 5, 7, 8, 12, and 14, and Compendiolo II, 19-27 and 31. The concise explanations in Toscanello are clearest and will be considered first.

Toscanello I, 29, gives three rules for recognizing a perfect note in perfect mensurations. The first is one of the most fundamental rules of mensural notation, frequently expressed in Latin as similis ante similem perfecta, i.e., a note before another like it is perfect. Under this rule, therefore, the first two breves in $\bigcirc \square \square \square$ are perfect.³⁸ Aaron specifies that the last note of the series may be either black or white; the shape, not the color, determines. He notes that this rule is sometimes broken by putting the next smaller note in front of two such notes and a dot in front of all three and expecting the dot to imperfect the first larger note, e.g., the first brevis in the following: $\bigcirc \cdot \diamond \square \square = \frac{3}{4} \downarrow \downarrow | \downarrow$, but he strongly opposes this license.³⁹ Apel cites a passage in Glarean's Dodekachordon (1547) which mentions exceptions to the same

³⁸ Throughout this chapter tempus perfectum will be used for illustration, but the statements made apply equally to other levels of mensuration unless the contrary is stated.

³⁹ Tosc. I, 29.

rule and states that he himself has never encountered such an exception in practice, though Glarean raises the possibility that they may have occurred.⁴⁰ Aaron's statement tends to confirm the possibility, especially since Glarean ascribes the practice to Josquin, who was alive when Aaron wrote. It is also mentioned in Lucidario, where Aaron ascribes it to the oltramontani, repeating his disapproval.⁴¹ The second rule in Toscanello extends the first to include rests among similar notes; the first brevis is perfect both in $\bigcirc \square \text{—}$ and $\bigcirc \square \square$. The maxima before the two or three longa rests that are its equivalent is specifically included under this rule, since the longa rests have the value and function of a maxima rest, for which there is no sign. The third rule is that a dot following a perfect note prevents it from being imperfected.

Imperfection, as explained in Toscanello I, 30, is the loss by a perfect note of one-third its value, and is also brought about in three ways. The first is when a perfect

⁴⁰ Apel, op. cit., p. 108n.

⁴¹ Luc. III, 5, f. 19v: "...in molti concenti, & massimamente ne gli oltramontani, si tenga per ottima, & ferma regola, che una breve simile alla sua seguente per vigore del punto sia fatta imperfetta, la qual consideratione certamente e vana, & di soverchio, ne concessa da Musico alcuno...."

note is separated from another like it by a next smaller note: $\bigcirc \square \diamond \square \cdot$. Here the first brevis is imperfected by the following semibrevis, which is called imperfection a parte post, imperfection by a preceding note being called a parte ante: $\bigcirc \diamond \square \cdot$.⁴² The second way is "when a dot is placed near perfectible notes."⁴³ Aaron's examples make clear that he refers to two such notes with two next smaller notes between them which in turn are separated by a dot: $\bigcirc \square \diamond \cdot \diamond \square \cdot$. Here the first brevis is imperfected a parte post and the second a parte ante. The third cause of imperfection is coloration of a perfect note, which will be discussed below.

Under the first two rules, the imperfecting note may be expressed either integrally or as the sum of several smaller notes. Thus two minims could imperfect a brevis: $\bigcirc \square \diamond \diamond$. Lucidario notes that in such situations the small notes may appear both after, both before, or one after and one before the larger note: $\bigcirc \square \diamond \diamond \mid \diamond \diamond \square \mid \diamond \square \diamond$, opposing

⁴² Tosc. I, 30. Aaron nowhere mentions the common rule that imperfection a parte post takes precedence over a parte ante when there is a choice.

⁴³ Ibid.: "Il secondo e per gli punti posti appresso le figure perfettibili."

the view that this is permissible only in *prolatio perfecta*, not in *tempus* or the *modi*.⁴⁴

Institutione Harmonica and Compendiolo give essentially the same three rules each for perfection and imperfection. In the former, though, Aaron says that a note is not necessarily perfect before a similar black note, that the color must be the same to produce perfection, a statement which is contrary to practice and to Aaron's other writings.⁴⁵

Compendiolo gives the three rules for perfection in II, 20, but not those for imperfection. II, 21, lists possible uses of "understood" (subintelletta) perfection, which refers to situations where a note may or may not be perfect, depending on its surroundings, and cites Lucidario III, 12, where the same possibilities are described and examples given. Both books state that a *brevis* before two *semibrevis* rests, before two or three *semibreves*, before a larger note or rest, or before a ligature may or may not be perfect. The first three examples show a *brevis* before two *semibrevis* rests:

⁴⁴ Luc. III, 7, f. 21v.

⁴⁵ IH. II, 21, f. 28v: "Quare si brevem albam ante nigram inveneris, non dices brevem illam ante sibi similem esse. Est enim similitudo quando figura et color concordant."

$$\bigcirc \square \overline{\text{---}} \diamond \text{q} \mid \overline{\text{---}} \square \overline{\text{---}} \diamond \text{q} \mid \square \overline{\text{---}} \overline{\text{---}} \diamond \diamond \text{q},^{46}$$
 the next two show breves before ligated semibreves: $\bigcirc \square \overline{\text{---}} \diamond \square \text{q} \mid \overline{\text{---}} \square \overline{\text{---}} \diamond \square \text{q},$
 two more show breves before longae: $\bigcirc \overline{\text{---}} \diamond \overline{\text{---}} \diamond \square \text{q} \mid \overline{\text{---}} \diamond \square \cdot \overline{\text{---}} \diamond \text{q},$
 and two finally show breves before three semibreves
 $\bigcirc \square \overline{\text{---}} \diamond \diamond \diamond \square \mid \overline{\text{---}} \square \overline{\text{---}} \diamond \diamond \diamond \square.$ All four sets of examples show

46

Spataro in VL 5318, Letter 73, February 1522/3, f. 196r, remarks that the longa before an imperfect longa rest in modus minor perfectus cannot be imperfected because it falls under the rule similis ante similem, although it is exactly analogous to the brevis in Aaron's second example given above, being the same relationship at the next higher level. He was responding to Aaron, who had apparently argued for the imperfection of the longa. Spataro also disapproves of the dot between the two semibrevis rests in an example similar to the third , stating that it is preferable to put the rests on different lines because two such rests together indicate that a third note or rest goes with them to complete a perfection: "Vostra excellentia domanda se essendo una longa vacua posita inanti ad una pausa de dui tempi o vero occupante dua spatii in lo segno del modo minore perfecto ut hic se tale longa potra rationabilmente imperficere ut hic cosi come imperficere la breve nel tempo perfecto inanti a due pause di semibreve equalmente posite ut hic: A la quale cosa (respondendo) aduco el regolare et usitato precepto de la perfectione... similiter longa ante longam vel ante pausam longae in Modo minore perfecto non debent imperfici.... Dato che questi due pause parimente giuncte habiano el valore de una breve imperfecta....(f. 196v) Dove vostra excellentia pone questo exemplo dico che a me pare che quello puncto posito intra le predicate pause non sia conveniente, perche e frustratorio et indarno posito et da alcuno docto non usitato; per tanto acadendo che tale pause siano divise piu recta-(f.198r)mente serano posite ut hic ."

or remotissima. Toscanello I, 30, had stated that the maxima could be imperfected by the longa, brevis, semi-brevis, or minima, thus by the complete range of partes; the longa could be imperfected by the brevis, semibrevis, or minima, the brevis by the semibrevis or minima, and the semibrevis by the minima only. Lucidario amends this statement, citing Spataro as the source of the correction, saying that only one-third of a note's value can imperfect it. Thus the brevis, semibrevis, and minima do not imperfect the maxima but some smaller perfect note contained in the maxima; the brevis may imperfect a perfect longa, the semibrevis a perfect brevis or the minima a perfect semibrevis that may be contained in some larger note.⁴⁸ Thus the following $\odot \square \diamond$ is equivalent to $\odot \overline{\diamond \diamond \diamond} \diamond$, the minima imperfecting one of the three perfect semibreves contained in the brevis. As the second example indicates, such relationships are now shown by means of the tie, which did not come into general use until late in the sixteenth century.⁴⁹

⁴⁸ Luc. III, 7, f. 21r.

⁴⁹ One of the earliest examples appeared in 1523 in Marcantonio Cavazzoni's Reccerchari, Motetti, Canzoni for organ, according to Apel, op. cit., p. 3, who states that it was not used in ensemble music "until several decades later."

In imperfection a parte remota it is also possible for the large note to be imperfect while a smaller perfect note it contains is imperfected. Thus in tempus perfectum and modus minor imperfectus the longa contains two perfect breves, each of which can be imperfected though the longa itself cannot. Aaron discusses this possibility in Toscanello, where he objects to calling this imperfection of the longa, because this implies that the longa which contains two breves can then be perfect in some way and that the longa in modus minor perfectus, which contains three breves, must then be more-than-perfect. He prefers that this longa be called diminished, not imperfected, "because nothing should be called imperfected if it was not perfect in the beginning."⁵⁰ Aaron's point is well taken, but customary terminology spoke of imperfection a parte remota without regard to the perfection or imperfection of the larger note.

Lucidario III, 8, gives an exhaustive discussion of the possibilities of simultaneous imperfection at more than one level, which may occur when two or more levels are perfect, as in tempus perfectum and prolatio perfecta.⁵¹

⁵⁰ Tosc. I, 31.

⁵¹ An even more exhaustive discussion may be found in Tinctoris, Liber Imperfectionum, CS. IV, 60-65.

In this mensuration the brevis may be imperfected a parte remota by one or two minimae, leaving it worth eight or seven minimae respectively: $\odot \square \diamond \mid \square \diamond \diamond$. It may of course be imperfected by three minimae, but Aaron emphasizes that then the brevis is considered imperfected a parte propinqua by a semibrevis which is expressed as three minimae, not a parte remota in each of its three constituent semibreves, because in the latter event the brevis would have three imperfect semibreves remaining and could be imperfected a parte propinqua by one of them, which is contrary to the sign \odot which requires that imperfection of the brevis a parte propinqua be accomplished by a perfect semibrevis.⁵² A simpler explanation might have been that in imperfection, the nearest pars takes precedence, and three minimae in would always be taken together as a semibrevis which imperfects a parte propinqua.

Imperfection of the brevis by the perfect semibrevis may also be accomplished by an imperfect semibrevis with a minima: $\odot \square \diamond \diamond$, the imperfecting note thus being imperfected itself. Simultaneous imperfection of the brevis

⁵² Luc. III, 8, f. 22*.

a parte propinqua and remota may be expressed by four or five minimae, and Aaron recommends dots to clarify such situations. In the following $\odot \square \diamond \downarrow \downarrow$, the first dot shows that the semibrevis is imperfed by the first minima, with which it imperfects the brevis a parte propinqua, while the second dot shows that the second minima also imperfects the brevis a parte remota. In another example the dots were omitted $\odot \square \downarrow \downarrow \downarrow \downarrow$. The text refers to dots among the minimae and after the last minima,⁵³ and by analogy to the preceding example one dot would follow the third minima to show imperfection a parte propinqua, while another dot after the fifth minima would show imperfection a parte remota by the last two minims.

Gafori discussed some of these complicated imperfections in Practica II, 11, but concluded that imperfections at several levels are best avoided. He mentions the extreme case of a longa which would ordinarily

⁵³ Luc. III, 8, f. 23r: "Et perche in tale consideratione potrebbono nascere molti dubbi et accidenti contrarii alla volonta del Compositore, pertanto per maggior chiarezza e lecito tal volta porre simili punti tra le note che fanno la imperfettione, come si vede nel secondo & nel terzo esempio, de quali punti, gli ultimi apparenti nella seconda & nella terza figura saranno rettamente chiamati punti di riduzione, per liquali tali note sono dimostrate essere ridotte overo trasportate alle note innanzi alloro poste."

contain twenty-seven minimae when modus minor, tempus, and prolatio are all perfect. It can be imperfected first a parte propinqua by a brevis, losing nine minimae, then a parte remota by two semibreves, each of which imperfect the two remaining perfect breves, losing six more minimae, and finally a parte remotiore by four minimae which imperfect each of the two semibreves remaining in each of the two imperfected breves. Thus the longa loses nineteen of its twenty-seven minimae and has a shorter duration than the brevis which imperfects it a parte propinqua; $\Xi \textcircled{\circ} \overset{8933}{\text{q}} \textcircled{\circ} \textcircled{\circ} \textcircled{\circ} \textcircled{\circ} \textcircled{\circ} \textcircled{\circ} \textcircled{\circ}$. The analogous imperfection of a maxima when all four levels are perfect would see it lose sixty-five of its eighty-one minimae. Needless to say, such frightening manipulations were found only in the treatises of the theorists. Even the relatively modest possibilities of tempus perfectum and prolatio perfecta in combination were seldom exploited at the time Gafori and Aaron wrote; examples such as Gafori's had not appeared extensively in practice for a century or more.

Lucidario III, 14, considers the idea that a note imperfecting a parte remota imperfects a specific portion of the large note, that in $\textcircled{\circ} \textcircled{\diamond} \textcircled{\text{q}}$ the semibrevis imperfects the first brevis contained in the longa, but in $\textcircled{\circ} \textcircled{\text{q}} \textcircled{\diamond}$ it

imperfects the second brevis. Aaron opposes this notion because one cannot speak of first and second in such a case; although the longa has the value of two breves, they are not expressed as separate notes. Furthermore, such terminology would lead to contradictions, since if one says the first brevis in the longa of $\circ \diamond \eta$ is imperfected, that is equivalent to saying the figure has the following value $\circ \diamond \square \square$, in which case the first brevis cannot be imperfected because another brevis follows it and the rule similis ante similem applies.⁵⁴

Compared to perfection and imperfection, alteration is uncomplicated indeed. Aaron discusses it in Institutione Harmonica II, 11,⁵⁵ Toscanello I, 33, Lucidario IV, 2 and 3, and Compendiolo II, 32, all of which are in agreement about the rules for alteration but contain some contradictions in explaining them. In Toscanello, again the most satisfactory account, Aaron explains that, as mentioned above, alteration simply doubles the value of a note, thus only the longa,

⁵⁴ Luc. III, 14, f. 29v.

⁵⁵ This chapter is entitled "De modo minori [sic]" but Aaron suddenly brings up the subject of alteration and treats it thoroughly before continuing with *modus minor*.

brevis, semibrevis, or minima can be altered, and only when the next higher note is perfect. If two such lower notes are found between two of the next higher notes, the second of the lower notes is altered $\bigcirc \square \diamond \diamond \square$, unless a dot separates them $\bigcirc \square \diamond \cdot \diamond \square$, in which case the two smaller imperfect the two larger.⁵⁶ With three smaller notes between two next larger, the third is altered if a dot follows the first $\bigcirc \square \diamond \cdot \diamond \diamond \square$, but without a dot the larger notes are perfect and there is no alteration. If five smaller notes are similarly enclosed, the fifth is altered $\bigcirc \square \diamond \diamond \diamond \diamond \diamond \square$. Rests are never altered; alteration is thus possible here $\bigcirc \square \perp \diamond \square$ but not here $\bigcirc \square \diamond \perp \square$. The larger note preceding or following may appear as a rest $\bigcirc \square \diamond \diamond \perp$. Only the second of two equal notes is altered, never the first, "because perfection in all things is ascribed to the end and not to the beginning," and an altered note approaches perfection more closely than an unaltered.⁵⁷

⁵⁶ Apel, op. cit., p. 113-114, states that in practical sources from the late fifteenth century on the combination $\bigcirc \square \diamond \diamond \square$ frequently called for imperfection rather than alteration because the iambic rhythm produced by alteration fell into disuse at this period. Theory lagged behind practice, and Aaron followed the consensus of theoreticians in upholding the older rule.

⁵⁷ Tosc. I, 33: "Da tutti gli musici è concesso che la seconda ovvero ultima, & non la prima figura minore debbia alterare, perche ogni perfettione in tutte le cose è concessa nella fine, & non nel principio."

Toscanello states that alteration has the purpose of filling out the ternary number of some perfection, but Lucidario directly opposes this view, criticizing Gafori for giving essentially the same explanation in his Practica.⁵⁸ The gist of Aaron's objection seems to be that alteration is not simply a matter of good bookkeeping, an adjustment to make the mathematics work out properly, but it is necessary because it is frequently the only way to write an iambic rhythm, or as Aaron himself says, "so that the last two thirds of this brevis, or tempo, may be united in a single note."⁵⁹ He does not fully explain the problem involved, which is that imperfection a parte ante may sometimes represent iambic rhythm $O \diamond \square \diamond \square q$, but is frequently prevented from doing so by the rule similis ante similem: $O \overset{1}{\diamond} \overset{3}{\square} \overset{2}{\square} q$.

⁵⁸ Ibid.: "Non altera adunque la longa per altro, se non per reintegracione & compimento di detto modo maggior perfetto, la breve per adempire il ternario numero del modo minor perfetto,..." Luc. IV, 2, f. 32r: "Et primieramente intorna quello, che il nostro Venerando Don Franchino al cap. 13. del secondo libro della sua Pratica dice, che l'alteratione è stata ordinata, et trovata, accioche due note sole non restino senza ternario numero, Rispondiamo non essere questa la causa propria di tale alteratione."

⁵⁹ Ibid., f. 32v: "Et appresso l'ultime due terze parti di essa breve, o tempo siano unite in una sola note, per laqual cosa dannoi è detto, che tale alteratione è stata ritrovata da gli antichi, non perche due note non restino sole, et senza ternario numero come essi dicono."

He says that Gafori's statement is correct in some unusual cases such as the following

1 2 3 3 9 3 6 9 9
 ○ | ◇ ◇ ◇ ◇ □ | ◇ ◇ ◇ □ □

, but that generally one may have three semibreves between two breves in tempus perfectum ○ □ ◇ ◇ ◇ □ and one need not seek out more complicated methods of completing the perfection

○ □ ◇ ◇ ◇ □ .⁶⁰ Aaron's objection, though essentially correct, is frivolous, since the point is not that one could use three notes, which could also be done in the "unusual" examples, but that one wants only two. He properly singles out iambic rhythm as the basic cause of alteration, since "completing the perfection" is theory's explanation of the notation devised to meet the requirements of this rhythm, but from another point of view, the contending explanations

⁶⁰ Ibid.: "Et tale oppenione solamente s'intendera haver luogo in qualche Canto dove non fosse alteratione ordinaria, & usata, ma secondo il volere del Musico, come la presente figura dichiara....Nel primo essemplio del la quale, se sara considerata, si vedera una alteratione non secondo che vuole la regola ma secondo la volonta, come habbiamo detto del Compositore, perche volendo misurare il canto sara forza pigliare la prima minima con la seconda alterata, accio si ritrovi il numero ternario delle minime, Et il simile fare della prima semibreve colla seconda del secondo essemplio. Ma in altro modo che in quello, che habbiamo mostrato la loro oppenione loro non sara concedutta, perche se nel tempo perfetto et altri simili si potra havere tre note fra due loro maggiori, come qui, ○ □ ◇ ◇ ◇ □ Imperoche si debbe considerare & bene avertire di prevalersi della facilità, & non obscurita, Per tanto non e dibisogno andar cercando modi oscuri, ne faticosi come qui ○ □ ◇ ◇ ◇ □ per havere il numero ternario con le loro minori."

may be considered as the differing viewpoints of the composer and performer respectively, the former using alteration in order to write an iamb, the latter using it to fill out an incomplete perfection he encounters in a written part. Thus both explanations are useful. Aaron seems unfair in criticizing Gafori's explanation according to the performer's attitude, because he used it himself in Toscanello, and also because Gafori gives the alternate explanation further on in the same chapter of Practica, when he explains why only the second, not the first, of a pair of notes may be altered.⁶¹

Lucidario's discussion continues by commenting on the contention that alteration can be replaced by coloration thus: $\bigcirc \square \blacklozenge \blacksquare \square \blacklozenge \blacksquare \eta$. Aaron notes that this is not possible in all signs of perfection, especially when several levels are perfect. Under the sign \bigcirc , even if the black brevis is accepted as equal to an altered white semibrevis,

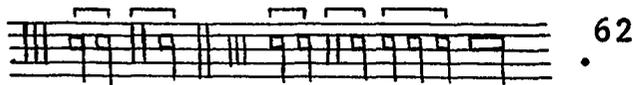
⁶¹ Practica II, 13: "Prima duarum huiusmodi notularum puta semibrevium ad hoc ut duplum propriae quantitatis assumeret in alteram posset formam transmutari....Secunda autem huiusmodi semibrevis alteratur: quia ad hoc ut dupla sui ipsius quantitate concreseat alteram non potest sumere formam: namque si quadratam brevis suscipiat descriptionem: non duarum modo: sed trium semibrevium quantitibus aequabitur: cum similem tunc ante sibi similem quae imperfici non potest evenire contingat."

i.e., six minimae, the black semibrevis loses one-third of its value and equals only two minimae, and the two notes together fail to fill a perfection. He does not mention the possibility that the black brevis in tempus perfectum might result from combining two of a group of three black semibreves into one note, equalling four minimae in prolatio perfecta, rather than being a black semibrevis in its own right:

$\odot \diamond \diamond = \blacklozenge \blacklozenge \blacklozenge = \blacklozenge \blacksquare$. This problem will be encountered again

in discussing coloration in more detail. He also rejects the idea that one can replace an altered white semibreve by a black breve thus: $\odot \square \square \cdot \diamond \blacksquare \square \square$. This is against the rules for using black notes, which must appear in groups of three.

Finally he condemns the practice of altering a note before the note two values larger, i.e., a minima before a brevis, semibrevis before longa, or brevis before maxima. One alters only before the next larger value, whether it is a note or rest; alteration before the same note or rest is thus equally incorrect. He makes one exception to this rule for the longa, which he says may be altered before two longa rests grouped together, since these function as a maxima rest:



⁶² Luc. IV, 2, f. 32v-33r; there is an apparent lacuna at the beginning of 33r. Isolated black notes and alteration before other than the next higher value are sometimes found in practical sources.

The following chapter continues the discussion of alteration. Aaron first remarks that some do not accept a group of long rests, like those in the previous example, as a next larger rest that allows alteration, and prefer to write a maxima and separate the following longa rests so that the maxima will not be perfected through the rule similis ante similem, the maxima then being imperfected a parte ante by the preceding longa:  . Aaron objects that many musicians have used an altered longa in such situations with no separation of the rests, that their learning assures that they proceeded correctly, and that the maxima would still be made perfect by the rests following even though they are separated. He perhaps overlooked the contradiction in considering two longa rests to constitute a maxima for the purpose of perfecting a preceding maxima, but not for alteration of a preceding longa, which is perhaps an even better argument than those he proposes.

At the end of the chapter he finds it necessary to give some rules about alteration, of which there are two kinds, regular and understood (sottointesa). The former is that in which two, five, or eight semibreves appear between two breves in tempus perfectum, the last semibrevis always being altered. "Understood or irregular alteration, according to

the musician's pleasure, appears in various ways, as the present figure shows you. $\bigcirc \square \diamond \diamond \cdot \diamond \square \mid \diamond \diamond \square \square \square \diamond \diamond \mid \neg \diamond \square \square \mid$
 $\downarrow \downarrow \diamond \square \mid \square \diamond \diamond \diamond \cdot \diamond \diamond \square \ .$ "⁶³ The chapter and explanation end at this point, and the examples might have been more enlightening. Alterations caused by dots can logically be called irregular, as in the first example, where a semibrevis has to be altered before another semibrevis, but the irregularity in the other examples is not at all clear. The last example even gives a superfluous dot in an example of "regular" alteration, since the last semibrevis would be altered with or without it; perhaps the dot should have followed the second semibrevis. Compendiolo clarifies the distinction somewhat, stating that understood alteration varies from the regular rule in that a semibrevis may be altered before another note than a brevis,⁶⁴ but this still applies only to the first and perhaps the last example given in Lucidario.

⁶³ Luc. IV, 3, f. 34r: "La sottointesa overo irregolare alteratione, secondo che al Musico piace, appare in diversi modi, come la presente figura ti dimostra...."

⁶⁴ Comp. II, 34: "La subintelletta alteratione rimane alla volonta del Musico: laquale è variabile dalla regola, per esso data, Imperoche nelle compositioni nasce la semibreve alterata appresso la lunga, & anchora alla sua pausa, & similmente la breve, & la minima." To make better sense the underlined "breve" should probably read "semibreve."

The dot had a variety of meanings in mensural notation, some of which have been encountered above, and theorists always classified them functionally. Aaron's discussions, found in Institutione Harmonica II, 28-30, Toscanello I, 32, Lucidario II, 5, and Compendiolo II, 37, are largely consistent among themselves and depart little from prevailing opinion. He divides dots into three categories, the dot of perfection, the dot of division, and the dot of augmentation. The latter is the simplest and survives in modern notation; it follows a note which the sign of mensuration shows to be imperfect, such as the brevis in tempus imperfectum, and increases that note's value by one half. It never is applied to perfect notes, for which the dot of perfection performs an analogous function, following the note to which it applies and preventing it from being imperfected by a subsequent smaller note or notes: $\circ \overset{3}{\square} \cdot \overset{1}{\diamond} \overset{2}{\square} \cdot$. Institutione Harmonica II, 28, explains this dot incorrectly, saying it increases a note's value by one third.⁶⁵ Toscanello

⁶⁵ IH. II, 28, f. 3lv: "Punctum perfectionis est illud quod brevibus perfecti temporis postponitur, cuius quidem brevis quantitatem sic auget ut illi tertiam partem idest unam semibreve adiiciat."

gives the correct explanation: the dot adds nothing to the note but prevents something from being removed. Toscanello also points out that although in $\bigcirc \square \diamond$ the brevis equals two semibreves and the semibrevis one, in $\bigcirc \square \cdot$ the brevis does not equal two and the dot one, because the brevis is normally worth three; the dot simply assures that it remains so and assumes no temporal value of its own. Aaron says that some think the dot is to be sung as a semibrevis, but points out the fallacy of this idea by showing that $\bigcirc \square \cdot \diamond \diamond \square$ would then be the same as $\bigcirc \square \diamond \diamond \diamond \square$, in both of which cases the first breves in the figures would be perfect. He holds that the dot is superfluous in any case, since $\bigcirc \square \diamond \diamond \square$ requires alteration. This example is further compared to $\bigcirc \square \cdot \diamond \square$, in which there is no alteration, such as one might expect if the dot had temporal value.⁶⁶

The third kind of dot, the dot of division, is also found only in perfect mensurations and is used to show imperfection and alteration, as has been seen above, by dividing a group

⁶⁶ Tosc. I, 32. Spataro's letter to Aaron of March 7, 1521 (VL 5318, no. 74, f. 199r-v), gave the same sequence of demonstrations and examples that appears in Tosc.; since the book existed in manuscript at least as early as 1518, it is not certain that Aaron derived his explanation from Spataro, though it is entirely possible.

of notes other than normally.

Lucidario III, 5, discusses the contention that there are other dots than the three just mentioned. Aaron says that some claim there are six reasons for using a dot, each of which can operate without involving any of the others; besides the three already mentioned, there are imperfection, alteration, and syncopation (trasportatione). These effects, Aaron says, are actually caused by a dot of division that prevents the notes from being grouped normally. He gives $\bigcirc \square \diamond \cdot \diamond \square$ as an example of what is called a dot of imperfection, but in reality the dot first divides the three semibreves so that they cannot be taken together as one perfection; imperfection of the first brevis and alteration of the third semibrevis then follow. The alleged dot of syncopation is shown thus $\bigcirc \square \diamond \cdot \diamond \square \square \mid \square \diamond \diamond \diamond \cdot \diamond \square \square \square$, but in both examples the dot first divides, imperfection and syncopation following. His final example: $\bigcirc \square \diamond \diamond \diamond \square \diamond \cdot \diamond \diamond \square$ shows alteration caused not by the dot but by the deficiency in the two semibreves following the dot, which then requires alteration to complete the perfection.⁶⁷

⁶⁷ This chapter contradicts two statements made elsewhere in Luc. IV, 2, opposed the idea that alteration is used to complete a perfection (fn. 62-64 above), while III, 8, says certain dots are properly called dots of reduction (fn. 64).

Aaron's classification differs very little from those of other theorists. As Apel points out,⁶⁸ theory in the fifteenth and sixteenth centuries simplified the explanation of dots, usually giving the same three approved by Aaron. Gafori simplified even further, reducing all dots to either division or perfection. Each is subdivided once, however, the former into the dot of division proper, by which the note adjacent to the dot is joined to another note or notes adjacent to it to complete a perfection, and the dot of syncopation (transportatio or translatio), by which the note following the dot is joined to a non-adjacent note following it.⁶⁹ In criticizing such a dot, Aaron singled out Gafori, citing the first example in Practica II, 12, in which the tenor begins: $\bigcirc \diamond \cdot \diamond \cdot \diamond \cdot \square \square \cdot$. Gafori says the second dot is a dot of syncopation, showing that the semibrevis following does not imperfect the first but the third brevis following it. Aaron says this would be an example of a self-sufficient dot of syncopation except that it is superfluous, since the passage would be performed exactly the same without the dot,⁷⁰

⁶⁸ Notation, p. 116n.

⁶⁹ Gafori, Practica, II, 12.

⁷⁰ Luc. III, 5, f. 19v.

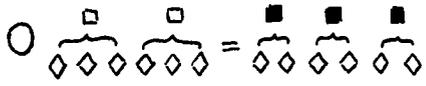
i.e., $\frac{3}{4}$ ♩. ♪ | ♪ ♪ | ♪ ♪ | ♪ ♪ | ♪ ♪ . Gafori's dot of perfection proper is that applied to a perfect note, while the dot of augmentation is its subspecies that is applied to an imperfect note.

Gafori's classification does not seem as logical as the more frequent three-fold division, since the dot of syncopation, as Aaron points out, is only one application of the dot of division, while the real difference between dots of perfection and augmentation is obscured. Neither Aaron nor Gafori, however, arrived at the most logical classification, which includes only the dot of augmentation and dot of division.⁷¹ The dot of perfection falls under the criticism Aaron applied to the other three, since it too is actually a dot of division, causing perfection by dividing the notes other than normally. Johannes de Muris gave this classification in the fourteenth century,⁷² but it does not seem to have been repeated by later writers.

⁷¹ Apel, op. cit., p. 116.

⁷² Ibid.

Coloration or blackening of notes has already been mentioned in connection with imperfection, but imperfection is not the only possible result of coloration. The basic principle of coloration is that each black note has two thirds of the value of a similar white note; black notes properly appear in threes, so three black notes therefore occupy the space of two white ones. As Apel explains it, two effects can result from coloration, depending on whether the blackened notes were originally perfect or imperfect. Perfect notes when blackened are in effect imperfected, being equal to two instead of three of the next smaller value:


, an effect which Apel calls "courante-coloration" after its characteristic use in that dance. The blackening of imperfect notes results in "triplet-coloration," exactly the effect that is presently notated in triplets: C ♪ ♪ ♪ = $\frac{2}{4}$ ♪ ♪ $\frac{3}{3}$ ♪ .⁷³ As Apel remarks, "the explanations on coloration given by both early and recent writers are not altogether clear and satisfactory," largely because the two types of coloration are not clearly distinguished.⁷⁴ Aaron has to be counted among the unclear,

⁷³ Ibid., p. 127.

⁷⁴ Ibid., p. 126.

although his explanations are quite extended and more systematic than those found in many contemporary treatises. They appear in Institutione Harmonica II, 18, Toscanello I, 34-36, and Compendioio II, 28-30; of the three Toscanello is again the most satisfactory. Its chapters on coloration evoked the most profuse commentary in Spataro's series of letters criticizing the book, criticisms which sometimes are quite apt. Aaron's lack of clarity seems to stem from his organization of the subject; he takes up each note value in turn, explaining the meaning of such a note when blackened under each of several signs of mensuration, but he gives no theoretical background beyond the statement that black notes lose one third of their normal value. This is of course correct, but in some situations two conflicting interpretations can both conform with this rule. He also fails to distinguish between notes that are black in their own right and black notes formed by combining two smaller values. He evidently intended to provide the performer with a lexicon of coloration that would give a decisive solution of any conceivable situation, and his solutions are always the simplest, most likely readings, but he did not treat the subject exhaustively, and Spataro's comments are chiefly addressed to this deficiency.

Toscanello I, 34, begins the discussion with the maxima, saying that under the sign $\text{⏏} \textcircled{\text{O}}$ it contains twenty-seven semibreves, under the sign $\text{⏏} \textcircled{\text{C}}$ eighteen. If blackened, it is reduced by one third and equals eighteen and twelve semibreves respectively. The longa in $\text{⏏} \textcircled{\text{O}}$ equals nine semibreves, in $\text{⏏} \textcircled{\text{C}}$ equals six, but blackened equals six and four respectively. In these examples the blackened notes were originally perfect, but even when imperfect themselves they are still divisible by three if one of the smaller values is perfect, and thus may receive courante-coloration, just as they could be imperfected a parte remota in the same situation. Thus in $\textcircled{\text{O}}$ the white maxima is imperfect and equals twelve semibreves, the black maxima equals eight, while the white longa equals six semibreves and the black longa, four.⁷⁵ Spataro took exception to this last explanation in that it speaks of one third of an imperfect maxima or longa, which he finds improper because it gives the impression that these notes are perfect. He would prefer to say that it is not the maxima or longa but the perfect breves or semibreves which they contain that

⁷⁵ Tosc. I, 34.

are diminished by coloration.⁷⁶ Evidently Aaron preferred simply to tell the performer what to do, not why, without being too precise about terminology. Spataro on the other

⁷⁶ VL 5318, Letter 77, September 19, 1523, f. 205r:
 "Dubito etiam dove vostra excellentia dice che la maxima et la longa in questo signo \odot possono essere (f. 205v) divise in tre equale parte, et per tale modo el pare che vogliati concludere che quattro semibreve siano la tertia parte de la maxima predicta, et che due semibreve siano la parte tertia de la predicta longa. Questo a me non pare consono, perche el seguitaria che se quattro semibreve in tale loco son la parte tertia de la predicta maxima, che etiam quella nota cantabile, la quale precise coglie le predictate quattro semibreve (come la longa de dui tempi imperfecti in questo signo \odot), sera etiam parte tertia de tale maxima, et per tale modo acadera de la longa, la quale cosa sia contra de voi perche diceti che in questo signo \odot la maxima et la longa son imperfecte. Ma veramente, Messer Petro mio honorando, non se debeno dire esser parte tertia de la maxima, perche ciascuna nota resta reintegrata de quelle note o vero parte de la quale tale nota resta resoluta et in parte divisa....Dico etiam che tale maxima debe essere reintegrata scilicet de due longe imperfecte de le quale ciascuna sia complecta de due breve perfecte, o vero de quattro tempi o vero breve perfecte, et etiam de 12 semibreve perfecte o vero de 36 minime, et non mai de quattro semibreve perfecte tre volti sumpte....Dico che el pleno dato et assignato in la maxima et in la longa da questo semplice signo \odot gubernato non opera circa la diminutione de essa maxima et longa, ma solo tale pleno opera circa la imperfectione de quelli quattro tempi o vero breve, le quale da la maxima vacua son contenute primamente perfecte. Per la quale cosa a me pare che male da vostra excellentia sia stato usitato quello vocabulo scilicet dicento che la maxima per el pleno resta diminuta, per che se vostra excellentia advertira, quella trovata che non poco differentia cade intra minuire et imperficere in le figure cantabile.... (f. 206r) Ma quando da poi dal naturale binario sera tolte alcuna parte,...ahora tale note se possono chiamare diminutePer quests rasone appare che la maxima et la longa

hand always favored detailed explanations, as the most cursory reading of his treatises or letters makes abundantly clear. He addressed other theorists while Aaron wrote for the performer, an occupation which Spataro found beneath his dignity.⁷⁷

Toscanello I, 35, lists five ways in which the black brevis may be used. The first is in conjunction with a black longa in modus minor perfectus and tempus imperfectum in order to fill out a perfection. In this situation the brevis does not lose any value, since it is already imperfect, but is blackened to show that it goes with the black longa: $\equiv \blacksquare = \blacksquare$. This pair of notes might be considered one half of a group of three longae in courante-coloration, but in effect it indicates imperfection of the longa by the black brevis. This usage has been encountered above in the discussion of alteration,⁷⁸ since the only difference between

plene aducte disopra non serano dicte diminute, perche non perdono el proprio binario scilicet el imperfecto. Ma sera intesa che (ut dixi) le maggiore figure perfecte scilicet le breve; le quale son contenute da essa Maxima, solo siano imperfecte."

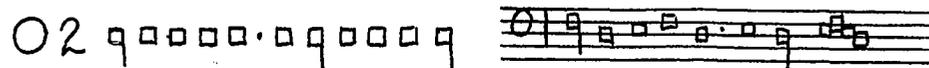
⁷⁷ See, for instance, the last sentence of footnote 79 below.

⁷⁸ See page 168 above.

the fundamental rule that black notes lose one third of their value, and its meaning could hardly have been clear to the average performer. Ramos perhaps employed a peculiarity of Spanish notation; whatever its source, the notion shows Spataro's dogged devotion to Ramos's teaching regardless of its correctness or utility, a devotion which apparently motivated much of Spataro's writing.

He goes on to note that Aaron would have said that the longa following the black brevis should also be black in such an example, but cites Ramos to the effect that the longa should not be colored to agree with the brevis; the

questo loco la nota maggiore non deve servire a la minore. Si che la longa non se debe fare plena per obedire a la breve, ma si bene, et è contra, si che le breve si fano plene per unir si con la longa; et questo da vostra excellentia è affirmato dove nel proprio loco diceti ut hic scilicet: Adonque è di bisogno...in quantita senaria....Ma vostra excellentia se po excusare circa questo dicendo che vostra excellentia havesse voluto dimonstrare che tale ultima breve et altre simile non dovessi alterare, che asai bastaria ponere uno punto tra la quarta et la quinta breve, et che altrove asai (f. 202r) per el practico era claro che la quinta breve era congiunta con la seguente longa ut hic:



et che vostra excellentia ha parlato con li rudi et non con li docti, li quali docti tendeno al lume de lo intellecto et a la speculatione de la verita, pertanto aducono demonstratione speculative et tanto alte che da li simplici practici son poco et quasi nulla existimate."

long note should not be dependent on the short. Further, since the brevis has the value of a white brevis, the longa should be white in order to avoid mixing black and white notes in the same perfection, a mixture which is judged according to the value of the note, not its actual color! This absurdity is compounded when Spataro considers the second example in which the brevis as well as the longa is perfect. Here he says that if the longa were blackened, the two breves it contains would be imperfected and thus two imperfect breves would be joined to a "white," perfect brevis to fill the space of the perfect longa. Why the breves in the longa should be imperfected by coloration and not the breve preceding them is unexplained, and indeed unexplainable.⁸⁰

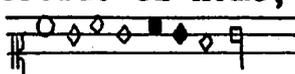
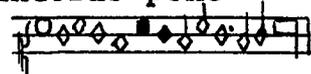
⁸⁰ Ibid., f. 201v: "Ma nel secondo exemplo disopra signato con el circulo complecto acaderano etiam le predicte consideratione, et etiam la longa potra esse plena al servitio de la breve plena, et tanto piu li sera inconsiderate, perche in tale loco son due perfectione scilicet el modo minore et el tempo. Pertanto se la longa postposita a la breve plena fusse plena (ultra li inconvenienti di sopra demonstrati) etiam seguitaria che (non volendo forse el compositore) quelle due breve perfecte de le quale essa longa vacua e receptando mediante el pleno seriano imperfecte; perche essendo tale longa facta imperfecta de la parte tertia de la breve plena a se anteposita, el seguitaria che el pleno dato ad essa longa traderia ad imperficere le due breve predicte da la longa predicta contenute, et pertanto modo seguitaria che el vacuo et perfecto tempo se giungeria con dui pleni et imperfecti tempi per perficere il numero ternario

Aaron's second use of the black breve is in tempus perfectum as simple imperfection, the breve in this case being imperfected by coloration and requiring an accompanying black semibreve to fill out the perfection,⁸¹ i.e., the first use, $\Xi \blacksquare \blacksquare$, applied one level lower, $\circ \blacksquare \blacklozenge$. Spataro's comment on this passage raises the troublesome problem encountered above, the coloration of a note that normally appears in groups of three, since he suggests that a black brevis and semibrevis in tempus perfectum may have the value of two white semibreves rather than the three that Aaron states. The result would then be triplet coloration of the semibreve, a note which already appears in threes:

$\circ \blacksquare \blacklozenge = \blacklozenge \blacklozenge \blacklozenge = \diamond \diamond$, the black brevis being formed by combining two black semibreves.⁸² Apel states that such a

di tri tempi, a complimento de la longa del modo minore et del tempo perfetto, la quale cosa certamente è erronea et non mai da docto alcuno producta in luce."

⁸¹ Tosc. I, 35.

⁸² VL 5318, no. 75, f. 202r: "Similmente Messer Petro mio honorando; nel predicto capitolo 35 del quello vostro tractato me occorre un altra dubieta, dove v.e. (seguitando) dice ut hic: El secondo modo...del numero perfecto. Ma certamente circa tale vostra sententia asai dubito, et questo è solo per che ho trovato a presso a certi docti antiqui et moderni come da Tintoris in uno suo Mutetto molto arduo del quale non me arecordo el nome; nel quale Tintoris pone queste note ut hic  overo cosi 

coloration is impossible,⁸³ but Spataro, especially if he quoted the example by Tinctoris correctly, seems to contradict him conclusively.⁸⁴ Spataro's alternative in fact seems preferable to Aaron's since Spataro gives a rhythm that can be shown only by coloration, whereas Aaron's interpretation is better shown by imperfection or alteration than by coloration.⁸⁵

Nel quale predicto mutetto da esse Tintoris non è inteso che la breve plena et la seguente semibreve plena insieme giuncte possano perficere et reintegrare uno tempo com-
plecto de tre semibreve vacue, ma solo da lui son intese solamente havere el valore de due semibreve vacue, le quale con la precedente o vero con la seguente semibreve vacua insieme giuncte perficerano il valore de uno tempo perfecto:"

⁸³ Notation, p. 130: "In tempus perfectum cum prolatione imperfecta coloration cannot be applied to the semibreve, since this note already appears normally in groups of three."

⁸⁴ Apel does acknowledge coloration of the semibrevis in tempus perfectum with prolatio perfecta (Ibid., p. 138: "In color prolationis, three blackened S will be equal to two white ones, thus occupying two-thirds of a full measure."). This coloration does not produce rhythmic clashes with white notes as does the coloration in prolatio imperfecta, but this seems insufficient reason for allowing one and not the other.

⁸⁵ Apel, op. cit., p. 136, remarks that black notes are so used rather than alteration after 1550. Perhaps theory advanced ahead of practice in this instance.

The third use of the black breve is in tempus imperfectum and is the minor color,⁸⁶ though not so called by Aaron, in which the brevis loses one quarter of its value and is equivalent to a dotted semibreve, appearing with a black semibrevis which represents the remaining quarter of a white brevis.⁸⁷ Apel observes that this figure originally must have had a triplet rhythm $\frac{2}{4} \text{ } \circ \underset{3}{\downarrow} \downarrow$, but in the late fifteenth century the rhythm became sharpened into the "dotted" value.⁸⁸ Apel assigns this usage largely to the next lower level with a black semibrevis and minima $\blacklozenge \blacklozenge \downarrow$, but Aaron applies it at all levels, including the maxima.⁸⁹ The larger notes rarely if ever were used in this fashion, the semibrevis-minima combination being by far most frequent.⁹⁰

⁸⁶ Ibid., p. 128.

⁸⁷ Tosc. I, 35.

⁸⁸ Op. cit., p. 128.

⁸⁹ Tosc. I, 34: "Anchora ti avertisco che ritrovando tal note di color pieno sotto gli segni seguenti, C, C , ne gli quali la massima è formata di semibrevis.viii.perche tal quantita di otto, non è divisibile in tre parti equali, è necessario che tal note o figure trovandosi ne gli antedetti segni di color piene, siano sesqualterate, overo perdino il quarto come ne gli seguenti capitoli vedrai."

⁹⁰ Apel, op. cit., p. 130.

Spataro objects to this usage also, stating that he can't remember having seen a black brevis equal to a dotted semibrevis, although he doesn't think Aaron's statement is unfounded. He doubts that any previous or contemporary authority states that the black breve is in the proportion 4:3 to the white;⁹¹ either a dotted semibrevis or a proportional sign and brevis would have been more correct. Spataro suggests that Aaron saw a black breve used in this manner as the result of scribal error, with $\blacksquare \diamond$ standing for $\diamond \diamond$; the scribe presumably wrote a brevis instead of a semibrevis and then blackened the brevis as a correction.⁹² Aaron of course said that a black semibrevis, not a white minima, accompanies the brevis. Spataro evidently

⁹¹ Tinctoris, Proportionale (ed. Seay), examples 16, 17, 48, and 58, apparently uses minor color, though it is not clear whether or not he approves of it.

⁹² VL 5318, Letter 78, November 6, 1523, f. 207r:
 "Certamente Messer Petro mio, io non sero tento pensare che io me arecorda havere mai trovato tale breve plena posita per la valuta de una semibreve con el puncto, etc. Et quanto piu cerco per farmi conforme al vostro dicto (el quale credo non sia senza fundamento) tanto manco de rasone io trovo le quale siano valide et firme circa la predicta nota plena aducta, perche el seguitaria che tale breve ut hic plena haria natura de sesquitertia, la quale sesquitertia credo che mai non sia stata trovata (per tale modo signata) da Auctore Alcuno autentico ne Antiquo ne Moderno; imperoche se la sesquitertia sera ut hic data $C \diamond \diamond \frac{4}{3} \square C \diamond \diamond \square$ quella breve data dapo li termini

objected to minor color only in values higher than semi-brevis-minima, since he does not question Aaron's mention of these values in Chapter 36.

The fourth way in which Aaron says the black brevis may be used is in \textcircled{C} , where it loses one-third of its value or two minimae.⁹³ Since the white brevis is imperfect in this mensuration, a single black brevis stands for two of a group of three black semibreves and would probably be accompanied by a black semibrevis to complete the perfection: $\textcircled{C} \blacksquare \blacklozenge = \overset{6}{8} \rho \uparrow$. Spataro again objects to the

producenti la sesquitertia perde la quarta parte del suo valore....Se tale exemplo adonca sera reducto tuto soto al signo scilicet senza apparentia de li termini comparati, tale (f. 207v) exemplo sera ut hic signato scilicet:

$\textcircled{C} \blacklozenge \blacklozenge \blacklozenge \cdot \blacklozenge \blacklozenge \blacklozenge \square$ Ma certamente io non nego ma credo che vostra excellentia habia atrovato tale breve plena con la seguente minima vacua stare per una semibreve con el puncto, perche ancora da me son state atrovate de strane positione de note da considerare....Per tale modo potria essere acaduto a vostra excellentia scilicet che quella haria trovato qualche copia con celerita scripta, et che el (f. 208r) notatore notando, dove doveva ponere una semibreve punctata et da po una minima ut hic: $\blacklozenge \cdot \blacklozenge$ li venen posito una breve ut hic: $\square \cdot \blacklozenge$, et dapoi (compreheso lo errore) per havere qualche signo de tale errore et per fare presto (come se uxa), fu da lui facta plena tale breve ut hic: $\blacksquare \blacklozenge$."

⁹³ Tosc. I, 35.

idea of an imperfect note losing one-third its value, referring to the previous letter in which he discussed the black maxima and longa.⁹⁴ A group of three black breves in \textcircled{C} , however, would have the same meaning that they do in Aaron's fifth category, which is under the sign \textcircled{C} , three black breves in triplet-coloration.⁹⁵

Chapter 36 applies the principles developed in the preceding chapters to the semibrevis. The first way to use the black semibrevis is in modus minor perfectus, where it may appear with the black longa or brevis to fill a perfection or avoid alteration: $\text{≡} \blacksquare \blacklozenge$ or $\blacksquare \blacklozenge$; the second in tempus perfectum with a black brevis or longa for the same purpose: $\textcircled{\blacksquare} \blacklozenge$ or $\blacksquare \blacklozenge \blacklozenge$. In neither of the first two ways does the black semibrevis lose any value, but supplies the value lost by the coloration of the larger note. The third way is in tempus imperfectum and prolatio imperfecta, in which there are three possibilities. The first is to form minor color with a black minima: $\textcircled{C} \blacklozenge \blacklozenge = \frac{2}{4} \text{♩} \text{♩}$ the

⁹⁴ VL 5318, Letter 78, f. 208r. Spataro refers to the passage quoted in footnote 76 above.

⁹⁵ Tosc. I, 35: "Il quinto & ultimo modo è, quando tu truovi nel tempo imperfecto & prolation imperfecta alcuni brevi negre, senza alcun dubbio saranno sesqualterate, cioè tre di esse brevi negre ne la battuta di due brevi bianche, come di poi al capitolo de la sesqualtera intenderai."

second is to complete minor color with a black brevis:

$C \blacksquare \blacklozenge = \frac{2}{4} \downarrow \cdot \cdot$, and the third is preceding a black brevis, forming a real triplet rather than minor color: $C \blacklozenge \blacksquare = \frac{2}{4} \downarrow \downarrow \downarrow$.

Aaron notes that the second way is sometimes taken as a triplet: $C \blacksquare \blacklozenge = C \downarrow \downarrow \downarrow$, but that either is acceptable since both total a white brevis.⁹⁶

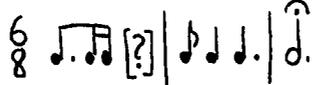
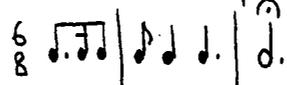
The fourth use of the black semibrevis occurs in C , in which there are two possibilities. The first is when the black semibrevis appears in groups of three; each then equals two minimae, thus forming courante-coloration:

$C \blacklozenge \blacklozenge \blacklozenge = \frac{6}{8} \downarrow \downarrow \downarrow$. The second is when a single black semibrevis is accompanied by black minimae, in which case it forms minor color. Aaron gives an example which is confusing in that it appears in the 1523 edition thus: $C \blacklozenge \blacklozenge \blacklozenge \diamond \diamond \square$, while the 1529 and subsequent editions give it thus:

$C \blacklozenge \blacklozenge \blacklozenge \diamond \diamond \diamond \square$.⁹⁷ Since the musical examples were apparently

⁹⁶ Apel, op. cit., p. 129, gives a French example from the late sixteenth century in which $\downarrow \blacklozenge$, Aaron's third possibility in tempus perfectum but $\downarrow \blacklozenge$ at the next lower level, is to be read as reversed minor color rather than sesquialtera.

⁹⁷ Tosc. I, 36: "Il quarto modo si ritruova ne la prolation perfetta, & tempo imperfetto, laqual per essere di natura & valore di tre minime, essendo negra resta diminuta di una minima quale e sua terza parte, pure che siano piu di una o due insieme di tal colore, o veramente

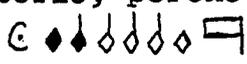
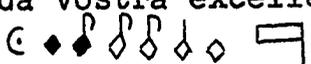
printed from the same plates in all four editions, this change, the only one in the entire book, must be a deliberate correction. Unfortunately, the second version makes no sense if the black semibrevis is given the value of a dotted minima, since the perfection then lacks one minima: . Spataro commented on the original and perhaps caused Aaron to change it, but the change did not embody Spataro's suggestions. He accepted the first two notes as forming minor color, but objected to the next two, which he considered that Aaron must have intended either as black minimae or normal semiminimae, leaning towards the first interpretation himself. If they are minimae, there was no need to blacken them; they could have remained white: , implying the following transcription: . If semiminimae were intended they should have been written white so as to avoid confusion with black minimae: .⁹⁸

accompagnate con minime negre come qui....Ma ritrovando tali note in questo modo, la semibreve negra resta di valore & quantita di una minima col punto. Per laqual cosa volendo sanamente conoscere tal differenza, a te sara necessario avertire come & in che numero sono figurate."

⁹⁸ VL 5318, Letter 82, November 8, 1523, f. 215r:
 "Vostra excelentia dice che ritrovandosi tale note in tale modo, che la semibreve negra resta di valore et quantita de una minima con punto. Contra questo non voglio

The first interpretation seems unlikely; had Aaron intended the third and fourth notes as minimae, he surely would have left them white as Spataro suggests. The second interpretation must be what Aaron intended, but the confusion Spataro foresaw in Aaron's notation is surely exaggerated. A performer faced with Aaron's original version would certainly have sung a dotted minima and three semiminimae without hesitation. Neither of Spataro's suggestions is helpful in deciphering Aaron's revision. The only logical way to read it is to value the black semibrevis as two minimae, followed

by two semiminimae: 

arguire....Ma ultra de le predicte, li dubitanti domandano che figure o vero note saranno quelle altre due figure seguente plene ut hic posite  da po la predicta minima plena posite, scilicet, se  serano due minime plene o vero due semiminime? A me pare che siano due minime plene, perche (inquanto a la apparente forma) in alcuna cosa non son dissimile da la predicta minima plena....Se adonca son due minime, suo essere plene sera superfluo et frustratorio, perche assai bastava che fusseno vacue ut hic  et per tale modo la semibreve plena con la seguente minima plena et la prima vacua (inseme colte) seriano state el valore de tre minime vacue o vero de una semibreve perfecta de questo signo C Ma se la predicta seconda et la tertia nota...son state posite da vostra excellentia per semiminime come io credo, veramente non scio quale excusatione io posso fare, acioche quella non resti tacita et inculpata, atento che le semiminime in tale signi punctati et in tale caxo et occurentia non se fano plene per quello modo che occureno in li segni non punctati, et questo acade perche non seriano comprehense ne cognoscite da le minime plene, le quale molte volte acadeno in le signi punctati;...le quali semiminime da li optimi musici son usitate vacue ut hic  . Pertanto dico che (secondo el mio debile iudicio) el  predicto exemplo producto da vostra excellentia seria stato piu rectamente notato  ."

which contradicts the accompanying text. Obviously the emendation must be disregarded in favor of the original, reading the black notes as a semibrevis and three semiminimae. Coloration is perhaps not the best possible notation for such a passage; replacing the black semibrevis by a white dotted minima would eliminate any ambiguity:

Ⓒ ◊. ◊◊◊◊ ◊ ◊ .

Without a doubt the thorniest subject in the lexicon of mensural notation is proportion. It has been encountered above in conjunction with coloration, since the latter involves replacing two white notes with three black, and a proportion indicates just that, replacing the original number of notes that fill a given space of time with a different number. Proportions were also used to express the size of musical intervals, as mentioned in Chapter II above, but their use in notation has more immediate practical importance.

Proportional theory in the Middle Ages and Renaissance was essentially that of Boethius⁹⁹ and Aaron's explanations in Institutione Harmonica III, 53-58, Toscanello II, 32-36, and Compendiolo II, 71, follow Boethius quite closely.

⁹⁹ Musica, I, iv.

Boethius established a hierarchy of proportions, distinguishing proportions of equality and inequality (the relationships between equal and unequal quantities), then major and minor inequality (the relationship respectively of a larger to a smaller quantity or of a smaller to a larger), and five species each of major and minor inequality. The five species are explained in detail by Apel,¹⁰⁰ to whom the reader is referred for a full exposition. Aaron's theoretical expositions are followed by more detailed consideration of the two species in actual use, multiplex and superparticular, the relationship respectively of any other integer to one and of any integer to the next smaller integer. Of these he discusses only the simplest forms, dupla (2:1), tripla (3:1), quadrupla (4:1), sesquialtera (3:2), and sesquitertia (4:3), beyond which practice seldom ventured. He remarks in Toscanello that Gafori has given ample examples of the more complicated proportions, which in any case are of no practical importance.¹⁰¹

As Apel explains, "the whole system of mensural notation" takes for granted a fundamental unit of time known as

¹⁰⁰ Apel, op. cit., p.146-7.

¹⁰¹ Tosc. II, 32.

the tactus, which moved at a fixed rate, about M.M. 50-60;¹⁰² Aaron usually called it mensura, misura, or battuta, but does not offer an approximation of its duration. Proportions are stated with reference to the tactus, which since the fourteenth century had been understood to fall normally on the semibrevis in the signs of tempus perfectum or imperfectum with prolatio imperfecta, O and C.¹⁰³ The duration of notes under these signs was known as integer valor, the standard to which all proportions ultimately referred. A proportional relationship could exist successively, between different sections of the same voice part, or simultaneously, by comparison of different signs in two or more parts. If all parts begin with the same proportional signature, there is no proportional relation between them, but the tactus may fall on another note than the semibrevis.¹⁰⁴ Two methods were used to indicate proportions in mensural music, one simply by writing the proportion on the staff, the first term above the second, in the manner of modern

¹⁰² Op. cit., p. 146-147.

¹⁰³ Ibid., p. 343.

¹⁰⁴ Ibid., p. 191-192, where the suggestion is also made that a proportional signature in all parts may have implied a different speed for the tactus as well.

time signatures: $\begin{matrix} 2 & 3 & 4 & 1 \\ 1 & 2 & 2 & 2 \end{matrix}$, the second by modifying the signs of integer valor by bisecting them with a vertical line or following them with a numeral or both. A proportion was cancelled by inverting the original proportion: $\begin{matrix} 3 & 2 \\ C-2-3 \end{matrix}$, or by the appearance of a sign of integer valor: $\begin{matrix} 3 \\ C-2-C \end{matrix}$, $C-\emptyset-0$, $\begin{matrix} 2 & 3 \\ C-1-2-C \end{matrix}$. The last example shows a succession of two proportions, which was cumulative in effect; here the 3:2 refers to the preceding 2:1 and its relation to the original C would be 3:1.

Of the multiplex proportions, Aaron says little about tripla and quadrupla beyond the statement that their signs are $\begin{matrix} 3 \\ 1 \end{matrix}$ and $\begin{matrix} 4 \\ 1 \end{matrix}$ and that each semibrevis goes three or four times as fast as in integer valor. Dupla is basically a simple proportion, since it means only twice as fast; as Apel remarks, it was often applied to a passage "which could just as well be written in integer valor (with the next-smaller note values), but [was] notated in diminutio in order to bestow upon the composition an aura of learning."¹⁰⁵ Another possible reason might have been to avoid the smaller

¹⁰⁵ Ibid., p. 152. Apel notes on page 147 that proportio dupla was often called diminutio. Some theorists distinguished between dupla, shown by numerals, and diminutio, shown by signs, but Aaron insisted on their identity, as seen in Lucidario II, 13.

note values, which were perhaps more difficult to read. Institutione Harmonica III, 55, gives five signs that show dupla, all but one expressed as the relation of one signature to another: C:ϕ, $\frac{2}{1}$, ϕ:ϕ2, O:ϕ, C:∪. Toscanello II, 32-33, gives the same signs except the proportion involving tempus perfectum, which had been mentioned previously in I, 38. In the sixteenth century the signs ϕ and ϕ often lacked proportional significance, requiring the tactus to fall on the semibrevis as if no diminution had occurred.¹⁰⁶ They very largely displaced the normal signs of integer valor at this period, but Aaron and most other theorists continued to treat them as proportional. Lucidario III, 15, indicates that the reverse also happened on occasion, that the old signs of integer valor were taken proportionally. He refers to the new style of composing a note negre, using semiminimae and smaller values in preference to the larger white notes, saying such compositions are often marked, "cantarsi a breve," which is incorrect because the sign used in those pieces, C, is never sung alla breve but alla semibreve, which is the value on which the tactus should

106 Ibid., p. 192-193.

fall.¹⁰⁷

Lucidario III, 6, in discussing the difference between the value of the tactus and the relationships shown by signs of mensuration, states that 02, C2, 03, and presumably also C3, indicate that the tactus falls on the brevis.¹⁰⁸ This would imply that when the "ancients" of Toscanello I, 27 and 28¹⁰⁹ used them, the tactus in integer valor fell on the brevis, but that the moderns moved this tactus to the semibrevis and used the signs O, C, O and C to indicate the same relationships among the next smaller note values. That this is what Aaron meant is indicated by an unequivocal expression in Letter 14 of the Paris manuscript, where he chides del Lago for stating the opposite.¹¹⁰ Historically

¹⁰⁷ Luc. III, 15, f. 30r.

¹⁰⁸ Ibid., III, 8, f. 20v.

¹⁰⁹ See Table 5 above.

¹¹⁰ Paris, BN. Ms. It. 1110, f. 31r: "Dite che apresso gli antichi erano solamente questi quatro principali O C O C . Io iudico essere in contrario, perche tali segni furono inventi dapoi questi C3, 03, C2, 02, come testifica Franchino al cap viii nel libro secondo della praticcha sua, Non autem haec predictarum quantitatum signa duximus reprobanda cum apud philosophum, etc. Et piu il nostro eccellentia Messer Giovanni Spataro nel trattato suo de sesquialtera al cap. vi et piu volte troverrete che gli sopraditte quatro segni furono inventi da poi questi 03 C3 02 C2." Aaron misquotes Gafori; the passage in question reads, "Nos autem haec

this explanation cannot be supported, since the simple signs without numerals were in use in the early fourteenth century and the signs with numerals were derived from them to show dupla or tripla, probably by omitting the denominator "1" from the original sign of proportion. The signs with numerals thus were always proportional.

Comparing C2 and O2 to ϕ and \emptyset brings to light an interesting discrepancy. C and C2 both move the tactus to the brevis while all notes remain imperfect. ϕ and O2 also move the tactus to the brevis, but in ϕ the brevis remains perfect and the semibrevis imperfect while in O2 the longa becomes perfect and the brevis imperfect. Proportional signs ordinarily change only the relative speed of the notes, not their perfection or imperfection, and it seems that O2 is exceptional in this respect. Aaron and Gafori both state that in the signs O3, O2, C3, and C2 the circle or semicircle refers to modus minor and the numeral to tempus,¹¹¹

predictarum..." in the 1496 and 1512 editions of Practica. Gafori disapproves of these signs and says nothing about the ancients' using them, as noted on page¹⁴³ above. Aaron's letter appears complete in Appendix B.

¹¹¹ See Table 5 above.

and a host of theorists agreed with them in this.¹¹² The signs C2 and O2 are also generally accepted as signs of diminution, but few theorists seem to connect specifically the two ideas, as Aaron did, so as to state that the diminution of O2 also results in a change of perfection. Aaron's theory is possibly based on faulty history but it appears to fit practice nonetheless. Apel reports that O2 is most often notated with *modus minor perfectus* and *tempus imperfectum* while \emptyset is notated as *tempus perfectum* and *prolatio imperfecta*, both with the *tactus* on the *brevis*.¹¹³ His statement thus receives substantial confirmation from Aaron.

Sesquialtera was the only superparticular proportion much used in notation, since, as Aaron says, the others produce unequal divisions, i.e., major rhythmic clashes, and are thus difficult to perform.¹¹⁴ The sign for sesquialtera

¹¹² Johannes Wolf, Handbuch der Notationskunde (Leipzig, Breitkopf und Härtel, 1913-19), I, 414.

¹¹³ Op. cit., p. 154-5, 441. As Apel implies, this interpretation probably applies more to late fifteenth-century than to sixteenth-century music because the sign \emptyset then ceased to be proportional.

¹¹⁴ IH. III, 56, f. 59r: "Attamen sub talibus indicibus aequalis divisio non est, & perraro invenitur, nec facile cani ex tempore potest."

was $\frac{3}{2}$; since coloration could also replace two notes by three, it might be preferred for short passages where changing the signature twice would have been more cumbersome. A problem sometimes arises in determining to which note value sesquialtera should apply. Apel says it is properly applied to the note on which the tactus falls if this note is grouped in two's, thus to the semibrevis in tempus imperfectum or to the brevis in tempus imperfectum diminutum, and that the resulting group of three makes the next higher note perfect. In tempus perfectum, however, the semibreve is grouped in three's and sesquialtera should apply to the minima. It cannot be used at all in tempus perfectum and prolatio perfecta.¹¹⁵

Apel's rules are not substantiated by the theorists of the generation preceding Aaron. Only Spataro agrees that sesquialtera perfects an imperfect note, but his reasons are entirely different from Apel's. Tinctoris, Gafori, and Aaron all insist that a proportion changes only the relative speed, not the perfection or imperfection, of the notes to which it is applied.¹¹⁶ Aaron recommends adding a sign of

¹¹⁵ Op. cit., p. 158.

¹¹⁶ Tinctoris, Proportionale (ed. Seay), p. 44: "Proportions cannot change the nature of the quantities in which they are made; regardless whether any proportion be either

perfection to the sesquialtera if perfection is desired,¹¹⁷
 and Gafori's ninth example of sesquialtera in Practica IV,
 5, does just this. Both Tinctoris and Gafori give examples
 of sesquialtera applied to notes already grouped in three's.¹¹⁸
 Spataro's explanation of sesquialtera is based on Ramos'
 idea that the brevis was the primal unit of musical notation
 and the source of all other note values. The brevis was
 accordingly considered the tempo or tactus, the invariable

binary, or ternary, or both, or neither, always the notes
 must be computed according to their perfection or imper-
 fection in respect to the modus, tempus, and prolatio sign
 under which they fall."

Gafori, Practica IV, 5: "Si autem proportio ses-
 qualtera disposita fuerit in notulis imperfectae quantitati
 subiectis omnes tunc notulae & pausae semper erunt imper-
 fectae ut si in tempore imperfecto ascribatur."

Aaron, IH. III, 43, f. 58r: "Omnis enim propor-
 tio ad antecedentem indicem reducitur."

¹¹⁷ Tosc. II, 33: "Quando a te piace componere una
 sesqualtera doppo il segno semicircolare tagliato,
 avertirai ponere la predette sesqualtera come il presente
 $\Phi \frac{3}{2}$, nel quale ragionevolmente si troverranno le brevi
 perfette, & semibreui alterate."

¹¹⁸ Tinctoris, Proportionale (ed. Seay), Example 1;
 Gafori, Practica, IV, 5, the second example in the section
 on sesquialtera.

temporal unit, with the same value in tempus perfectum or imperfectum; the semibrevis thus had an invariable value in tempus perfectum whether prolatio was perfect or imperfect. Practice disagreed, of course, placing the tactus on the semibrevis, which was of the same duration in tempus perfectum or imperfectum. The relation between prolatio perfecta and imperfecta was also not as Spataro explained; in the earlier fifteenth century the minima in both prolatio was usually equal, while in the Ockeghem-Josquin period prolatio perfecta became a sign of augmentation with the tactus shifted to the minima.¹¹⁹ Spataro's peculiar ideas about the tactus result in an equally peculiar explanation of sesquialtera. His Tractato di musica is largely devoted, as its full title indicates, to proving the proposition that sesquialtera perfects a previously imperfect note. Assuming the invariable value of the brevis, sesquialtera of tempus imperfectum results in tempus perfectum, three semibreves taking the place of two within the fixed duration of the brevis: $C \square = O \square$, thus $C \diamond \diamond = O \diamond \diamond \diamond$. Sesquialtera of tempus perfectum with prolatio imperfecta is

¹¹⁹ Apel, op. cit., p. 163-168. Prolatio perfecta as a sign of augmentation will be discussed below.

The only other superparticular proportion Aaron discusses at any length is sesquitertia, 4:3, which he says may be shown in tempus perfectum by the sign \circ , which shows that four semibreves replace three. In tempus imperfectum, as noted above, the same sign means simply dupla.¹²¹ Apel has pointed out that this sign had such a meaning around the time of the change from black to white notation in the mid-fifteenth century but was applied one level lower, to the minim in prolatio perfecta: $\circ \overbrace{\diamond \diamond \diamond}^{\diamond} = \circ \overbrace{\diamond \diamond}^{\diamond} \overbrace{\diamond \diamond}^{\diamond}$,¹²² whereas Aaron gives: $\circ \overbrace{\diamond \diamond \diamond}^{\square} = \circ \overbrace{\diamond \diamond}^{\square} \overbrace{\diamond \diamond}^{\square}$. A more fundamental difference between the two is that Apel calls this dupla of the semibrevis, not sesquitertia of the minima, i.e., two imperfect semibreves take the place of one perfect one.

¹²¹ IH. II, 32, f. 35v: "Clari compositores in maioribus cantilenis, illas dico quas vocant in sacris modulationibus missas, semicirculo utuntur in contrarium verso, cuius duplex quidem significatio est, siquidem aliquando proportionem indicat duplam, aliquando sesquitertiam. Quod ut queas dignoscere diligenter adverte, primum quidem sub quo indice modulatio ipsa initio sui cantetur. Nam si forte in illius fronte indicem perfecti temporis ostenderis & paulopost incideris in indicem semicirculi in contrarium versi, scito haud dubie proportionem esse sesquitertiam, idest canendas esse quattuor semibreveis loco ac vice trium, sicut in doctis & veteribus cantilenis est videre."

¹²² Apel, op. cit., p. 151.

From that point of view the sign means not only dupla but specifically tempus imperfectum diminutum, since prolatio changes from perfect to imperfect. Apel says this was the most common use of proportio dupla around 1450, and there can be no doubt that dupla was the original and proper meaning of the sign, the description as sesquitertia arising later from attention to the lower note value. Apel notes Gafori's "obscure remark" disapproving of C as a sign of sesquitertia, and Gafori in turn mentions its disapproval by Tinctoris and Prosdocimus.¹²³

The connection between the practice of the fifteenth century and Aaron's explanation some fifty years later is not clear, particularly as to how the sign came to be applied at a different level. It may well have resulted from misunderstanding of an old practice no longer in use. The source of the misunderstanding may have been Spataro, since Aaron's sesquitertia of the semibrevis is also dupla of the

¹²³ Ibid., p. 152; Gafori's remarks, in Practica IV, 5, read: "Nonnulli sesquitertiam ipsam in notulis signo temporis imperfecti sinistrorsum sic verso C intellegi voluerunt quos acerrime impugnat Prosdocimus patavinus in expositione brevis extractus Ioannis de Muris Quilibet in arte practica: & Tinctoris in suo proportionum tractatu." The passages from Prosdocimus are found in CS. III, 216, and those by Tinctoris in Proportionale, p. 42.

brevis, as shown above; as has been noted, Spataro insisted on applying proportions to the brevis rather than the semi-brevis. Gafori was evidently of this opinion, as is shown in Spataro's Errori di Franchino Gaffurio in a passage in which Gafori is taken to task for opposing Aaron's use of the sign in question.¹²⁴ After the passage quoted, Spataro goes on to "prove" that $\text{C}:\text{O}$ can show 4:3 by inserting a middle term: $\text{C}:\text{C}:\text{O}$. These signs presumably stand in the relation 4:2:3, thus the outer terms are in

¹²⁴ Spataro, Errori di Franchino Gaffurio, f. 39r:
 " Da poi seguitando in tale tua Apologia son stato non poco admirato dove tu dici queste parole scilicet, Non insuper sum immemor...legitur: In super est considerandum, & non poco ho cercato tra quelle .18. epistole mie, a te misse circa li errori toi commessi in lo tuo tractato de harmonia instrumentorum; & tale proportione de sopra da te aducte non ho trovate. Ma dapo el longo cogitare mè venuto a memoria che de 1^a anno .1516. (per la tua invidia & petulatia) tra te & Petro Aron Florentino Musico doctissimo naque litigio musico, & perche Petro Aron (per sua diffessa) te demonstro multi toi errori, tu scrivesti a me, che da te era compreheso che io era quello che te respondeva, & non Petro; per tanto tu lassasti de scrivere al prelibato Petro & con meco volesti la lite. Per laquale cose (come tu sciai) tra nui acadere multe desputatione, tra laquale (perche da Petro Aron era stato posito questo signo .C). & perche lui diceva che li antiqui ponevano tale signo per signo de sesquitertia proportione) tu dicevi che lui haveva non poco errato, & (concerte tue male fondate rasone) tu dicevi che tale signo non poteva essere signo de sesquitertia comparatione...."

the relation 4:3. The proof depends on accepting that 0:C is equal to 3:2, which of course is not true.

Gafori also objected to showing dupla with the sign \circ , as is shown in Aaron's response to him in Lucidario. Gafori had protested that no authority existed for such a sign and that one should use numerals to indicate proportions. Aaron answered that even if no treatise supported him, learned composers did (he had cited Josquin in Institutione Harmonica), and that if the musician can show his intention through the signs proper to music he does not need to borrow numerals from arithmetic. Gafori had also objected that in reality the same sign was used with two different meanings, since reversed or not, it was still a semicircle. To this Aaron responded by citing similar examples mentioned by Spataro, such as the semibrevis and minima rests $\overline{\text{—}}$ $\underline{\text{—}}$, which also differ only in the direction in which they face.¹²⁵

The following chapter pursues the indication of proportions by signs rather than numerals. Aaron first attacks the proposition that the relationship C:♭ is not dupla, but a diminution resembling dupla, because only

¹²⁵ Luc. II, 12, f. 11r.

numerals can show proportions. He insists that since the effect of the bisecting line is to halve the value of every note, there is no difference between this sign and the numerals which produce the same effect, and thus both are equally dupla.¹²⁶ This much is undisputable, but when he goes on to consider the use of O:C as sesquialtera he becomes tangled with Spataro's peculiar ideas:¹²⁷

¹²⁶ Luc. II, 13, f. 12v.

¹²⁷ Ibid.: "Essi non sanno anchora, che il circolo posto in opposito del semicircolo generi la proportione Sesquialtera, di qui nasce, che solo attendono alla pratica, percioche eglino non considerano, che la Musica, la quale consiste nella sonora quantita, dee havere un principio invariabile della sua valuta, Et si come il Geometra divide la istessa forma, o figure in piu modi, rimanendo essa invariabile, cosi il Musico, come colui come s'è detto, che tratta della sonora quantita, dee havere uno invariabile principio, ilquale dalli inventori di quest'arte fu chiamato Tempo, il quale molte volte insieme raccolto produce quello che dal Musico è chiamato Modo, come in piu luoghi l'eccellente, & dotto Musico messer Gioan Spadaro nel suo trattato della perfettione dalla Sesqualtera prodotta conferma, Et perche da loro è detto, che il circolo, & il semicircolo dimostrano solamente le loro quantita del numero ternario, & del binario delle semibrevi, et non (f. 13r) diminuito, ne accrescimento proportionevole, diciamo, che questo è falso, percioche se il Musico puo dividere il suo tempo in parte minute, & con esso produrre le parte terze, & le mezze, le quali siano uguali tra loro senza togliere da altrui quello, onde possa esprimere la sua intentione, non veggiamo, perche di ciò ne debba nascere contrarieta alcuna. Queste considerations erano osservate da gli antichi, per le quali da loro fu costituito tanta varietà di segni per dividere il tempo imperoche ciascun segno assegna non solamente al tempo varia divisione, ma

...They [those who hold the mistaken opinion about C:Ø] still do not understand that the circle placed against the semicircle generates the sesquialtera proportion. This results because they attend to practice only, since they do not take into consideration that music, which consists of sonorous quantity, should have an invariable principle of value. Just as geometry divides the same shape or figure in various ways and the shape remains invariable, similarly the musician who treats of sonorous quantity should have an invariable standard, which the inventors of the art called tempo. Taken several times together it produces what is called modus in music, as the excellent and learned musician Giovanni Spataro confirms in several places in his treatise on the perfection produced by the sesquialtera. Still they say that the circle and semicircle show only

etiandio varia pronontiatione, & per conseguente aumentatione, diminutione, & proportione tra loro comparati, Alla qual cosa essi erano contrarii, perche dicevano, che nel canto figurato le semibreui di questo segno .0. sono cantate ugualmente colle semibreui di questo segno .C. A che rispondiamo, che gliè la verita, pero il buon Musico non dee dannare l'arte, per compiacere alla semplice essercitatione, percioche egli puo bene scrivendo in Musica servare alla Theorica la propieta, & tutto quello che è suo senza derogare in cosa veruna alla prattica, & per tal modo il detto potra sodisfare all'una, & all'altra, & quello, che a ciascuna di esse si conviene loro conservare, onde per le ragioni addotte, gli antichi & dotti Musici sesquialteravano le note de questo segno .0. comparate al seguente .C. perche per un tempo di questo .C. pronontiarono due semibreui, & sotto questo .0. ne passavano tre, la qual cosa è impossibile, volendo procedere per vie ragionevoli, che altrimenti sia considerata, non ostante che dannoi sia stato in contrario osservato al cap .38. del primo libro del nostro Toscanello, non ad altro fine, che per osservare quello, che molti innanti noi hanno usato."

their quantities of ternary and binary number of semibreves and no proportional diminution nor augmentation. We say that this is false, because if the musician can divide his tempo into small parts and produce thirds or halves of it, which may be equal among themselves without taking from someone else the means to express his intention, we do not see why any contradiction should arise from this. These considerations were observed by the ancients, by whom such a variety of signs was devised to divide the tempo that each sign showed not only the varied division of tempo but also varied performance, and consequently augmentation, diminution, and proportion when compared among themselves. These others were contrary to this when they said that in counterpoint the semibreves of this sign .0. were sung equally with the semibreves of this sign .C. We answer that this is true, but the good musician should not condemn the art in order to comply with simple practice, because he can very well observe the proprieties of theory when writing and all that goes with them, without derogating anything pertaining to practice; thus one may satisfy the one and the other in whatever concerns them. Thus for the reasons given, the ancient learned musicians sesquialtered the notes of this sign .0. compared to the following .C. because two semibreves were sung in a tempo of this .C. and three under this .0. If one proceeds by rational means, it is impossible to consider the matter otherwise, notwithstanding that we stated the contrary in chapter 38 of the first book of our Toscanello, but only to show what many before us had done.

In brief, Aaron supports Spataro's notion of the primacy of the brevis on theoretical grounds, though he realizes that it is not applicable in practice. This curious ambivalence

is quite uncharacteristic of Aaron's writing as a whole; the opaqueness of the style is approached elsewhere, but hardly in such an acute form.

Lucidario III, 9, discusses two common errors in performing a passage in sesquialtera following an original mensuration of ϕ , both stemming from improper placement of the tactus. The first arises from treating ϕ as a sign of integer valor with the tactus on the semibreve. In the sesquialtera three semibreves are then sung in the space formerly filled by one, changing the tactus from the semibrevis to the brevis, with tripla rather than sesquialtera resulting: $\phi \begin{array}{c} \square \\ \diamond \diamond \end{array} = \frac{3}{2} \begin{array}{c} \square \square \square \\ \diamond \diamond \diamond \diamond \diamond \diamond \end{array}$. Even if one denied proportional significance to the original sign ϕ , the tactus should not be shifted to a different note by a proportional sign. The second error comes from misapplying sesquialtera in the opposite direction, singing three minimae of 3:2 in the space of one brevis of ϕ , thus producing subsequentertia (3:4) rather than sesquialtera: $\phi \begin{array}{c} \square \\ \diamond \diamond \diamond \end{array} = \frac{3}{2} \begin{array}{c} \diamond \diamond \diamond \\ \diamond \diamond \diamond \end{array}$. The correct relationship is six minimae of 3:2 equal one brevis of ϕ .¹²⁸

¹²⁸ Ibid., III, 9, f. 25r.

The relation of two signs of mensuration to each other, that is, the question of which notes are equal when different voices or successive sections of the same part have different signs of mensuration, is discussed in full in Institutione Harmonica II, 32, and Toscanello I, 38. In both he lists several pairs of signs and states the relation between them, most often in terms of the note equivalent to the tactus. The list in Toscanello may be condensed as follows:

Ⓒ:⓪, the tactus is the same in both.

⓪:⓪, M = S.

⓪:C, M = S.

⓪:ϙ, M = B.

⓪:⓪2, M = B.

Ⓒ:⓪ or Ⓒ:C, M = S.

⓪:C, the tactus is the same in both.

⓪:ϙ, S = two S.

⓪:ϙ2, S = four S.

ϙ:ϙ2, S = two S.

⓪:ϙ, S = B.

⓪:ϙ2, S = L.

C:ϙ, S = B.

C:ϙ2, S = L.

ϙ:ϙ2, B = two B.

C2:♭, equal.

♭:♭, some composers show two S = S.

♭:0, some composers show two B = three S.

Everything in this list has been discussed previously except the use of the two signs of prolatio perfecta to show augmentation. This practice arose during the fifteenth century and by the time of Ockeghem and Josquin was quite commonplace.¹²⁹ The earliest theoretical mention of the practice seems to have been by Ramos in 1482; Tinctoris does not mention it and Gafori disapproves of it in his marginal notes in Ramos' treatise, saying such an augmentation should be shown by a proportion.¹³⁰ Apel summarizes Tinctoris's discussions of the problem and points out that no evaluation advanced by Tinctoris coincided with augmentation; both Tinctoris and Gafori preferred that in the relationships 0:0 or C:C the minimae should be equal.¹³¹ Although Ramos reports the new evaluation, Spataro considers it and the

¹²⁹ Apel, op. cit., p. 163-168.

¹³⁰ Ramos, Practica, p. 84.

¹³¹ Apel, op. cit., p. 164-6. Several examples in Gafori's Practica show this equation, such as the first three in II, 11.

version of Gafori to be equally corrupt, insisting stubbornly on the equal value of the brevis in all mensurations. This of course results in the equal value of the minima between 0 and C, both of which have six minimae to the brevis, but it does not occur in other combinations.¹³² Aaron followed Ramos quite closely, even to the point of repeating with acknowledgement, some of Ramos' explanations, as Wolf has pointed out,¹³³

In his discussion immediately following the above list in Toscanello I, 38, Aaron attacks the idea that the minimae are equal in the two prolations. He first notes that some are puzzled by the fact that a minima in 0 equals a semibrevis in 0, because since 0 and C differ only in the brevis, why should 0 and 0 differ except in the semibrevis; that is, why shouldn't their minimae be equal by analogy to the equal

¹³² Because of this coincidence between the old rule of equal minimae and the theory of Spataro, the latter attacks Gafori and Tinctoris for misinterpreting a passage in Dufay's Missa Sancti Antonii Viennensis in which the discantus has the sign 0 followed by C. Gafori and Tinctoris cite it as an example of the old rule, while Spataro condemns them both for missing the point, in his Tractato di Musica, Chapter 16.

¹³³ Ramos, Practica, p. 84.

semibreves in the two tempi? They find even more confusing the fact that the semibrevis in C equals two semibreves in C while the minima of C equals the brevis of C . Aaron says that Josquin and Obrecht did not put the tactus on the minima in C and C arbitrarily, but only followed their predecessors Ockeghem, Busnois, and Dufay in this, as Ramos pointed out. Ramos said this was proper because the tactus could appear on either a multiple or a fraction of the primal value, the brevis; the ancients put it on the brevis or longa and even the maxima, while the moderns put it on the semibrevis or minima as well as on the brevis.¹³⁴

Aaron then returns to the original problem and says that if the minima was equal in all four mensural signs, then four signs would be superfluous, since C could express them all. Thus he believes that Ramos was correct in saying that the semibrevis was formerly equal in all four signs, that in prolatio perfecta it was divided into thirds and in prolatio imperfecta into halves, and that the brevis contained two or three tactus depending on the tempus. But both he and Ramos agree that current practice does not follow this evaluation. He then gives an explanation for the

134 Ibid.

shift of the tactus to the minim, saying that the ancients were fond of prolatio perfecta, which was called singing per maggiore, frequently using it for counterpoint above a plainsong in the chapels of the signori, and that almost all of their music was written in this prolation. For this reason, he says, Busnois composed the song "L'Homme armé" in prolatio perfecta, and when he wanted to use it for the tenor of a mass, because the song was so short he transferred the tactus to the minim so as to prolong the tenor melody and thereby obtain more space in which to work without changing the sign. Learned musicians such as Busnois and Ockeghem are not to be condemned for such an innovation, nor are Obrecht and Josquin for following them. The tactus in prolatio perfecta therefore was moved to the minima, and no trained musician has ever placed it on the semibrevis. The only exception is when all parts have prolatio perfecta, in which case the tactus is on the semibrevis, as in the Credo of Ockeghem's Missa L'Homme Armé.

Aaron's account is another indication that composers were now considered lawgivers of equal stature with theorists and that music as an art had more nearly equal intellectual status with music as a science. It does not stand up well as history, of course; Apel has found examples of prolatio

perfecta as augmentation from around 1400, well before Busnois' time.¹³⁵ It is also questionable that Busnois composed the "L'Homme armé" melody, since it appeared in a setting in the Mellon Chansonnier "in a style that places its anonymous composer in the generation of Dufay and Binchois."¹³⁶ Reese notes that the fame of Busnois' Missa L'Homme armé may be the cause of Aaron's ascription of the melody.¹³⁷

At the end of Toscanello's discussion of proportions, Aaron gives two examples embodying his teaching on the subject, which are reproduced and transcribed below. Neither presents any striking problems of transcription. The first keeps integer valor in the cantus throughout while the tenor makes frequent proportional shifts whose cumulative effect may be represented as follows, beginning in the relation 2:1 to the cantus: 1:2, 2:1, 3:2, 1:3, 4:1, 1:4, ending in

¹³⁵ Op. cit., p. 164.

¹³⁶ Reese, MR., p. 73, where other studies of the source of the melody are cited, none of which offers a conclusive solution.

¹³⁷ Ibid.

integer valor. The second example is slightly more complicated, with both parts having proportions. The signs in the cantus begin in tempus imperfectum diminutum and thereafter mean 3:2, 2:3 (with tempus becoming perfect), 1:2, 2:1 of the brevis. The tenor also starts in tempus imperfectum diminutum, followed by 3:2, 1:3 of the semi-brevis, 3:2, 2:3, 4:3, 2:1.

Musical score for Cantus and Tenor parts. The Cantus part is written on a single staff with a treble clef and a common time signature (C). The Tenor part is written on a single staff with a bass clef and a common time signature (C). The Tenor part includes a double bar line and a change to a 2/4 time signature.

First system of piano accompaniment. The right hand is in treble clef and the left hand is in bass clef, both in common time (C). The music consists of chords and moving lines.

Second system of piano accompaniment. The right hand is in treble clef and the left hand is in bass clef, both in common time (C). The left hand features triplet figures in the bass line.

Third system of piano accompaniment. The right hand is in treble clef and the left hand is in bass clef, both in common time (C). The music continues with chords and moving lines.

The musical score is arranged in three systems. The first system contains the vocal parts: *Cantus* (Soprano) and *Tenor*. The *Cantus* part is in treble clef with a key signature of one sharp (F#) and a 3/2 time signature. The *Tenor* part is in bass clef with the same key signature and time signature. The second system shows the piano accompaniment in grand staff (treble and bass clefs), featuring triplet patterns in both hands. The third system continues the piano accompaniment, with a 2/2 time signature and a 4-measure phrase in the bass line marked with a '4' over a slur.

CHAPTER IV

THE MODES

Pietro Aaron's Trattato della natura et cognitione di tutti gli tuoni di canto figurato non da altrui piu scritti is, thanks to the inclusion of its most important chapters in Strunk's Source Readings, one of his best known as well as most important works. As the title indicates, it is an early attempt, probably the first, to explain the use of the modes in polyphonic music.¹ The attempt was not entirely successful, but for reasons which Aaron could not have avoided. His approach was essentially linear, equating the mode of the tenor with that of the entire composition; thus he paid no attention to harmony, which increasingly was a factor in the tonality of the music of his period. Since chords were only then beginning to be recognized by theorists, among them Aaron

¹ Although Aaron always refers to them as tuoni, the present study will use the term "modes" to avoid confusion with other senses of the word "tone."

himself, this oversight is hardly blameworthy. Another fundamental defect was Aaron's failure to recognize that practice had expanded the traditional system of church modes through the use of the scales subsequently named Ionian and Aeolian by Glareanus. Theory had traditionally considered them variants of the other modes, a notion which Aaron did not question; he thereby was unable to come to terms with a number of the compositions cited in Trattato as examples of one or another mode. Apart from these basic limitations, lesser flaws in Aaron's work result from misapplications of his own categories. His major shortcomings are thus apparent largely in retrospect and do not detract seriously from the value of his pioneering efforts, indeed they were almost inevitable considering the remoteness of theory from practice in this area at his time.

Since Aaron determined mode in the tenor by the same criteria which determine mode in chant, the latter must be examined first. Institutione Harmonica I, 26-35, contains his most extensive explanation of the modes in chant; the same material appears condensed in Compendiolo I, 34-50. Toscanello is concerned only with polyphonic music and says little about the modes, since Aaron had already planned to

issue Trattato when Toscanello was published.² A few chapters in Lucidario discuss the modes, some of them in commentary on the Lucidarium of Marchetto of Padua. The British Museum manuscript, "Delli principij de tuti li tono (sic) secondo mi pietro aron," gives only the beginning notes for each mode, which are relatively unimportant. Aaron's correspondence says little about the modes, since he and Spataro were not corresponding when Trattato was published. When their friendship resumed, only the last chapters of Trattato figured in the letters, and their subject is accidentals, not the modes.

Theory for five hundred years before Aaron had defined the modes in terms of the final, the note comparable to a tonic on which a chant was expected to end, and the range that the melody encompassed above or below the final. Aaron's own description is quite typical: "This we say first, that the tones are a certain norm of singing that is recognized in the end by ascent and descent."³ The four

² Tosc. II, 7, refers to Trattato as already written: "...come nel trattato nostro de gli tuoni habbiamo dimostrato."

³ IH. I, 26, f. 14v: "Illud prius dicemus, tonos... esse quandam canendi normam, quae in fine per ascensum atque descensum cognoscitur."

notes d, e, f, and g⁴ were the normal finals for the eight modes, two modes, an authentic and a plagal, sharing each final. The range of each mode was an octave, customarily described as the combination of a fifth and a fourth rather than a simple octave. Fifths and fourths were distinguished into species according to the order of tones and semitones they contained:

- 1st species of 5th: T S T T, d e f g a
- 2nd species of 5th: S T T T, e f g a b
- 3rd species of 5th: T T T S, f g a b c'
- 4th species of 5th: T T S T, g a b c' d'
- 1st species of 4th: T S T, A B c d
- 2nd species of 4th: S T T, B c d e
- 3rd species of 4th: T T S, c d e f

Each authentic and plagal pair of modes shared the same species of fifth and fourth as well as the same final but differed in the position of the fourth, which lay above the fifth in the authentic modes and below it in the plagal.

The complete system of eight modes was as follows:⁵

⁴ The modern system of pitch designation is used throughout rather than the Guidonian or Greek nomenclature used by Aaron.

⁵ Aaron's description is found in IH. I, 26, f. 14v-15r.

1st mode:	$\overbrace{d \ e \ f \ g}^{1 \text{ sp}} \overbrace{a \ b \ c' \ d'}^{1 \text{ sp}}$	} Final d
2nd mode:	$\overbrace{A \ B \ c \ d}^{1 \text{ sp}} \overbrace{e \ f \ g \ a}^{1 \text{ sp}}$	
3rd mode:	$\overbrace{e \ f \ g \ a \ b}^{2 \text{ sp}} \overbrace{c' \ d' \ e'}^{2 \text{ sp}}$	} Final e
4th mode:	$\overbrace{B \ c \ d \ e}^{2 \text{ sp}} \overbrace{f \ g \ a \ b}^{2 \text{ sp}}$	
5th mode:	$\overbrace{f \ g \ a \ b \ c' \ d' \ e' \ f'}^{3 \text{ sp}}$	} Final f
6th mode:	$\overbrace{c \ d \ e \ f \ g \ a \ b \ c'}^{3 \text{ sp}}$	
7th mode:	$\overbrace{g \ a \ b \ c' \ d' \ e' \ f' \ g'}^{4 \text{ sp}} \overbrace{g'}^{1 \text{ sp}}$	} Final g
8th mode:	$\overbrace{d \ e \ f \ g \ a \ b \ c' \ d'}^{1 \text{ sp}}$	

Medieval and Renaissance theory preferred to speak of the modes in terms of species of fourths and fifths rather than the seven species of octaves, the latter being more characteristic of ancient Greek theory.⁶

Aaron and most other theorists since the tenth century generally referred to the modes by number as shown above.

⁶ Klaus Wolfgang Niemöller, "Zur Tonus-Lehre der italienischen Musiktheorie des ausgehenden Mittelalters," Kirchenmusikalisches Jahrbuch, XL (1956), 27.

An older terminology used Greek numerals to denote the four maneriae, the pairs of authentic and plagal modes which shared a common final: protus authenticus and plagalis, deuterus authenticus and plagalis, tritus authenticus and plagalis, and tetrardus authenticus and plagalis.⁷ This terminology is perhaps responsible for the notion appearing in several theoretical works that the ancients had only four modes which because of their excessive range were divided each into an authentic and plagal, thus providing the eight tones of conventional theory.⁸ Aaron and Tinctoris ascribe the division to St. Gregory, but there is no historical basis for assuming any division, since accounts of the modes list eight from the beginning,⁹ and the oldest Gregorian melodies predate theoretical codification.¹⁰ Another system

⁷ The spelling of these terms varies among theorists; Aaron and his contemporaries use them as given here. Protus, deuterus, tritus, and tetrardus will be used hereafter to refer to the maneriae.

⁸ Aaron, IH. I, 26, f. 14v; Gafori, Practica I, 7; Tinctoris, CS. IV, 19; Marchetto, GS. III, 101.

⁹ Frederick S. Andrews, "Medieval Modal Theory," unpublished dissertation (Cornell, 1935), p. 25.

¹⁰ Willi Apel, Gregorian Chant (Bloomington, Indiana, 1958), p. 134.

of nomenclature used four names taken from ancient Greek scales, Dorian, Phrygian, Lydian, and Mixolydian, for the four authentic modes; the plagals were denoted by the addition of the prefix "hypo." The names stem from an apparently erroneous attempt to show Greek origin of the church modes and were seldom used by medieval theorists, by Aaron not at all.

Since not every chant in the repertory has a range of exactly one octave, theorists had to formulate some method of assigning such melodies to a mode. Aaron's handling of this problem is essentially identical to that of many of his immediate predecessors; he is one of the last of a group of Italian theorists whose explanations of chants with irregular ranges used common terminology and concepts, differing significantly in one or another respect from formulations of the modes originating elsewhere in Europe. The earliest writer in this tradition is Marchetto of Padua, and it also includes Ugolino of Orvieto, Johannes Carthusiensis, Nicolao Burtio, Tinctoris, Gafori, and Bonaventura de Brixia.¹¹ Aaron's presentation follows

¹¹ Niemöller, op. cit., first called attention to this group. His account did not mention Ugolino, who plainly belongs to the group.

Bonaventura in ordering his material and derives one unique term from Gafori, but otherwise cannot be said to lean to any one of his predecessors more than another.¹²

If a melody filled the modal octave precisely, the Italian theorists said its mode was "perfect." Most of them considered that a perfect authentic mode could descend to the note below its final and a perfect plagal could ascend to the sixth above it, but individual variations are to be found. Tinctoris allowed the perfect modes to descend or ascend respectively one note further, to the third below or to the seventh above the final.¹³ Marchetto held that the extra note in each case was obligatory, not optional as his successors generally stated.¹⁴ Aaron specifically opposes Marchetto, insisting that the added notes are optional, that the octave defines perfection and anything more is superabundance.¹⁵ He also states that Marchetto

¹² Ibid., p. 26, says that Aaron derived the term chorda from Bonaventura. As will be shown below, several other treatises also mention it.

¹³ CS. IV, 27-28.

¹⁴ GS. III, 101-102.

¹⁵ Luc. I, 6.

required the note below the final to be the distance of a whole tone, not a semitone lower, and therefore finds that in insisting on the subfinal as a condition of perfection in a mode Marchetto allowed no perfection in the fifth mode, since its subfinal is a semitone, not a whole tone, below the final. The sixth mode on the other hand could be perfect by rising to the sixth above the final and failed to be subordinate to the fifth as befitted the authentic-plagal relationship, because it achieved a perfection unattainable by the fifth mode. Aaron perhaps reads too much into Marchetto's statement, at least as it appears in Gerbert's edition. Marchetto did not care for the semitone below the final, an attitude that had a long history before him, but he does not seem to exclude this note from the fifth mode as Aaron said.¹⁶

An imperfect mode failed to fill its full octave,

¹⁶ GS. III, 101: "Tonus perfectus dicitur ille, qui implet modum suum supra & infra; implere enim modum suum in authenticis est, a suo fine ad diapason ascendere & non ultra, & ab eodem fine descendere unum tonum, excepto trito, qui semitonium habet a fine, de quo in speciali regulam ostendemus;" ibid., 112: "Sed notandum est, quod quintus tonus rarissime descendit infra suum finem, eo quod ab infra non habet tonum sed semitonium, sed si descendit, potest ad D grave, ut dictum est, attingere."

while a more-than-perfect (plusquamperfectus) mode exceeded an octave. Aaron's description, like those of most of his colleagues, says little more than this, agreeing with Gafori that the more-than-perfect modes are better termed "superfluous" since an excess beyond perfection is logically absurd.¹⁷ Tinctoris with characteristic thoroughness had explained these concepts in much more detail. He showed that a mode may be imperfect at either end of its range, but more-than-perfect only above if authentic, only below if plagal, since if an authentic extends into the plagal range or vice versa it is a mixed mode (tonus mixtus), not more-than-perfect.¹⁸ Aaron says that toni mixti have the range of the perfect authentic modes and extend two to four notes into the plagal range, i.e., beyond the optional added note of the perfect authentic. If the complete ranges of both authentic and plagal are included or if neither is completely represented, the tessitura of the chant, the predominance of authentic or plagal range, will determine

¹⁷ IH. I, 27, f. 15v; Gafori, Practica I, 8. Niemöller mentions this dependence, op. cit., p. 26.

¹⁸ CS. IV, 30-36.

the choice between the two.¹⁹ Aaron's descriptions are essentially identical with those of the other Italian writers, the difference among them arising from varied conceptions of a perfect mode. Tinctoris was as usual extremely detailed, explaining the various permutations and combinations of perfection, imperfection, excess perfection and mixture at either or both ends of the modal octave. The others, including Aaron, seem to imply what he spelled out fully.

One group of chants of limited range presented a special problem to modal theory, those whose range was entirely confined within the fifth or sixth common to the authentic and plagal modes of a maneria. This situation arose more often in relatively short chants, notably in the antiphons, which are precisely the chants which require unequivocal modal assignment because their mode determines that of the psalm tone with which they are associated. Aaron's solution of this problem is the chorda, the note a third above the final, which is to be used as a line of demarcation. If more notes are found above it than below,

¹⁹ IH. I, 28, f. 15v.

the chant is authentic; if more are found below, it is plagal; the chorda itself is not to be counted.²⁰ Niemöller has pointed out that Bonaventura described the same device and seems to assume that it was a unique concept which Aaron took directly from him.²¹ This is not the case; Marchetto,²² Gafori, and Tinctoris gave essentially the same description and term for the device. Gafori called the four notes chordae judiciales, Tinctoris simply cordae, but both disapproved of their use because in practice some chants are assigned differently. They preferred to judge by whether the fifth or fourth above the final is emphasized in the course of the melody; if the former, it is authentic; if the latter, it is plagal.²³ As will be shown below, Aaron also states this notion. Andrews found another description of the chorda under the guise of claves discretivae, in the Summa Musice attributed by Gerbert to Jean de Muris.²⁴

²⁰ IH. I, 29, f. 16r. The previous chapter had stated that the chorda could also be used for toni mixti whose assignment would otherwise be unclear.

²¹ Niemöller, op. cit., p. 26.

²² GS III, 118.

²³ Gafori, Practica I, 15; Tinctoris, CS. IV, 33.

²⁴ Andrews, op. cit., p. 110; GS. III, 225-6. Besseler, "Studien zur Musik des Mittelalters," Archiv für Musikwissenschaft, VIII (1926), 207, questions the authorship of Muris because of the Summa's dissimilarity to the style of Muris's known works.

This description tallies precisely with those already mentioned. It is not known whether this treatise is of Italian origin (Gerbert printed it after a Paris manuscript), so it may be that the chorda was known outside of Italy. It was plainly common currency when Aaron wrote.

A particularly interesting concept presented by the Italian theorists is that of modus commixtus, in which a melody during its course outlines or emphasizes intervals, mainly fourths and fifths, which are characteristic of modes other than the melody's own complementary plagal or authentic. As an example Aaron mentions the possibility of a melody in first mode according to its range and final which during its course has the progressions ut-sol and fa-fa (i.e., g-d and f-c, as leaps or stepwise), the third and fourth species of fifth respectively; such a melody would be called first mode commixtus with fifth and seventh, to which these two fifths belong.²⁵ The other Italian theorists gave similar descriptions, and Tinctoris gave helpful examples as well.²⁶ It is interesting that the theorists

²⁵ IH I, 28, f. 15v.

²⁶ CS IV, 24-25.

were aware of what today strikes some as a defect in the traditional theory of the modes, that categorization by range and final alone ignores structure within the melodies; some melodies will appear to proceed regularly in a certain mode but conclude unexpectedly on the final of another mode.²⁷ Since a decision had to be made about modal assignment, the relatively simple rule of final and range ultimately prevailed, but the Italian theorists were sufficiently observant that they extended the traditional system to account for facts which it did not originally consider.²⁸

Aaron discusses problems of range further in Lucidario where he takes exception to a passage in Marchetto's Lucidarium which had stated that it is incorrect to judge the mode only by ascent, descent, and final. Marchetto gave three reasons, the first of which is that some short chants do not fill their full range, the second that a chant with the full plagal range and imperfect authentic range may still

²⁷ Apel, Gregorian Chant, p. 142, remarks that "tonal instability" of this sort is particularly characteristic of the deuterus.

²⁸ It may be urged to the contrary that Marchetto was the only original thinker in the group and that the others only repeated him mechanically; divergences from his ideas do exist in other respects though.

be authentic, and the third that one might add a final note, d, to a chant that is otherwise formed of the species proper to the third mode without thereby changing the mode from third to first, because otherwise "the added tone would have more power in the formation of tones than the beginning, distinctions (cadences), and species of the same, which is erroneous and false."²⁹ Aaron attacks this third reason vigorously for the suggestion that a mode can end on other than its own final (or confinal) and points out that Marchetto would by such an analysis eliminate any necessity for toni commixti, which Marchetto had described only in his previous chapter.³⁰ Marchetto's great fault was, in other words, that he abandoned the absolute rule that the final determines modal assignment. A change of final, according to Aaron, had to result in a change of mode, an attitude which is fully in accord with tradition.

Toni commixti presented no great problem to modal theory, though their anomalies may strike the ear strongly. The more

²⁹ GS. III, 103: "...tonus additus infra plus haberet de potestate formationis tonorum, quam principia, distinctiones & species ipsorum, quod erroneum est & falsum."

³⁰ Luc. I, 4.

difficult problems of modal assignment lay in choosing between authentic and plagal of the same maneria. Besides the criteria given above, Aaron mentions one more factor, emphasis on the fifth above the final, which can change a chant from plagal to authentic although the range suggests the former. His first example, the Responsory Sint lumbi vestri praecincti, was mentioned in the same connection by many of his predecessors, including Marchetto, Ugolino, Tinctoris, and Bonaventura.³¹ All agree that this responsory, which makes the full plagal descent to A but which ascends to c' only once and to b or b-flat several times, is in the first mode, not second, because of the strong emphasis on the fifth d-a in several of its phrases. It is rather fortunate that other writers than Aaron discuss this chant, since his own explanation, using the unexplained terms "conjunct" and "disjunct" fifths, is far from clear.³²

³¹ Marchetto, GS. III, 103 and 117; Ugolino, Declaratio I, 134 (ed. Seay, I, 190); Tinctoris, CS. IV, 29; Bonaventura, Chapter 34. Tinctoris merely cited the opinion of "others" without indicating his own approval or disapproval.

³² IH. I, 31, f. 16v: "Duo diapente forma inter se differentes inveniuntur, quorum alterum coniunctum dicitur, disiunctum alterum, de quibus maxima praecipue in modulationibus ecclesiasticis differentia nascitur. Nam ubi diapente coniunctum inveniatur, tantam quidem vim habet ut aliquando cogat tonum suam mutare naturam, sicut in responso Sint lumbi vestri praecincti & in responso duo seraphim. Nam iuxta tradita praecepta secundus est tonus, vi tamen diapente coniunctorum toni proprietates mutatur quia de plagali fit authenticus, sicut illius principium indicat."

EXAMPLE 2 - Responsory, "Sint lumbi," Processionale Monasticum (Solesmes, Typographeus S. Petri, 1893), p. 228

Sint lumbi vestri prae- cincti & lu-
 cer- nae ar-dentes in manibus vestris:
 Et vos si-miles ho-mi-ni-bus ex-spe-ctan-
 ti- bus do- minum su-
 um, quando re-ver-ta- tur a
 nu-
 pti- is. / Vi-gi-la-te er-go qui-a nes-ci-tis
 qua ho-ra do-mi-nus ve-ster venturus sit *Et vos
 Glo-ri-a Pa-tri et Fi-li- o & Spi-ri- tu- i
 Sancto. *Et vos

Lucidario I, 7, poses a limit to melodic contour as a factor in determining mode. Aaron comments on Marchetto's statement that a chant with its final on d and touching B below once or twice is in first mode, but if B is touched three times, it is in second mode. The upper range is to c' in all three examples.³³

EXAMPLE 3 - Lucidario I, 7



Marchetto's procedure consisted of totalling the divergence beyond the upper limit of the plagal and the lower limit of the authentic, the greater divergence determining the mode. In all three examples the single c' is a tone above b-flat, which Marchetto called the upper limit of the second mode, while B is a minor semitone below c, the lower limit of the

³³ The examples are given as they appear in Luc.; those in GS. III, 118-119, seem to be corrupt.

first mode. Striking B once or twice thus produces a total divergence of one or two minor semitones below the authentic, which is in sum a smaller quantity than the tone b-flat to c', the divergence above the plagal, but striking B three times gives three minor semitones, more than a tone, therefore the first two examples are in first mode, the third example in second mode. Aaron objects to calculating in this manner, preferring simply to consider the total range, which here is imperfect in both directions by equal amounts, thereby calling for judgment by the chorda. By this criterion all three examples are in second mode mixtus since more notes are found below than above the chorda.³⁴

After all these provisions for any contingency it may seem surprising that Aaron finally confessed that there are some melodies which cannot be judged by all his elaborate apparatus. These he called euphoniaci, "of good sonority," indicating that they do not show the octave, fifth, or fourth characteristic of some mode.³⁵ His explanation is

³⁴ Luc. I, 7.

³⁵ IH. I, 30, f. 16r: "In ecclesiasticis modulationibus quaedam reperiuntur antiphonae in quibus si rectam sequi tonorum diffinitionem volumus, tonus non dignoscitur. Quare necesse est eiusmodi compositiones aliquam ostendere

clarified by his pupil, Illuminato Aiguino, who says that Aaron referred to chants with a range of a third or less, which since they fail to show at least the fourth characteristic of some mode cannot be considered to be in a mode at all.³⁶ It would seem that Aaron had in mind such chants as the tones for lessons and prayers, which have never been assigned to a mode,³⁷ but his description hardly makes this

ascensus, atque descensus sui diapason particulam, quae sane si quantitas non inveniatur, talis modulatio nulli tono poterit applicari; ratio est quod diapason, diapente, ac diatessaron praedictorum tonorum partes sunt; propter quod non apparebit cui tono debeat adscribi. Talis ergo modulatio euphoniaca nuncupabitur, id est, bona sonoritas. FLAMINIUS. Vere quidem dicis. Siquidem Eu graece bonum, phoni autem vox dant. AARON. Cave igitur ne in talibus modulationibus secundum antedictam legem iudices."

³⁶ Il Tesoro Illuminato di tutti i tuoni di canto figurato (Venice, G. Varisco, 1581), I, 32, f. 11v: "Ancora uno Canto fermo, che fosse posto in uno concento, & che di estremo à estremo del canto fermo non passerà una Terza, sia poi maggiore, overo minore, dico che per esso canto fermo non debbe essere giudicato il Tuono, per ilche esso canto fermo non sarà Tuono, perch' à lui manca la specie maggiore, & minore, cioè Diapente, & Diatesseron; dil che ogni Tuono almeno vuol' essere composto d'una Quarta, ò vuoi dire Diatesseron minore, & mancando esso canto fermo della Quarta minore, overo Diatesseron minore, adunque seguitarà che non sarà Tuono; ma ben sarà chiamato esso canto fermo, buona sonorità, & questo afferma il mio irrefragibile Maestro Don Pietro Aron nel libro primo d'Institutione harmonica al cap. 30."

³⁷ Apel, Gregorian Chant, p. 208.

clear.³⁸

The discussion of the gamut in Chapter II above noted the co-existence of b-natural and b-flat in the medieval tone system, and b-flat also figured in the system of church modes. It is mentioned by all but the earliest theorists and found in all but the earliest practical sources, and there is every reason to believe it was used before it was either reported or notated.³⁹ In Gregorian chant the flat appeared only on b, never on B, while b' is outside the normal range of the chant. It was used most often in alternation with b-natural during the course of a chant, occurring relatively rarely throughout a single chant.⁴⁰ B-flat seems

³⁸ Lowinsky, Tonality and Atonality in Sixteenth-century Music (Berkeley and Los Angeles, University of California, 1961), p. 34, suggests that Aaron referred by this term to melodies in the Ionian mode, the octave c-c' with final c, but Aiguino's testimony seems to eliminate this possibility. Chant or polyphony using this octave species most often appeared transposed to F with a constant B-flat and were considered by theory to be in fifth or sixth mode centuries before Aaron (ibid., p. 37), and Aaron followed tradition on that point. This further indicates that canti euphoniaci did not refer to Ionian melodies, for which Aaron had a different explanation.

³⁹ Apel, Gregorian Chant, p. 152-153.

⁴⁰ The two B's never occurred in immediate succession, since the interval between them, a major semitone, was considered unsingable. (Andrews, op. cit., p. 73)

to have been used primarily to avoid a tritone or in preference to b-natural when b occurred at the peak of a melodic phrase, thus anticipating two of the principal reasons for the use of musica ficta in polyphony. The tritone f-b was especially likely to occur in the vicinity of a cadence descending to f, therefore the maneria with its final on f made considerable use of b-flat, to the extent that a few chants use it throughout.⁴¹ Internal cadences on f also seem to account for its use in the third, fourth, and eighth modes, while the first and second modes use it mainly because of phrases with a peak on b.⁴² The other major reason for using b-flat was transposition, which will be discussed further below.

The change of b to b-flat in the untransposed modes was invariably explained by the theorists as owing to the necessity of avoiding a tritone,⁴³ and was always considered to be a temporary inflection of the mode, never a complete

⁴¹ Apel, op. cit., p. 155, says the number of such chants is negligible and that they are probably relatively late or owe their B-flats to modern editors.

⁴² Ibid., p. 156-157.

⁴³ Andrews, op. cit., p. 74.

change in its construction, even when the flat was used throughout a chant. In effect the theorists allowed two forms of each mode, one with b-flat, one without, although the former was not given equal theoretical status to the latter. Gafori and Aaron do not mention b-flat at all in discussing the modes in chant, but only as it appears in the gamut and hexachord system and in counterpoint. Many other theorists did note its use in chant, indicating which modes used it. Tinctoris connects it particularly with the fifth and sixth modes, although his presentation of the modes is more closely related to counterpoint than to chant.⁴⁴ Marchetto, whose treatment Andrews considers the most comprehensive up to his time,⁴⁵ prescribed b-flat always for the second mode and for melodic figures which descend to a cadence in the fifth and sixth. He gave musical examples in which it is used in first mode and allowed its use in the other modes wherever a tritone threatened. Aaron therefore had ample precedent for a more extensive discussion of b-flat but chose not to give one.

⁴⁴ CS. IV, 21-22.

⁴⁵ Op. cit., p. 86.

Aside from the fact that the b-flat was always considered a temporary inflection of the mode, another reason that the theorists slighted its effects has been pointed out by Andrews. This is the "modal nucleus," the constellation of tones and semitones in immediate proximity to the final of the mode, above and below. This group of tones was explained by many medieval theorists as the most characteristic modal element; the notes above or below it were considered of secondary importance in defining the mode. The modal nuclei for protus, deuterus, and tritus were understood to lie within the sixth c-a; only the position of the final differentiated the three maneriae. Since b was not part of this nucleus, it contributed less to the feeling of mode and thus could be changed to b-flat with no damage to the mode's intrinsic nature.⁴⁶ The nucleus of the tetrardus lay higher (Guido gives it as f-c')⁴⁷ but b-flat is infrequent in this maneria, the seventh mode using it almost not at all, the eighth only occasionally,⁴⁸ so this nucleus also would usually remain unaffected by

⁴⁶ Ibid., p. 111 ff.

⁴⁷ GS. II, 7.

⁴⁸ Apel, op. cit., p. 156.

b-flat.

The concepts of temporary inflection and the modal nucleus thus seem to have fostered the general attitude that b-flat caused no essential change in a mode. This idea may have been adequate to Gregorian chant, for which the modal system was evolved, but it never did apply fully to contrapuntal compositions, which as early as the Parisian organa used signatures of one flat throughout a composition, thus employing scales fundamentally different from the eight traditional modes. This fact was not accepted by theorists until the Dodekachordon of Glareanus, which expanded the system of eight modes to twelve. Even Aaron a few decades earlier did not recognize the unsanctified scales that appeared so extensively in practice. As noted above, Aaron does not discuss the b-flat at all in connection with chant, and where he considers compositions with a b-flat in the signature in Trattato he says that those with a final on d or f are in protus or tritus regardless of the b-flat. Some of his remarks about transposition suggest that he was not unaware of the effect of accidentals on a scale, but his awareness did not lead him to go beyond the traditional system.

From their beginnings, practice and theory in Gregorian chant had admitted the possibility of transposing a mode to a higher pitch. The concept of the modal nucleus was closely allied to the practice of transposition, according to the theorists, who noted that the intervals comprising the nuclei of protus, deuterus, and tritus appeared from g to e' as well as from c to a.⁴⁹ These three maneriae would then have their finals on a, b, and c' respectively, and theorists from Odo on described these three notes as affinales, confinales, or the like as alternate finals for the first three maneriae. The tetrardus could not be transposed a fifth higher because the confinal would be d', above which is a minor third instead of the major third characteristic of this maneria. Thus the large majority of the theorists in Gerbert's and Coussemaker's Scriptores give only three confinals; only a few mention four, a, b, c', and d', completing the analogy with the regular finals.⁵⁰

Transposition also took place because of chromatic

⁴⁹ Ibid., p. 111 ff.

⁵⁰ Apel, op. cit., p. 157-165, finds only a, b, and c' used in the chant repertory, so the theorists would have had to account only for those three tones.

intervals occurring in the original melody that could not be accommodated if the final appeared at the normal pitch. Guido suggested that even b-flat, which generally was accepted in the gamut, could be avoided by transposition, d e f g a b-flat becoming a b c' d' e' f', or f g a b-flat c' becoming g a b c' d'.⁵¹ But the most important reason for transposition was to avoid an e-flat or f-sharp which had appeared as a chromatic inflection in the melody as it was known before the theory of the modes and the written gamut had become standardized.⁵² These notes were evidently used in somewhat the same manner as b-flat, in alternation with their diatonic counterparts, but when the gamut became fixed, the only constellation of four consecutive semitones occurred at a-b-flat-b-c'; the existence of other chromatic tones was not acknowledged. Those melodies which had formerly had the constellation at d-e-flat-e-f and e-f-f-sharp-g then had to be transposed up a fifth or fourth respectively in order to retain their original configuration. As Apel has shown, theorists were aware of this situation

⁵¹ GS. II, 8; Andrews, op. cit., p. 80.

⁵² Apel, op. cit., p. 157-165.

and explained it correctly, and several chants in their present form clearly show such semitonal formations.⁵³ Some of the medieval theorists took note of this possibility of transposing to the upper fourth as well as the fifth, especially in mentioning chants of the deuterus ending on a with the use of b-flat,⁵⁴ but most confined their description of confinals to those a fifth higher than the regular finals.

With the growth of polyphony the theoretical treatment of transposed modes became increasingly remote from practice of contemporary composers, until Tinctoris in 1476 made the first break with tradition and frankly described transposed modes in a sense applicable only to polyphony.⁵⁵ He gave examples of transpositions implying the use of one or two flats as a signature throughout the composition, thus a fourth above or a second below the untransposed mode, a usage common enough in polyphonic music in the fifteenth century but not found in chant. None of his immediate successors are so explicit about transposition; Gafori says

⁵³ Ibid.

⁵⁴ Jerome of Moravia, CS. I, 78; Magister Lambertus, CS. I, 261.

⁵⁵ CS. IV, 36-40.

simply that the mode can begin wherever its species are found.⁵⁶

Aaron's first full discussion of cofinals shows a similar orientation towards polyphony rather than chant as well as a willingness to question tradition. In Institutione Harmonica I, 26, he lists four cofinals a fifth above the regular finals, but when he returns to them and measures them against the statement that a mode may end wherever its species are found, he detects a conflict. If the first and second modes end on a, they have one species of the first and one of the third mode, i.e., the first species of fifth, a b c' d' e', and the second species of fourth, e f g a. The third and fourth modes ending on bfa q mi properly have only the species of fifth and sixth modes, b-flat c' d' e' f' and f g a b-flat (if b-natural is taken as the final, a diminished fifth is found above it and no species is available). The fifth and sixth modes on c' have the species of seventh and eighth modes, c' d' e' f' g' and g a b-flat c'.⁵⁷ The earlier theorists had clearly

⁵⁶ Practica I, 8.

⁵⁷ IH. I, 32, f. 16v-17r.

noted that the cofinals were unsuitable for all melodies, being reserved for those lying within the modal nucleus,⁵⁸ but this distinction seemed to have been lost by later writers, and Aaron is perhaps the first to have examined the traditional teaching critically for centuries after Guido. He proposes that the wrong modes had been assigned to the four cofinals and suggests that the first and second could end on d', the third and fourth on a, the fifth and sixth on b-flat, and the seventh and eighth on c', all but the first pair evidently using b-flat.⁵⁹ This is sensible to a degree, but it is not clear why Aaron did not also transpose the first and second modes a fourth higher with a final on g and a signature of one flat. He perhaps overlooked this possibility since he was primarily concerned with cofinals rather than transposition, and g was a regular final rather than a cofinal.

At the end of the chapter Aaron notes correctly that these cofinals apply more to counterpoint than to chant, but in Lucidario I, 5, he goes beyond practice even in the former. He decides that the four traditional cofinals can

⁵⁸ GS. II, 79-80; Andrews, op. cit., p. 118.

⁵⁹ IH. I, 32, f. 16v-17r.

be used through the addition of f-sharp. Although this section of Lucidario was presumably dedicated to discussing chant, f-sharp is never used in chant and it also was not found as a signature in vocal music of the period, sharps not being so used to any extent for a hundred years afterwards. They did appear as temporary accidentals, but these would not have changed the mode of a composition. Improvised transpositions by instrumentalists might have resulted in the scales Aaron indicated, but the notion is still rather advanced as far as theory is concerned. He may have derived it from his transpositions of the hexachord system, which were far more extensive than those applied to the modes, as will be seen in Chapter VI below.

Two relatively minor aspects of monophonic modal theory remain to be considered, the notes on which compositions in a given mode may properly begin and the psalm tones. Aaron first listed the beginning notes of each mode in Institutione Harmonica I, 34, citing an example from the repertory of chant for each note he mentioned; the list was repeated without the examples in Compendiolo I, 24. An expanded list appeared in Trattato, Chapters 21-24, allowing for the more extensive possibilities of polyphony; it will be considered here although it pertains to the modes in counterpoint. The

manuscript "Delle principii di tutti li toni" lists beginnings of the modes "secundo mi pietro aron," "secundo frate Stephano," and "secundo Franchino nel canto fermo" (i.e., Gafori, Practica I, 8-14). The beginnings "secundo mi" are identical to those given in Trattato, those "secundo Stephano" to the Recanetum de musica aurea of Stephano Vanneo;⁶⁰ Aaron even includes the titles of chants cited by Vanneo as examples of those notes which do not appear in the lists of Aaron and Gafori. The following table compared the lists given in Institutione Harmonica, Compendiolo, Trattato, and "Delle principii."

These lists would obviously be of little help in determining the mode of a composition, since each note may serve as a beginning in several different modes. Aaron gives a more helpful rule at the beginning of Trattato, Chapter 21, where he says the authentic tones most often begin with their natural fifth and the plagals with the natural fourth; he probably refers to the outline of the first notes of the melody rather than the initial note only. Tinctoris succinctly stated that any mode may begin on any

⁶⁰ Rome, V. Doricus, 1533: I, 50-53, f. 32r-33v.

<u>Mode</u>	<u>IH I, 34; Comp I, 24</u>	<u>Trattato; "secundo mi"</u>	<u>"secundo Frate Stephano"</u>	<u>"secundo Franchino"</u>
1st	c,d,e,f,g,a	c,d,e,f,g,a,d'	c,d,e,f,g,a	c,d,f,g,a; e <u>commixtus</u> ; b <u>mixtus</u>
2nd	A,c,d,e,f	A,c,d,e,f	A,c,d,e,f,g	A,c,d,e,f; G <u>superfluus</u>
3rd	e,g,c'	e,f,g,a,b,c', e'	d,e,f,g,c'	e,f,g,c'
4th	c,d,e,f; g in monas- tic books	c,d,e,f,g,a	c,d,e,f,g,a	c,d,e,f,g,a
5th	f,c'	f,g,a,c',f'	d,f,g,a,c'	f,g,a,c'
6th	f,c'	c,d,f,a	*c,d,f,g, a,c'	c,d,f,a
7th	g,a,b,c',d'	g,a,b,c',d', g'	d,f,g,a,b, c',d'	g,a,b,c',d',f
8th	d,f,g,a,c'	c,d,f,g,a,c'	c,d,f,g,a,b, c'	d,f,g,a,c',c

* Vanneo actually gave c,d,e,f,g,a for the 6th mode

note in its range but that the most satisfactory beginnings are d and a for protus, e and a for deuterus, f and c' for tritus, and g and d' for tetrardus, and few compositions begin otherwise. But he then gave an extended list of beginning notes with the remark that some who have observed chant

carefully find these beginnings used.⁶¹ The two preferred notes in each maneria may be intended to apply more to polyphony than chant; the list of beginnings for chant is nearly identical to that of Gafori who presumably offered his own or someone else's observations on practice. Although many theorists paid some attention to the beginning notes of the modes, it seems to have been largely wasted effort; the mode cannot be determined by its initial note because the possibilities are so varied as to be inconclusive. For this reason the lists could hardly have been useful to composers; only b is confined to as few as two modes. It seems likely that polyphonic compositions of the period most often followed the more restricted, generalized suggestions of Tinctoris and Aaron and began on the final or the fourth, fifth, or octave above it. The extensive lists of beginning notes seem to characterize chant only, despite Aaron's inclusion of one in Trattato.

The beginning notes are somewhat more important in the psalm tones, which Aaron describes in Institutione Harmonica I, 33-35, Toscanello II, 19, and Compendiolo I, 18-20. In these each tone had to begin on a certain note, both in chant

⁶¹ CS. IV, 26-27.

and in polyphonic settings. Aaron's beginning notes are those in current use and need not be discussed further. Rather than the reciting note he gave the medial cadence for each tone, which is identical to the reciting note except in sixth and seventh modes in the modern books; for the sixth tone, however, he gave a as the cadence rather than f, which is now used. Toscanello in 1523 gave d', not e', for the seventh tone, but the later editions changed it to e'.⁶² The ending of the psalm tone is known as the differentia; most tones have a choice of several in order to connect smoothly with each of the numerous antiphons which might follow them in performance. Aaron nowhere describes all the differentiae but gives the number for each tone in Institutione Harmonica. Compendiolo lists the notes on which differentiae may end in each tone but does not describe the varied melodic formulas that may distinguish several differentiae on the same note in one tone; the first tone has eleven differentiae according to Institutione Harmonica, but Compendiolo gives only the four notes on which they end. Toscanello gives only one differentia for each

⁶² IH. I, 33, f. 17r, gives a as the medial cadence of the seventh mode, surely a misprint.

mode, perhaps because Aaron was describing the procedure to be followed in the polyphonic composition of psalms and Magnificats and intended to restrict the composer to a single ending for each psalm tone. It seems unlikely that such a restriction would have been followed in practice. Spataro's critique of Toscanello notes about this chapter only a friend's complaint that Aaron did not list all the differences.⁶³

Modal theory towards the end of the fifteenth century apparently tended to consider the modes in relation to counterpoint rather than to chant. As noted above, this attitude is particularly evident in Tinctoris and apparently shared by Gafori and other writers, though most discussions of the modes immediately after Tinctoris are rather perfunctory. Aaron seems to be (and believed himself to be) the first to discuss fully and explicitly the use of the modes in counterpoint. Like his immediate predecessors, he developed no new concepts to explain polyphony, but unlike them, he made clear that it was polyphony to which he referred.

⁶³ VL 5318, f. 211. Another error mentioned immediately following seems to be a mistake on Spataro's part.

Because of the traditional nature of his conceptual framework, it is entirely possible that he presented nothing entirely original but compiled ideas that were more or less common property when he wrote; Trattato is nonetheless the first attempt to set down the ideas, however widespread they may have been, and thus is of major importance in the history of theory.

The first chapter of Trattato, an introduction to the modes, first remarks that none of Aaron's contemporaries have treated the modes in counterpoint and that such a treatment would fill a real need.⁶⁴ He then defines his fundamental terms, final and species, as he had in Institutione Harmonica. The irregular finals include four notes below as well as three above the four regular finals, G, A, B, and c in addition to a, b, and c', since contrapuntal music was not restricted to the narrow range of chant. The high d' is not included among the cofinals; Aaron later explains that it is treated as an octave transposition of the regular final d. The regular finals are "necessary, rational, and governing," i.e., they unequivocally establish the

⁶⁴ Since the first seven chapters of Trattato are easily accessible in Strunk, Source Readings, p. 205-218, that source will be cited and quoted when appropriate.

maneria; the only exceptions are caused by a flat signature. The species of intervals are also defined as they had been previously, with the four species of fifth and three of fourth combined to form the eight modes.⁶⁵

Further consideration of the irregular finals on a, b, and c' yields the information that they may be used as either cofinals or as differentiae. Here Aaron combines two quite different concepts, since the differentiae pertain only to the psalm tones, but the cofinal may be used in all types of compositions and, in polyphony as well as in chant, usually results from transposition of a mode. A polyphonic setting of a psalm or Magnificat using the recitation tone as a cantus firmus might well end on a differentia and this would be ample reason for Aaron to include the latter as a criterion for the mode of such compositions, but he goes far beyond this. Throughout Trattato the differentia is cited as a possible determinant of the mode of any type of composition, even secular music without the remotest relationship to psalmody.⁶⁶ Because certain polyphonic

⁶⁵ The text under the last example in Source Readings, p. 207, should read "The fourth diapente and first diatesseron."

⁶⁶ Ibid., p. 208, footnote a and accompanying text. The word order in the original connects the difference more closely with the various types of compositions. It is interesting that Aaron mentions madrigals five years before the first known printed collection.

compositions are not easily explained in terms of the church modes, Aaron apparently seized on the differentia as a convenient way out of an awkward situation. These compositions are without a signature and end on an irregular final, a or c'; because no transposition appeared, Aaron did not believe that they belonged to the modes which used those notes as cofinals and therefore considered that the differentia was used. This is an expedient at best, since in no case is a psalm tone involved, but it was perhaps the best he could do short of a radical overhaul of modal theory.

The remainder of Chapter 1 emphasizes the importance of the species of fifth and fourth in judging the mode. Aaron first points out that when a key signature appears the cofinal is an unreliable criterion since the species of fourths or fifths are changed; for instance, g-a-b-c'-d', the fourth species of fifth, becomes g-a-b-flat-c'-d', the first species. A philosophical digression follows which intends to demonstrate the necessity and importance of the species in judging the mode; its point is essentially that the final itself does not give all the important information about modality. This idea is reinforced by reference to the canti euphoniaci which, lacking species, are said to belong to no mode.

Chapter 2 introduces the most fundamental element of Aaron's theory of mode, the idea that the mode of a composition is equivalent to the mode of its tenor. The tenor is the "firm and stable" part, the foundation of the rest of the work, frequently the part which was written first. He notes that "when a tenor and its cantus are far apart it causes, not pleasure, but little sweetness;"⁶⁷ thus the tenor, which usually moves in the normal range of the modes ("the natural progressions"), is to determine the mode. Strunk explains Aaron's cryptic reference to the cantus by noting that if that part lies as high as an octave above the tenor, duplicating the normal range of the modes at that interval, it will be rather far from the bass and produce a disagreeably thin texture. But if the cantus is written in a lower range, it will lie less than an octave from the tenor and be plagal if the tenor is authentic or vice versa and thus have no bearing on the mode of the composition.⁶⁸ Further, if the cantus duplicates the modes at the octave, some of its notes will have to go above e", the highest note in the

⁶⁷ Ibid., p. 209.

⁶⁸ Ibid., p. 209, fn. 5.

Guidonian gamut,⁶⁹ which presumably should be avoided by the voice establishing the mode. Thus any type of composition in any number of parts will be governed by its tenor, or by its principal tenor if there are more than one. The only exception occurs when a borrowed plainsong appears in some other part than the tenor, since such a melody determines the mode unequivocally whenever used. As Strunk indicates, judging the mode from the tenor is not new with Aaron. Tinctoris had also stated that the mode of the tenor is the mode of the whole,⁷⁰ and it seems possible that both men reported a commonly accepted theory.⁷¹

Chapter 3 gives a more detailed explanation of the methods of judging the mode; it proceeds from the easiest to the more difficult situations, beginning with those tenors which end on the four regular finals. The first two of

⁶⁹ Ibid., p. 209: "Should you wish to form the seventh tone (in the soprano, thus ascending to g") you would need to find its diatesseron through the accidental course."

⁷⁰ CS. IV, 29; cited by Strunk, op. cit., p. 209, fn. 6.

⁷¹ Lowinsky, Tonality and Atonality, P. 33-34, does not make clear that Aaron judges modality by the mode of the tenor alone, as do Glareanus and Zarlino also. Throughout the book Lowinsky does not distinguish between mode as an attribute of a single line and mode as an attribute of a polyphonic complex. Further on this see footnote 91 below.

these, d and e, can indicate only protus and deuterus, since they serve only as finals of these two maneriae, never as differences. Whatever fifths or fourths the tenor may outline in its course, these two finals are conclusive, mixtures of different species falling under the heading of toni commixti as in plainsong. When the final is f or g other possibilities than tritus and tetrardus exist, since these two notes are differentiae for other modes as well as regular finals. Thus if the tenor emphasizes other fifths and fourths than those proper to the tritus or tetrardus, or if it cadences on notes that are not normal for those maneriae, the question of differentiae arises.⁷² Aaron's only example of either f or g used as a differentia is based on a misunderstanding, as will be shown below.

Tenors which end on a, b, or c' are to be judged by the procedure (i.e., cadences, which are discussed below), species and differences and assigned to the mode to which they best conform, but those which end on d', e', f', or g' are considered as if they ended on the regular finals an octave lower. If a flat is found in the signature, this

⁷² Aaron lists the cadences suitable for each mode in Chapters 8-20, which will be discussed below.

changes the species and thus the mode, and the final is no longer conclusive. A significant exception is the flat signature with the final d and f; as has been noted, Aaron followed tradition and overlooked the changes caused in these maneriae by b-flat.

Though Aaron nowhere discusses it, the relation of musica ficta to modal assignment may conveniently be considered here, since it presents much the same problem as key signatures. The B-flat signature for protus and tritus may be regarded in a sense as comparable to musica ficta in that it accomplishes two of the latter's main functions, avoiding the tritone and flattening B at the peak of a melodic curve.⁷³ It may also be said that musica ficta shares the tendency of these signatures to eliminate modal distinctions and reduce all scales to major or minor, a tendency found also in types of ficta with no counterparts in signatures such as the raised leading-tone at a cadence. Musica ficta of course did not consistently alter a given pitch; the diatonic pitch might be used when ficta was unnecessary, and ficta would thus seem to be on the order of a coloration or

⁷³ This is not meant to imply that signatures are an outgrowth of musica ficta.

inflection analogous to that accomplished by b-flat in the chant. One might consider that the modes throughout their history have each had in practice one or more notes whose pitch was variable, first through the optional b-flat in chant and later through ficta. Such a concept is not foreign to more recent periods. In the major-minor tonal system, the pitches of the sixth and seventh tones of the minor scale are consistently ambiguous, since they appear now diatonically, now with the raised sixth and seventh degrees of the parallel major scale, depending on the context. Theory sometimes recognizes this situation by postulating three forms of the minor scale, the natural, harmonic, and melodic. In this there is perhaps an advance over modal theory in that mixtures are legitimized in theory as well as practice. The natural form of the scale is taken as fundamental, of course, and the same should be true of the modes so long as the natural form remained in use. Musica ficta as practiced when Aaron wrote certainly reinforced the trend toward major and minor, away from the modes, but it hardly supplanted the modes entirely at that time nor for some time afterwards. Ficta can only be regarded as a temporary coloration of the mode and for that reason will not be considered

further in the present chapter.⁷⁴

The rest of Chapter 3 explains the analysis of tenors whose species are contradictory or confusing. The first description is rather unclear, stating that when a tenor proceeds with the regular species of a tone in the beginning and continuation, then ends with a contradictory species, it is to be judged by the "species and differences previously mentioned" (le dette spetie & differenze), unless it ends on a regular final.⁷⁵ Since the regular finals are excluded, he presumably refers to tenors ending on a, b, or c', which are evidently to be taken as differentiae; whichever species belongs to the mode of the differentia then determines the mode. But Aaron's explanation is then inadequate, since each of these notes can be the differentia for more than one mode⁷⁶ and it is possible that a tenor might outline species

⁷⁴ The uncertainty as to how much ficta is sometimes necessary is another reason for disregarding it here. Aaron's statements about ficta are examined in Chapter VI below. He nowhere considers it in relation to the modes.

⁷⁵ Strunk, op. cit., p. 211.

⁷⁶ Liber Usualis (Tournai, Desclee, 1956), p. 113-117. Apel, Gregorian Chant, p. 223, indicates that the present system is little changed from that in use over a thousand years ago.

belonging to several modes, all of which use the last note of the tenor as a differentia. This ambiguity emphasizes the disadvantage of the differentiae; tenors such as Aaron described would be hard to explain in traditional modal theory, but even Glareanus's extensions might be inadequate, as will be shown below. Aaron's next statements are clear enough; if no species of fifth is found, look for fourths and judge by them in conjunction with the finals. If no species of fifth or fourth are found, Aaron is rather at a loss, remarking that such aimless, vague compositions can only be judged by a final, and then only if there is no signature.

The close of Chapter 3 deplors the ambiguity of conflicting or partial signatures, i.e., the use of different signatures in different parts of a composition. This, he says, must be done very artfully, citing Josquin and Agricola as models. In practice such compositions sometimes tend towards two different modes, neither of which entirely predominates. In some compositions the part or parts with fewer flats must conform to the other parts through the rules of musica ficta, but other works exhibit a decided modal ambiguity. Aaron's examples of compositions with conflicting

signatures illustrate both tendencies.⁷⁷ Signatures with E-flat and A-flat are treated by Aaron as causing transposition of the mode; he states that the species alone determines the tone of such compositions, whether or not the final is regular. This agrees with the statements of Tinctoris about transposed modes. Aaron gives only two examples which include a signature of two flats; each has that signature in only one part, the others having only one flat. No examples are given of a signature of three flats, which would have been extremely rare at the time.

Chapters 4 to 7 discuss in turn each of the four maneriae and the various notes on which they may close, with detailed explanations of the problems and peculiarities of each mode. Examples are cited for almost every final note mentioned, and these examples are among the most interesting and valuable features of the treatise. Aaron was not the first theorist to cite compositions by his contemporaries as examples; Tinctoris had done so previously, notably in

⁷⁷ Tosc., Supplement, also objects to partial signatures because the species of intervals are then different in different octaves and octaves and fifteenths are imperfect, requiring flats in the upper register to be perfected. Luc. I, 10, further objects that all three hexachords would have to be used simultaneously in such a situation.

his Art of Counterpoint. Aaron however was probably the first to do so after the invention of music printing, and he was able to choose his examples almost entirely from works in print. Since almost all the compositions he cites appear in publications of Ottaviano Petrucci, it is a safe assumption that these are the versions from which Aaron worked, and the problem of resolving discrepancies among several sources thus does not arise.

The present writer has examined all of Aaron's examples and assigned each to a maneria and final as indicated in the column headed "Mode" in Tables 6 to 23 below. This assignment, which considers the entire complex of voices, takes the root of the final chord as the final or tonic and whichever diatonic octave above it predominates in the composition as the maneria. The maneriae are designated as Dorian, Phrygian, etc., in order to be able to refer to Aeolian and Ionian; protus, deuterus, etc., will continue to refer to maneriae as assigned by Aaron, while Dorian, Phrygian, etc., will represent the present writer's assignment. The tables also show Aaron's criteria, the range, final, and species of fourths and fifths in the tenor; the internal cadences are not included for want of space, but

are given in the text when necessary.⁷⁸

Chapter 4 considers compositions in the first or second modes, first those in which the tenor ends normally with no signature. These, Aaron states, are usually in the first mode, since the tenor rarely descends into the range of the untransposed second mode. The final d is conclusive indication of protus, especially with d' in the cantus as confirmation. Aaron's examples bear out his assertion since all five are clearly Dorian (see Table 6). Mouton's Beata dei genetrix would have to be considered first mode mixtus because of the tenor's descent into the plagal register; its extended upper range would prevent its being called plagal. Regis's Clangat plebs flores offers the first of a few examples of what might be called a "prolonged cadence" (Aaron's term is fine a beneplacito), in which the final chord is prolonged a few bars. In such cadences the tenor may move away from its proper final after striking it at the beginning of the cadence, while some other voice usually retains the final

78

The original source of all the examples is given in Strunk, Source Readings, p. 205, fn. 1. Seven examples could not be located: Busnois, Pourtant se mon, Chapter 4; Festa, Gaude Virgo, Chapter 4; Hayne, Dung aultre amer, Chapter 4; Eustachio, Laetatus sum, Chapter 5 (this motet does not appear in Corona II as stated by Strunk); Pre Zanetto (del Lago), Multi sunt vocati, Chapter 7; Mouton, Missa ut sol, Chapter 7; C'est possible que l'homme peut, Chapter 7.

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 4th & 5th
Jacotin, <u>Rogamus te</u>	none	D dorian	d-d-a-d'	c-e'	d	d-a,a-e'
Caen, <u>Judica me Deus</u>	none	D dorian	d-d-a-d'	c-e'	d	d-a,a-d',g-c',e-a,a-d'
Mouton, <u>Congregati sunt</u>	none	D dorian	d-d-a-d'	c-e'	d	d-a,a-d',g-c',g-d', a-e'
Mouton, <u>Beata dei genetrix</u>	none	D dorian	d-d-a-d'	A-e'	d	d-a,A-d,a-d',c-g,g-c'
Regis, <u>Clangat plebs</u>	none	D dorian	D-d-d-a-d'	d-e'	a	d-a,e-a,a-d',g-c', a-e'
Caen, <u>Nomini qui domini</u>	1 flat SATB	D aeolian	d-d-a-d'	c-d'	d	d-a,a-d',g-d'
<u>Pourquoy fu fyat</u>	1 flat SATB	D aeolian	D-f-a	d-f'	f	d-a,g-d',a-d',f-bb, d-g

Table 6 - Examples of 1st mode ending on D sol re (d)

or its octave. Aaron notates such a cadence for each maneria, though few of his examples have one. The tenor of Clangat plebs ends finally on a after having struck d in measure 119:⁷⁹

EXAMPLE 4 - Regis, Opera Omnia, II, 29

⁷⁹ Regis, Opera Omnia, ed. Cornelis Lindenburg (Rome, American Institute of Musicology, 1956), II, 29.

As noted above, Aaron considers that compositions ending on d with one flat in the signature are also of first or second mode; only two of his four examples could be located. Both are Aeolian rather than Dorian because of the consistently flatted sixth step. The Caen motet is regular in other respects, but the tenor of Pourquoy fu fyat does not end on d as Aaron states, but on f. Possibly Aaron considers that the tenor's antepenultimate d is the real cadence point:⁸⁰

EXAMPLE 5 - "Pourquoy fu fiat," Canti B

The musical score consists of two systems of staves. The first system has three staves: Soprano (S.), Tenor (T.), and Contralto (Ct.). Above the first staff is a common time signature 'C' and a key signature of one flat. Above the second staff is a treble clef and a sharp sign. The second system has two staves, continuing the vocal parts. The music ends with a double bar line and repeat dots.

⁸⁰ The cadence is also remarkable in that it seems to demand f-natural rather than f-sharp because of the b-flats appearing in the cantus over the sustained notes in the tenor and contra. The use of a third in the final chord is by no means standard at this period (further on this, see Chapter VI below), but a minor third would be highly unusual.

The next group of pieces has tenors which end on g, the regular final of the tetrardus, but they are in transposed protus because of a flat in the signature (Tables 7 and 8). At this level the plagal descent is feasible for the tenor, and Aaron presents several examples each of first and second modes. The contrast between authentic and plagal is here shown for the first time and it is apparent not only in the range of the tenors but in the tessitura of the compositions as a whole. Those in first mode lie higher than those in second, as is immediately obvious from the distribution of the final chord. One composition is malassigned in this group; Josquin's Missa dung aultre amer is in second rather than first mode as the range of its tenor and its tessitura indicate.⁸¹

The examples of first and second modes ending on a are among the thorniest in the treatise (Table 9). Both are fairly clearly Aeolian rather than Dorian, although Compère's Si mieulx is centered largely around C Ionian and the ending on a is a bit of a surprise. The distinction between authentic

⁸¹ Helmuth Osthoff, Josquin Desprez (Tutzing, H. Schneider, 1962), I, 228, fn. 8, concurs in assigning this Mass to second mode.

Author and Title	Signature	Mode	Final Chord	Range	Final	TENOR
						Species of 4th & 5th
Josquin, <u>Missa</u> <u>Ave Maris Stella</u>	1 flat SATB	G dorian	usually g-g-d'-g'	d-d'	g	g-d', d'-g', f-bb
Josquin, <u>Missa</u> <u>Dung aultre amer</u>	1 flat SATB	G dorian	usually G-d-g-g'	c-f'	g	g-d', d-g, bb-f'
Févin, <u>Nobilis</u> <u>progenie</u>	1 flat SATB	G dorian	g-g-d'-g'	f-g'	g	g-d', d'-g', f-c', c'-f', a-d'
Févin, <u>Vulnerasti</u> <u>cor meam</u>	1 flat SATB	G dorian	g-g-d'-g'	g-a'	g	d'-g', g-d', bb-f', d'-a', a-d'

Table 7 - Examples of 1st mode ending on G sol re ut (g)

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Compère, <u>Virgo caelesti</u>	1 flat SATTB	G dorian	G-g-bb-d'-g'	d-d'	g	g-d' (<u>e</u> not used)
Hayne, <u>De tous biens plaine</u>	1 flat SATB	G dorian	G-g-d'-g'	d-eb'	g	g-d', d-g, a-d', d-a
La Rue, <u>Ce n'est pas</u>	1 flat SATB	G dorian	G-g-d'-g'	c-f', Bb&G	G	g-d', d-g

Table 8 - Examples of 2nd mode ending on G sol re ut (g)

Josquin, <u>La plus de plus</u> (1st mode)	none	A aeolian	A-a-a'	c-f'	a	d-a, g-d', a-d'
Compère, <u>Si mieulx</u> (2nd mode)	none	A aeolian	A-a-a'	c-f'	a	a-d', g-c', a-e', c-g; d-a

Table 9 - Examples of 1st and 2nd modes ending on A la mi re (a)

and plagal in the two examples is unclear, since the tenors have identical ranges and tessituras. The sole remaining distinction might be the internal cadences in the tenor, but these are also unenlightening. Josquin's tenor cadences on d, g, a, d, e', a, d', g, c', d, a, and a, while Compère's cadences on a, d', c, c', d', g, c', g, g, and a. The only differences are Josquin's cadence on e' and Compère's on c; Aaron says in Chapter 9 that c can be a cadence in second mode but not in first, while e' is given for neither. Another problem concerning these pieces is why they are assigned to protus while another group which also ends on a is assigned to deuterus; this question will be considered after the latter group has been examined.

The last group of examples of first and second modes ends on d', an octave above the regular final, which Aaron considers a simple transposition to the upper octave (Tables 10 and 11). Since all voices lie quite high, the lower range of the second mode is easily available in this register. A few of the examples require comment, notably Josquin's L'homme armé, which is the only composition of the group with a flat signature in all parts. The famous

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th and 4th
Josquin, <u>L'homme armé</u>	1 flat SATB	G dorian	d-a-d'-f'	g-g' +d	d'	g-d', d'-g'
Japart, <u>Hélas qu'il est</u>	none	D dorian	d-d'-a'-d''	b-c''	d'	d'-a'
LaRue, <u>Fors seulement</u>	none	D dorian	d-d'-a'-d''	c'-d''	d'	d'-a', a'-d''
Brumel, <u>Je despite tous</u>	S,T, none; 1b, C	D dorian- aeolian	d-d'-d''	a-c''	d'	d'-a', c'-g', a-d', a-e'
Mouton, <u>Gaude Barbara</u>	none	D dorian	d-d'-a'-d''	g-a'	d'	a-d', d'-a', c'-f', a-e'

Table 10 - Examples of 1st mode ending on D la sol re (d')

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Josquin, <u>Missa Hercules</u>	none	D dorian	d-a-d' in four parts	c-f'	d'	c-f,g-c',c'-f' (motto of four notes ending d,a,d')

Table 11 -- Example of 2nd mode ending on D la sol re (d')

melody appears in the tenor in first mode transposed to g, but incomplete, omitting the "da capo." For this reason the tenor does not end on its proper final, g, but on the fifth of the mode, d'. It is surprising that Aaron failed to mention this anomaly, since he surely was acquainted with the melody. Brumel's Je despite tous has a partial signature, one flat in the contratenor and no signature in tenor and superius. A palpable fluctuation between Dorian and Aeolian is thereby obtained; b-flat and b-natural alternately predominate, and neither mode entirely overshadows the other. Because of the range of the tenor, the piece should be assigned to the second rather than the first mode. The cadences support such an assignment, falling only on a, c', d', and e', away from the higher range of the first mode. Mouton's Gaude Barbara is also in second rather than first mode for the same reasons; its cadences fall on a, c', d', e', and f'.

The discussion of third and fourth modes in Chapter 5 begins with the regular final, e, stating that both of these modes may end there, although some say that only the fourth may do so, forgetting that both have e as a final; range and procedures must be observed to choose between the two.

Perhaps it is to emphasize this possibility that all Aaron's examples for this final are in third mode (Table 12). Examples of fourth mode may have been hard to find because of the low B required of the tenor, though this would be less of a problem for most tenors than the A of second mode if modern practice is any indication. To judge from Aaron's examples, the third and fourth modes in counterpoint show a strong tendency towards Aeolian, with frequent internal cadences on a; the Aeolian feeling can be so strong that the Phrygian cadence at the end of the composition is rather a surprise. A partial explanation may be the new form of Phrygian cadence which Lowinsky says came into use early in the fifteenth century; the lowest note in the sonority is no longer the final but the lower fifth, A rather than e.⁸² Two of Aaron's examples, the motets by Jacotin, show this tendency very strongly. Both have numerous cadences on a, and the prima pars of Michael Archangele also closes with a cadence on a, which Aaron describes as a differentia. Interveniat pro rege nostro has just the cadence described by Lowinsky. The

⁸² Lowinsky, "The Function of Conflicting Signatures in Early Polyphonic Music," Musical Quarterly, XXXI (1945), 245, Example 24, v and vi.

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
<u>Jacotin, Michael</u> <u>Archangele</u> (1a <u>pars</u>) (2a <u>pars</u>)	none	E phry- gian	A-a-e'-a'	d-e'	a	e-a, a-e', d-a, e-b
	none	E phry- gian	e-e-b-e'	d-e'	e	a-e', d-a, e-a, g-c'
<u>Ockeghem (?)</u> , <u>Malheur me bat</u>	none	E phry- gian	e-b-e'	e-f'	e	e-b, b-e', g-c', a-e'
<u>Jacotin</u> , <u>Interveniat pro</u> <u>rege nostro</u>	none	E phry- gian	e-g-b-e'	c-e'	b	e-b, b-e', e-a, a-e', g-c', d-a, a-d', c-g

Table 12 - Examples of 3rd mode, E la mi (e)

basic Phrygian cadence, $d'-e'$, $f-e$, is found between the alto and soprano rather than between tenor and soprano as was customary, while the bass has the descent, $d-A$, the tenor holding a . This occurs five measures before the end of the motet, which has a prolonged cadence similar in principal to those described by Aaron but more elaborate. The soprano holds the final e' , while the other three voices prolong the chord of A briefly before coming to rest on an E -chord. Thus Aaron's prolonged cadence and Lowinsky's explanation of the Phrygian cadence confirm this motet's assignment to the third mode.

EXAMPLE 6 - Jacotin, "Interveniat pro rege nostro, Motetti de la Corona II

The musical score for Example 6 consists of two systems of staves. The first system shows three vocal parts: Alto (A.), Tenor (T.), and Bass (B.). The tempo is marked 'C.' and the time signature is 3/4. The second system shows the same three vocal parts, with the tempo still marked 'C.' and the time signature 3/4. The score includes a key signature of one flat and a common time signature.

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Urrede, <u>Nunca fuè</u> <u>pena mayor</u>	none	E phry- gian	g-g-d-g'	e-g'	g	a-e', g-c', c'-g', e-b

Table 13 - Example of 3rd mode, G sol re ut (g)

Josquin, <u>Miserere</u> <u>mei Deus</u> (3rd mode)	none	E phry- gian	A-a-a-c'-e'	e-f'	a	none (ostinato tenor)
Eustachio, <u>Benedic anima mea</u> (3rd mode)	none	A aeo- lian	a-c#'-e'-a' (3a <u>pars</u>)	c-g'	c#'	e-a, a-e', g-c', a-d', d-a, c-g, e-b, b-e'
O <u>Maria/Rogamus te</u> (4th mode)	none	A aeo- lian	A-a-e'-a'	a-e'	a	b-e', a-e' (ostinato)

Table 14 - Examples of 3rd and 4th modes, A la mi re (a)

In the prima pars the ostinato is repeated eight times, once on each note in the octave e to e', beginning on e' and descending stepwise to e. In the secunda pars eight more repetitions ascend stepwise from e to e', and in the tertia pars five repetitions descend from e' down only to a; thus the final A-chord. The composition is clearly Phrygian aside from this behavior of the tenor; the first two partes close quite regularly on E-chords. The final A-chord may possibly be explained as an extended cadence, since the other four voices cadence on an E-chord in measure 415 immediately before the last statement of the ostinato. The text supports this interpretation, since all five voices join in the final "Miserere mei, Deus" after the main body of text is completed at measure 415. These words had previously been heard in the ostinato only while the other four voices sang the full psalm text, so when all five voices close with those words, the effect is that of a textual coda, corresponding to the musical coda. There seems no question in any case that the motet is in E-Phrygian; the close on a results from Josquin's treatment of the ostinato.

EXAMPLE 8 - Josquin, Werken: Motetten, II, 76.

S. su- per al-ta- re tu-um vi- tu-los.

A.

T. II

T. I

B.

Mi- serere mei, De- us, mi- serere

mei, De- us.

The other two examples are Aeolian rather than Phrygian. Benedic anima mea has three partes in which, Aaron says, the tenor ends respectively on the confinal, b, the final, e' (not e), and a differentia, a. The tertia pars has a prolonged cadence of two measures in which the tenor comes to rest on c#'. The first two partes close on E-

EXAMPLE 9 - Eustachio de Monte Regali, "Benedic anima mea,"
pars III, Motetti de la Corona II

The image shows a musical score for the tenor part of "Benedic anima mea, pars III" by Eustachio de Monte Regali. The score is written on a single staff with a bass clef. It consists of 10 measures. The first measure is marked with a 'c.' above the staff, indicating the confinal. The second measure is marked with a 'b.' below the staff, indicating the final. The score shows a prolonged cadence of two measures in the tenor part, which ends on a c#'. The first two partes close on E-

chords, the third on an A-chord. The composition of the tenor strengthens the overall impression that the motet is in A-Aeolian rather than E-Phrygian. The tenor has frequent cadences on a, especially in the prima pars, while g and b are relatively neglected; even e and e' have fewer cadences than a. The species of fourths and fifths in the tenor also emphasize the division of the octave by a rather than b;

e-a and a-e' are more frequent than e-b and b-e'. 0
Maria/Rogamus te also has an ostinato in the tenor, much simpler than Josquin's, consisting of eight notes: e'-d-e'-b, e'-b-e'-d', repeated in that order or the reverse throughout both partes until near the end of the secunda pars, where the tenor descends to a. It is probably because of this limited range that Aaron assigns the composition to the fourth mode. The polyphonic complex is centered so firmly around a rather than e that Aeolian seems the proper designation.

The distinction between protus and deuterus ending on a may now be considered. It is plain that Aaron must have had in mind the internal cadences and species in distinguishing these two maneriae; his examples for first and second modes emphasize d and a, those for third and fourth emphasize e and a, both in cadences and species. He thus makes a distinction which is lost by calling all the pieces Aeolian, since the respective affinities to Dorian and Phrygian are quite pronounced. Compositions such as these show clearly the limitations of modal theory in explaining polyphonic music. Aaron does not satisfactorily account for the common ending, while Glareanus's term Aeolian overlooks differences in internal construction.

The fifth and sixth modes had used b-flat extensively for centuries before Aaron, and polyphonic works in those modes seldom appeared without it. Accordingly, every example of these modes but one has a uniform signature of B-flat in all parts, and they are all Ionian rather than Lydian (Tables 15 and 16). The exception is Caron's Helas que pourra which has a partial signature; musica ficta sometimes requires b-flat in the cantus, but a residue of Lydian color remains in that voice. The distinction between authentic and plagal in these examples is well marked; the large number of examples presented confirms that a real difference exists.

Aaron allows the fifth and sixth modes to end on b-flat with one flat in the signature, which will produce real Lydian rather than Ionian (Table 17). The example of fifth mode, however, with its partial signature is essentially the same sort of piece as Caron's Helas que pourra, transposed up a fourth. Hayne like Caron was of an older generation than Aaron, and his chanson has the same mixture of Ionian and Lydian found in Caron's, though Hayne's Lydian is perhaps less clearcut because of a number of E-flats written in the upper parts in addition to those required by

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Josquin, <u>Stabat mater</u>	1 flat SSATB	F ionian	f-f-c'-f'-a'	f-a'	f	d'-a' f-c',c'-f',g-c',c'-g'
Josquin, <u>Alma redemptoris mater</u>	1 flat SATB	F ionian	f-f-c'-f'	e-g'	f	f-c',c'-f',c'-g'
Caron, <u>Helas que pourra</u>	1 flat ATB; none, S	F ionian- lydian	f-f-c'-f'	e(b)-a'	f	f-c',c'-f',c'-g'
Mouton, <u>Quaeramus cum pastoribus</u>	1 flat SATB	F ionian	f-f-c'-f'	f-g'	f	f-c',c'-f',g-d'
Mouton, <u>Illuminare Ierusalem</u>	1 flat SATB	F ionian	f-f-c'-f'	f-a'	f	f-c',c'-f',c'-g'
La Rue, <u>Missa BVM, Sanctus & Agnus</u>	1 flat SATB	F ionian	f-f-c'-f'	e-g'	f	f-c',c'-f',c'-g'

Table 15 - Examples of 5th mode ending on F fa ut (f)

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
<u>Stokhem, Brunette</u>	1 flat SATTB	F ionian	F-f-a-c'-f'	c-c'	f	c-f, f-c', f-b♭
<u>Compère, Vostre bergeronette</u>	1 flat SATB	F ionian	f-f-c'-f'	c-f'	f	f-b♭, c-f, f-c', c'-f'
<u>Busnois, Je ne demande</u>	1 flat SATB	F ionian	F-c-f'-f'	T: F-c' A: c-f'	F f	F-c, c-f, f-c' c-f, f-c', c'-f'
<u>Agricola, Allez regrets</u>	1 flat STC	F ionian	f-c'-f'	c-f'	f	c-f, f-c', c'-f'
<u>Hayne, A l'audience</u>	1 flat STCB	F ionian	F-c-f'-f'	c-f'	f	c-f, f-c', c'-f'
<u>Févin, Sancta trinitas</u>	1 flat SATB	F ionian	F-f-c'-f'	c-d'	f	c-f, f-c'
<u>Févin, Tempus meum</u>	1 flat SATB	F ionian	F-f-c'-f'	c-d'	f	f-c', g-c', c-g, g-d'
<u>Mouton, Celeste beneficium</u>	1 flat SATB	F ionian	F-f-c'-f'	c-d'	f	f-c', c-f
<u>Févin, Egregie Christi</u>	1 flat SATB	F ionian	F-f-c'-f'	c-e'	f	c-f, f-c', c'-e'

Table 16 - Examples of 6th modes ending on F fa ut (f)

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Hayne, <u>La regretée</u> (5th mode)	1♭,S,T, 2♭,C	B♭ ionian- lydian	B♭-b♭-bb'	e-g'	b♭	f-b♭,bb-f'
Josquin, <u>O</u> <u>admirabile</u> <u>commercium</u> (6th mode)	SATB 1 flat	B♭ ionian	B♭-b♭-d'-f'	f-f'	b♭	f-c',bb-e(b)',c'-f', f-b♭,bb-f'

Table 17 - Examples of 5th and 6th modes ending on ♭faqm̃i (b-flat)

ficta. Both pieces perhaps represent a taste for fluctuating modality that was old-fashioned in Aaron's time. The example of sixth mode has the same signature in all parts, but also has frequent printed E-flats, which with the ficta they in turn generate make the motet fairly conclusively Ionian rather than Lydian. The C-chord, for instance, appears only once with E-natural, in measure 38, while the cadences on C in measures 53, 70, and 88 all have E-flat in the vicinity.⁸⁴ The difference between fifth and sixth modes is not clear, since both tenors have similar ranges. Aaron says the chanson is in fifth mode because of its upward range, but it extends only to the sixth above the final, which was always permitted to the plagal modes. If he was considering the range of untransposed fifth mode, f-f' with final on f, rather than its transposition to b-flat, then both pieces should have been fifth mode. The cadences do not clarify the situation; both use f, b-flat and c', while the chanson also uses g twice. Aaron's list of cadences in Chapter 11, which is discussed below, says the fifth mode has cadences only on f, a, and c'; by the

⁸⁴ Josquin Desprez, Werken: Motetten, ed. Albert Smijers, I, 24-26.

standard of regular cadences both could be sixth mode but not fifth. If the irregular cadences of Chapters 17 and 18 are consulted, no distinction can be made because the choice of cadence points is practically identical for both modes.

Aaron says the fifth mode may end on c' because of its differentia on that note, but the sixth mode lacks such a differentia and thus cannot end there, even though c' is the cofinal of the mode. Evidently he prefers to class compositions using this final in seventh or eighth mode, since he gives several examples of each but only one of fifth mode. The latter (Table 18) seems to be a real use of the diferentia, since the mode appears to be F Ionian throughout and the expectation is a final cadence on F rather than the actual ending on C. Although the text is taken from Psalm 138, no psalm tone appears as a cantus firmus, so the ending on c is not explainable in that way. Another possibility is that the motet originally had more partes, only the first of which was published, since cadences elsewhere than on the regular final often concluded other partes than the last. No transposition is used so no question of the cofinal arises.

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Obrecht, <u>Si sumpsero</u>	1-flat STC	F ionian	c-c'-c''	f-a'	c'	c'-g',g-c',c'-f', f-c',d'-a'

Table 18 - Example of 5th mode ending on C sol fa ut (c')

For the seventh and eighth modes Aaron admits four possible final notes, G, c, g, and c'. The ending on G (of which he gives no examples) he says can pertain only to the seventh tone, not the eighth, presumably because of the unlikelihood of finding the plagal descent to D; with a flat signature the mode is first or second. The regular final of the tetrardus is g, and an ending there signifies seventh or eighth mode, depending on the range (again excepting compositions in transposed protus). The examples again bear out the authentic-plagal distinction, though some of those for eighth mode do not lie so uniformly low as the other plagals, as is indicated by several final chords which use g instead of G in the bass. (Tables 20 and 21) At this period the Mixolydian resisted the tendency towards Ionian better than did the Lydian, and all the examples with final on g are definitely Mixolydian, despite the F# usually required at the cadences; elsewhere the natural seventh degree and its triad are used frequently.

The seventh and eighth modes ending on c and c' are more problematical. The compositions ending on the lower octave (Table 19) Aaron takes to be in eighth mode because the natural requirements of the mode are observed except

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Orto, <u>Ma mari</u> <u>m'a diffamée</u>	1-flat SAT, 2-flat B	C dor- ian	c-c-g-c'	B ^b -b ^b	c	f-b ^b ,d-a,c-g
<u>E la la la</u>	none	C ionian	c-c-g-c'	c-f'	c	c-g,g-c',g-d'

Table 19 - Examples of 8th mode ending on C fa ut (c)

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
De la Rue, <u>Missa BVM,</u> <u>Gloria</u>	none	G mixoly- dian	g-g-b-g'	g-a'	g	g-d', d'-g', a-d'
Hylaere, <u>Ascendens</u> <u>Christus</u>	none	G mixoly- dian	g-g-g'-d''	d-g'	g	d-g, g-d', d'-g'

Table 20 - Examples of 7th mode ending on G sol re ut (g)

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
<u>Agricola, Si dedero</u>	none	G mixolydian	G-g-g'	e-f'	g	c-g,g-d',c'-f'
<u>Josquin (?) O Venus bant</u>	none	G mixolydian	G-g-g'	g-e'	g	g-d'
<u>Compère, Disant adieu</u>	none	G mixolydian	g-g-g'	d,g-f'	g	g-d',a-d'
<u>Je suis amie</u>	none	G mixolydian	g-g-d'-g'	d-d'	g	g-d',d-a
<u>Myn morgen ghaf</u>	none	G mixolydian	G-g-d'-g'	d-d'	g	d-g,g-d',e-a
<u>Ninot, Hélas, hélas</u>	none	G mixolydian	G-g-d'-g'	d-f'	g	g-d',e-a,g-c'
<u>Compère, E d'en revenez vous</u>	none	G mixolydian	g-g-d'-g'	f-d'	g	g-d'
<u>Beata dei</u>	none	G mixolydian	G-g-d-g'	d-f'	g	d-g,g-d',a-e',g-c'

Table 21 - Examples of 8th mode ending on G sol re ut (g)

for the lack of the proper species of fourth (TTS rather than TST, the difference between G-c and d-g). The range of his examples indicates seventh rather than eighth mode, since neither descends to the plagal range but both climb well up into the authentic, E la la la indeed a fourth beyond it. On the other hand, examples ending on c' are given for both seventh and eighth modes but there is no apparent difference between the two (Tables 22 and 23); the ranges, cadences, and tessituras are identical. The only piece to fill the authentic range, Mittit ad virginem, is in tonus mixtus and the proponderance is plagal since c'' is touched only once.⁸⁵ No logical explanation suggests itself for Aaron's treatment of these two finals; he seems to have ignored the criteria he previously had established. His justifications of seventh and eighth modes on c' are the differentia and cadences found there in both modes, but this does not explain the distinction between them.

Most of the examples on c or c' are Ionian rather than

⁸⁵ Glareanus, *Dodekachordon*, ed. & transl. P. Bohn (Leipzig, Breitkopf und Härtel, 1888), p. 316-318, confirms the malassignment of Coment peult and calls it plagal rather than authentic, but of course Ionian rather than Mixolydian also. His example is a contrafactum of Coment peult entitled O Jesu fili David.

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
<u>Compère, Mes Pensées</u>	none	G mixolydian- C ionian	c-c'-c''	g-a'	c'	c'-g',g-c',d'-g', g-d',d'-a',a-e',a-d'
<u>Josquin, Madame hélas</u>	none	C ionian- mixolydian	c-c'-c''	g-a'	c'	g-c',c'-f',g-d',c'-g'
<u>Josquin, Comment peut</u>	none	C ionian	c-c'-g'-c''	g-g'	c'	c'-g',d'-g',g-c'
<u>Josquin, Mittit ad virginem</u>	none	C ionian	c-c'-e'-c''	g-c''	c'	g-c',c'-g',g-d',d'-g'

Table 22 - Examples of 7th mode ending on C sol fa ut (c')

Author and Title	Signature	Mode	Final Chord	TENOR		
				Range	Final	Species of 5th & 4th
Japart (?), <u>Je cuide ce temps</u>	none	C ionian	c-c'-e'-c''	g-a'	c'	c'-g',g-d',g-c',d'-g'
<u>Ne l'oserai je dire</u>	S, none ATB, 1♭	C ionian- mixolydian	c-c'-g'-c''	g-g'	c'	g-c',c'-f',c'-g'

Table 23 - Examples of 8th mode ending on C sol fa ut (c')

Mixolydian because of the lack of a key signature, despite the frequent need for B-flat as ficta in such a work as E la la la. Ma mari m'a difamée differs in this respect because of its signature of two flats in the bass and one in the other parts, thus fluctuating between Dorian and Mixolydian through the conflict of e-flat and e-natural. Ne l'oseray je dire also has a conflicting signature, but of one and no flats, thus vacillating between Ionian and Mixolydian. Compère's Mes Pensées exhibits a tonal instability similar to that found in pieces containing a conflicting signature, though it does not have one itself. It features imitation at the interval of a fifth, imitation, which is consistently carried through the entire phrase with little exception; this produces the effect of two tonal areas appearing in alternation, G-Mixolydian and C-Ionian. Because only two voices at a time are sounding through much of the pieces, harmony lends little conclusive support to either area. The final chord is an open double octave C, but the tonal center might equally correctly be considered to be G. Modal theory in either case cannot present a satisfactory account of the complex of voices, only of the individual lines. The work differs from those with conflicting signatures in that two different finals as well as two different

modes are in conflict.

So far as it discusses the modes, the remainder of Trattato is of less interest and value than the first seven chapters. Chapters 8 to 20 are concerned with cadences and their relation to modality, while Chapters 21 to 24, discussed above, list the notes on which a mode may begin. Chapters 25 to 45 deal with transpositions of the hexachord system and will be discussed in Chapter VI of this study. Chapter 8 of Trattato states that a composition which fails to use the proper cadences is comprehended with difficulty and that Aaron wishes to explain their proper use to those who are unacquainted with it. The cadence is "a sign by which composers make an indirect ending according to the sense of the words."⁸⁶ He cites Jean de Muris to the effect that if one does not make cadences occasionally, the sense of the composition won't be perfect; in other words, articulation is as necessary to music as to speech. Cadences are made principally on the final and cofinal, as is true also in plainchant.⁸⁷

⁸⁶ Trat., Chapter 8: "Cadenza non è altro che un certo segno del quale gli Compositori per alcun senso delle parole fanno un mediato fine."

⁸⁷ Ibid.

Chapters 9-12 list the proper cadence points for each mode:

1st mode: d, f, g, a
 2nd mode: c, d, f, g, a, A
 3rd mode: e, f, g, a, b, c'
 4th mode: c, d, e, f, g, a
 5th mode: f, a, c'
 6th mode: c, d, f, a, c'
 7th mode: g, a, b, c', d'
 8th mode: d, f, g, c'

The same notes may be used an octave higher; a list at the end of Chapter 12 so transposes the above list. This list goes somewhat beyond the finals and cofinals mentioned in Chapter 8, and the irregular cadences listed in Chapters 13-20 go even further. In the latter Aaron says that each mode normally proceeds within its proper species of fifth and fourth, failing which a disoriented (distonata) progression results, and notes other than those already mentioned may have to be used at cadential points:

1st mode: e, b, c'
 2nd mode: e, b, c'
 3rd mode: c, d
 4th mode: b, c', d'
 5th mode: c, d, e, g, b, d'
 6th mode: e, g, b, d'
 7th mode: d, e, f
 8th mode: c, e, a, b, d'

Consequentially, considering both regular and irregular cadences, any mode may cadence on any note. Since the possibilities are so unlimited, it would not seem that internal

cadences are helpful in determining the mode. If as Aaron recommends in Chapter 8 a composition stays largely within the bounds of the fifth and fourth proper to its mode, its cadences would fall largely on the final and cofinal and such a preponderance would strongly indicate the modality. Such consistency is not apparent in practice; of the compositions Aaron cited in the previous chapters few use only one fourth and fifth throughout (see the last column in each table). Almost all of the tenors are examples of toni commixti, and in view of this Aaron's seeming disapproval of such modes expressed in Chapters 13 to 20 is unexpected since he had mentioned them earlier in Trattato as well as in Institutione Harmonica with no sign of disapproval.

Aaron's writings on the modes contain a mixture of progressive and traditional ideas which is the most evenly balanced thus far encountered in the present study. His conception of the modes in chant is almost entirely derived from the Italian tradition which Niemöller described;⁸⁸ the only point at which he diverges is in his discussion of transposed modes and cofinals, where his criticism was

⁸⁸ See footnote 6 above.

inadequate. On the other hand, such a detailed description of the modes in polyphony had never been attempted previously. Although Trattato's conceptual framework is traditional and although previous writers had broached its subject more or less directly, it is unprecedented in the scope and detail with which it explores its topic, and it set forth the methods for discussing the modes in polyphony which were followed and expanded by many writers later in the sixteenth century. Aaron of course builds on tradition rather than breaking with it, but his extension is distinctly progressive in opening a new area for discussion.

Details of Aaron's presentation can also be singled out as progressive. Basing his statements on practice was characteristic of Renaissance rather than medieval thought, and the citation of so many compositions as examples is a consequence of that attitude. As has been noted, Aaron's citations are much more numerous than those of any previous writer; he perhaps furnished a precedent to Glareanus, who improved on the precedent by including the scores of his examples in Dodekachordon. Aaron may also be considered progressive in his statements favoring modal regularity. He preferred the regular finals and cadences and a limited choice

of beginning tones, all of which should ideally emphasize the characteristic fourth and fifth of the mode, although he dutifully mentioned examples that conflicted with this view, and he opposed the obscuring of modality by such practices as conflicting signatures.⁸⁹

His preference for regularity possibly had some influence on the success of his work. Taken on his own terms, he was most successful in dealing with compositions which easily fell into the traditional framework of eight modes. His most serious difficulties were met in dealing with compositions which ended on a or c' and had no signatures; these pieces simply do not fit into the system, and the concepts of differentia and cofinal which Aaron used to explain them do not furnish a logical solution to his problems. In his own terms he perhaps could have done nothing else than he did, but these compositions point up the greatest weakness of his work.

His failure to recognize the Ionian and Aeolian modes may be considered another weakness, but it is not of the sort

⁸⁹ Lowinsky, "Conflicting Signatures," p. 250, makes the same observation, noting that Aaron's attitude came to prevail first in Italy, ultimately throughout Europe in the sixteenth century.

which can be held up as a reproach. Aaron found no need to give up certain old ideas and replace them with new ones more adequate to the facts; almost without exception his new ideas do not supplant tradition but extend it. The extensions were valuable in their day and amply establish his historical stature. Had he directly attacked tradition more often, his work might have been even more valuable, but it was apparently not in his nature to do so. It might also be argued that the time was not yet ripe for new ideas such as those put forth later in the century. Aaron's most serious failing seems to be that he was not sufficiently progressive, a trait of character rather than a defect of intellect.

It is true that to call some of the examples Ionian and Aeolian is more adequate than to explain them within only eight modes. The Dorian and Lydian with B-flat and the compositions based on a and c' are better described thus, although the latter category, as mentioned above, possesses features which are obscured by such a classification. But it may be questioned whether the traditional theory of modality or Glareanus's extension of it are fully adequate to deal with polyphonic music of the fifteenth and sixteenth

centuries, in which vertical sonority is such an important element. The modes were conceived to explain monophonic music and their application to a polyphonic-harmonic complex is necessarily only approximate. Aaron's solution, singling out the most important line, at least allows one to discuss conveniently the modality of a polyphonic work, as Reese has noted.⁹⁰ But as long as the harmonic element and its interaction with the polyphonic are overlooked, the tonal structure of Renaissance music is not adequately described. Such a description was of course unattainable in the sixteenth century and for some time afterwards. The more sophisticated theoretical concepts of the present might offer more hope of success in dealing with this situation; one approach that would seem productive is developed in Felix Salzer's Structural Hearing.⁹¹ Although theory of the sixteenth century was not entirely successful in dealing with mode in

⁹⁰ MR. p. 183. Tinctoris had made clear that mode referred mainly to a single line (ibid., p. 141; CS. IV, 29). Glareanus also described the combination of several modes in different voices of a polyphonic work.

⁹¹ New York, Charles Boni, 1952, especially Part III, Chapter 2. Lowinsky in Tonality and Atonality attacks the same problem, but several objections may be raised to his work. His use of the terms "modality" and "tonality" is not precise; as noted above, he does not distinguish between the

polyphony, the important writers of the period did not avoid the subject, and much credit for being the first to attempt a solution is due to Pietro Aaron.

mode of a line and that of a polyphonic complex. The book seems always to refer to the latter, in essentially the sense in which it is described above on p. 272. "Tonality" seems to include "modality" for Lowinsky; he distinguishes major-minor tonality from tonality in a more general sense, that of defining a tonic. The latter, he says, is also found in modal music (op. cit., p. 3, footnote 1). His reader may thus be pardoned some confusion about what is modal and what is tonal, also about which sort of tonality is referred to by any given appearance of the word. The broader definition of tonality can be applied to almost any Western music, monophonic or polyphonic, and would thus seem to be excessively inclusive for the purposes of his discussion. A tonic can be established in many ways, not all of which are useable in major-minor tonality. Since Lowinsky's intention is to show the appearance and development of elements of major-minor tonality in the sixteenth century, more precise terminology might have been helpful. In his analysis of specific works he clarifies matters somewhat by stating that "mature tonality" emphasizes the tonic more strongly by the use of dominant and other seventh chords (page 20), but the analysis of specific compositions is too exclusively chordal and often makes chords from tones that are better explained as details of voice-leading, such as passing or neighbor tones. The examples thus fail sometimes to make the intended point. Exception might also be taken to the concept of "modal degrees;" Lowinsky's distinction between Dowland's and Tromboncino's use of these degrees (p. 57-61) is totally unconvincing as a differentiation between "modal" and "tonal" traits. Chords on the "modal degrees" are used in major-minor tonality in both ways, Dowland's and Tromboncino's, as an examination of J. S. Bach's 371 Chorales would show. Lowinsky is unquestionably correct in asserting that elements of major-minor tonality appear in the sixteenth century, but his analytical techniques are not entirely successful in demonstrating his thesis.

CHAPTER V

COUNTERPOINT

Counterpoint was a major preoccupation of theorists in the late fifteenth and the sixteenth centuries. Almost every major theorist of the period, in a separate treatise or in a major section of a comprehensive work, devoted considerable attention to the nature and rules of part-writing. Tinctoris in the preface to his Art of Counterpoint had noted the new musical style established during the fifteenth century by Dunstable, Dufay, and their successors, of which one of the leading characteristics was a richer, more sonorous harmony; Tinctoris's treatise in turn established a new style of writing about counterpoint, based primarily on attention to the vertical rather than the linear element in combining melodic lines. Jeppesen has observed that increased possibilities in the use of harmonic consonance called forth this attention, since the linear element could be taken for granted.¹ It is thus an engaging paradox that

¹ Knud Jeppesen, Counterpoint, translated and with an introduction by Glen Haydon (New York, Prentice Hall, 1939), p. 10.

theorists around 1500 discussed tonality, the modes, in linear terms, and counterpoint in vertical terms, precisely the opposite of the attitude which prevails at present. This approach dominated writing about counterpoint for some hundred years after Tinctoris, for many later writers simply restated Tinctoris's rules without observing the developments which had taken place in practice since his time.²

Pietro Aaron's discussions of counterpoint are in the tradition of Tinctoris but are by no means slavish imitations of him or any other predecessor. In almost every detail he reflects contemporary musical style and is explicit and detailed beyond any other writer of his time. As Riemann said, a better introduction to four-part counterpoint was hardly available at the time.³ Aaron's most important books on counterpoint are Institutione Harmonica and Toscanello; Lucidario adds a few details and Compendiolo is largely repetitive of the earlier books. Riemann recognized the importance of Toscanello but he was evidently unacquainted with Institutione Harmonica, which includes several topics discussed not at all or only briefly in Toscanello and is a

² Ibid., p. 13.

³ Riemann, MusTh., p. 357.

valuable complement to the latter.

Aaron had even less to say about voice-leading proper than Tinctoris, ignoring almost completely the subject of dissonance treatment, to which Tinctoris had devoted several rather detailed chapters. Aaron's definitions of counterpoint nonetheless stress the linear element more than do those of Tinctoris.⁴ The first definitions in Institutione Harmonica refer to motion in fast and slow intervals of time as well as to consonance, this however because of their position as a prologue to the section on notation.⁵ In the introduction to the section on counterpoint, another definition calls counterpoint a song with added voices, again stressing the linear concept.⁶ Toscanello speaks first of the temporal element then mentions harmony, the latter as an aspect of the derivation from punctus contra punctum, note against note.⁷ Compendiolo cites Tinctoris's definition

⁴ Johannes Tinctoris, The Art of Counterpoint, transl. and ed. Albert Seay, p. 17: "Counterpoint...is a moderate and reasonable concord made by placement of one pitch against another."

⁵ IH. II, 1, f. 19r.

⁶ IH. III, 1, f. 37r.

⁷ Tosc. II, 13: "Contrapunto chiamiamo un modo contenente in se diverse variationi di suoni cantabili con certa ragione di proportioni, & misura di tempo."

and continues with the customary division into simple and diminished counterpoint⁸ which Aaron's earlier works had also mentioned.⁹ The next chapter of Compendiolo lists with no further explanation six "principal parts" of counterpoint, Allegro, Soave, Fugato, Harmonioso, Commodo, and Sincopato, which seem to enumerate some of the qualities good counterpoint should or could possess.¹⁰ Fugato, sincopato, and harmonioso fairly obviously refer to the possibilities of imitation and syncopation and the necessity for consonance between the parts. Commodo and soave, "convenient, suitable" and "smooth," would seem to stress that the writing be euphonious, both in voice-leading and in harmony. As Toscanello had said earlier, the voices should not make unpleasant, difficult leaps, but move smoothly from one note to the next.¹¹ The meaning of allegro is somewhat obscure in this context. The most general meaning of the

⁸ Comp. II, 61.

⁹ IH. III, 1, f. 37r.

¹⁰ Comp. II, 62.

¹¹ Tosc. II, 21.

word, "cheerful," hardly seems to apply directly; the musical meaning of "lively" suggests that Aaron means that the voices in counterpoint should give the impression of motion and life, through the careful design of each voice and through the rhythmic counterpoint formed by the interaction of varied rhythmic configurations in each part.

Aaron begins his discussions of counterpoint with the customary definition and listing of consonances and dissonances. Toscanello gives the only definition of consonance, "a concord among different notes which are sounded together."¹² Institutione Harmonica and Compendiolo make the customary distinction into simple and compound consonances and distinguish the latter further into doubled and tripled consonances, depending on whether one or two octaves are added to the simple consonance.¹³ Toscanello implies the same division without giving different terms for each octave.¹⁴ The consonances according to both Institutione

¹² Tosc. II, 13: "La consonanza (come a Boetio piace ne la musica sua al capitolo terzo in fine) si diffinisce essere concordia di voci tra se dissimili insieme ridotta...."

¹³ IH. III, 2, f. 37v; Comp. II, 65.

¹⁴ Tosc. II, 13.

Harmonica and Compendiolo are the unison, semiditone, ditone, perfect fourth, perfect fifth, major and minor hexachord, and octave, which is the first double consonance.

Institutione Harmonica includes the major and minor sevenths among the consonances but surely by error, possibly the printer's, since the seconds, sevenths, augmented fourths, and diminished fifths were invariably dissonant.¹⁵ The consonances are further divided into perfect consonances, the unison, perfect fifth and perfect octave, and imperfect consonances, the thirds and sixths.¹⁶ Compendiolo gives different terms, calling the fifth and its compounds equisonante and the thirds and sixths consonante, emphasizing the close relationship of the fifth and octave, but the meaning seems essentially that of the earlier books.¹⁷

Some ambiguity about the perfect fourth is found in Institutione Harmonica and Compendiolo, in which it is listed among both consonances and dissonances.¹⁸ The 1523 edition

¹⁵ IH. III, 2, f. 37v.

¹⁶ IH. III, 3, f. 37v; Tosc. II, 14.

¹⁷ Comp. II, 64.

¹⁸ IH. III, 2, f. 37v: "Inter consonantias numeramus... Diatesseron; quae est quarta..." IH. III, 4, f. 37v: "Dissonantiae tres sunt: Secunda; Quarta; & Septima." Comp. II, 63: "Delle consonanze atte alle compositioni....Pertanto le

of Toscanello resolves the riddle, stating that the perfect fourth is dissonant in two-voice writing but is consonant in three or more parts when supported by a lower third or fifth,¹⁹ a view which is still to be found in modern pedagogy. Surprisingly enough, the 1529 and later editions of Toscanello return the fourth to the list of consonances without qualification.²⁰ Speculative theory had long considered the interval a consonance because of its simple superparticular ratio (4:3) and its consequent similarity to the other perfect consonances, but in practice it had been found dissonant when standing alone. Tinctoris was one of the first theorists to take a practical approach,²¹ as

sopradette spetie saranno le seguenti cioè, Unisono, Dittono, Semidittono, Diatessaron...;" Comp. II, 64: "Delle dissonanti. Seconda. Quarta. Settima...;" Comp. II, 65: "Le consonanze semplici sono .6. lequali per se stanno, senza altro nascimento come le seguenti cioè, Il Dittono, Il Semidittono, Il Tetrachordo, & Pentachordo...."

¹⁹ Tosc. II, 13 (1523 ed.): "Sappi che di sopra nelle consonanze non habbiamo fatto mentione del diatessaron, over quarta, perche tal diatessaron per se solo è dissonante, et volendo exercitare una compositione a due voci, essa diatessaron senza esser trammezzato assai discorderebbe, come la esperienza dimostra. Per tanto del detto diatessaron nel capitolo, dove di piu de due voce si parla; intenderai, come si debba usare." Aaron referred to the tables of chords given in Chapters 21 to 30.

²⁰ Tosc. II, 13 (1529 and subsequent ed.).

²¹ Tinctoris, The Art of Counterpoint, p. 4.

did Ramos at about the same time and Gafori a few decades later; all of them described it as dissonant when standing alone.²² It is not clear why Aaron was so equivocal about this interval; he perhaps was torn between the conflicting claims of abstract theory and concrete practice in the passages cited above. When he describes a purely practical situation, it is clear that the 1523 Toscanello represents his intentions. Another chapter in the same book describes the use of more than four voices; in it Aaron says that in general a fourth may appear between two sopranos, two altos, or two tenors:²³

Thus the use of the consonance of the fourth is considered optional to the soprano, tenor, and contralto, because each of them can be given a fifth below...but it does not happen thus in the contrabasses, because if they wish to use the consonance of the fourth, it would cause the greatest discord, since the third or fifth below is lacking.

After defining counterpoint and the consonances, Aaron considers specific problems of composition, first how many

²² Ramos, Practica, II, i, 1, p. 63; Gafori, Practica, III, 2.

²³ Tosc. II, 31: "Pertanto questa considerazione de la consonanza quarta è chiamata arbitraria al soprano tenore & contralto: perche si puo di sotto a ciascuno dargli la sua quinta...ma non cosi accade ne gli contrabassi: perche essi contrabassi volendo discorrere per una consonanza diatesseron, sarebbe in quegli grandissima discordia, mancando sotto la quinta o terza:"

parts should be used. He states that a full composition (absoluta modulatio) is divided into four parts, commonly called cantus, tenor, bassus, and altus.²⁴ Aaron, although some fifty years behind practice, was one of the first theorists to state a preference for four voices. Tinctoris and Gafori both spoke indiscriminately of three, four, or even five parts in their treatises, in which most of the musical examples are in three parts.²⁵ Aaron's names for the parts are also up to date; he no longer speaks, in the fifteenth-century manner, of a contratenor altus and contratenor bassus but simply altus and bassus.²⁶ In addition to the normal distribution of the four parts, he mentions the possibility of using only voces mutatae, mature male voices, on all four parts; the available range would then be reduced to a fifteenth or seventeenth as opposed to the three octaves possible among the regular four parts.²⁷

²⁴ IH. III, 8, f. 38v.

²⁵ Their compositions perhaps were more nearly in tune with practice; Gafori certainly preferred four voices.

²⁶ Riemann, MusTh., p. 349, noted that Aaron in Tosc. gave these names as they were presumably used in Italy at the time, and IH. seems to do the same, transcribing them from Italian into Latin rather than using the older Latin terms. Tosc. uses controalto and controbasso, but the shorter forms alto (altus) and basso (bassus) appear in IH.

²⁷ IH. III 46, f. 52v.

The possibility of writing more than four parts is also considered. Institutione Harmonica III, 9, shows that a chord of eleven or twelve different notes can be formed within the normal range of the human voice and that that many parts can therefore be used simultaneously. Any more than this would require many unisons and rests, in either case reducing the effective number of lines. But even twelve parts would be inordinately burdensome to set out properly, and Aaron suggests that eight or nine are a practical maximum.²⁸ This observation seems to have been borne out in practice during the sixteenth century, since when as many as eight voices were used the texture was more often poly-choral than strictly polyphonic. Aaron's statement does not envision antiphonal choruses, which can of course employ more than eight voices quite comfortably. Compositions for as many as eight parts in a single chorus are somewhat exceptional throughout the Renaissance. Toscanello has the most specific information about using more than four voices. Aaron advises that two sopranos, altos, or tenors should stay within the

²⁸ IH. III, 9, f. 39r-v.

same range, the two parts frequently crossing each other but avoiding the range of higher or lower lines. He also notes the difficulty of adding a fifth part to a composition conceived for only four voices. If five, six, or more parts are desired, the composer should write them simultaneously in order to avoid the rests, unisons, and awkward progressions which would result from successive composition of so many voices.²⁹

An earlier chapter of Toscanello, one of the best known passages in Aaron's writings, had already discussed this problem with reference to four-part compositions. Aaron was the first to describe this highly significant change in compositional procedure which evidently took place a few decades before he wrote:

Come il compositore possi
dare principio al suo canto.
Cap. XVI.

How the composer may give
a beginning to his song.
Chapter 16.

La imaginatione di molti
compositori fu, che prima
il canto si dovessi fabri-
care, da poi il tenore, &
doppo esso tenore il con-
trabasso. Et questo avvenne
perche mancorno del ordine

Many composers had the
idea that the cantus should
be fashioned first, then
the tenor, and after the
tenor the contrabass. This
happened because they
lacked the order

²⁹ Tosc. II, 31.

& cognitione di quello che si richiede nel far del controalto, & pero facevano assai inconvenienti ne le loro compositioni, perche bisognava per lo incommodo che vi ponessino unisoni, pause, salti ascendenti & discendenti difficili al cantore, overo pronontiante, in modo che detti canti restavano con poca soavita & harmonia, perche facendo prima il canto over soprano, di poi il tenore, quando è fatto detto tenore, manca alcuna volta il luogo al controbasso, & fatto detto contrabasso, assai note del'controalto non hanno luogo, per laqual cosa considerando solamente parte per parte, cioè quando si fa il tenore se tu attendi solo ad accordare esso tenore, & cosi il simile del controbasso, conviene che ciascuna parte de gli luoghi concordanti patisca. Onde gli moderni in questo meglio hanno considerato, come è manifesto per le compositioni da essi a quatro a cinque a sei, & a piu voci fatte, de lequali ciascuna tiene luogo commodo facile & grato, perche considerano insieme tutte le parti & non secondo come di sopra è detto. Et se a te piace componere prima il canto tenore o controbasso, tal modo & regola a te resti arbitraria, come da alcuni

and understanding of what was required in making the contralto, and thus they made many difficulties in their compositions, because this inconvenience forced them to use unisons, rests and unsingable leaps, ascending and descending, so that their music had little smoothness or harmony.

For when the cantus was written first and then the tenor, sometimes there would be no space left for the bass after the tenor was written, and after the bass was written some notes in the alto would lack a place. Thus when one considers only part by part, that is, when you attend only to the concord of the tenor when composing that part, and the same for the contrabass, each part may necessarily suffer the loss of its concordant positions.

The moderns have considered better in this matter, as is evident in their compositions for four, five, six, or more voices, each of which is situated conveniently, easily, and smoothly because they consider all the parts at once rather than by the method described above. If you prefer to compose the cantus, tenor, or contrabass first, this is at your discretion, as one may observe that some

al presente si osserva, che molte fiato danno principio al contrabasso, alcuna volta al tenore, & alcuna volta al contro-alto. Ma perche questo a te sarebbe nel principio malagevole & incommodo, a parte per parte comincerai, nondimeno di poi che ne la pratica sarai alquanto esercitato, seguirai l'ordine & modo inanzi detto.

composers at present begin many times with the contrabass, sometimes with the tenor, and sometimes with the alto. But because it might be difficult and troublesome to begin part by part [now with one part, now with another] in the beginning, until you are somewhat experienced through practice, follow the order and method given above.

Obviously, five or more voices must all the more be carried forward simultaneously because of the difficulty of fitting in a fifth voice when four are already complete. As Lowinsky suggests, the new technique must have resulted from increased attention on the part of composers to the harmonic as distinct from the linear element;³⁰ the point of view of theorists from Tinctoris on amply confirms Lowinsky's suggestion.

Lowinsky states that Aaron described the same technique earlier, in Institutione Harmonica III, 10, but the passage is not as explicit as one might wish. Aaron said that composers no longer follow the older procedure, but he did not specify what the new procedure is:³¹

³⁰ Lowinsky, "The Concept of Physical and Musical Space in the Renaissance," Papers of the American Musicological Society, 1941, p. 66-67.

³¹ Aaron's chapter is given complete, with a translation in the middle column. The portions translated by Lowinsky, loc. cit., are given in the third column. The second sentence of Lowinsky's translation departs significantly from the original.

Unde etiam secundum
veteres inchoanda
sit modulatio &
ubi terminanda.
Cap.X.

Where a song is to
be begun and ended
according to the
ancients.
Chapter 10.

Modulatio quidem
secundum veterum
morem & institu-
tionem primum quidem
a cantu inchoanda
est, subsequi tenor
debet, tertio loco
bassus, quarto demum
qui dicitur altus.
Sed quia saepenumero
accidit ut partes
hae quattuor in
quinque in sex
etiam augeantur, nam
tenor aut pars alia
geminari solet. Id
cum fiet liberum
componenti est, post-
quam sua praedictis
ordinariis partibus
assignaverit loca,
reliquas ut ipsi com-
modius videbitur &
melius atque uti
libuerit disponere.
Nostri tamen temporis
compositores facile
deprehenduntur hanc
non servare veterum
consuetudinem, ut
partes quas diximus
quattuor tali semper
ordine concinnent,
quod nos quoque
crebro facimus, sum-
mos in arte viros
imitati praecipue
vero Josquinum,
Obret, Isaac, &
Agricolam, quibus

A song according to
the old custom and
practice is to be
begun first by the
cantus; the tenor
must follow, the
bass third, and
the voice called
alto fourth. But
it often happens
that these four parts
may be increased to
five or even to six,
for the tenor or
another part may be
divided. This when
it is done is at the
discretion of the com-
poser, after he has
assigned their places
to the aforesaid or-
dinary parts, to dis-
pose the others as it
seems most convenient
and pleasing to him-
self. The composers
of our time though
are easily seen not
to observe this old
practice, that they
always join together
the four parts which
we mentioned in such
an order. We also do
this often, imitating
the greatest men in
the art, especially
Josquin, Obrecht,
Isaac, and Agricola,
with whom we had the

(Lowinsky's trans-
lation; emphasis
supplied by Lowin-
sky.)

However, it is easy
to observe that
modern composers do
not follow this
traditional manner.
They conceive the
four above-mentioned
parts always in such
order together. I
myself work often in
this way. I follow
in this the greatest
composers, particular-
ly, however, Josquin,
Obrecht, Isaac, and
Agricola, with

cum mihi Florentiae familiaritas & consuetudo summa fuit. Quod nos quidem in tantum probamus: ut affirmemus ea ratione modulationem ipsam fieri concinniores. Verum quoniam ita facere difficilis admodum res est & longo usu & exercitatione indiget, veterum morem & ordinem quo sit facilius ad componendum via sequemur.

greatest familiarity and intercourse at Florence. We approve of this so much that we affirm that the song itself is made more beautiful for that reason. But because it is a rather difficult thing to do thus, and it requires long use and training, we follow the old custom and order by which the road to composition is easier.

whom I had the most intimate acquaintance in Florence. We feel sure that in this way the composition becomes more harmonic. But because this manner of composing is difficult in the utmost, and because it needs long training and use, we shall follow the traditional method so that the road towards composition may be found easier.

This passage is sufficiently ambiguous that it might be taken to refer to the order of entrance of the voices, as for instance in a point of imitation, but the explicit statement of Toscanello unquestionably refers to the order of composition, and it follows that the earlier work probably does also. Taken to refer to the order of entrance, the passage would be in glaring contradiction to the facts. The "old custom," i.e., of Ockeghem's generation, used imitation only occasionally; compositions of this period seem more often to begin with two or more voices simultaneously than with successive entrances, one by one. In Josquin's generation imitation became much more frequent,³² but the order of entrance of the

³² Reese, MR., p. 249 ff.

voices was never standardized. An examination of the four-voice motets published in the first twenty-three fascicles of Josquin's Werke: Motetten shows a wide selection of orders of entrance in those motets which begin with a point of imitation; the only clear preference is for the order soprano-alto-tenor-bass. Aaron seems to take note of this in the last two sentences of the quotation from Toscanello and recommends that although composers allow any of the four voices to enter first, the student will do well at first to follow "the order given above," beginning with the entrance of the soprano, but then carrying all four voices forward together, the "method given above." Toscanello, unlike Institutione Harmonica, refers to the order of entrance as well as to the order of composition, a fact which seems to have been overlooked heretofore.

Institutione Harmonica lists the notes on which a composition should properly begin, confining them to the tenth lying between c' and e", which should not be exceeded except in case of some unusual novelty, according to older as well as present practice.³³ This passage in conjunction with that discussed immediately above from the same book may

³³ IH. III, 24, f. 44r.

strengthen the impression that the latter referred to the order of entrance rather than the order of composition. The beginning notes given by Aaron all lie within the normal range of the cantus, which could suggest that the cantus should enter first, but the inherent unlikeliness of this interpretation is not lessened by such shaky corroboration.

Like most other theorists of the Renaissance, Aaron emphasized the need for a composition to begin and end well, i.e., using consonances exclusively. He followed the contemporary trend of allowing an imperfect consonance at the beginning of a composition,³⁴ whereas Tinctoris and Ramos had preferred a perfect consonance at both beginning and end.³⁵ Aaron's descriptions of the beginning and end are based on Gafori's first and eighth rules of counterpoint; Toscanello even repeated Gafori's quotation of Aristotle to the effect that perfection pertains to the end more than to the beginning, this to justify a less perfect beginning.³⁶

³⁴ IH. III, 11, f. 40r; Tosc. II, 17.

³⁵ Tinctoris, op. cit., p. 132; Ramos, Practica, II, 1, 1, p. 65.

³⁶ Gafori, Practica III, 3.

Spataro's comment on this passage is quite interesting, touching on the very purpose of the rules themselves. He thought that Aaron should have retained the old rule which required a perfect consonance at the beginning. The rules are for the guidance of beginners in the art in order that they may follow a fixed standard and thereby learn more easily; perfect intervals should therefore be required at the beginning because their size is invariable and they are thus easier to handle. The learned are not bound by these rules, since they simply make the beginning light and easy rather than attending to what class of consonance they start with.³⁷ The value and function of rules in the study of music theory are still live issues, and it is interesting

³⁷ VL 5318, f. 209r, No. 79: "A me, Messer Petro mio honoꝛando, pare che vostra excellentia non distingua bene tale regula, perche la regula del contrapuncto data solo in li primi rudimenti constrenza le odistrente a principiari et finire el concerto in spetie perfecte, ma non constrenga el docto compositore, et questo è stato stabilito et ordinato da li docti et intelligenti compositori, de li quali e stato inteso che ogni principio deve essere facile et debille. Si che in lo instruire lo odistrente se deve principiari solo particule piu facile dite et cognite; per tanto quello precepto regolare, scilicet, principiari et finire in specie perfecta, è stato adducto per li principi-anti, et non per li docti compositori, perche li primi rudimenti debeno essere intro loro da tale immutabilita et firmeza che el rude odistrente non vada dubitando con la sua fantasia. Pertanto cadendo tale immutabilita in le spetie perfecte, tale spetie son state assignate al rude principi-ante per principio et fine del concerto, et etiam perche son piu facile da considerare che non sono le imperfecte."

to observe that they have remained such for over four hundred years. Spataro took the position that since the rules are not for experienced composers, they are for the guidance of students. To guide the student properly they must direct his attention to specific problems and prevent his imagination from running away with him; for this purpose the student must at first be restricted to comparatively simple situations which will permit him to study specific musical techniques in isolation from extraneous complications, under "laboratory conditions" as it were. (In the same letter Spataro stated that the advanced student needed the guidance of a teacher rather than mere rules; this passage is discussed below.) Aaron on the other hand favors a stylistic orientation, which derives its rules from the practice of a specific area of musical literature, in this case the music written by Aaron's own contemporaries, and by having him imitate a good style. Both approaches find adherents in modern pedagogy.

After describing how to begin a composition, Aaron considers how consonances should be used in succession, first stating the traditional stricture against parallel perfect consonances and specifically prohibiting a license of two

such consonances, which he said some writers allowed.³⁸

His reason for this restriction is conventional, that variety is more pleasing and that unisons, fifths, or octaves in succession are too similar to afford variety and independence of the lines. Institutione Harmonica explains the ban more picturesquely, that the soul feasts on the perfection of perfect consonances as the body feasts on good wine, but that a surfeit of either nauseates.³⁹ The repetition of a perfect consonance on the same pitch is of course allowed, even if the voices interchange the two notes.⁴⁰ The imperfect consonances may separate perfect consonances for variety or appear themselves in succession,⁴¹ as is shown

³⁸ IH. III, 12-14, f. 40r-41r; Tosc. II, 14.

³⁹ IH. III, 12, f. 40v: "Ratio autem quare non deceat tales consonantias eo modo quo diximus continuare ac ita committere, non alia quidem est quamque intermixta varietas gratiorem melodiam & suaviorem concentum gignit. In iis enim quibus animus pascitur simile quoddam accidit quando illa videmus efficere quae corpus alunt; nam si dulci vino frequenter utaris ac eodem modo epulis vescare delicatioribus, brevi fastidium ea res & nauseam ingenerabit."

⁴⁰ IH. III, 12, f. 40v; Tosc. II, 14.

⁴¹ Ibid.

consonance can move to another, by contrary or oblique motion, with no imperfect consonance intervening.

In commenting on Toscanello II, 17, Spataro objected to Aaron's description of the practice of the ancients, who Spataro said used a great variety of motions between intervals, as is shown by Ugolino, Ramos, and others.⁴² Spataro held that the older generation overlooked nothing about note-against-note counterpoint, and he added further interesting observations about music education. The ancients knew a composer, like a poet, was born, not made; one was taught simple and diminished counterpoint, thereafter going forward with the help of God and one's teacher to free composition, in which one is at liberty so long as the music remains concordant. This is not allowed in teaching however, and Spataro reprimands Aaron for allowing the student such freedom. Spataro insisted that the student must work within restrictions at first, and, of even more interest, recognized fully that the ability to compose can be cultivated

⁴² Ugolino, Declaratio, II, 32-34 (Book II, Chapter 26); Ramos, Practica, II, i, 2, p. 68 ff, which is partially an attack on Ugolino. Tinctoris, op. cit., Book I, gives more extensive possibilities than either Ugolino or Ramos.

but not taught.⁴³

Toscanello II, 14, considers the possibility of using a perfect and a diminished fifth in succession, but rejects it because the fifth is not diminished in a diatonic scale.

⁴³ VL 5318, F. 209v, No. 79: "Mi pare che vostra excellentia...reprehenda li antiqui de inconvenienti reprehensione, perche se vostra excellentia havesse veduto o bene examinati li exempli assignati da li antiqui in li soi compendii et tractati, forse quella haria trovato che ancora da essi antiqui è stato concesso (aliquando dopo le unisono) dare la quinta, (f. 210r) la sexta, et la octava, et questo acade secondo che la nota laquale ha unisono con el tenore, come vostra excellentia trovava se legereti quello discorso del contrapuncto facto da Ugolino, et dal mio preceptore, et da altri musici...perche la docta antiquita da mi (cosi senza consideratione reprehensa) non ha ignorato cosa alcuna pertinente al contrapuncto facto a due note, scilicet, a nota contra nota, perche da loro non è stato temptato piu ultra che li rudi principii, perche essa docta antiquita sapeva che l'arte et la gratia del componere la harmonia non se po insegnare, perche el bisogna che li compositori nascano cosi come nascono li poeti. Pertanto primamente da loro era dato el modo de componere a due note,...et dapoì demonstravano de minuire el tempo. Chi da poi piu ultra voleva procedere, bisognava che (mediante lo aiuto del preceptore) el fusse prima aiutato da qualche sua optima inclinatione celeste et gratia divina. Da poi vostra excellentia (senza havere respecto a le specie del sono del quale el concerto è composito) dati al compositore libero arbitrio che faccia come li piace et vuole pure che concordamente proceda, el quale arbitrio non è concesso in doctrina alcuna, perche dato che uno concerto se possa fare in multi mode, tamen el se debe sempre cercare da elegere el migliore modo, et in questo consiste la virtu da compositore, et da questo nasce che multi componeno et che la compositione de uno sara piu grata de la compositione de un altro, et circa questo se son affaticati de demonstrare li docti antiqui per via de regule et precepti. Perche dove acade che in una faculta se posa fare bene meglio, piu non cade arbitrio, ma li cade optima regula et precepto et gratia." Jeppesen called attention to this passage in MusThKorr, p. 24.

The passage paraphrases Gafori's second rule of counterpoint, even including the reference to the tempered fifth used by organists.⁴⁴ Aaron misinterpreted Gafori in one respect, since the latter did not say that the diminished fifth was not a diatonic interval, only that it was unsuitable for use in composition. Gafori's penultimate sentence, referring to the diatonic order, does not speak of a diminished fifth: "A harmonic mean disposed diatonically thus does not allow the order of diatonic species [of intervals] to be drawn from Proslambanomenos [A]." The diatonic order does of course contain a diminished fifth,

⁴⁴ Tosc. II, 14: "Et cosi per consequente quegli gli quali anchora poneranno in uso due quinte, l'una doppo l'altra, dato che una sia perfetta, & una imperfetta, secondo il parer nostro incorrono in errore, perche ne la divisione diatonica, non si patisce tal spetie diminuta, benche gli organisti nel suo accordare le voci, alquanto del suo proprio ne togliono, ma piu di leggieri essi sono tollerati per la participatione de l'altre consonanze." Gafori, Practica III, 3: "Nonnulli tamen sunt arbitrati duas quintas simul ascendentes vel descendentes pronuntiari posse: modo diversis protensae sint quantitatibus & intervallis: una scilicet perfecta: altera subtractione vel defectu semitonij diminuta:...quod mea sententia falsum est. Namque quintam semitonia diminutam quod maxima & nota sit huiusmodi diminutio? cantilena incongruam esse nemo dubitat. Hinc diapenticarum specierum ordinem a Proslambanomeno duci non patitur harmonica medietas diatonice disposita. Tamen quinta ipsa (quod organistae asserunt) minimae ac latentis incertaeque quodammodo quantitatis diminutionem patienter sustinet quae quidem ab ipsis participata vocatur."

from B to F, and it is not clear why Aaron should have said otherwise, especially in view of several other passages in his writings in which he explains the proper usage of the interval.

One such passage, in Lucidario II, 8, follows Ramos in allowing a perfect fifth and diminished fifth in succession, citing the example mentioned by Ramos (Walter Frye's song So ys emprentid) and adding a later example of his own (Verdelot's Infirmitatem nostram).⁴⁵ The chapter is largely concerned with parallel perfect consonances, which are again rejected, but the succession of perfect to diminished fifths is allowed because the two different species of fifth provide sufficient variety.

Evidently the diminished fifth in a chord of three or more parts was always acceptable to Aaron. Institutione Harmonica III, 28, allows it in a cadence pattern with a

⁴⁵ Luc. II, 8, f. 7v. The two compositions appear in Frye, Works, ed. Sylvia Kenney (s.l., American Institute of Musicology, 1960), p. 5, and Trieze livres de motets parus chez Pierre Attaignant, ed. A. Smijers (Monaco, Oiseau-Lyre, (1934-), IV, 99. The progression in question appears in Frye in meas. 46-7, between discantus and contratenor. Verdelot's motet does not seem to contain such a progression; meas. 50-51 have parallel perfect fifths between superius and second tenor, Bb/F to C/G and back. Perhaps Aaron saw a copy of the motet in which the flat was omitted or cancelled; he could also refer to an entirely different composition.

sixth below the fifth, thus as a diminished triad in 6-3 position. Because of the doubts expressed in Toscanello, Lucidario II, 7, returned to the subject, noting that common opinion rejects mi contra fa in perfect consonances, as Gafori had said and as Toscanello agreed. Nonetheless, he says that he had not meant to exclude completely the possibility of using this interval. It can stand by itself or be perfected by a flat sign, and one must examine each situation to determine which the composer intended. Three examples are then given to illustrate the correct use of the unaltered diminished fifth; Aaron states a preference for placing it on the weak half of the tactus and in a 6-3 triad. The third example, however, uses it in only two parts, the

EXAMPLE 11 - Lucidario II, 7, f. 7r



diminished fifth resolving a 4-5 suspension in the lower voice. Aaron concludes by stating that, in contradiction to Toscanello, the interval is found in the diatonic order, and must somehow be usable. If the composer wants it to be

perfected, this must be shown by a sign, as a further example illustrates:⁴⁶

EXAMPLE 12 - Lucidario II, 7, f. 7v



Balancing Aaron's contradictory statements one against another, it would seem that he accepted the use of the diminished fifth, following the liberal attitude of Ramos rather than the strictures of Tinctoris and Gafori. Tinctoris did not allow the interval at all, especially if it was formed by an accidental.⁴⁷ Aaron aped Gafori's

⁴⁶ Luc. II, 7, f, 6v-7v. Riemann's statements about Aaron's distaste for this interval, MusTh., p. 350, must be modified in light of this passage; Riemann discussed Toscanello only. Aaron's statement in favor of the diminished fifth also tells against one of the theses of Lowinsky's Secret Chromatic Art in the Netherlands Motet (New York, Columbia, 1946), p. 75, that the diminished fifth was avoided regularly in the music of this period; published criticisms of the book have questioned this assumption and Aaron corroborates them. Lowinsky, loc. cit., ascribes to Aaron a "deep-rooted aversinn" to the diminished fifth; the ascription hardly seems justified by the passage from Lucidario referred to above.

⁴⁷ Tinctoris, op. cit., p. 130-131.

disapproval in Toscanello but both before and after approved of the greater freedom found in practice, which Tinctoris had deplored some decades earlier.⁴⁸

As has been observed, Aaron is remarkably uninformative about the treatment of dissonance. Tinctoris gave considerable attention to this subject; The Art of Counterpoint II, 23-32, describes the permissible locations of dissonances in several different mensurations, with reference both to approaching and quitting the dissonance. In general he confines dissonance to a weak metric position, the smallest note values, and stepwise motion.⁴⁹ Gafori is in essential agreement with Tinctoris; he goes beyond him in admitting the possibility of accented dissonant passing tones but expresses distaste for them, although the generation of Dufay had used them.⁵⁰ Practice at the turn of the century seems more liberal in the use of dissonance than either Gafori or Tinctoris would have preferred; they anticipate the usage of Palestrina, which was restrictive even by the standards

⁴⁸ Loc. cit.

⁴⁹ Ibid., p. 9 and 113-139.

⁵⁰ Gafori, Practica III, 4.

of the later sixteenth century.⁵¹

It is perhaps for this reason that Aaron was so reticent; practice was sufficiently free that a rule was not easily formulated, and he rarely prescribed a restriction that was not followed in practice. Whatever the cause, only two statements about dissonance treatment are found in all five of Aaron's books. One says that dissonances may be used quickly and unobtrusively in the middle of a composition, not at the beginning or end, in the shortest note values, essentially the attitude of Tinctoris and Gafori though less explicitly stated.⁵² The other reference says that in florid counterpoint the first and last notes in a discorso should be consonant, while the others may be dissonant, since a rapid dissonance is not offensive to the ear.⁵³ Spataro took issue with this statement, saying that

⁵¹ Reese, MR., p. 459.

⁵² IH. III, 12, f. 40v.

⁵³ Tosc. II, 17: "Et avertisci a gli canti diminuiti, che sempre la prima nota & ultima in uno discorso diminuito, vuole esser concordante, & gli mezzi diversi alquanto con dissonanze come il discorso naturale comporta, nel quale per la velocita che in se hanno le voci diminuite, essendo in essa alcune dissonanze, non sono incommode a l'udito del cantore. E questo è il modo & ordine al presente osservato, come esaminando gli canti de gli moderni, potrai facilmente il tutto intendere."

the last semiminim of four sounding in one voice against a semibreve in another voice may often be dissonant with the semibreve. He offered a few examples and suggested that Aaron might easily find more, even in his own compositions. Further, if it were rapidity that made dissonance bearable, as Aaron had said, why could not the first note be dissonant when it is as rapid as the others? Spataro's answer was that when two notes are attacked simultaneously, a dissonance that they may form is thereby emphasized; thus the first note in a group such as Aaron described should be consonant. The other notes, which move against a sustained note in the second voice, can be dissonant because the harshness is mitigated when one voice does not move. He referred to the suspension for proof, since because both tones are not attacked simultaneously the dissonance may fall on the beginning of the tactus.⁵⁴

⁵⁴ VL 5318, f. 210r, no. 79: "Contra laquale vostra sententia aduco questi sequenti exempli



Quelle quattro semiminime del primo tenore divideno in quattro parte la seconda semibreve del primo soprano, et l'ultima semiminima non concorda perche è seconda con el soprano: similmente la seconda minima del secondo tenore et la semiminima del tertio tenore son ultime particule de

It may be questioned whether Spataro interpreted Aaron's statement correctly. Spataro took the word discorso to refer to the length of one tactus, a semibrevis in this instance, in which case Aaron's rule would hardly accord with practice, as Spataro rightly observed. It would put Aaron in a better

la seconda semibreve del secondo soprano et non concordano, et pure possono stare et son usitate. Altri multi exempli vi potria aducere circa questo, li quali son da me posite da parte, perche scio che ancora vostra excellentia n'ha facto de simili in le sue compositione....Se per la velocita le dissonantie non fusseno incommode al senso de lo auditore, el seguitaria che cosi in principio de la nota diminuta se potriano cosi fare le dissonantie come nel medio de essa figura diminuta, et per tale [modo il] diminuire le quantita cantabile seria arbitrario et non regolare, et questo è stato osservato da al [cuni] tanto raro che se po dire non mai. Ma certamente la causa che lo auditore non senti le medie et extr[eme part]e de la diminutione nasce che solo el principio et primo moto, che fa la voce in la nota per la m[isura] sumpta in cantando, è solamente sentito et compreheso da lo auditore; et da poi quelle stare suspenso et durare che fa la voce sino a l'altra percussione del tempo sumpto in cantando seguente i [...] è acceptato di lo auditore in loco de taciturnita. Pertanto abstracto dal tempo la prima sonora percussione (a la quale lo auditore attento), dappoi de tuto el resto de tempo esso auditore non cura, perche (ut dixi) quella suspensions, la quale cade tra l'una et l'altra percussione del tempo sumpto, e acceptata da lo auditore in loco de taciturnita, come se vede claramente in li canti ligati ò vero (f. 210v) incatenati, liquali dimostrano che in uno tempo pronuntiato la ultima sua medieta sera septima, quarta, et seconda, et altre simile dissonantie da li optimi compositori con tale arte de doctrina usitate in le parte durante et suspense del tempo sumpto in cantando." The passages in brackets are missing in the manuscript because of a small rip; some of them can be filled in as indicated. Jeppesen called attention to this passage in MusThKorr, p. 27.

light to assume that by discorso he meant the length of one tactus plus the beginning of the next:

EXAMPLE 13

The image shows a musical staff with a treble clef and a common time signature (C). The staff contains a sequence of notes: a half note G, followed by four quarter notes (A, B, C, D), followed by four quarter notes (E, F, G, A), and finally a half note B. Above the staff, two brackets indicate groupings: the first bracket covers the first half note G and the first two quarter notes (A, B); the second bracket covers the last two quarter notes (G, A) and the final half note B. Below the staff, two brackets indicate groupings: the first bracket covers the first two quarter notes (A, B); the second bracket covers the last two quarter notes (G, A) and the final half note B. To the right of the staff, the text 'Discorsi according to Aaron?' is written above the staff, and 'Discorsi according to Spataro' is written below the staff.

In this case Toscanello intends to say that the notes falling on the tactus should be consonant while those between may be dissonant. This interpretation seems logical and squares much better with practice, but since authorities such as Spataro and Jeppesen have accepted the other interpretation, the possibility must be acknowledged that Aaron blundered.

Spataro throws further light on Aaron's attitude towards dissonance treatment and voice-leading by his criticisms of Aaron's compositions. He and Aaron in the last few years of their correspondence regularly exchanged their new compositions for mutual criticism, and Spataro, despite his generally laudatory tone, found occasional faults in Aaron's work. He mentioned in different compositions such flaws, in his eyes, as hidden octaves and fifths, parallel octaves separated only by a rest in one part, a diminished fifth on the tactus in a passing motion, accented dissonant passing

tones, and an eleventh with the bass in a strong metric position.⁵⁵ Some of these may be oversights, since Aaron had objected to similar passages in Spataro's music, as is shown by some of Spataro's letters which transmit corrections for offending passages, with such excuses as lack of time to sing or proof-read the work.⁵⁶ Aaron probably sent similar corrections for some of the flaws of which Spataro complained. It would seem that Aaron was at least careless in his compositions; he may also have considered his rules of counterpoint as guidelines capable of being overstepped on occasion rather than absolute prescriptions.

If Aaron was reticent about dissonance treatment, he was bountifully informative about the vertical combination of several voices. Institutione Harmonica III, 43-45, lists notes that form consonant intervals with several given tones in turn which appear in the cantus, but none of the three lists is exhaustive. Other theorists gave similar lists,

⁵⁵For instance, VL 5318, f. 228v-229r, no. 91; v. 246v-247r, no. 103.

⁵⁶Jeppesen, MusThKorr, p. 31-32, notes that Spataro eliminated some of the harsh passages to which Aaron objected when the compositions were copied into the choir books at San Petronio, where Spataro was maestro di capella.

in much greater detail; one of the largest is found in Ugolino's Declaratio.⁵⁷ Ramos gave a table which shows seven natural and transposed hexachords, stating with which notes in each hexachord each note in the regular gamut will be consonant.⁵⁸ Gafori gave a list and table of the tones that are consonant respectively with G and A.⁵⁹

Much more important and interesting are Aaron's descriptions of the formation of chords in four parts, which are among the first published in the sixteenth century. A study by Helen Bush of harmonic awareness in theorists of the sixteenth century traces the early history of such descriptions, the first of which appeared in the fourteenth century, and points to the standardization of cadential chords in the late fifteenth century and the increase in chordal passages in the musical literature of the period as influential elements in the increasing theoretical attention to chord formation.⁶⁰ Aaron, like most other writers in the sixteenth century, considered in turn the various intervals that might

⁵⁷ Declaratio II, 35-44 (Book II, Chapter 28-33).

⁵⁸ Ramos, Practica II, i, 2, p. 76-77.

⁵⁹ Practica III, 8.

⁶⁰ Helen E. Bush, "The Recognition of Chordal Formation by Early Music Theorists," Musical Quarterly XXXII, 227-243 (1946).

be found between the cantus and tenor; from these were derived one or more possible positions of the bass, each described by its distance from the tenor. Each position of the bass in turn generated one or more possible positions of the alto, described by its distance from the bass, or occasionally from the tenor. The tenor is thus the generating voice of the chord, since its position determines the location of the alto and bass. Chords were computed in this manner throughout the century, the change to figuring from the bass becoming universal only towards the seventeenth century. On the surface this manner of construction would appear to contradict Aaron's preference for simultaneous composition of the voices, but as Riemann observed,⁶¹ the lists would surely be useful in simultaneous composition, since the composer would probably situate the cantus or tenor first, then fit in the other voices one by one, and proceed from chord to chord more or less in this manner. Undoubtedly the tables would have been especially helpful to the student, but also to the professional, both as a check on what had been written and as a source of suggestions of what to do in

⁶¹ MusTh., p. 355.

the event of some difficulty.⁶²

Aaron's discussion in Toscanello II, 21-30, is quite extensive, listing 109 possible combinations of the four voices, the largest list published in the century.⁶³

Institutione Harmonica in a briefer discussion forms only a few chords around each of the intervals appearing between cantus and tenor, which are the unison, third, fourth, fifth, sixth, and octave.⁶⁴ The chords are described only in laborious prose, whereas Toscanello gives both concise verbal descriptions and a table which uses Roman numerals to list the intervals from one voice to another. Toscanello gives more intervals between cantus and tenor, the unison, third, fourth, fifth, sixth, octave, tenth, eleventh, twelfth, and thirteenth, with a considerable selection of chords for each; a few combinations are found only in the text or in the table, not in both. Institutione Harmonica mentions a few chords that do not appear in Toscanello, while Compendiolo

⁶² Bush, op. cit., p. 233, notes that most works which gave lists of chords were reprinted many times; Toscanello was Aaron's only book to be reprinted.

⁶³ Bush, op. cit., p. 238.

⁶⁴ IH. III, 17-23 and 32-34.

II, 67, gives a brief list of chords, all but two of which had been mentioned in Toscanello. Example 14 presents all the chords Aaron described in the three books, while Table 24 tabulates the doublings he employed and compares them with those used by the other writers included in Bush's survey. All the chords in Example 14 are written with g' in the cantus for ease in comparison, except for those with a thirteenth between cantus and tenor, which appear in the last staff of the example. Aaron specified pitches only in Institutione Harmonica, and in the interest of uniformity these chords have been transposed in Example 14 when necessary.

The list of chords in Toscanello was one of five analyzed in detail in Bush's study and her conclusions about the five as a group apply with few exceptions to Aaron's own list. The most substantial difference is in the percentage of chords which omit the third, which is sixteen percent for Aaron as against thirteen for the group. This may be explained by the increasing preference during the century for complete triads, a subject which will be discussed further in Chapter VI below. Aaron's list shows a marked preference for doubling the root of the triad; about two-thirds of the

Distribution	Aaron	Orni- tho- parcus	Zar- lino	Tig- rini	Mor- ley	Total	Anon., CS IV
1111	1	0	0	0	0	1	2
1113	8	3	8	6	6	31	8
1115	10	2	6	8	6	32	7
1133	8	6	0	3	0	17	13
1135	27	15	12	20	12	86	23
1155	8	3	0	4	0	15	12
1333	4	0	0	2	2	8	7
1335	16	12	8	10	8	54	16
1355	15	7	5	13	7	47	20
1555	1	0	0	0	0	1	5
1116	0	0	3	3	3	9	7
1136	4	2	5	2	5	18	12
1166	1	0	0	0	2	3	4
1336	6	0	3	3	1	13	8
1366	4	1	2	3	2	12	6
1666	0	0	0	1	0	1	2
Total	113	51	52	78	54	348	152

Summary

135 or 136	72	% 63.7	39	35	51	35	232	% 66.7	85	% 56.0
13 or 16	21	18.6	9	11	15	13	69	19.8	41	27.9
15	19	16.8	3	6	12	6	49	13.2	24	15.1
11	1	.9	0	0	0	0	1	.3	2	1.0

Table 24

EXAMPLE 14 - Toscanello II, 21-30

Notes: The source for Aaron is Example 14; that for Ornithoparcus, Zarlino, Tigrini, and Morley, is Bush, *op. cit.*, p. 243. The "Total" column pertains to these four writers and Aaron, the five studied by Bush. Anonymous, *CS. IV*, is not included in the totals. At the bottom of the table the number and percentage of complete and incomplete chords are summarized, disregarding doubling or tripling.

- 1 Chord in 6-3 position.
- 2 In *Tosc.* 1523 ed., text only.
- 3 In *Tosc.* 1529 and later ed., text only.
- 4 In *Tosc.* table only.
- 5 In *IH.* also.
- 6 In *IH.* only.
- 7 In *Comp.* only.

root position triads double the root, whether or not the third or fifth is omitted. The remaining chords in this position double third or fifth approximately equally. The doubling in 6-3 triads is more evenly distributed, six examples doubling the third and four each doubling the bass and sixth. Aaron seemed to favor what later became the preferred doublings in the pedagogy of theory; the five theorists as a group express the same preference. Many of Aaron's chords distribute the voices poorly by present standards, but such distribution can be observed in practice as well as theory in at least the early decades of the sixteenth century.⁶⁵ Aaron disliked the 6-3 position, which he designated as rough and to be used only in unavoidable necessity;⁶⁶ thus only fifteen chords present this position, several of them in Aaron's table only, not in his text. He also avoided doubling the same pitch; apart from the chords derived from a unison between cantus and tenor, few such doublings can be found.

Aaron was not the first to give such a list, but he was

⁶⁵ Bush, op. cit., p. 239.

⁶⁶ Tosc. II, 27.

one of the first to publish one. The earliest printed source in Bush's group of five is Ornithoparcus's Musicae Activae Micrologus, first published one year after Institutione Harmonica. Of the Italian predecessors, Ramos and Tinctoris did not describe chords, but Gafori is cited by Bush as a likely influence on the development of chordal consciousness, though he said little on the subject.⁶⁷ His Practica III, 11, describes a few possible combinations of voices and includes three short musical examples that presumably embody his conception of good vertical distribution. He too preferred to avoid the 6-3 position except in a cadence formula, and he perhaps influenced Aaron in this, since the 6-3 appeared more often in practice than either writer would lead one to suspect. Gafori's suggestions for avoiding the 6-3 calculate chords upwards from the bass, anticipating the modern procedure, but Aaron never comes even this close to giving up the leading role of the tenor.

A list of chords somewhat larger than Aaron's which apparently predates him by some years is found in the anonymous Tractatus de Musica Figurata et de Contrapuncto published

⁶⁷ Bush, op. cit., p. 232-3.

in the fourth volume of Coussemaker's Scriptores.⁶⁸

Heinrich Huschen dates the treatise before 1500 on the basis of compositions by Japart and Busnois which are included in it as an appendix.⁶⁹ It can also be assigned a northern origin with reasonable certainty because of the French and Flemish texts of the secular songs, and thus it would not appear to have been a direct influence on Aaron. An analysis of this table appears in Table 24; its greater use of incomplete triads confirms that it is earlier than Aaron's treatises. The striking similarity of procedure between Aaron and the anonymous forestalls any claim of priority for Aaron, save in publishing such a large table and in being among the first to do so in Italy. The formation of chords was plainly of general interest throughout Europe around 1500.

As Bush observed,⁷⁰ theorists gave little direct

⁶⁸CS. IV, 448-449.

⁶⁹MGG. I, 498, s.v. "Anonymi."

⁷⁰Op. cit., p. 242.

information about chord progression before the middle of the sixteenth century, apart from cadential formulas. One of the rare exceptions is found in Institutione Harmonica III, 26-31, where Aaron discusses a problem not unfamiliar to the modern student of harmony: when two voices move in parallel thirds or sixths, how should the other two voices be distributed in order to avoid parallel fifths or octaves? His solutions would not be fully acceptable to many more recent theorists, but they are certainly of interest as one of the earliest discussions of voice-leading in more than two parts. He first considers the situation of ascending thirds between the cantus and tenor.⁷² First he gives a specific example (described verbally, since Institutione Harmonica contains no musical examples):

EXAMPLE 15 - Institutione Harmonica III, 26, 29-30

The musical notation shows a four-part setting of ascending thirds between the cantus (C) and tenor (T) voices. The cantus voice is on a treble clef staff, and the tenor voice is on a bass clef staff. The alto (A) and bass (B) voices are also shown on bass clef staves. The cantus and tenor voices move in parallel thirds, starting on G4 and A4 respectively, and ascending to B4 and C5. The alto and bass voices provide harmonic support, with the alto voice moving in parallel thirds with the tenor voice and the bass voice moving in parallel thirds with the alto voice. The notation includes a common time signature (C) and a key signature of one flat (Bb).

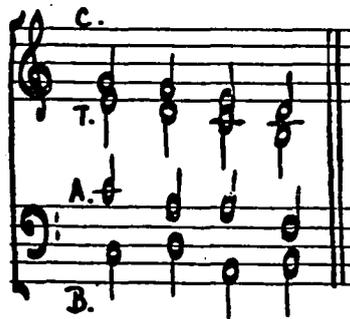
⁷² The order of the chapters as printed seems scrambled. Chapter 26 begins to discuss ascending thirds, but Chapters 27-28 treat ascending sixths, and the discussion of thirds is completed in Chapters 29-31.

then states the general principle that the bass should move at the intervals 8-6-8-6 with the successive notes of the ascending tenor while the alto moves 5-3-5-3 with the bass.⁷³ In his example the alto has to begin on b or d' rather than f in order to avoid a diminished fifth with B in the bass. Apart from the necessity to avoid this interval, Aaron intends his procedure to be applicable at any pitch. Evidently the hidden octaves between cantus and bass did not offend Aaron, as Spataro's criticisms of Aaron's compositions would also indicate. This motion was evidently not distasteful to theorists of the period; Tinctori's Counterpoint shows it in many of the two-voiced examples in Book I, and Gafori, like Aaron, issued no prohibition.

A different technique is described for handling descending thirds; the bass moves 10-8-10-8 with the tenor and the alto 8-5-8-5 with the bass.⁷⁴ This example also includes a 5-3 triad on B, which Aaron avoids by dividing the preceding chord into two minims so as to arrive on G rather than B in the bass for the troublesome chord.

⁷³ IH. III, 30, f. 46v.

⁷⁴ IH. III, 31, f. 46v-47v.

EXAMPLE 16 - Institutione Harmonica III, 31EXAMPLE 17 - Institutione Harmonica III, 31

This motion forms only root position triads, while the ascending pattern of Example 15 alternates root position with 6-3 triads; though Aaron does not mention the possibility, both patterns might be used either ascending or descending:

EXAMPLE 18



Parallel sixths are to be managed similarly, the bass moving 3-5-3-5 against the tenor, either ascending or descending; Aaron repeats the caution to avoid diminished fifths with the bass. The position of the alto was not described beyond an admonition to avoid parallel perfect intervals.⁷⁵ Thirds below the cantus would accomplish this, and the resulting pattern would duplicate Example 6 above, but with the respective positions of alto and tenor reversed. The alto might also move 8-5-8-5 with the bass, forming only 5-3 triads, as in Example 9 above:

EXAMPLE 19 - Institutione Harmonica III, 27

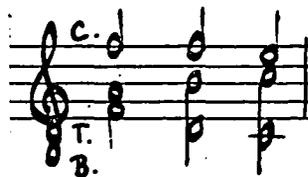
The musical notation for Example 19 consists of four staves. The top staff is labeled 'C.' (Cantus) and contains a sequence of notes: G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4. The second staff is labeled 'T.' (Tenor) and contains notes: D4, E4, F4, G4, F4, E4, D4, C4, B3, A3, G3, F3. The third staff is labeled 'A.' (Alto) and contains notes: G3, F3, E3, D3, C3, B2, A2, G2, F2, E2, D2. The bottom staff is labeled 'B.' (Bass) and contains notes: D3, E3, F3, G3, F3, E3, D3, C3, B2, A2, G2, F2. The notation shows parallel sixths between the Tenor and Bass parts, with the bass moving in a 3-5-3-5 pattern against the tenor.

Institutione Harmonica III, 28, says a sixth between tenor and bass is unusual and if used should be followed by an octave. Consecutive sixths with the bass can appear only in two or at most three parts, in the latter case preferably

⁷⁵ IH. III, 27, f. 45v.

with a third part sounding between the sixths, forming parallel 6-3 triads. It is not entirely clear why such a progression should be acceptable only in three parts; the addition of a fourth part would complicate the voice-leading somewhat, but no more so than in Examples 16 to 19 above. Possibly the three-voiced fauxbourdon style, which originated a century before Aaron wrote, had some influence on his statement. A progression of 6-3 chords in three parts would have been commonplace even in Aaron's time because of its roots in the fauxbourdon, but an added voice might have been felt inappropriate stylistically. The example which shows how to go to the octave from a sixth between tenor and bass uses a diminished fifth in the upper voices and has been commented on above in that connection:

EXAMPLE 20 - Institutione Harmonica III, 28



An immediate precedent for Aaron's treatment of chord progressions is found in De preceptis artis musicae by Guilelmus Monachus,⁷⁶ a contemporary of Tinctoris and Gafori.⁷⁷

⁷⁶ CS. III, 289b.

⁷⁷ Heinrich Hüschen, "Guilelmus Monachus," MGG. V, 1084.

In an example for three equal voices, two move in parallel thirds throughout, while the third and lowest moves 3-5-3-5 with the upper voice and 1-3-1-3 with the middle voice.

EXAMPLE 21 - CS. III, 289



The procedure anticipates Aaron, whose example of ascending thirds (Example 15 above) differs from that of Guilelmus only in dropping the lowest voice an octave and adding a fourth voice. Guilelmus did not, however, avoid diminished triads as Aaron did. Since both men worked in northern Italy, a direct influence on Aaron is surely possible though not provable; it is even more likely that both described a technique well known to composers at the time, Aaron being the first to do so in print and for his own generation.

Aaron's treatment of cadences, found in Institutione Harmonica III, 35-51, is also dependent on Guilelmus to a

degree, but more thorough and systematic. He begins by noting that cadences occur at a coronata, i.e., the fermata always found at the end of a composition or one of its partes, or at a red(d)itus or Retomellos.⁷⁸ The two latter terms are somewhat obscure but may refer to the repetition (reditus) of a phrase in each voice in turn which takes place when a point of imitation follows an internal cadence.⁷⁹ Two types of cadences are described, single and double, respectively without and with a suspension; each is described in terms of three chords, the final, penultimate, and antepenultimate.⁸⁰ In both types of cadence the cantus describes the motion 8-7-8 with reference to the last note of the tenor, and may begin this figure on any note within its range.⁸¹

⁷⁸ IH. III, 35, f. 48v.

⁷⁹ Aaron can hardly be speaking of the repetition of a melodic figure such as Tinctoris described under the term redictus (Art of Counterpoint, p. 137-8).

⁸⁰ IH. III, 36, f. 49r.

⁸¹ IH. III, 39, lists the soprano cadences possible on each note from c' to e'' in terms of the syllables of the hexachord system; the cadence may start on re, mi, fa, sol, or la. On c' for instance fa-mi-fa (c'-b-c') is available in the hard hexachord and sol-fa-sol (c-b-flat-c') in the soft, while d' has three cadences, re-ut-re, la-sol-la, and sol-fa-sol (all sounding d'-c'-d'), in the natural, hard and soft hexachords respectively.

Preceding the final octave, the tenor strikes a sixth with the penultimate note of the cantus and fifth, sixth or octave with the antepenultimate, thus describing the motions 1-2-1, 3-2-1, or 4-2-1 with reference to its own last note. In a double cadence the soprano forms a 7-6 suspension over the penultimate note of the tenor.⁸²

EXAMPLE 22



Chapter 39 describes how these cadences are regularly modified by the use of musica ficta. When the cantus moves the distance of a tone to its final note, the lower of the two notes must be raised so as to change the tone to a semitone.⁸³ But if the tenor moves by a semitone, the cantus is not to be changed; this happens when the tenor's cadence is e-f-e, a-b-flat-a, or b-c'-b.⁸⁴ The obvious reason for

⁸² IH. III, 36-37, f. 49r-v.

⁸³ Ibid., 39, f. 50v.

⁸⁴ Ibid., 41, f. 50v.

this exception is that if the cantus and tenor both moved to the final octave by semitones, an augmented sixth would precede the octave, and this interval was not in the vocabulary of early sixteenth-century music.

When these cadences are expanded to four parts, the bass and alto have alternative positions, as in the single chords discussed above. A sample cadence in four parts allows the last note of the bass three different locations, one of which displaces the alto from the position the latter would normally occupy:

EXAMPLE 23 - Institutione Harmonica III, 37-38

Surprisingly, Aaron still gives the old-fashioned contratenor cadence in which the bass leaps an octave (G-g) while the tenor takes the lowest note in the final chord; the other two possibilities are the conventional authentic cadences which were increasingly preferred late in the fifteenth

century. Aaron notes further in Chapter 49 that the bass has to be changed when the tenor approaches its final note by a semitone. If the tenor's cadence is e-f-e, the normal procedure would result in a diminished fifth between bass and tenor in the penultimate chord:

EXAMPLE 24 - Institutione Harmonica III, 49-50



The B of course could not be flatted, since this would cause the bass to leap an augmented fourth, no more acceptable than the harmonic diminished fifth it would seek to remedy. A tenor cadence on B-C-B would cause the same set of problems besides forcing the bass too low if it should descend to the customary octave below the tenor's last note:

EXAMPLE 25 - Institutione Harmonica III, 50



Such cadences, which appear mainly in the third and fourth modes, therefore require that the bass take the part usually sung by the tenor:

EXAMPLE 26 - Institutione Harmonica III, 51

The g-sharp in the alto which Aaron specifically requires⁸⁵ causes a leap of an augmented fourth in that voice. An a rather than d in the alto's penultimate chord would avoid this difficulty; if d is a printer's error as seems likely, a is probably the note Aaron intended. Toscanello II, 18, gives examples of cadences on each note within the range c' to d'' in the cantus; the cadence on e' differs from those described in Institutione Harmonica. In it the tenor keeps its normal motion, 1-2-1, but the bass ends a fifth below it, forming Lowinsky's Phrygian cadence described above in Chapter IV.

⁸⁵ IH. III, 51, f. 55r.

EXAMPLE 27 - Toscanello II, 18

The example for b' in the soprano was omitted due to an engraver's error, as all editions after the first state, but it would presumably have been formed like the cadence on e', as Riemann suggested.⁸⁶

In compositions for voces mutatae, the usual cadence between cantus and tenor would often force the bass too low; the tenor is therefore moved an octave higher to form a cadence at the unison with the cantus and allowing the bass and alto to fit in more easily:⁸⁷

⁸⁶ MusTh., p. 354, from which the cadence on b' is supplied.

⁸⁷ IH. III, 47-48, f. 53r-v.

EXAMPLE 28 - Institutione Harmonica III, 46

The musical notation for Example 28 consists of four staves. The top staff, labeled 'C.', is in a soprano clef and contains a sequence of notes: C4, D4, E4, F4, G4, A4, B4, and C5. The second staff, labeled 'T.', is in a tenor clef and contains notes: C4, D4, E4, F4, G4, A4, B4, and C5. The third staff, labeled 'A.', is in an alto clef and contains notes: C4, D4, E4, F4, G4, A4, B4, and C5. The bottom staff, labeled 'B.', is in a bass clef and contains notes: C4, D4, E4, F4, G4, A4, B4, and C5. A 'better:' annotation is placed between the T. and A. staves, pointing to a specific cadence in the A. staff.

Aaron therefore states that when the soprano cadences as low as a, the tenor should cadence at the unison so that the bass need not descend below G, the lowest note in the gamut, despite the fact that the bass was taken down to C only a few chapters earlier (Example 23 above).

All the examples in Institutione Harmonica are single cadences, but Aaron remarks at the end of Chapter 51 that the double cadence, with suspension, can always replace the single cadence and gives an example of a double unison cadence:

EXAMPLE 29 - Institutione Harmonica III, 51

The musical notation for Example 29 consists of three staves. The top staff, labeled 'C.', is in a soprano clef and contains notes: C4, D4, E4, F4, G4, A4, B4, and C5. The middle staff, labeled 'T.', is in a tenor clef and contains notes: C4, D4, E4, F4, G4, A4, B4, and C5. The bottom staff, labeled 'B.', is in a bass clef and contains notes: C4, D4, E4, F4, G4, A4, B4, and C5. The notation illustrates a double unison cadence.

Since the bass ascends so close to the cantus and tenor, no room is left for an alto, and this version is thus more suitable for three than four parts. In order to fit in the alto, the bass should go to the lower c:

EXAMPLE 30 - Institutione Harmonica III, 51



All the cadences shown in Toscanello (Example 27) are of course double.

Aaron says little about cadences beyond the descriptions in Institutione Harmonica. Toscanello includes a brief commentary with the examples shown above, but the chapter is largely concerned with enumerating the notes on which each mode may cadence. Trattato of course referred constantly to the modal characteristics of cadences, but only in Institutione Harmonica is their construction thoroughly described.

As remarked above, Guilelmus Monachus, almost alone among Aaron's immediate predecessors, treated cadences in

some detail; the discussions of Ramos, Tinctoris, and Gafori are summary. Guilelmus in a chapter entitled "Sequuntur aliquae regulae circa compositionem"⁸⁸ describes and illustrates cadence formulas, first several authentic cadences on various notes (Example 31). His description

EXAMPLE 31 - CS. III, 296

c. (a)

The image displays three systems of musical notation. The first system, labeled 'c. (a)', consists of three staves: the top staff is labeled 'A.', the middle 'T.', and the bottom 'B.'. The second system, labeled '(b)', consists of two staves. The third system consists of two staves. The notation uses square notes on a four-line staff, characteristic of medieval manuscripts. The music appears to be a cadence formula, with various rhythmic values and accidentals.

⁸⁸ CS. III, 295b-297a.

of the bass movement in these cadences is similar to Aaron's settings of parallel thirds and sixths; the bass moves 3-5-3-5 with the tenor in both (compare Examples 10 to 15 above). Several cadences follow in which the tenor, in the manner of the cantus, ascends rather than descends to the final (Example 31); the bass then takes the tenor's normal role, descending stepwise to the final an octave below that of the tenor. The parallel octaves between cantus and bass in Example 31b appear in the original, at least in Coussemaker's transcription. Aaron gives few such stepwise cadences in the bass; he generally prefers the authentic or plagal cadence, reflecting the practice of contemporary composers. His explanations are also clearer than those of Guilelmus, but the similarities between the two indicate some dependence on Aaron's part, at least to the extent that both treatments are based on a common teaching and practice.

A more direct source for Aaron may have been the anonymous Introductorium Musicae published in Venice before 1507 and reprinted by Hugo Riemann, which describes cadence formulas quite similar to those given by Aaron.⁸⁹ The author

⁸⁹ Monatshefte für Musikgeschichte XXX (1898), 17-18; English translation in Riemann, MusTh(E), p. 272-3.

first gives four normal cadences with tenor and cantus moving from a sixth to an octave. Of the four contratenors added to this cadence (Examples 32a-d), the third is not

EXAMPLE 32 - Monatshefte für Musikgeschichte, XXX (1898),
17-18

The image shows a musical score for seven cadences, labeled (a) through (g). Each cadence consists of two staves: the upper staff is for the Tenor (T.) and the lower staff is for the Cantus (Ct.). The notation includes notes, rests, and bar lines. Cadences (a), (b), and (c) show the Tenor moving from a sixth to an octave above the Cantus. Cadence (d) shows a Phrygian cadence with a diminished fifth between the Tenor and Cantus. Cadences (e), (f), and (g) show ascending Tenors with various bass accompaniments.

to be used as a final cadence. The other three are identical to the cantus, tenors, and basses which Aaron described as the usual cadence formulas (Example 23 above). The author describes a Phrygian cadence (Example 32e) identical to Aaron's in Toscanello (Example 27), followed by two cadences with ascending tenors (Examples 32f-g), one with the bass forming an authentic cadence, the other with the bass stepwise. Immediately following, the author states his disapproval of mi contra fa in perfect intervals and thus implies a distaste for his final example, which has a diminished fifth between discantus and tenor. In this Aaron was of course more liberal. The marked similarities between this

treatise and Institutione Harmonica strongly suggest direct dependence on Aaron's part.

Coussemaker's anonymous Tractatus de musica figurata includes an extensive series of cadence formulas in addition to its table of chords.⁹⁰ Several soprano cadences are given, on d', f', g', and a', omitting the troublesome Phrygian cadence; each cadence is set several times, with varying dispositions of tenor, alto, and bass. Some of the settings are plainly intended as intermediate cadences; the others are complete and almost invariably authentic. The examples are more extended than those of Aaron, most of them containing four semibreves, thus several chords precede the final three. The preference for the authentic cadence would tend to date the treatise very near 1500 if similarity to Guilelmus Monachus and the Leipzig Anonymous is an accurate indication. The Coussemaker treatise indicates that Italy was not appreciably in advance of the rest of Europe in formulating the new conceptions of cadences and chords. Aaron's formulations thus are not startlingly original, but they are more explicit and extended than any preceding him and in that respect represent an important advance.

⁹⁰ CS. IV, 450-454.

Aaron was one of the first theorists to describe techniques of imitation. He is concerned only with strict imitation or canon in the current sense of the word. This term had a different meaning when he wrote, more closely related to the Greek original, "law or rule." Canon in the Middle Ages and Renaissance generally referred to an inscription placed at the head of a composition to indicate some particulars about its performance, sometimes in the form of a riddle.⁹¹ The term for strict imitation was originally fuga, and it was so used even as late as the eighteenth century, but by that time fuga and canon had largely assumed their present meanings. Aaron discusses strict imitation in Institutione Harmonica and Lucidario; the latter indicates that even when Aaron wrote the transition from the old to the modern meaning of canon and fuga was under way.

Institutione Harmonica III, 52, describes imitatio or fugatio⁹² as the repetition by one voice of the solmization

⁹¹ Cf. Tinctoris's definition, CS. IV, 179.

⁹² Aaron says fugatio rather than fuga; the former is perhaps a translation of an Italian term for which he did not know the proper Latin equivalent.

syllables of a preceding or following (!) voice but at different pitches, resulting in the appearance of one voice following or imitating another.⁹³ His description is similar to Tinctoris's definition of fuga;⁹⁴ both refer to strict rather than free imitation. Aaron implies that fugatio should proceed at some other interval than the unison, but this is because he designates as the interval of imitation the distance between the voices after the entrance of the comes, not as is customary, the interval between the corresponding notes of dux and comes. The latter is the most essential relationship of pitch level between the two parts; the first simultaneous interval depends mainly on the contour of the melodic line and is relatively uninformative about the nature of the imitation.

Aaron's discussion is limited to the most rudimentary sort of canons, in which the comes follows the dux at a distance of only one or two notes and proceeds in parallel intervals with it. He listed among the possibilities fugatio (fuga) at the third, the sixth, the fifth and sixth, the third and sixth, and the tenth. The first examples are

⁹³ IH. III, 52, f. 56r.

⁹⁴ CS. IV, 184.

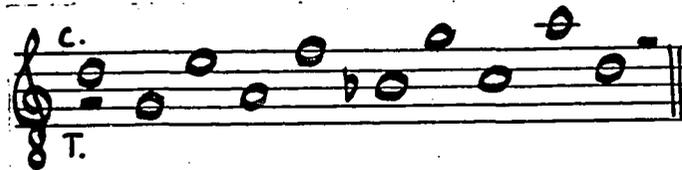
fugatio in thirds and in sixths, each comes having the same syllables and thus the same interval content as its dux:⁹⁵

EXAMPLE 33 - Institutione Harmonica III, 56



Fugatio in fifths and sixths results from syncopation. The tenor waits only a minim, then enters and proceeds at rhythmic odds with the cantus, forming a succession of fifths and sixths:

EXAMPLE 34 - Institutione Harmonica III, 56



Fugatio in sixths and fifths requires the tenor to hold its first note only a minim and thereafter move in syncopation with the cantus, forming the intervals 6-5-6-5:

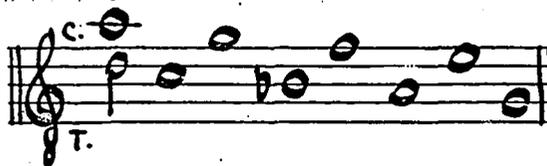
EXAMPLE 35 - Institutione Harmonica III, 56



⁹⁵ IH. III, 52, f. 56r.

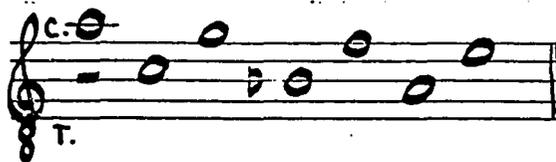
This example is of course identical to that preceding it except for the value of the first note of the tenor. In descending Aaron described only the 5-6-5-6 pattern:

EXAMPLE 36 - Institutione Harmonica III, 56



The descending pattern beginning with a sixth could appear as follows:

EXAMPLE 37



The example of tenths is unsyncopated, identical to the example of thirds except that the voices are an octave further apart. No example is given for the mixture of thirds and sixths, which might be done thus:

EXAMPLE 38



Aaron suggests adding diminution to these figures, and in this context he more likely refers to florid counterpoint than to diminution of the tempo.

Tinctoris and Gafori said little about imitation, but Ramos and Guilelmus Monachus present most of the ideas that Aaron developed more systematically. Ramos stated that imitation should move at close time intervals; ideally the organum, the imitative voice, should follow the tenor at the distance of only a few notes, beginning on the same note as the tenor or a fourth, fifth, or octave above or below. This he calls fuga, since one voice "follows" or "chases" another. His examples include fugae at the lower fourth, upper fifth, unison, and octave:⁹⁶

EXAMPLE 39 - Ramos, Practica, II, i, 1, p. 68



⁹⁶ Ramos, Practica II, i, 1, p. 67-68. Note that the first two examples form an invertible counterpoint.

Guilelmus did not describe his example as imitation, but it is otherwise identical to Aaron's 5-6-5-6 ascending. The descent of course is 7-6-7-6, which Aaron does not mention since it is not canonic in the strictest sense; the intervals and solmization syllables of the two voices are different.

Aaron's description of canon is of interest in being one of the earliest accounts of this practice. The synco-pated examples are in addition among the earliest accounts of the technique of alternating fifths and sixths which was much used by Renaissance composers and was mentioned by many thoroughbass theorists in the seventeenth and eighteenth centuries as a device for avoiding parallel fifths. Though Aaron's descriptions are rudimentary, they prepare for the more comprehensive studies of canon made by Zarlino and others later in the sixteenth century.

Fuga appears again in Lucidario in an interesting passage which indicates that the meaning of the term canon was changing when Aaron wrote. As noted above, canon in modern usage is equivalent to the fuga of the Renaissance, with the exception that fuga assumed identity of size and quality of intervals throughout, while only identity of size is required

in canon at any interval other than unison or octave. In Lucidario Aaron gives an example of imitation which he says some erroneously call fuga, since they wrongly consider that canon and fuga are identical. He points out that the solmization syllables (and thus the quality of the intervals) of tenor and cantus are not identical, as is required in fuga. The cantus begins re mi fa sol, the tenor ut re mi fa.

EXAMPLE 41 - Lucidario II, 10, f. 9v.



Some, he says, call it fuga per diapason from the first simultaneous interval, but this causes "obvious difficulties." (The difficulties were not so obvious, it would seem, when he wrote Institutione Harmonica and used the same terminology of which he here disapproves.) Fuga must have absolute identity of intervals and syllables, and since this example lacks such identity, it is canon, not fuga, at the fourth, fifth, or whatever interval you prefer.⁹⁹

⁹⁹ Luc. II, 10, f. 9r-v.

The passage is one of the earliest testimonies that canon was coming to refer to a contrapuntal technique rather than a superscription. Aaron seems to suggest that canon is an offshoot of fuga in which the intervals of the comes lack the qualitative identity to the dux that is characteristic of fuga; this is similar to the present meaning of canon, and it appears that Aaron understood the word in something resembling that sense. Whether he accurately reflects contemporary usage may of course be open to question, especially in view of the apparent lack of corroboration from other writers of the period, but he strongly suggests that a shift in meaning was in progress.

Tinctoris and Gafori both summarized their views on the practice of counterpoint in the form of eight rules, and Aaron gives a similar set of rules in Compendiolo:¹⁰⁰

¹⁰⁰ Comp. II, 66: "La prima Regola damoi intesa è, che il Compositore possa principiare il suo concerto, in quella consonanza che allui piace. La seconda Regola è che due consonanze perfette d'un medemo genere insieme ascendenti, & discendenti, nel Contrapunto, non sono concesute, come due Quinte, due Ottave, & simili. Perche in se non hanno varieta alcuna. La terza Regola è, che due consonanze perfette, possano haverliogo nel Contrapunto quando una ascenda, & l'altra discenda, come Quinte, Ottave, Duodecime, & simili. La Quarta Regola concesuta, è che il Compositore sia libero di ascendere, & discendere, ugualmente, & differente come al lui piace. La quinta Regola è, che il

The first rule we comprehend is that the composer can begin his composition with whatever consonance he prefers.

The second rule is that two perfect consonances together, ascending or descending, of the same species, are not allowed in counterpoint, such as two fifths, two octaves, and the like, because they lack variety.

The third rule is that two perfect consonances can be used in counterpoint when one ascends and the other descends, like fifths, octaves, twelfths, etc.

The fourth rule is that the composer is free to ascend and descend by equal or different distances as he pleases.

The fifth rule is that counterpoint does not tolerate mi against fa or fa against mi if it is not necessary.

The sixth rule is that several thirds and sixths descending or ascending together, may be joined together in counterpoint, because their composition is naturally variable.

The seventh rule is that two perfect consonances may be accepted one after the other when the voices move differently, that is, when the

Contrapunto non patisce il mi contro al fa, ne il fa, contro del mi, se non è di necessita. La sesta Regola vuole che piu terze, & seste, insieme ascendenti, & discendenti, possano nel Contrapunto essere continovate, perche esse hanno naturalmente variabile compositione. La settima Regola è, che due consonanze perfette, l'una doppo l'altra possono essere accettate, con movimento dissimile cioè, la prima ascenda, & la seconda discenda, & al contrario. La ottava Regola è, che volendo andare a una consonanza, sempre si debbe pigliare que la che allei è piu vicina...."

first ascends and the second descends, or the opposite.

The eighth rule is that when one wishes to go to a consonance one should always approach it by the one consonance which is closest to it....

Comparison of the three sets of rules shows two respects in which Aaron's concepts changed from those of his predecessors. His rules allow beginning with any consonance rather than only with a perfect interval, and he allows the use of the diminished fifth when necessary. Other, even more significant advances were made by Aaron in the number of parts he preferred, the order of their composition, and his descriptions of chord formation, cadences, and imitation. No previous writer is more detailed or explicit in any of these areas. Aaron reflects the important strides made in organizing the concept of harmony, and in some areas he himself was the first to enunciate a significant advance.

Most of Aaron's eight rules are concerned with successive consonance and add nothing to those of Tinctoris and Gafori. As Spataro said, the older generation knew all there was to know about note-against-note counterpoint, and successive consonances were still discussed only in those terms. The next step in note-against-note would be the

addition of a third and fourth voice, but vertical formations had to be studied in isolation before successive combinations of them could be treated. Aaron was in the forefront of this study, but in his time it had not proceeded far enough to deal with chord succession to any extent. Discussions of cadences and of the setting of parallel thirds and sixths are first steps in coming to terms with chord succession, and Aaron's full and precise statements in these areas are vital contributions. Succeeding writers, beginning notably with Zarlino, went beyond Aaron in discussing chord succession and florid counterpoint, the latter a subject which Aaron hardly touched, but in his own generation a more comprehensive discussion of all aspects of counterpoint than that of Pietro Aaron is hardly to be found.

CHAPTER VI

ACCIDENTALS AND MUSICA FICTA

In the study of music of the Middle Ages and Renaissance, few problems have generated so much uncertainty and controversy as the use of chromatic tones and their proper explanation. The vexation is dependent to a large degree on the fact that chromatic alteration of diatonic tones often was not notated but left for the performer to add to his part according to certain more or less generally accepted conventions. Musica ficta,¹ chromatic alteration not indicated in the written score, was thus to a large extent improvised, and like all improvised practices in the history of music, it is known indirectly, mainly from written descriptions. A principal source of knowledge about musica ficta is thus

¹ Literally, feigned music, i.e., notes outside the traditional diatonic system. Modern usage applies the terms to unwritten accidentals, but medieval and Renaissance writers often applied it to all chromatic tones, written or not.

the explanations given by music theorists. Since they usually generalized and seldom gave examples, their guidance sometimes falls short of solving a specific problem. One must also consider their period and the area in which they worked, since practice varied with these factors. Their relative progressiveness or conservatism also affected their attitude towards such a subject as chromaticism, which always had a certain taint of illegitimacy in theory regardless of the facts of practice; medieval and Renaissance theory was so fundamentally based on a diatonic system that the chromatic tones, even B-flat, were always regarded as at least subordinate, though necessary. Since Pietro Aaron was progressive and in close touch with practice in most respects, one may justifiably expect that his statements about chromaticism would be largely au courant. They also have the advantage of dealing with both written and unwritten chromaticism in much more detail than any of his immediate predecessors. Nowhere does he give a systematic resumé of his ideas, but when the pertinent statements are culled from all his books, a rather comprehensive picture is available of practice and theory in Italy as seen through the eyes of one fairly progressive and well-informed

musician in the early sixteenth century.

Chromaticism in Aaron's time may be considered from two points of view, how it was used in practice and how it was fitted into the traditional theory of the modes, solmization, and intonation. Its relation to modal theory has been examined in Chapter IV of this present study, with the conclusion that depending on the consistency with which chromatic tones are used in a composition, their effect can range from temporary coloration of a mode to the complete transformation of one mode to another or to a scale pattern that lies outside the traditional modal system. Since Aaron and his predecessors did not overstep the bounds of the eight traditional modes, any scale patterns brought about by chromaticism that did not correspond to one of the eight were ignored or rationalized away. The present chapter will not discuss this subject further but will be concerned first with what Aaron says about practice and then with the remaining aspects of theory.

The Middle Ages and Renaissance used the same signs for chromatic alteration that are in use today, the flat \flat , the natural \natural , and the sharp \sharp . The first two were the oldest and originally stood for the two B's used in the

traditional gamut, \flat for B-flat and \natural for B-natural. By extension they were applied to other notes, \flat to lower a note by a semitone,² and \natural to raise it by the same distance. The effect of the signs was traditionally explained by solmization syllables. \flat was always sung as fa, \sharp and \natural as mi, by extension from the Guidonian system in which \flat rotundum, \flat , was fa, \flat quadrum, \natural , mi. Since the signs had the same effect in other locations, lowering or raising by a semitone, they were sung with the same syllables. This involved the concept of hexachords beginning on other notes than the three beginning on C, F, and G which were used in the Guidonian system; if fa and mi were relocated, the other syllables would presumably follow them. This aspect of theory will be discussed further below.

When only two signs were used, the sign \natural had a different effect for B than elsewhere; for B it signified the natural note, the alternative to \flat , but elsewhere it meant

² An exception is found in the Calliopea Legale of John Hothby, printed in Coussemaker, Histoire de l'Harmonie au Moyen Age, p. 295-349, in which the flat lowers by a semitone but is called by the name of the note below the flatted note rather than by the name of the flatted note itself. For instance, the note a major semitone below E was D-flat in Hothby's system, not E-flat as was and is customary.

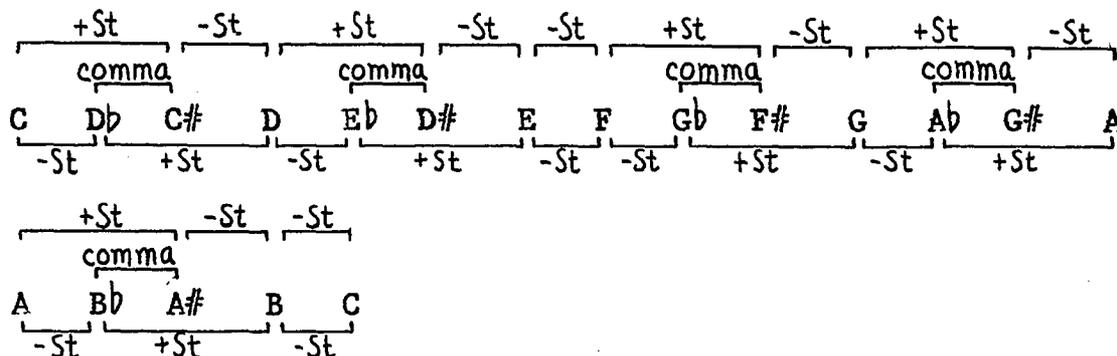
the note a semitone above the natural note.³ Perhaps because of this ambiguity the third sign came into use to indicate the raised semitone and ♮ was reserved for B-natural. John Hothby and Ramos in the late fifteenth century both explained the three signs in this sense, but Prosdocimus de Beldemandis about 1400 still expressed a preference for ♮ over # to raise any note because the singer already associated ♮ with mi and would more readily sing mi on other notes with the same rather than a different sign.⁴ Aaron preferred the sign # for sharps; Lucidario II, 3, compares the two signs ♮ and #, saying that the former should be used to raise B-flat, not the latter. ♮ has its proper place at B-natural, while # is used only on C, F, and G. Here Aaron must refer to practice as opposed to theory, since he elsewhere discusses the possibility of using all five sharps. D-sharp and A-sharp were little used at the time Aaron wrote, although both theory and practice had known of them for some time before.

³ Both signs were also used to cancel one another, ♮ to raise a flatted note and ♭ to lower a sharpened note to the natural position.

⁴ Hothby in Coussemaeker, op. cit., p. 298-299; Ramos, Practica I, ii, 2, p. 29; Prosdocimus, CS. III, 258.

Theorists up to the time of Aaron generally assumed Pythagorean tuning of the chromatic tones, extending the series of fifths beyond the natural tones to include both sharps and flats, with the result that the flat lowered a note by the distance of a major semitone and a sharp raised it by the same amount.⁵ Ramos first questioned the Pythagorean system, and his chromatic tones do not conform to it, but many writers after him, including Aaron, continued to use it in their discussions, even though they were aware that it was not so widely used in practice as previously. Aaron invariably states that the sharp and flat raise or lower by a major semitone; the only exception is his description of a mean-tone temperament in Toscanello. Pythagorean tuning did not provide enharmonic equivalence; a given flat is a comma lower than the adjacent sharp in this system:

EXAMPLE 42



⁵ The intervals of Pythagorean tuning are explained in detail in Chapter II above, especially Table 2.

Because of this, performers had to choose one or the other of the available alternative pitches, especially on organs, which could not easily be retuned, and theorists usually mentioned the subject, if only indirectly. C-sharp, F-sharp, B-flat and E-flat were almost invariably chosen over D-flat, G-flat, A-sharp, and D-sharp owing to their greater usefulness as leading-tones and in avoiding tritones. The choice between G-sharp and A-flat was less clearcut, since both could conceivably be of practical use; some organs in fact had a divided black key so as to provide both pitches. Theorists are of divided opinions in their choices. Aaron was among those who chose G-sharp, as in the passage above from Lucidario; in Toscanello II, 40, he describes the division of the organ keyboard into semitones and uses G-sharp throughout.⁶ Ugolino d'Orvieto in the fifteenth century also preferred G-sharp,⁷ but A-flat was chosen by others; Anonymous XI of Coussemaker's third volume, a French writer

⁶ He describes a keyboard with the range F-f''', with 29 white keys and 18 black keys; the latter begin only on B-flat and continue to e-flat'''. Modern keyboards contain twenty black keys in the same space; Aaron's keyboard does not include the lowest F# and G#.

⁷ Ugolino, Declaratio II, 50 (Book II, Chapter 44).

of the mid-fifteenth century, and Francesco de Brugis are among those so choosing, as was Ramos de Pareja.⁸ Since speculative theory was not bound by the harsh necessities of practice, some theorists worked out tone systems containing more than the five minimum chromatic tones. Prodocimus was evidently the first to describe a division of the monochord which included five sharps and five flats.⁹ Hothby later in the century used all these sharps and flats in constructing transposed hexachords,¹⁰ as Aaron also did later. All such systems were essentially speculative, since no instrument could produce seventeen tones to the octave until the experiments of Vicentino and others in the mid-sixteenth century. Theoretically, these pitches could be sung, but few ears are so acute and few voices so well controlled that this could have been done with any regularity.

⁸ Anon. XI in CS. III, 429; Brugis in Giuseppe Massera, La "Mano Musicale Perfetta" di Francesco de Brugis (Historiae Musicae Cultores Bibliotheca, XVIII, Florence, Olschki, 1963), p. 56; Ramos, Practica I, ii, 2, p. 29.

⁹ In his "Libellus Monocordi," CS. III, 248-258. See also Raymund Schlecht, "Ueber den Gebrauch der Diesis im 13. u. 15. Jahrhundert," Monatshefte für Musikgeschichte IX (1877), 79-88, 99-108.

¹⁰ Coussemaker, Histoire, p. 297-320.

Medieval theorists gave two principal reasons for using chromatic tones, necessity and beauty. Necessity always involved avoiding an augmented or diminished interval, mainly the tritone, or augmented fourth, and its inversion, or diminished fifth, either melodically or harmonically. From the first mention of accidentalism in counterpoint in the thirteenth century,¹¹ and even in some of the earlier tracts on plainsong, the necessity of avoiding the tritone was stressed. Musica ficta was expected to accomplish this in the absence of any written indication. The use of accidentals for beauty was necessarily more subjective; several situations falling under this heading nonetheless came to be generally accepted as calling for emendation by accidentals.

Aaron, as we have noted, was less strict about forbidding the tritone in counterpoint than his predecessors had been. He accepted it in the 6/3 position, supported by a third or tenth below, and the same seems to have been true of the diminished fifth. Institutione Harmonica III, 15, repeats nonetheless the old rule that false intervals should be avoided, listing the places a diminished fifth or false

¹¹ Presumably that of Johannes de Garlandia, CS. I, 115.

octave might occur between notes in the regular gamut. In the succeeding chapter Aaron in dialogue with Flaminio shows how a diminished fifth could be perfected by adding a major semitone to it above or below, correcting B-f with f-sharp or B-flat.¹²

The Supplement to Toscanello notes that sometimes a tritone in a melodic line may not be altered and advances two reasons, necessity and "self-evident reason" (ragione intesa). The latter refers to situations in which musica ficta alters one of the offending notes for another reason than avoiding the tritone; the tritone is thereby evaded and no further alteration is required. As examples of necessity he cites three passages from Masses by Josquin, in which the singer has the choice of singing the notes as they stand and describing a tritone by stepwise motion, or flatting the upper note of the tritone and leaping immediately thereafter the distance of a diminished fifth:

¹² In Pythagorean tuning the diminished fifth contains two tones and two minor semitones, thus is a comma smaller than the tritone. Both these intervals traditionally required perfecting, the tritone by removing a major semitone to make it a perfect fourth, the diminished fifth by adding a major semitone to make it a perfect fifth. The correction did not change a fourth to a fifth or vice versa.

EXAMPLE 43 - (a) Josquin, "Missa l'homme armé super voces musicales," Agnus Dei III, m. 149-150, Werken: Missen, I, 31; (b) Ibid., bass, m. 146-153; (c) Josquin, "Missa La sol fa re mi," Gloria, m. 89-91, op. cit., I, 40; (d) Ibid., Credo, m. 99-101, p. 40.

(a) s.

A. T. B.

(b)

B.

B.

(c) s.

A. T. B.

(d) s.

A. T. B.

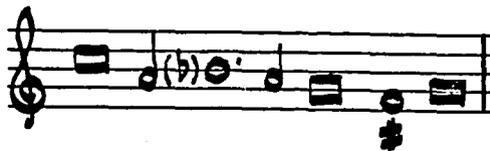
Aaron decides in favor of the stepwise dissonance rather than that formed by a leap, presumably because the dissonance is then less harsh when the offending tones are not sounded in immediate succession. It seems that he fails to consider a third alternative in the last two passages, in which raising the first note of the tritone to F-sharp would avoid both the tritone and the diminished fifth. Smijers suggests the F-sharp as musica ficta in Example 43d, and it seems that he could have done so in 43c also. Since Aaron mentioned the possibility of perfecting dissonant intervals by means of F-sharp in the passage from Institutione Harmonica mentioned above, it is not clear why he did not do so in these examples. The answer may appear in Lucidario I, 10, where he says that musicians agree that a tritone should ordinarily be emended by changing it to a third-species fourth, tone-tone-semitone, thus the upper note would have to be lowered.¹³ Granting that this is probably a good general rule, the examples Aaron cites seem sufficiently extraordinary that raising F to F-sharp would

¹³ Luc. I, 10: "I musici...dicono, che ogni Tritono annullato si convertisce nel Tetracordo terzo, ordinariamente."

be a good solution to the difficulty. Since the F's in the second and third examples are both dissonant lower neighbors, changing them to F-sharps would not change the essential relationships in the passage. In Example 43a on the other hand, F is a chord tone, doubled in the alto; it cannot be changed to F-sharp, and the tritone is inescapable. As Example 43b shows, it arose from a sequence in the bass. Evidently Josquin preferred to retain the sequence rather than avoid the tritone, and he crossed the tenor below the bass so that the dissonance would not be readily audible. But the singer, as Aaron suggests, would have had a bad moment when he first saw and sang the passage.

The second reason for not tempering a tritone, "self-evident reason," specifically forbids the use of B-flat; an example shows a cadence in which F would be sharpened because of the cadence pattern.

EXAMPLE 44 - Toscanello, Supplement



B-flat in addition to the F-sharp would produce a diminished fourth between those two notes, a false interval which was to be avoided; the ordinary rule for avoiding the tritone thus is not to be applied here. But if a similar melodic line leads to a cadence on F rather than on G, B-flat is required, since there is no question of using F-sharp.

EXAMPLE 45 - Toscanello, Supplement

With both an ascending and a descending tritone in the melodic line, B-flat is required even with a cadence on G and the resultant diminished fourth. The example does not indicate F-sharp, but Aaron's accompanying text indicates that it appears as usual at the cadence.

EXAMPLE 46 - Toscanello, Supplement

EXAMPLE 48 - Lucidario I, 10



Since the phrase cadences on g-f-g, the f might be sung as f-sharp, and a diminished fourth would result. Aaron holds that neither f-sharp nor b-flat is permissible. The b-flat is incorrect because it would have to be retained throughout the chant in order to avoid further tritones, but he had just stated that b-flat is not used throughout a chant except in fifth and sixth modes, and this chant is in eighth mode. Several reasons forbid the f-sharp: a tritone should ordinarily be altered at the top, not the bottom; a transposed hexachord with d as ut would result, which is not allowed in chant; the sign # is apparently not to be used in chant, but b on the other hand is to be used only for b-natural, thus any use of the sharp seems forbidden.¹⁵ For all of these reasons he recommends that the chant be notated a tone lower throughout, beginning on f, which is how it appears in the

¹⁵ Aaron does not forbid the sharp sign specifically, but his remarks lead to such a conclusion. Hothby expressed such a prohibition earlier (Cousse-maker, Histoire, p. 313), with which Aaron evidently agreed.

He also reiterates that the harmonic tritone is bearable with the support of a lower third or tenth, and that a good composer in such ways will remedy a defect in one part of a composition by skill in arranging the others around it, (exactly as Josquin did in the example from Toscanello Supplement).

EXAMPLE 50 - Lucidario II, 14



Lucidario III, 16, considers a number of false intervals formed by accidentals, first the diminished octave c'sharp to c". He objects to making it perfect by raising c" to c"sharp; perfect intervals formed by sharps, in Aaron's opinion, present too much difficulty to singers and are best avoided altogether. The rest of the chapter enumerates several "consonances," some of which are not suitable in the diatonic genus, with an example of each. They are the major diatesseron, f-b; minor diatesseron, d-g; major ditone, g-b; minor ditone, g-sharp-c'; major tone, c-d; minor tone,

c-sharp-e-flat; major semitone, b-flat-b, the latter not to be sung directly though some think so;¹⁷ and the minor semitone, of which no example is given. The point of this enumeration is not clear. Perhaps the minor tone, minor ditone, and major semitone are mentioned in order to emphasize their lack of equivalence to the diatonic intervals which they approximate. This terminology is not used elsewhere in Aaron's works; the tritone is never called a diatesseron, g-c a ditone, or c-e a tone. The latter two are of course the wrong size as Aaron names them; the chromatic alteration brings them close to the absolute size which he specifies, but a ditone is properly speaking a third, never a fourth, and a tone is a second, not a third. But the error was probably rhetorical rather than substantial.

Another rule of musica ficta derived from the prohibition of the tritone is often stated, "una nota super la semper est canendum fa." I.e., if a melody ascends one note above the upper note of a hexachord and returns immediately, that one note should be lowered to a semitone, B-flat over

¹⁷ He probably referred to passages such as those described by Theodor Kroyer, Die Anfänge der Chromatik... (Leipzig, Breitkopf und Härtel, 1902), p. 38.

A or E-flat above D, since if it were a tone it would form a tritone with the fa of the hexachord below, F-B or B-flat-E. The theorists seldom state the rule quite so explicitly as it is given above; the only direct reference to it in the seven volumes of Scriptores of Coussemaker and Gerbert is in the treatise of Henricus de Zelandia.¹⁸ It must have been such a staple of the pupil's diet that it was transmitted orally rather than written down. Aarnn quotes it in Lucidario I, 8, and indicates that it is not universally applicable. He says that in chant a note is fa only when it is above mi, not necessarily when above la. B-natural above A is no more or less beautiful than B-flat, and only if a tritone threatens should B be flatted. Thus an ascent D-A-B is sung with B-natural "not once but one hundred times." Examples are cited from Marchetto's Lucidarium that include both an ascent above b and a descent to f, the b remaining natural in each instance.¹⁹

¹⁸ CS. III, 115.

¹⁹ The first example appears in GS III, 105; the second is not in the Lucidarium as printed by Gerbert.

EXAMPLE 51 - Lucidario I, 8

This seems to be a further instance of Aaron's dislike of accidentals in chant, from which some modern editors could presumably profit.²⁰ Since this chapter is part of Lucidario's section on plainsong, it does not necessarily apply to polyphony.

Lucidario II, 4, which does so apply, suggests the low intelligence of some singers who would apply the rule of nota super la without regard for context. The example implies the F hexachord because of the signature of one flat, thus E is the nota super la, but if it is flatted it forms a diminished fourth with B-natural. The situation is

EXAMPLE 52 - Lucidario II, 4

²⁰ See Apel, Gregorian Chant, p. 153-154.

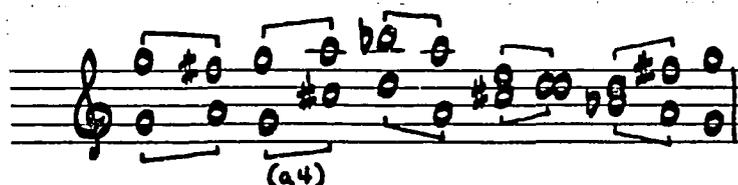
identical to the ragione intesa of Toscanello Supplement, and both passages make plain the relation of nota super la to the avoidance of the tritone. It would seem that here also Aaron opposes the indiscriminate application of that rule, advising caution unless a tritone is presented directly. When la can be sung as mi, the fa above is required; if mi is not singable, the passage probably does not require alteration.

The other traditional reason for using chromatic tones was causa pulchritudinis. Naturally its application was not so systematized and clear-cut as the avoidance as the tritone; the late fourteenth century for instance was notably liberal in using indicated chromatic tones for purely coloristic purposes, and such liberality was not approached again for almost two hundred years. Some coloristic usages were so widespread that they were elevated to general principles which regularly demanded chromatic alteration under certain conditions. One such principle of long standing stated that chromatic tones were to be used in order to move into a perfect consonance from the closest imperfect consonance, as the old rule of counterpoint required.²¹

²¹ See Chapter V above.

Prosdocimus' explanation of this rule makes clear that it is a matter of sweeter harmony.²² In effect a leading-tone quality is demanded before perfect consonances, and the earlier writers do not confine it entirely to the cadences, as Prosdocimus' example shows:

EXAMPLE 53 - CS. III, 199



The example also shows that a note may be lowered as well as raised, in order to move downward to a consonance, in which case a leading-tone quality is not present. The raised tone was specifically required in a related rule stated in terms of melodic movement: "La-sol-la, sol-fa-sol in semplici cantu should be sung like fa-mi-fa."²³ It is not always certain whether this rule referred only to cadence points; Ramos for instance does not seem to restrict it in this way.²⁴

As noted in the preceding chapter, Aaron does not insist

²² CS. III, 199.

²³ Pseudo-Muris, Ars Discantus, CS. III, 73.

²⁴ Ramos, Practica I, ii, 7, p. 43.

on motion by the closest consonances but allows a variety of motions between intervals. Accordingly he does not repeat the old rule that required raising or lowering a third or sixth for such a purpose. He mentioned the subsemitonium at a cadence in Institutione Harmonica III, 39-42, which was discussed in Chapter V above; the subtonium is always raised unless the tenor also moves by a semitone. III, 40, gives two manners of raising the subtonium, by ratio or compositio, or by a sign. That is, a sign may indicate the raised tone, but even in its absence, when the configuration of the cadence allows it, the tone should be raised. Thus no exceptions to the rule are allowed except for the Phrygian cadence. The rule must have been so well established and accepted that Aaron felt no need to mention it in his later works.²⁵

Aaron seems to be one of the first theorists, if not the first, to require a major triad as the last chord in a composition, this quality to be obtained through chromatic alteration if necessary. His priority is easily explained

²⁵ Tinctoris, Art of Counterpoint II, 17, p. 100; Ramos, Practica I, ii, 7, p. 43; Gafori, Practica III, 13, all refer to the rule, which attests to its general acceptance.

by a change in style after 1500; the inclusion of the third in the final chord was much more frequent after than before the turn of the century. Helen Bush found that compositions of the late fifteenth century use the third in the final chord about nine percent of the time, while compositions from the period 1500-1525 use it forty-three percent of the time and compositions from 1525-1558 use it seventy-four percent.²⁶ Her sample is perhaps small but intended to be representative of all genres and nationalities. A larger sample and revision of dates of some compositions might conceivably adjust her percentages, but the trend seems unquestionable in view of the substantial increases she points out. Thus only in Aaron's time would the third have been used so often that theorists felt impelled to mention the necessity of raising it.

Toscanello II, 20, states that the composer must "re-integrate or diminish the song" with accidentals when necessary. The sign showing this is the diesis, #, which should be placed under the upper note of a minor tenth, which Aaron

²⁶ Helen Bush, "The Emergence of the Chordal Concept in the Polyphonic Period," Ph.D. dissertation, Cornell University, 1939, p. 138.

calls an unpleasant interval, in order to raise the upper note and change the interval to the more pleasing major tenth.²⁷ Two examples are given, one of an ascent to the tenth, one of a descent, so that the sign adds a major semitone to the ascent and takes away the same amount from the descent.

EXAMPLE 54 - Toscanello II, 20



²⁷ As noted above, most theorists considered that the difference between the signs # and ♯ lay in their proper locations rather than in their effect. A major exception is found in Marchetto's Lucidarium which proposes that the tone is divided into five equal parts, each part called a diesis. The minor semitone consists of two dieses, the major semitone of three dieses. The sign ♯ indicates that a note is raised by a major semitone, the sign # raises a note four dieses, which Marchetto calls a chromatic semitone. The latter sign thus leaves the distance of a diesis between the affected note and the next higher note. There would seem to be some connection between Marchetto's terminology and that later applied to the sign #, since Marchetto connects the name of the sign with its effect, but since Marchetto's unusual division of the tone is not repeated by other writers, it may be questioned whether he himself originated the term. Perhaps he reported a distinction made in practice at his time and attempted an approximation of this practice in his five-fold division of the tone.

Aaron warns of adding the sign to a note forming a fifth or octave with another note, but a third or tenth should always be raised, especially in "breves, semibreves, and coronate," i.e., long notes and fermatas. The rule would thus refer principally to cadence points within or at the end of a composition, rather than to every minor third or tenth encountered in the composition.

Spataro criticizes this chapter in a letter, but not too searchingly. He says Aaron's wording suggests that the length, not the pitch of the note, is augmented. He prefers that the sign # should not be called diesis but b quadro or b quadro iacente, following Ramos or Hothby, since the term diesis doesn't correspond to the effect of the sign, which Aaron had in fact explained. Spataro also objects to calling the minor third unpleasant, since it is necessarily found whenever a fifth is divided into two thirds; most triads in other words contain both major and minor thirds, and such a commonly used interval could hardly be considered altogether unpleasant. He suggests that the minor third is less pleasing and that a change is made from good to better, not bad to good. This was probably Aaron's intention, but as happened on occasion, his wording was imprecise. Spataro further suggests that the sign should be

placed over the note rather than under it as Aaron recommended, since the note is subject to the sign, not the contrary, and their respective positions should show this relationship.²⁸ The Supplement to Toscanello incorporates

²⁸ VL 5318, No. 80, f. 211r: "A me pare che vostra excellentia in tale loco haria dite meglio dicendo scilicet, per el quale segno se habia a demonstrare quale sia el spacio o vero intervallo augmentato o diminuto, perche questo segno # non acresce ne minuisce la nota ultra el suo valore, ma bene acresce et minuisce el spatio et intervallo tra nota et nota apparente....Questo segno predicto è stato chiamato dal mio preceptore signo de b quadro tantum, et da frate Zoanne Othobi è stato chiamato segno de b quadro jacente, et questo ♯ da lui è stato chiamato signo de b quadro recto. Li quali nomi son piu rectamente considerati che non è chiamando questo signo # diesis, perche el nome è consequente al suo effecto....Cosi acadera de questo signo # scilicet che acadendo che el canto ascenda de spatio in linea et econtra ut hic et altri simili sempre convertira el spatio naturale de semitono in tono. Pertanto apparando questo signo...



(f. 211v) dico che tale signo sera piu rectamente chiamato b quadro che diesis, perche dicendo diesis lo effecto et el nome non hano in seme corespondentia. ...A me questo [that the minor third is an unpleasant interval] non pare bene dicto, perche el seguitaria che ogni tertia minore cosi in semplice come in composita produceria trista harmonia. Pertanto ogni intervallo da diapente mediato produceria spiacevole et trista harmonia et male sonorita, perche el se vede che ciascuno spatio de diapente non po essere concordabilmente mediato senza la occurrentia de la tertia minore,...la quale tertia minore...non potria essere augmentata in gravita. Ma certamente a me pare che la decima minore et la tertia etiam minore con la octava in grave non produceno spiacevole harmonia, ma bona et suave. Ma convertita la minorita de tale decima et tertia in majorita...la harmonia sera piu grata al senso de lo audito. Pertanto tale conversione non sera de spiacevole harmonia in grata et bona, ma sera conversione de bono in meliore....A me pare che tale signo non sia soto

some of this criticism, emphasizing that the sign # refers to pitch, not duration, and that Ramos and Hothby gave better names for the sign. Lucidario II, 2, reverts to using "diesis" again, but including an explanation that the effect of the sign is not indicated by its name.²⁹

The same chapter of Toscanello states that the well-trained singer did not need the sign of the diesis to show him that the final third should be raised, but the inexperienced might sing it as written without some notice to the contrary, so the sign should be written for their benefit. Spataro also took issue with this idea, saying that even the learned need the sign written in, since not every minor third should be raised, only those that are not combined with the perfect species, fifth or octave, as Aaron had said. Spataro gives two examples in which raising the third in the soprano would result in a descent by semitones, a gross fault to the diatonic ears of all musicians of the time.

la G sol come vra. extia. dice, ma è tuto el contrario, perche la sillaba sol predicta è subiecta e obedisce al signo de diesis per due rasone: la prima perche tale signo in positione et apparentia se propone a la syllaba overo nota sol, la seconda perche el signo de diesis...remove la syllaba sol (et altre simile) dal naturale suo proprio loco, et non è contra."

²⁹ Spataro was fighting a losing battle; the Romance languages still call the sharp sign "diesis" in one form or another.

EXAMPLE 55 - VL 5318, f. 211v

In both examples the first half-note G might be taken as G-sharp, but the next G must be G-natural.³⁰ The average singer

³⁰ VL 5318, No. 80, f. 211v: "Dico che tale signo è così de bisogno a li docti come a li indocti, perche in ogni loco dove acade tale decima minore el canto non debe sempre essere levato per semitonio, senon quando stante el canto in tale loco firmo, non cade con altra sua particula in spetie perfecta, come in quinte et octave et altre simile, perche acaderia nel suprano dapo la prima o piu note se concuria descendere per semitonio non bono come li seguenti exempli declarono....(f. 212r) Se la prima nota del primo suprano posita in G superacuto et altra simile fara meliore resonantia essendo cantata soto questo signo #, tamen la seconda nota, la quale convene in octava et in duodecima con el contrabasso, non fara bona harmonia....Per laquale cosa dico che tale segno de sublevatione debe essere apparente così per li docti come per li indocti, perche in cantando el docto potra così ignorare quello che dapo tale elevatione de note sia la intentione del compositore come lo indocto....Dico che el cantore non è tenuto nel primo mote levare le note ne li lochi dove tale segno po acadere se tale signo non appare, perche potria errare."

might not have been deceived by Spataro's examples, since the continuation of the soprano line to a cadence on G makes G-sharp appear quite out of place. There might be momentary hesitation, though, so if the sign were regularly given, even the learned would not have to be uncertain.

Spataro's criticism resulted in some reversals in Aaron's attitudes when the supplement to Toscanello appeared in 1529. A substantial portion of the Supplement discusses the necessity of indicated accidentals in considerable detail, posing the question of whether the composer should write in the accidentals he wants or whether the singer should recognize "the unknown secret" (lo incognito secreto). The latter view considers the accidental signs as the unjustified invention of "new scholars." Aaron remains emphatic that the signs should be written in. He first points out that B-flat is regularly used to soften the tritone and many composers write it in for that purpose, taking account of the carelessness of singers. He then cites a long list of works by Mouton, Josquin, Fevin, Lhéritier, and Carpentras which use the flat sign; all appear in Petrucci prints, and Aaron locates each flat precisely by referring to the part and staff in which, and the text over which, it appears.

Following this is the presentation discussed above of situations where the tritone cannot be avoided. These examples and Aaron's previously noted tolerance for the harmonic tritone suggest another reason why he would have preferred the accidentals to be written, in order to avoid ambiguity about whether the tritone should or should not be allowed to stand.

The Supplement continues by asking if the singer should be expected to insert musica ficta when singing at sight. Learned authors say the composer writes for the experienced and learned performer who has quick observant ears, who will know instantly when an imperfect fifth or octave occurs and correct it at once, thus no sign is needed. Aaron disagrees emphatically.³¹

I say that only God is master of these things, and such silent intelligence belongs only to him, and not to mortal man, because it would be impossible for every learned and experienced musician to be able to feel immediately an imperfect fifth, octave, twelfth or fifteenth without first committing the error of

³¹ Tosc. Supplement: "Dico che a questo solo ne è maestro Iddio, & tale intelligenza muta, sola appartiene a lui, & non a huomo mortale, perche sara impossibile a ogni dotto & pratico poter sentire in uno subito una quinta, ottava, duodecima, o quintadecima imperfetta, che non commetta primamente lo errore di qualche poco di dissonanza; vero è, che piu presto sara sentito da uno che da l'altro, pur nondimeno non sara huomo che in questo non incappi."

a slight dissonance. True enough, one will notice such things more quickly than another, but nonetheless there is no man who wouldn't fall into the error."

Composers realize this very well and write in the flat sign in order to avoid imperfect intervals. A list of examples again appears, by Josquin, Mouton, Fevin, Richafort, C. Festa, de la Rue, Longueval, Verdelot, and Lhéritier, mostly from the Corona motets and the first volume of Masses by Josquin, published by Petrucci.³² Then Aaron says that since all these composers are moderns, he cites works by some ancients as further confirmation, by Agricola, de Orto, de la Rue, Japart, Compère, Isaac, and Obrecht, all of which he says may be found in a book called "di cento canti stampati per ordine," the Odhecaton, which he uses for the reader's convenience in following his argument. Aaron's chronology for these composers is somewhat confused; it is very likely based on the date of publication of the various collections rather than the dates of the composers themselves. The Odhecaton preceded the other publications by fifteen to twenty years; works by de la Rue appear in both

³² A few of his examples come from other sources which the present writer was unable to identify.

groups, which is perhaps why he is listed both among the ancients and moderns. Josquin's inclusion with the moderns may be explained on the assumption that Aaron used the 1516 reprint of his Masses rather than the first edition of 1502. It is nonetheless peculiar that he should call Josquin a modern after claiming to have known him in Florence, presumably many years earlier, and thus being in a position to know that Josquin was of the generation of Agricola, Obrecht, and Isaac. Aaron closes his discussion by reemphasizing the necessity to indicate all accidentals:³³

Just as God has taught us and painted before our eyes the way of salvation and also that of damnation, through which we distinguish the good from the bad, since otherwise without this we might easily have been able to fall into doing evil always or doing good, or sometimes into good and others into evil; since

³³ Tosc. Supplement: "Ma si come Iddio a noi ha insegnato, & dipinto dinanzi a gli occhi nostri la via de la salvatione, & anchora de la dannatione, per laquale cognoscemo il bene del male, che forse senza questa facilmente haressimo potuto incorrere sempre al male operare, o al bene, overamente alcuna volta al bene & quando al male. Essendo adunque la vita buona & cattiva, a lui è stato necessario ordinare gli suoi precetti, & modi per liquali habbiamo a cognoscere il ben vivere, da quello che è contrario. Et piu si vede in alcuni viaggi dove si truovono varii segnali, & questo per essergli piu strade da potere caminare, onde acio che quegli che non sanno per quel paese andare, possino rettamente pigliare il buon camino dove non essendo segno alcuno, senza dubbio potrebbono pigliare la cattiva via, al fin de la quale nascerebbe un fiume dove bisognando passarlo, facilmente si potrebbono arenare, o per il manco male tornare indrieto. Per tanto il Musico overo Compositore è ubbligato segnare lo intento suo, acio che il cantore non incorra in quello che dal detto compositore non fu mai pensato."

life is then both good and bad, it was necessary for Him to ordain His precepts and the ways through which we have to distinguish the right way to live from its contrary. Further, in travelling one sees places where there are various signs, because there are several roads one might take. By means of these signs those who do not know the country may correctly choose the right road. If there were no sign, they doubtless might choose the wrong road, at the end of which might rise a river into which they might easily fall in trying to cross it, or avoiding this misfortune, at least have to turn back. Thus the musician or composer is obliged to indicate his intention so that the singer will not stumble into something the composer did not intend.

He thus concludes that the accidental signs are as necessary for the learned as for the untrained and that the singer should not be expected to fill in the accidentals needed at sight, nor even in music he knows.

At this point the discussion of the name and use of the sharp sign follows, after which Aaron urges that it also should be written in and gives two examples with identical sopranos, one requiring the sharp, the other not. A third example moves similarly to the first and also requires the written sharp. Remarkably enough, Aaron does not indicate the raised subtonium in the alto in the first and third examples; whether because it is so elementary it can be taken for granted or because he really did not want it is not clear,

EXAMPLE 56 - Toscanello, Supplement

but the latter possibility is unlikely in view of his statements in Institutione Harmonica. He feels obliged to say that the Supplement does not contradict what he said in Toscanello II, 20; learned singers do not need the sign, but if only the inexperienced need it, this is sufficient reason to give it. But this statement is contradicted by his examples of ambiguous sopranos and the forceful expressions of the opposite viewpoint, which evidently derive from Spataro. Aaron cannot have it both ways; either the learned need accidentals written in or they do not. If the Supplement is assumed to represent his final view, he is rejecting his earlier opinion despite his protests to the contrary. There is however no question of his wavering on the fundamental necessity to write in all the desired accidentals, which he upheld in both statements.

Spataro's objection to successive natural and altered forms of the same pitch has already been noted. Lucidario II, 9, discusses the same problem, giving two examples of bad progressions which may result from using sharps on C, F, or G:³⁴

EXAMPLE 57 - Lucidario II, 9



He says that Ramos also disapproved of the first example, because either a minor sixth goes to an octave if the second G is not raised, or the major semitone G-G-sharp occurs in the soprano.³⁵ Changing the minor sixth to a major sixth causes thus an even worse fault than leaving the progression unaltered. The second example also shows a "foul, unsanctioned" progression, notwithstanding the fermata on F-sharp.

³⁴ Note that Aaron here indicates the raised subtonium in the tenor of the second example, in contrast to the examples in Tosc. Supplement.

³⁵ Cf. Ramos, Practica II, i, 1, p. 66.

The octave f-f' after the fermata should be changed to a tenth in order to avoid the difficulty.

Several progressions similar to the first example were given by Marchetto in the Lucidarium over two hundred years before Aaron.³⁶ Since Aaron refers to Marchetto several times in his writings, he must have had him in mind in this instance also. Marchetto wrote when such progressions were accepted in practice,³⁷ and Aaron lived to see them coming into use again, a fact which obviously displeased him.

In general Pietro Aaron's views on the use of accidentals are quite progressive, at least until near the end of his life. He reflects new stylistic trends such as the possible use of the harmonic or melodic tritone, and the use of the full triad in the final chord. As in other connections, he cites the works of prominent composers as sources and justifications for his statements. He realizes the increasing complexity in the use of accidentals and the difficulty the

³⁶ GS. III, 74, 75, 82, 83, 89.

³⁷ Nino Pirrotta, "Marchettus de Padua and the Italian Ars Nova," Musica Disciplina IX (1955), 64-65.

singer could have in determining what the composer wanted, and thus he advocated that the composer or scribe should relieve the uncertainty and indicate precisely his intention. In this he takes the part of the less accomplished performer as he did with respect to notation; in addition he followed Spataro in recognizing that even the learned could go astray. Because of his practical orientation and the detailed consideration he gives to the subject, his writings are particularly valuable in this area, one which many of his peers neglected.

As was indicated above, the principal theoretical basis of the use of accidentals in the Renaissance was the transposition of the solmization hexachords. Since most accidentals were transitory there was little question of transposition of the modes, which when it occurred seldom involved chromatic tones other than B-flat. Massera suggests that since Guido's solmization system had no chromatic tones except B-flat, it was felt inadequate when greater use of chromaticism arose. Thus theorists at first simply located the chromatic tones on the monochord, as Prosdocimus did; only in the fifteenth century was the hexachord system expanded

to take in chromatic tones.³⁸ References to transposed hexachords exist prior to the fifteenth century, however.³⁹ Johannes de Muris or a compiler of his teaching says that to sing falsa musica (chromatic tones) one puts ut on D, re on E, mi on F (thus F-sharp), and so on.⁴⁰ The concept that any flat was sung as fa, any sharp as mi, necessarily involved the transposition of hexachords, though the hexachords were not necessarily given in full.⁴¹

Though some earlier writers hinted at the possibility of transposed hexachords, the fifteenth century saw the fullest development of this concept. Ugolino⁴² built two "hands," both using diatonic and chromatic tones and including hexachords starting from F, G, B-flat, C, D, and E. For

³⁸ Massera, La "Mano Musicale Perfetta," p. 52-53.

³⁹ MGG. III, 421, says Anonymous I built hexachords on A, B-flat, C and E, while Hieronymus de Moravia built them on A-flat, B-flat, D-flat, E-flat, and G-flat, but no such reference is to be found in Hieronymus or in any Anonymous I of CS. or GS.

⁴⁰ GS. III, 307.

⁴¹ Gafori, Practica III, 13, says that some raise a tone to a semitone without changing the syllables, as for instance at G-F-G when the F is raised to F-sharp, which seems a natural reaction against the complexities to be described below.

⁴² Declaratio II, 51 (Book II, Chapter 34).

some reason he omitted forming a hexachord on A, although his discussion of the use of chromatic tones specifically refers to the possibility of using C-sharp to make a minor third when it precedes a unison. Earlier he had said that sharpened notes are sung as mi, and the use of C-sharp would thus seem to require a hexachord beginning on A. Those he gave did include the five usual chromatic tones, since C-sharp appears in the E hexachord as la. Ramos gave seven hexachords⁴³ beginning on F, G, A, B-flat, C, D, and E-flat, providing A-flat rather than Ugolino's G-sharp. The fullest development of the concept was reached in Hothby's Calliopea Legale which describes hexachords formed on each of the twelve semitones, F, F#, G, Ab, A, Bb, B, C, Db, D, Eb, and E. The two on C and G are completely diatonic, five others use flats in combination with diatonic tones, and the remaining five combine sharps and naturals.⁴⁴ Because of the lack of enharmonic equivalence in Pythagorean tuning, Hothby needed twelve hexachords to account for the

⁴³ Practica III, i, 2, p. 73.

⁴⁴ Coussemaker, Histoire, p. 298-320.

seventeen chromatic pitches of the complete chromatic scale.⁴⁵ Brugis gave only the seven hexachords on F, G, A, B-flat, C, D, and E-flat which would furnish the five principal accidentals.⁴⁶ All these writers except Hothby gave practically oriented systems, accounting for the five chromatic tones in greatest use; they placed a hexachord on either E or E-flat according to whether they wanted to use G-sharp or A-flat as the fifth accidental.

Aaron three times wrote about transposed hexachords. His definitive statement expanded the system to the limits reached by Hothby, but his approach differed in being ostensibly more practically oriented. He set out to show how

⁴⁵ Frances Berry Turrell, "Modulation: an outline of its pre-history from Aristoxenus to Henry Glarean" (Ph.D. dissertation, University of Southern California, 1956), p. 504, states that B-natural used as fa is a comma higher than the same note as mi in Hothby's system. This assumes some other tuning than Pythagorean, an assumption which Hothby's text does not support. Hothby's hexachords are easily accounted for in strict Pythagorean terms, using the tuning of Prosdocimus. B as fa would be a perfect fourth above F-sharp, B as mi would be a ditone above G; the difference between F-sharp and G is a minor semitone, so is the difference between B and C, which is fa in the G hexachord. This being the case, B would be the same pitch in both hexachords, as may be confirmed by consulting Example 42 in this chapter.

⁴⁶ Massera, op. cit., p. 56-58 and Tavole III and IV.

chromatic alterations would make it possible to find all six syllables on each diatonic tone in the gamut. Ramos is the apparent source of Aaron's treatment; he had discussed at some length the possibilities of mutation brought about by chromatic tones.⁴⁷ Ramos used only five chromatic tones, but Aaron ultimately included all ten flats and sharps, thereby requiring the same twelve hexachords listed by Hothby. Aaron did not write out the hexachords systematically as Hothby had done; only once did he actually notate a few of them, but he did explain carefully the relationships of all seventeen tones in the octave in Pythagorean tuning. His accounts embody a curious mixture of conservative and progressive attitudes, conservative in retaining Pythagorean tuning in the face of the great ferment in tuning that took place after 1500, and progressive in anticipating the practical use of all ten chromatic tones, which was not accomplished until later in the century.

Aaron's first discussion of the subject in Trattato, Chapters 26-45, has no connection with the modes and there is no apparent reason why it appeared in that treatise

⁴⁷ Practica I, ii, 4, p. 31-4.

rather than another. Aaron suggests no reason himself, but simply launches abruptly into the new topic. He remarks that some may be surprised that all six syllables may be found on any note in the hand, and he explains it for the uninformed, not for the learned. He gives each note in turn, from G to e", showing how it may become ut, re, mi, fa, sol, or la, using flats where necessary to derive a syllable not found in the natural hexachords. His procedure is best illustrated by quoting one chapter:⁴⁸

⁴⁸ Trat. Chapter 26: "Adunque cosi diremo che in Gama ut sono sei note over voci, delle quali naturalmente si conosce essere ut. La seconda nasce da Hypate hypaton cioè mi, per cagione del fa elquale accidentalmente viene dal B molle in quel luogo ordinato, laqual si chiama re, La terza nota over voce detta mi, è causata primamente da quel mi mutato nel fa de Hypate meson detto E la mi, del quale la sua quinta over Diapente inferiore corrispondente per uno altro accidentale fa, sara nella positione chiamata Proslambanomenos cioè A re dicendo fa, per consequente in Gama ut sara la terza nota mi. La quarta voce hara principio da Lichanos hypaton cioè D sol re, nelquale sara lo accidentale fa rispetto a quella voce mi ordinata et costituita nella positione detta Mese cioè A la mi re mutata nel fa, elqual fa risponde per diapente inferiore nel luogo detto D sol re dicendo similmente fa, con elqual fa discendendo per una altra quinta, è necessario che in Gama ut sia fa, La quinta voce over nota sol, è facilissima comprenderla, perche assai volte questo accade secondo el discorso naturale degli contra bassi gli quali discendendo sotto di esso Gama ut, è dibisogno formare nella sequente positione aquisita la voce fa, accioche meglio si possa procedere et da qual fa nascera el sol nel detto Gama ut. La sesta et ultima nota nascera da una voce fa accidentalmente terminata per una ottava inferiore a Hypate meson cioè E la mi, dicendo adunque fa, si vede chiaramente in Gama ut essere la sesta voce chiamanta la, con ilquale ordine gli seguenti luoghi dimostreremo."

Thus we say this, that in Gamma ut are six notes or voices, of which ut is recognized to be natural [arising from a natural hexachord]. The second comes from Hypate hypaton, which is B mi, because of the fa which accidentally comes from the B molle [the sign \flat] found in that place, and [Gamma ut] is called re. The third note or voice called mi is caused principally by the mi changed to fa of Hypate meson, called E la mi, whose lower fifth or Diapente has to correspond by another accidental fa and will be in the position called Proslambanomenos, i.e., A re, calling it fa; consequently Gamma ut will be called the third note, mi. The fourth voice will have its origin from Lichanos hypaton, that is, D sol re, in which will be the accidental fa with respect to that note mi found in the position called Mese, which is A la mi re, being changed into fa, which fa answers by a lower diapente in the said location, D sol re, similarly called fa, with which fa descending by another fifth, it is necessary that fa is made in Gamma ut. The fifth voice or note, sol, is easily understood, because many times it happens according to the natural order of the contrabass part, which descends below this Gamma ut. It is necessary to form the voice fa in the following acquired position in order to proceed better, and from that fa arises the sol in the said Gamma ut. The sixth and last note will arise from a voice fa accidentally found an octave below Hypate meson, i.e., E la mi, thus saying fa, it is clear that the sixth voice, called la, is found in Gamma ut.

In other words, G is ut in the natural diatonic order; re through an accidental B-flat, which has to be fa, thus causing re to fall on G in a stepwise descent; mi when A must be flatted, becoming fa, in order to form a perfect fifth

with an e-flat occurring a fifth higher; fa, changing to G-flat, because of a d-flat a fifth higher, which is in turn derived from an a-flat another fifth higher; sol from a diatonic hexachord starting on C which is needed when the bass descends below G; and la from an accidental E-flat below the gamut.

Each of the remaining twenty-one notes is explained similarly, but in order to avoid repeating Aaron's tortuous, verbose explanations, they are summarized in the table below. Only one octave is given, since the explanations of the upper octaves are identical. Each syllable not found naturally is derived from some pivotal flatted note, either by the need to form a perfect fifth or fourth with it, or by stepwise ascent or descent from it, or by a combination of both causes. Five flats are used altogether, on all notes but C and F. As the table shows, sometimes the subject note itself is flatted, so mutation is not possible among all of its six syllables, since two different pitches are used for each note except C and F. The total range of pitches involved in the hexachords forming these syllables is not stated, but pitches are implied which range from

	ut	re	mi	fa	sol	la
G	Natural	B \flat is fa	e \flat requires A \flat ; A \flat is fa	A \flat requires d \flat ; d \flat requires G \flat ; G \flat is fa	Natural, from descent below G	E \flat is fa
A	d \flat is fa; A \flat is ut	Natural	B \flat is fa	e \flat requires A \flat , A \flat is fa	d \flat is fa, c is mi, A \flat is ut/sol	Natural, from descent below G
B	e \flat is fa, B \flat is ut	d \flat is fa, B \flat is re	Natural	B \flat is fa	e \flat is fa, d is mi, c is re/la, B \flat is sol	D \flat is fa, B \flat is re/la when descending lower
c	Natural	e \flat is fa	a \flat requires d \flat ; d \flat is fa	Natural	B \flat is fa	e \flat requires A \flat ; A \flat is fa
d	g \flat is fa, d \flat is ut	Natural	e \flat is fa	a \flat is fa; e \flat is ut/sol; d \flat is fa	Natural	B \flat is fa
e	a \flat is fa; e \flat is ut	g \flat is fa; e \flat is re	Natural	b \flat is fa; e \flat is fa in leap of 5th	a \flat is fa; d \flat is fa, 5th below; e \flat is sol	Natural
f	Natural	a \flat is fa	g \flat is fa	Natural	e \flat is fa	a \flat is fa; d \flat is fa; f is la

Table 25 - Derivation of all syllables on each note in Trattato, Chapters 26-45.

(Source on next page)

B₁-flat to c''', a total of four octaves.⁴⁹

Aaron's derivation of syllables suggests parallels with the famous composition of Willaert, Quid non ebrietas dis-
signat, the tenor part of which contains a series of descending perfect fifths through the cycle of flats, ending

⁴⁹ Turrell, op. cit., p. 528ff., discusses Aaron's hexachord systems and states that Trat. uses both flats and sharps in its hexachords. Aaron's text is occasionally ambiguous on this point, since he does not always specify "accidentale" or "B molle" for the fa which causes the new syllables. But if fa, when applied to another note than C or F (i.e., elsewhere than on the upper notes of the two diatonic semitones), is always taken to mean that the note is flatted, as traditional usage would require, no difficulty is encountered. Turrell concluded that Aaron was inconsistent in his application of the fa, sometimes changing mi to fa without a change of pitch and other times using fa as an indication of a flatted note (p. 531), but only the latter is correct. This is made plain in the Supplement to Trattato, to be discussed below, which states that only flats were used in chapters 26-45.

Table 25 -

Source: Trat., Chapters 26-32. In the upper octaves, described in Chapters 33-45, the notes in the F hexachords are also considered natural. A mutation is indicated by a diagonal stroke; "c is re/la" means that c is re, then mutates to la. When Aaron derives the desired syllable stepwise, the intermediate steps are not given in full; derivations by leap of a fifth or fourth begin arbitrarily from the first note given. Flattening of the subject note is indicated by underlining; e.g. B is fa. The octave is specified in this table.

on an apparent seventh, e-d', with the cantus; the tenor's last note is, however, to be read as e-double-flat, to which point the circle of fifths attains.⁵⁰ Willaert thus went beyond Aaron into regions of enharmonic chromaticism unknown previously; he presented the flats in order: B, E, A, D, G, and C; thereafter every note but F must be sung as a double-flat. Aaron's use of a series of descending fifths to derive his syllables is similar, especially in such cases as his derivation of fa on Gamma ut, G-flat, by descending fifths from A-flat through D-flat; Willaert's tenor uses an identical chain of fifths. No proof of a connection between the two exists beyond this common procedure, but Aaron is known to have been studying the composition in 1524, as Spataro's letters show,⁵¹ and the chapters that appeared in

⁵⁰ Whether Willaert intended to demonstrate the practicability or impossibility of equal temperament, with e-double-flat equal or unequal respectively to d, will not be discussed here. See Joseph S. Levitan, "Adrian Willaert's Famous Duo," Tijdschrift voor Muziekwetenschap XV (1938), 166-233; and E. E. Lowinsky, "Adrian Willaert's Chromatic 'Duo' Re-examined," Tijdschrift voor Muziekwetenschap XVIII (1959), 1-36, for extensive discussions of the composition which consider this question among others.

⁵¹ The pertinent letters are VL 5318, Nos. 25, 80, and 81, and Paris, Bibl. Nat. Ms. Ital. 1110, f. 47r-49r, the significant portions of which are translated in Levitan and Lowinsky, op. cit.

EXAMPLE 58 - Willaert, "Quid non ebrietas," tenor, from
Levitan, op. cit., p. 221

The image shows a musical score for a tenor voice part. It consists of five staves of music. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a common time signature (C). The melody is written in a tenor range. The second staff continues the melody. The third and fourth staves feature a complex rhythmic pattern with many beamed notes and rests, indicating a fast or intricate passage. The fifth staff concludes the piece with a final cadence.

Trattato a year later may be in some degree the result of that study, although they are more restrained than Willaert's composition. Spataro's letters indicate that Aaron contemplated something on the order of equal temperament as a solution for the motet, since he consulted with lutenists about it (lutes may have used equal temperament at the time)

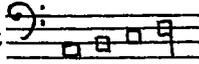
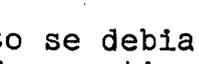
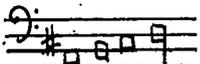
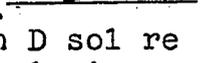
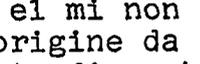
and tried it on the harpsichord, which could offer only D as an equivalent for E-double-flat.⁵² Possibly Aaron did not wish to publish a solution that would depart from Pythagorean tuning, or was unable to formulate one to his own satisfaction. Except for the description of mean-tone temperament and a few references to tempered fifths, Aaron remained a staunch Pythagorean in his published works, ignoring both the Classical Greek tunings and the new systems that intrigued so many other writers of the period. The suspicion arises that he was not sufficiently skilled in mathematics to explore these systems in any detail; the mathematics of Pythagorean tuning was readily accessible in numerous theoretical treatises from Boethius on, and Aaron would not have had to work this out for himself.

When Spataro resumed writing to Aaron after an estrangement of several years, he immediately discussed the last chapters of Trattato. A letter dated January 30, 1531, the first surviving after 1524, is evidently not the first to break the silence, since it mentions receiving a letter from

⁵² VL 5318, no. 81; Paris, Bibl. Nat. Ms. Ital. 1110, f. 48r; both passages quoted and translated in Lowinsky, op. cit., p. 16 and 24.

Aaron in the previous December. Others from Spataro probably preceded it; this letter says nothing about the silence and reconciliation, and Spataro, judging from the tone of his other letters, would surely have expressed his gratification at some length when he first wrote Aaron again. In this letter he says that he is sure that Aaron knows other accidentals than the flat, and that contrary to what Aaron said, using only the flat to derive the six syllables on any one note does not make the explanations easier. He urges that Aaron should have used both the flat and the sharp, but he does not make clear that the reason is because only in this way can the six syllables be found on the same pitch throughout the gamut, rather than as in Trattato, where most notes have to use some flats in addition to the diatonic pitches to fill out the set of six syllables (See Table 25 above). Spataro recommends taking one's departure from the semitone mi-fa; either of these notes may be made to fall on a diatonic tone by suitable use of both the flat and sharp signs. Fa would result from a sharp on the next lower note and mi from a flat on the next higher note, since a sharp is always mi and flat is fa; the semitone resulting from either accidental is sung as mi-fa. Extending

hexachords from each mi-fa would provide all six syllables on each diatonic pitch, as will be shown below.⁵³ The letter then explains to Aaron the difference between C-sharp and D-flat, that a comma separates them, that they divide

⁵³ VL 5318, no. 86, f. 219v: "Io sono contento, frate Petro mio honorando, per amore vostro credere che hora pensati che l'è piu de una coniuncta, et non solamente quella da b molle, ben che nel tractato vostro voi diceti che altri se maravigliano che in tute le positione de la mano possano essere ut, re, mi, fa, sol, la, et questo adviene perche loro non intendono la coniuncta. Qua pare che intendeti solo de una et non de piu, perche haresti dicto, le coniuncte, et non la coniuncta. Et dove diceti che havete lassato de fare mentione de questo segno # per havere uno modo facile, questo sera impossibile perche l'è piu difficile volere demonstrare la verita de una cosa per la via indirecta che non sera la recta, perche in apparentia el non se potra cognosco essere fa in positione alcuna dove naturalmente non sta, senon per el segno del b quadro signato ne la positione naturale subsequente a quella naturale positione, nela quale tale fa accidentale sera equalmente in sono inteso et posito, come exempli gratia acadera volendo demonstrare che la intentione del maestro è de mutare la prima specie de diatesseron cadente intra A re et D sol re in la terza spetie, la quale ha el semitonio nel terzo intervallo. Tale variare non sera intesa da ciascuno stando el canto ut hic notato  ma se dapo questo segno # sera posito in C fa ut  ut hic  perche l'è observato intra musici  che dove è tale segno locato se debia dire mi.  Pertanto seguitara che el fa costituito in D sol re con le soe syllabe precedente et seguente excepto el mi non hara origine da se ne da esso fa, ma harano origine da questo signo # predicto in C locato.... Similmente dico che ogni mi accidentalmente in una naturale positione considerato non potra havere origine da se medesimo, ma hara origine da questo segno b overo fa segnato in la superiore positione propinque....Questo ordine produca clara et rationale notitia, et non confusa."

the tone C-D two ways, with a major semitone below and minor semitone above, or the converse (see Example 42 above). This explanation seems superfluous, since Aaron's earlier works explain the effect of both signs quite correctly. Some confusion, at least in Spataro's opinion, must have cropped up in Aaron's letters.

The next letter, dated February 8, reiterates Spataro's dissatisfaction with Trattato, pointing out more directly that thirty mutations are not possible on each note without using sharps as well as flats. Aaron had not mentioned this possibility in Trattato, so it must also have come up in the letters. Hothby had previously explained that if all six syllables are found on the same pitch, thirty mutations are possible among them,⁵⁴ but in Trattato only twenty are possible at most, except on C and F, which Spataro ignores. Spataro offers to help Aaron with a revision of Trattato in order to remove the errors that would disgrace him if any learned person saw the book, and he says he will send some material for that purpose, which Aaron can publish under his

⁵⁴ Cousse-maker, Histoire, p. 317-319.

own name if he wishes.⁵⁵

The subject figures only briefly in the next two letters. In the one dated March 28, Spataro says that since

55 VL 5318, no. 83, f. 216r: "Potria essere che da me in qualche loco de li vostri tractati non è stato bene inteso la vostra ordinatione et fantasia, almanco in quelli capitoli dove vostra excellentia ha tractato de le sei sillabe considerate equale in sono in ciascuna positione de la mano, et de questo me sono acorto per quella vostra ultima a me missa, pertanto havendo io gia scripto come vedereti, per fugire fatica non sono tornato a scrivere altrimenti. Ma tale vostre consideratione non possono stare senza errore, perche in molti lochi opportuni non haveti uxate questo segno #, senza el quale circa tale materia non se potra rectamente pertractare, et perche in ciascuno loco de la mano dove serano le sei syllabe predictae equale in sono, se possono trovare rationabilmente trenta mutatione. Pertanto seguitara che senza tale segno ut hic # signato tale mutatione non se potranno trovare. Io tengo le figure de ciascuna positione, le quale dimostrano la mera verita, le quale sono 20, le quale al presente non mando a vostra excellentia, perche non è opera da fare a tempo de nocte; come il giorno sera piu longo, che io porra scrivere. Voglio mandarle a vostra excellentia acioche quella resti claro del tuto. Ma credeti a me che siano tale vostre consideratione come volete, che non possono stare senza errore, come apare ni li mei scripti a vostra excellentia misse. (f. 216v) Ma se possibile fusse, con qualche licita excusatione che tale consideratione de le predictae sei syllabe fussino retractate, per la honore da vostra excellentia io ve ne conforto, et io per lo amore che io ve porto me offeristo a darvi ogni aiuto, et piacendo a vostra excellentia, faro l'opera et a quella la mandaro, et in vostro nome la fareti stampare. A questo pensareti, perche si tale opera sera examinata da homine el quale de tale consideratione habia intelligentia, molto sereti incolpato; fareti come a vostra excellentia piace et pare meglio. Non altro per hora. Tuta sono de vostra excellentia. Vale. Bononia die 8 februarii 1531. El vostro servitore. J. Spataro."

Aaron's treatise is now in the press he will say no more on the matter, and he would be content to burn his previous letters about it for the sake of amity.⁵⁶ The next surviving letters, numbers 89 and 90, both dated October 24, 1531, acknowledge receipt of a tractatetta, the supplement to Trattato, which is the work in press referred to in the letter of March 28.⁵⁷

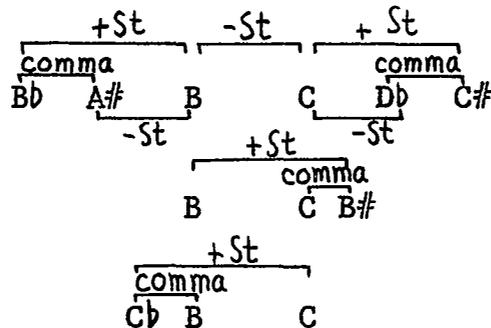
⁵⁶ VL 5318, no. 92, f. 230v: "Ho inteso de le havrete mie dubitatione, la quale cosa a me è stata de piacere, perche io dubitavo che non fusseno andate per mala via: Ma ve prego, che non ve vogliati turbare, perche, lo animo mio, è de getarlo nel foco, atento che la cosa et opera vostra (per essere impressa) et in publico aducta non potra piu tornare a retro." The wording makes it possible that Spataro was referring not to the new Supplement, which he presumably learned was now in print, but to Trattato itself. In the latter case, he would be expressing second thoughts, wishing to drop the whole matter, since the treatise had been in circulation for several years already and nothing could be changed at this point. Whichever of the two works he referred to makes no difference in any other aspect of the history of the Supplement.

⁵⁷ Jeppesen, MusThKorr., p. 29, assumed that no. 89 was dated incorrectly, 1531 instead of 1530, but it plainly refers to the Supplement to Trattato, which was printed in 1531. Jeppesen was evidently unacquainted with the Supplement, since he assumed the letter referred to a lost work by Aaron. Letter no. 90 has the same date as no. 89 and confirms that the latter is in fact of the same date, since Spataro says in it, "I send you this other enclosed letter of mine so that it may show you my opinion about the printed accidentals" (f. 226v: "Vi mando questo altra mia inclusa aciochegli demonstrati el mio parere circa le coniuncte impresse."). The entire correspondence often refers to a letter as "una vostra" or "una mia."

Before examining these letters, the Supplement itself must be dealt with. It begins by assuring the reader that although Aaron returns to the material of Trattato, Chapters 26-45, no error was to be found there. He had shown all six syllables on each note using only the flat sign, and he refers to Aristotle for justification of his economy of means. But to show that he is aware that the names can be found using both accidentals, flat and sharp, the present treatise is offered. First the effect of the two accidentals is explained, the flat lowering and the sharp raising by a major semitone the note to which they apply. Each natural tone is thus divisible two ways, in effect by two minor semitones separated by a comma (see Example 42 above), as is found on some organs and harpsichords with a divided black key between A and G; the upper half of this key sounds G-sharp, the lower A-flat, and a comma separates the two. B-sharp, E-sharp, C-flat, and F-flat are not usable, since the diatonic forms of these notes lack a tone above or below which can be divided properly. Below C and F are two adjacent minor semitones and above B and E are the same, thus the major semitone required for B-sharp and E-sharp would ^ffall a comma above C and F respectively, while that for C-flat and F-flat

would be a comma below B and E:

EXAMPLE 59



These tones would thus be of no use on "the harmonic instrument." Through using both accidentals, each natural note may have all six syllables, naturally or through using a flat or sharp. Their origin is found by the rule that ut, re, and mi have to ascend to find the semitone between mi and fa (and presumably fa, sol, and la descend for the same reason, but Aaron does not say so). All the syllables are thus derived ultimately from a mi or a fa; the semitone is the crucial interval in the hexachord.

Aaron then proceeds through the twenty-two natural notes of the gamut and gives the source of all six syllables for each note; a sample of his procedure follows:⁵⁸

⁵⁸ Trat. Supplement, f. aa ii r: "Ma volendo trovare le preditte sei syllabe equale in suono con Γ ut naturale,

But wishing to find the said six syllables equal in pitch to Gamma ut natural, first we say that the first syllable, ut, stands in that location naturally. The second, re, arises from this sign, \flat , placed against B mi natural. The third syllable, mi, arises from the same sign, \flat , placed against A re. The fourth syllable, fa, arises from this sign, \sharp , placed against F below the gamut, which is normally distant from Gamma ut by a tone, and is an octave below f fa ut grave. The fifth syllable, sol, falls in this location naturally, because it is derived from C below the gamut, which is an octave below C grave. The last, la, arises from this sign, \flat , placed against E below the gamut, an octave below E grave.

The explanations, this time quite clear and concise, are summarized in Table 26.

Aaron remarks on reaching g that the octaves of the notes already explained proceed identically and there is no real need to duplicate what was said before, but he does so

prima diremo che la prima syllaba, cioè ut, sta in tal luogo naturalmente. Dapoi si dira che la seconda, cioè re, nascere da questo segno \flat segnato in \flat mi naturale, et la terza syllaba, cioè mi, nascera anchora da questo segno \flat segnato in A re. Ma la quarta syllaba, fa, nascera da questo segno \sharp segnato in f aquisito, elqual naturalmente è distante da esso Γ ut per tuono & cade in ottava con f fa ut grave, & la quinta syllaba, cioè sol, cadera in tal luogo naturalmente, perche sara derivata da .c. aquisito, ilquale cade in ottava in gravita con C grave. Ma l'ultima, cioè la, nascera da questo segno \flat posto in e aquisito, distante per una ottava da E grave."

	ut	re	mi	fa	sol	la
G	Natural	B \flat is fa	A \flat is fa	F \sharp is mi	Natural, from C as ut	E \flat is fa
A	c \sharp is mi	Natural	B \flat is fa	G \sharp is mi	F \sharp is mi	Natural, from C as ut
B	d \sharp is mi	c \sharp is mi	Natural	A \sharp is mi	G \sharp is mi	F \sharp is mi
c	Natural	e \flat is fa	d \flat is fa	Natural	B \flat is fa	A \flat is fa
d	f \sharp is mi	Natural	e \flat is fa	c \sharp is mi	Natural	B \flat is fa
e	g \sharp is mi	f \sharp is mi	Natural	d \sharp is mi	c \sharp is mi	Natural
f	b \flat is fa	a \flat is fa	g \flat is fa	Natural	e \flat is fa	d \flat is fa

Sources: Trat. Supplement; Luc. IV, 11; Comp. II, 60.
 All derivations are stepwise; the crucial accidental,
 mi or fa of the hexachord, is given in the table. Only
 the C and G hexachords are called "natural."

Table 26. Derivation of all syllables on each
 note in Trattato Supplement, Lucidario,
 and Compendiolo.

in order to fulfill his stated intention. The resulting set of accidentals requires hexachords beginning on C, Db, D, Eb, E, F, F#, G, Ab, A, Bb, and B, the same twelve notes used by Hothby. After explaining all twenty-two notes, he demonstrates that thirty mutations are possible on each note, enumerating all thirty and citing in each case the pivotal note, mi, of the hexachord that produces the syllable. He uses e as his example to avoid notes that fall below the gamut and thus needs no flat hexachords, which would of course use fa as the pivotal note.

Aaron's close relationship to Hothby is obvious. Besides the duplication of the twelve starting notes of the hexachords, the emphasis on mi and fa is striking. Hothby considers these notes the most important in a hexachord, calling them "prince" and "count" (principe and comite) respectively, while the other four are "indicators" (demonstratore), pointing to the central tones of the hexachord.⁵⁹ Aaron derives his syllable names for the diatonic tones from one or the other of these two syllables throughout;

⁵⁹ Coussemer, Histoire, p. 301.

they determine the other four syllables. How much direct influence Hothby exercised on Aaron is difficult to determine. Aaron knew Hothby's work; he refers to it in the Supplement to Toscanello, and some influence seems quite possible and even likely. Their approach differs, however. Aaron is more practical, concerned with the mechanics which the singer must master to use accidentals properly. Hothby seems to speculate abstractly with little direct reference to practice. However dependent Aaron was for the basic ideas, he reworked them to his own purpose.⁶⁰

An obvious question about the Supplement to Trattato is, how much did Spataro contribute to it? Obviously his criticism was the impulse that led Aaron to issue the revision, but it seems doubtful that Spataro wrote the

⁶⁰ Turrell, op. cit., p. 501, takes Hothby's Table 4 (Cousse-maker, Histoire, p. 314) to imply that Hothby aligned all six syllables on each note and thereafter derived hexachords to account for them, essentially as Aaron did. But Hothby's text seems concerned primarily with constructing hexachords; the possibilities of mutation among them are mentioned only briefly after the hexachords are fully explained. Hothby's text itself refers to Table 4 only in conjunction with hexachords, not at all with mutation, and it would seem that the table implies nothing about the generation of the hexachords but only illustrates them. It might also be mentioned that Cousse-maker is notorious for reproducing tables and musical examples incorrectly.

Supplement himself, although he offered to do so. When he said that now that Aaron has gone to press, the subject may as well be closed, he hardly suggested that he had anything to do with what Aaron was printing. Letter No. 89 describes the reception of the Supplement by Spataro's musicians in Bologna and has the highest praise for Aaron, but no self-congratulation appears here or in any other letter; one would hardly expect Spataro to forego some such expression if he had written the work. His letters undoubtedly helped Aaron to frame his presentation; they present some crucial ideas that appear in the Supplement; the emphasis on mi and fa and the explanation of the division of the tone C-D strongly resemble the accounts given later by Aaron. On the face of the knowledge he had shown in earlier works, including what emerges from the earlier series of letters up through 1524, Aaron was quite capable of writing the Supplement himself, and there seems no reason to suppose that he did not do so. The chronology of the letters indicates that he wrote it quickly, however much influence Spataro can be assumed to have exerted. The discussion between the two was still in progress in January and February, but the treatise was being printed in March.

It is possible that some of the missing letters in the correspondence would clear up Spataro's role more conclusively, but on the face of the remaining evidence, the work is essentially Aaron's.

Spataro gives an extremely entertaining account of the reception of the Supplement in Bologna. He says that because of the difficulty of the material, which was worked out so elegantly, he merely acknowledged receipt of the treatise previously, apparently in a letter that does not survive. He had distributed copies among his musicians and now tells Aaron of their reactions. One said Aaron contradicted Ramos, who gave only eighteen mutations on any one note,⁶¹ but Spataro answered that Ramos spoke only of mutations found in Guido's gamut and avoided others, such as ut-mi and ut-la, which are not possible among the three original hexachords.⁶² Others thought Aaron opposed

⁶¹ Ramos, Practica, I, ii, 4, p. 34.

⁶² More specifically, Ramos mutated only within each of the three "orders" shown in Practica, p. 35; the "natural order" is the Guidonian gamut, the "accidental orders" transpose the gamut a tone higher and a tone lower respectively. Ramos moved only within each one of these, not between two different orders.

Ramos in giving more accidentals than the latter, but Spataro said Ramos spoke only of the keyboard instruments in use when he wrote, while Aaron considered more subtly, showing the double division of each tone; Ramos' monochord was thus less perfect.⁶³ Spataro said that no conflict existed between Ramos and Aaron, that Aaron simply went deeper into the subject, showing the same sort of truth as Hothby had before. Spataro's musicians finally suggested that his intellect must be failing, since they never expected him to say Ramos was inferior to any other musician. Spataro ends his comments by saying he has nothing to add about the treatise, which is so clear and correct that comment would be presumptuous.⁶⁴

⁶³ Spataro says nothing about the difference in tuning between Ramos and Aaron; his reticence almost suggests that he did not fully accept Ramos' innovations in this area, although he championed them vigorously elsewhere.

⁶⁴ VL 5318, no. 89, f. 224r: "Sono gia passati molti giorni che hebi uno de vra. extia. con laquale era uno doctissimo, subtile, et degno tractatetta novamente impressa; elquale allegantamente et con optime et vere demonstratione demonstrava come in ciascuna de le positione de la mano de Guido ciascuno de li sei nomi ufficiali se possono trovare. Et perche la materia è molto ardua, et difficile, alhora (senza dire altro) da me a vra. excelltia solamente fu dato adviso de lopera receputa senza dira altro. Ma perche simile subtile opere (al parere mio) non sono da

essere iudicate cosi presto, et senza el iudicio de homini docti. Pertanto tale opera fu da me publicata tra li nostri musici, acioche da loro a suo piacere et comodo fusse bene discorsa et ponderata con posato examino. Ma dapoi a me fu restuita non senza diverso parere, imperoche alcuno da loro (piu presto mosso da crassa ignorantia, che da livore) diceva che vostra excellentia era contra el mio preceptore, el quale mentre che tracta de le coniuncte dice che dove sono li sei nomi officiali equalmente giuncti in sono, che in tale loco sono solamente 18 mutatione, et vui diceti che sono 30. Ma circa questo suo primo errore li fu da me demonstrato che vostra excellentia in parte alcuna non era contra el mio preceptore, et che ancora lui non era contra da vui; et questo appare chiaro considerando che el mio preceptore non volse uscire de l'ordine de mutatione observate in la semplice mano de Guido monaco, per che ancora che...in D sol re cadono equalmente li sei nomi officiali, lui non volse fare mutatione de ut in mi, ne etiam de ut in la, et è contra, perche in la semplice mano de Guido non se trova alcuna positione dove ut et mi, et ut et la siano equalmente soto una sola littera positi....Ma pure alcuni de essi nostri musici dicevano che tacite vostra excellentia era asai contra el predicto mio preceptore, perche lui dice che le coniuncte sono doe, cioè una de b dure et l'altra de b molle, dapoi dice che quello de b molle se signa in quelli lochi dove naturalmente cade mi come in q et in e, et che quella de q duro se pone dove naturalmente cade fa come in C et in F, et vui signati la coniuncta de b molle et de b duro in D et in G. Alquale sua male pensitata fantasia, li fu da me risposto che intra Bartolomeo Ramis mio preceptore et vui non cade pare consideratione ne respecto, perche Bartolomeo solo atese et hebe respecto a produrre tante positione de la mano de Guido signate quanto era de uso circa la divisione de li toni in dui semitonii del monochordo et organo al suo tempo usitati, et disse che vostra excellentia ha considerato piu alto et subtilmente, perche haveti havuto respecto che ciascuno spatio de tono de li predicti instrumenti resti diviso in modo che in grave et in acuto appara el mazore et el minore semitonio con la differenza del coma la quale cade intra loro, et etiam che vostra excellentia haveva havuto respecto che in ciascuna positione de la mano de Guido, mediante tale segni, se potevano trovare tuti le sei nomi officiali pari in sono, li quale respecti non hebe Bartolomeo Ramis predicto.

Several of the next letters in the series deal with the problem of C-flat, F-flat, B-sharp, and E-sharp. Aaron was the intermediary between Spataro and del Lago, to whom Spataro refused to write directly between 1529 and 1533. The Bolognese musicians were trying to get del Lago to describe the hexachords that would result from fa caused by C-flat and F-flat respectively and from mi caused by B-sharp and E-sharp. They would begin on G-flat, C-flat, G-sharp,

Per la quale cosa seguita che el suo monochordo non potra cosi bene imitare lo instrumento naturale et organo humano come fara questo vostro novamente impresso. Se conclude adonca che intra (f. 224v) vui non era contrarieta, ma differentia, come acade in doe spetie cuiusdam generis, che l'una in qualita sia migliore da l'altra, et etiam io disse che de nulla vostra excellentia haveva pretento l'ordine de la mera verita demonstrate da frate Zoanne Othobi, ma che asai meglio et piu plenamente haveti scripto che lui, perche haveti demonstrate quelle 30 mutatione intra tali nomi officiali occurente, de quale lui non assigna in li soi tractati musici. Ultimamente ciascuno da loro stete tacito et contento per le rasoni allegate. Ma alcuni de loro (ridendo) dicevano che veramente credevano che in me era tornato el senso puerile, perche mai non troverno che io dicesse che el mio preceptore fusse inferiore ad alcuno altro musico, excepto che al presente. Ma da me li fu facto condecante risposta, et per tale modo fu finita la nostra disputatione con grandissime laude a vostra excellentia atribute, come meritamente se convene, et al tractato predicto impresso, circa el quale altro non dico perche el seria uno denigrare et tingere tale opera, essendo per se ultra modo lucida, clara, et doctamente producta da homo experimentato et de ogni virtu ornato."

and C-sharp, a comma distant from the hexachords on F-sharp, B, A-flat, and D-flat, and would contain those four notes mentioned above, which are a comma distant from the natural notes B, E, C, and F.⁶⁵ The details of the exchanges with del Lago need not be explored here, but the correspondence may have had some bearing on Aaron's consideration of these notes in Lucidario IV, 5-12.

He approaches the topic by examining the present state of the organ, which lacks a full complement of chromatic tones, because not all the natural tones are divided by both a flat and a sharp, a division which Aaron considers would be advantageous. Further, the pitches on the organ are fixed, whereas on the lute and other stringed instruments they can be adjusted by the player's finger.⁶⁶ He points out that on an organ a hexachord cannot be formed on B since mi should be a tone above C-sharp, which is re, but the black key above C-sharp is E-flat, two minor semitones higher, rather than D-sharp, which must be a full

⁶⁵ Letter no. 25, f. 116r-129v, contains the most extensive account of the dispute with del Lago.

⁶⁶ On the lute and other fretted instruments, in which the length of the vibrating string is fixed, such adjustments could be made by varying the pressure on the string by pressing more or less close to the fret and thus changing the tension.

tone higher than C-sharp and a comma higher than E-flat (see Example 42). In a departure from the subject, he then notates the hexachords beginning on A, B, C, D, E, F, and G in order to show them in full before discussing in Chapters 11 and 12 how they produce six syllables on each note. It is not clear why he did not present the five flat hexachords in this example, since they are equally necessary for his demonstration. Chapter 5 returns to discussing the organ by explaining that a hexachord on E-flat is also unavailable on that instrument; fa is lacking, because the black key above G sounds G-sharp, not A-flat. For some reason he does not mention the divided black key he had spoken of in the Supplement to Trattato and which he again refers to a few chapters below, in Lucidario IV, 11. Evidently the divided key was not so common that he could assume its constant availability. Chapter 6 then cautions maestri di cappella against asking the organist to transpose the sixth mode a tone lower, to E-flat rather than F, since the proper semitone for G-A-flat is lacking on his instrument. They should consider the limitations of the organ when making such requests.

The next four chapters, 7 to 10, consider C-flat,

F-flat, B-sharp, and E-sharp in turn, asserting that they cannot be used in diatonic progressions. He shows how a hexachord using these notes as fa or mi cannot be played on organs, which lack not only those four notes but others that would be needed in such hexachords. C-flat, for instance, would be a comma below B-natural, as shown above. The hexachord in which it is fa would read, G-flat, A-flat, B-flat, C-flat, D-flat, E-flat. Of these notes, only B-flat and E-flat would be available on the organ; the others are a comma lower than their enharmonic equivalents. Here Aaron simply points out the deficiencies of the organ without distinguishing between C-flat, which would be unavailable in any system, and the other three notes, which are unavailable simply because of the inflexibility of the organ, and the following chapters which discuss F-flat, B-sharp, and E-sharp, proceed in the same way. He had, of course, distinguished these four notes from the other accidentals in the Supplement to Trattato and does so again in Lucidario IV, 11, and a more conclusive demonstration of the uselessness of these tones could have been framed by emphasizing this distinction rather than by the simple reference to the organ, whose limitations, as Aaron pointed

out, were not shared by all other instruments.

Chapters 11 and 12 proceed to show how all six syllables may be found on each note in the diatonic gamut, and for this purpose reproduce the Trattato Supplement almost word for word. The same material is repeated once again in a condensed version in Compendiolo II, 59-60, in which Aaron refers to Lucidario for a more expanded treatment. The only changes made from Trattato Supplement to Lucidario are occasional substitutions of words (the technical terms are untouched) or rephrasing of a sentence. The substance is identical and need not be discussed again.

Aaron's excursions into the solmization of chromatic tones are in a sense one of his most speculative enterprises; he was decades in advance of practice in anticipating the use of a seventeen-note chromatic scale. Nonetheless he takes a firmly practical approach to the problem, showing the singer how solmization of the diatonic tones was affected by the use of chromaticism. The chromatic tones would appear as elaborations of a largely diatonic texture in the styles Aaron knew, so mutation would take place on some diatonic tone preceding an accidental, mutating from

one of the three regular hexachords to one of the other nine. Aaron thus shows the singer which chromatic tones cause mutations on each of the diatonic tones. His presentation is somewhat roundabout; it would have been more direct to consider each chromatic tone in turn, each sharp as mi and each flat as fa, and list the diatonic tones in the hexachord resulting from each accidental. This would more nearly duplicate the viewpoint of the performer faced with an accidental and thereby the necessity to mutate; he would want to know on what diatonic note mutation could take place. Thus he would want to know that with a written E-flat, for instance, C is re, D is mi, F is sol, and G is la; with D-sharp, B is ut and E is fa. Aaron gives this information, but rather indirectly.

Aaron's system is not likely to have received too much practical use, for the simple reason that it is enormously cumbersome. An incidental flat or sharp might more easily be sung with the same syllable as its natural note, as Gafori suggested.⁶⁷ On the other hand, works employing a highly complex chromatic vocabulary with frequent melodic

⁶⁷ See fn. 41, this chapter.

65

motion in semitones, such as were written with some frequency in the second half of the century, would require mutation on almost every note, if indeed solmization by hexachords was at all possible. The hexachord system was an anachronism when applied to sixteenth-century music. It corresponded to no structural element in the music, since the octave, fifth, and fourth were the principal structural intervals. The least trace of chromaticism strained it excessively, assailing the singer with a small army of mutations and permutations. The voice of the future was Ramos, who advocated solmization based on the octave, although well over a century before its general adoption in the seventeenth century. As with the modes, Aaron tried unsuccessfully to extend an old concept to new situations in which it was increasingly inadequate.

The acceptance of Aaron's system cannot have been furthered by his reluctance to give up Pythagorean tuning. The theoretical explorations of new tunings initiated by Ramos unquestionably were echoed in practice, and indeed practice may well have advanced more rapidly than theory. A presentation such as Aaron's would not have been attractive to musicians who were in many cases working towards enharmonic equivalence of chromatic tones rather than the

clear distinctions between them made by Aaron. He also failed to include the four tones B-sharp, E-sharp, F-flat, and C-flat, which had begun to occur in the literature as early as Willaert's Quid non ebrietas dissignat, and are found more and more after the middle of the century.

Aaron's system could have been applied to other tunings, even to equal temperament, and the four missing notes could have been added in two more hexachords, but the strong emphasis on Pythagorean tuning together with the extreme complexity of the material probably put off most of his potential audience. Aaron was unquestionably practical and progressive in his attitude towards the use of accidentals, but in his solmization system this attitude seems misapplied, out of tune with practice. This is of course apparent mainly in the perspective of history, since he did attempt to follow out the implications of the music of his own time.

CONCLUSION

Frequent reference has been made in the preceding chapters to Aaron's practical orientation, to the fact that his treatises are hardly ever speculative. This distinction can also be stated in terms of the dual function of the modern university professor: Pietro Aaron was more interested in teaching than in research. His works are addressed mainly to students of music, prospective composers and performers, rather than to the scholar who already knows the subject. Three of his books, Institutione Harmonica, Toscanello, and Compendiolo, are elementary textbooks; Trattato and Lucidario delve into more advanced material, but seldom abandon a didactic intention. Aaron thus said little in certain speculative areas about which some of his contemporaries became exercised; he gave almost no effort to pursuing the chimerical Greek genera, and he took no part in exploring ancient or formulating new tunings.

Aaron's approach to teaching takes as a guide the

example of the best composers of his own and recent generations. The composer for him becomes an authority coordinate with the learned transmitters of theoretical tradition, an attitude which has been cited above as typical of the Renaissance.¹ It is interesting to observe that Tinctoris, in so many ways also a man of the Renaissance, mentions composers and specific compositions frequently, but as often as not in order to chastise a departure from the standards he upholds. Aaron will have none of this attitude. The finest composers in effect make their own rules, and their learning assures that they have proceeded correctly. If their usage contradicts tradition, the latter must give way to the new developments.

Having said this, it may be observed that Aaron's attitude became more rigid in his later years. References to composers as authority and example are copious in Institutione Harmonica, Toscanello, and Trattato, but highly infrequent in Lucidario and Compendiolo. Lucidario indeed criticizes on occasion what Aaron conceives to be the mistaken notions of the younger generation; in general the two

¹ Chapter 2, p.89.

later books amplify the ideas of the earlier ones without contradicting them. Aaron's ideas did not change over the years after their full development was reached in Toscanello and Trattato and the supplements to those volumes, and he cites only composers whose work had reached a similar maturity when he wrote; thus he takes no notice of such younger men as Willaert, Gombert, and the early madrigalists.

The relationship of contemporaneous practice and traditional theory in Aaron's writings is clarified by a division of theory into two areas, one concerned with matters of compositional style, the other with relatively abstract principles of organization that are presumably valid regardless of the stylistic context in which they operate. The former consists principally of the rules of counterpoint, under which may be subsumed the rules for the use of accidentals; the latter includes the traditional systems of solmization, notation, and the modes. From this point of view it is clear that Aaron upheld the example of composers most forcefully in the area of style, where the tradition itself was essentially a statement of the practice of an older period. Whenever the "moderns" went beyond the old restrictions or even directly contradicted them, Aaron

never hesitated to point out such a fact. One of the most direct conflicts concerns the prohibition of the harmonic tritone or diminished fifth; Aaron is clearly aware that most of his contemporaries use those intervals under certain conditions, and he accepts their judgment over that of tradition. In one of his clearest statements of this attitude he berates del Lago for repeating the old rule, since everyone knows that composers no longer observe the restriction.²

With respect to the abstract principles, Aaron was more reserved. In none of the areas under this heading did he challenge the traditional categories of thought; he worked entirely within them, but added to or extended their statements to take account of new phenomena. Thus he revised the rules of solmization for use in counterpoint and he extended them to include chromatic tones, but in neither case did he propose abandoning the traditional Guidonian

² Paris, BN, Ms. It. 1110, f. 35r: "Circa la sesta Vostra Regola cioè che non volete chel si possi fare mi contro fa in consonanza perfetta, dico che si usa e fa da molti, et tal regola pure assai volte patisce, della quale altro non dico, solum che il tutto vedrete, essaminando le compositione de i dotti."

system as Ramos had done. He examined how the traditional theory of the modes was to be related to contrapuntal music, but again he did not propose to modify the old concepts, only to extend them into new areas. Even his description of meantone temperament is not a revolt against Pythagorean tuning; except for the brief descriptions in Institutione Harmonica and Toscanello, Aaron remained a staunch Pythagorean throughout his life. He evidently shared Spataro's belief that although temperaments were employed in practice, Pythagorean tuning remained the theoretical standard.³ In keeping with his custom, he described practice, but this did not move him to abandon the traditional theory. Such a conceptual split between theory and practice can be observed in other areas, as in Lucidario's statement that Spataro's conception of the brevis as a fixed time value is correct in theory, but not followed in practice.⁴ Perhaps Spataro and Aaron were among the first theorists to assume that the truth of theory is of a

³ See Chapter 2, p.115.

⁴ See Chapter 3, p.212.

different order than that of practice, that the two are parallel but never meet and can be mutually contradictory without correcting one another. This attitude has exercised a malign influence on theory ever since, as exemplified in such statements as, "These are the rules, but composers don't follow them when they write real music."

Aaron by his own testimony had some renown as a teacher,⁵ and a picture of him seated among his pupils, which appears as the frontispiece to Toscanello and Trattato⁶ is evidently intended as a testimony of his fame. The style of his books suggests that he must have been an effective teacher. He is always direct and straightforward, and never surrounds his explanations with an unnecessary aura of learning. The magisterial tone of many other theorists is completely lacking in Aaron, except in portions of Lucidario; this is owing to his use of Italian instead of Latin, as well as to his reliance on practice rather than tradition for justification in so many instances. Beyond this, the books all have a conversational, informal

⁵ IH., Dedicatory Preface, f. 2r (see Appendix A).

⁶ This frontispiece has been reproduced frequently; it appears in MGG. I, plate 25, facing col. 640.

tone, almost as if they were transcriptions of lectures. This tone accounts for a rambling quality one may sometimes observe; the sentences are now and then inordinately long and tangled, so that the meaning emerges only after careful reading. Despite these lapses of style, Aaron came directly to the point in most instances and gave explanations of many phenomena that were more detailed and precise than any to be found before him. He had the express intention of achieving such clarity; Institutione Harmonica states that secrets never before exposed will be revealed,⁷ and this aim is maintained throughout his career.

Aaron's historical position can best be defined as an important link in a chain of development, between the generation of Gafori and that of Zarlino, advancing beyond the former and giving way in turn to the latter. The most prolific and comprehensive theorist of his own generation, he offers the most detailed view of the changes in practice and theory that took place after Gafori's works were published near the turn of the sixteenth century. Aaron's

⁷ IH., Translator's Preface, f. 7r (see Appendix A).

works in turn were superseded by the writings of Zarlino, Vicentino, and others who came to terms with newer manifestations of practice and improved on previous accounts of older phenomena, just as Aaron himself had done earlier. Since Aaron was in no sense a revolutionary, he produced no strikingly new ideas that continued to be influential after his death; his close attention to the practice of his own time assured that his work would have little relevance to later generations who had to cope with developments not foreseen by Aaron.

Aaron cannot be said to derive his ideas from any single source. His works are eclectic, drawing on all writers active in Italy during the fifteenth century; Gafori, Tinctoris, Ramos, Hothby, and even the much older Marchetto of Padua, all contribute something to Aaron's treatises. The most prominent single influence on him was of course Giovanni Spataro. Attention has been called to the numerous passages in Aaron's works which are derived from Spataro, most often with grateful acknowledgement. In addition, Spataro must have helped Aaron remedy the deficiencies in his early training, and he continued to stimulate the younger man in the course of their association

of twenty years. But after acknowledging Aaron's dependence on others, there remain his individual formulations and re-examinations in every area of theory, which forbid considering him a mere compiler. Whatever he borrowed was turned to his own purpose and never accepted uncritically.

Aaron's influence on later writers is not clearly demonstrable by specific references on the part of such writers; only his pupil, Illuminato Aiguino, cites him extensively later in the century. Since he was not an innovator, his treatises were valid primarily for his own day; as their pertinence faded with changing practice, nothing in them would of itself serve to keep his name alive. Nonetheless, his name was remembered; the well-read Thomas Morley cites him as an authority in 1597,⁸ and historians of music and Italian literature from the sixteenth century on have found a place for him in their works. His reputation in and immediately after his own lifetime must have been so considerable that even when his works ceased to be useful, his fame kept his name alive. Pioneer musicologists such as Riemann and Ambros recognized his importance as a

⁸ Morley, A Plain and Easy Introduction to Music, ed. R. Alex Harman (New York, Norton, 1953).

spokesman for his age, and his name has generally been mentioned with respect ever since, although this respect has not always been based on a detailed knowledge of his accomplishments. Such a detailed knowledge is necessary to appreciate Aaron's achievements; it is the corpus of his work rather than any striking detail that secures his historical position, and it is hoped that the present comprehensive study demonstrates Pietro Aaron's clear title to a place of honor in the history of music theory.

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ABBREVIATIONS AND SHORT TITLES

Compendiolo (Comp.) - Pietro Aaron, Compendiolo di molti dubii..., ca. 1550.

Institutione Harmonica (IH.) - Aaron, Libri tres de Institutione harmonica, 1516.

Lucidario (Luc.) - Aaron, Lucidario in musica..., 1545.

Toscanello (Tosc.) - Aaron, T(h)oscanello de la Musica, 1523; 1529, 1539, and 1562 with a supplement.

Trattato (Trat.) - Aaron, Trattato della natura et cognitione de tutti gli tuoni di canto figurato, 1525. A supplement was published separately in 1531.

MGG. - Friedrich Blume, ed., Die Musik in Geschichte und Gegenwart, 1949- , 10 v. to date.

CS. - Edmond de Coussemaker, Scriptorum de musica medii aevi, 4 v., 1864-76.

Gafori, Practica - Francino Gafori, Practica Musicae, 1496.

GS. - Martin Gerbert, Scriptores ecclesiastici de musica sacra potissimum, 3 v., 1784.

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VL 5318 - Biblioteca Apostolica Vaticana, Ms. Vat. Lat. 5318.

CONTENTS OF APPENDICES

	<u>Page</u>
APPENDIX A: PREFACES TO AARON'S PUBLISHED WORKS	
1. <u>Institutione Harmonica</u> , dedicatory preface	487
2. <u>Ibid.</u> , translator's preface	489
3. <u>Toscanello</u> , dedicatory preface	494
4. <u>Ibid.</u> , privilege	496
5. <u>Trattato</u> , dedicatory preface	497
6. <u>Lucidario</u> , dedicatory preface	498
7. <u>Lucidario</u> , verses in praise of Aron	499
8. <u>Ibid.</u> , privilege	500
9. <u>Ibid.</u> , <u>Pietro Aron a lettori</u>	500
10. <u>Compendiolo</u> , dedicatory preface	503
APPENDIX B: DOCUMENTS CONCERNING PIETRO AARON	
1. Letter, Franchino Gafori to G. A. Flaminio, March 24, 1517	504
2. Letter, Flaminio to Gafori, May 1, 1517	505
3. Letter, Aaron to Fra Paulo de Lorino, April 29, 1525	510
4. Letter, Aaron to Don Lorenzo Gazio, February 14, 1533	512
5. Letter, Gazio to Aaron, February 28, 1534	515

CONTENTS OF APPENDICES

(continued)

6.	Letter, Aaron to Gazio, August 29, 1534	517
7.	Letter, Aaron to Giovanni del Lago, May 12, 1535	520
8.	Letter, Aaron to del Lago, March 13, 1536	522
9.	Letter, Aaron to Fra Gregorio de Corbegli, December 26, 1538	524
10.	Letter, del Lago to Aaron, August 27, 1539	526
11.	Letter, Aaron to del Lago, October 7, 1539	530
12.	Letter, del Lago to Aaron, May 12, 1540	541
13.	Letter, Aaron to del Lago, July 17, 1540	542
14.	Letter, Aaron to del Lago, 1540	543
15.	Enclosure for no. 14: commentary on del Lago's treatise	546
16.	Letter, undated, unsigned, addressee unknown, in Aaron's hand	565
17.	Notarial attestation, Imola, 1521, on behalf of Aaron	575
18.	Frottola, "Io non posso piu durare," 1505	579

APPENDIX A

PREFACES TO AARON'S PUBLISHED WORKS

1. De Institutione Harmonica (1516), dedicatory preface, f. 2r.

PETRUS AARON FLORENTINUS CLARISSIMO EQUITI HIERONYMO
SANCTO PETRO S. D.

Scio te non ignorare, Clarissime Eques Hieronyme Sancte Petre, quantam musicae operam impenderim quantusque artis eximiae cultor extiterim meque ex eo non nihil famae esse adeptum, adeo quidem ut non desint qui me aliquid esse inter nostri seculi musicos arbitrentur. Fuit igitur mos ille mihi constans atque perpetuus excolere pro virili parte artem assidue & cupere propagari maxime. Hinc factum est ut ubicunque hactenus fuerim, & libenter & fideliter illam docuerim. Testes quidem extant pene innumerabiles qui quod me doctorem habuerint gloriantur & se plurimum profecisse fateantur. Verum quemadmodum pulchrum duco prodesse quantum queas praesentis aevi hominibus, ita pulcherrimum ac omni laude prosequendum iudico si quis ita elaboraverit & caverit ut bonum illud perpetuum ac immortale fiat & posteris etiam prosit. Haec me ratio hoc desyderium impulit, ut pulcherrima &

maxime necessaria totius artis praecepta colligerem, & in unum quasi corpus membra congererem. Quanto autem studio ac diligentia id a me factum sit tecum iudicent ii quicumque legerint. Qua quidem in re (fateor) magno mihi fuit adiumento Ioannes Antonius Flaminius Forocorneliensis, vir quidem hoc nostro seculo (ut te scire non dubito) famae non incelebris. Is enim & arte dicendi & sermonis elegantia, quibus quantum polleat cernere poteris, sic nostros labores iuuit & ornavit ut sperem omnibus quicumque legerint (modo livor absit) non utilem solum sed & iucundam admodum lectionem fore. Quod opus tam grandem materiam tribus complexum voluminibus quaecumque sit tuo nuncupandum nomini duximus. Quibus id causis (nam multae sunt atque iustissimae) motus id fecerim dicerem equidem nisi & notissimae omnibus forent & illarum commemoratio potius ab adulatione proficisci quam ob¹ officio videri posset. Erant quippe alii multi & clarissimi & prin-(f. 2v)cipes viri quibus forte non ingratum esse id potuit, attamen ut te unum ex omnibus delegerim ac tibi praecipue dicandum putaverim eximiae quae in te effulgent dotes ac tua ingentia merita effecere. Quod tu quidem ita suscipiendum arbitrare ut & tuo patrocinio in publicum egredi non reformidet & sit non apud te solum & praesentis seculi homines sed etiam apud posteros mei quidem in te amoris ac veteris observantiae praecipuum ac perpetuum pignus ac

¹ Lege: ab.

testimonium. Vale ex Forocornelii. viii Kalendis Februarias. MDXVI.

2. De Institutione Harmonica, translator's preface, f. 5r.

IOANNES ANTONIUS FLAMINIUS FOROCORNELIENSIS PETRO
AARON FLORENTINO SUO. S. D.

Fuit mihi tecum Petre Aaron vetus & constans benivolentia, familiaritas, & consuetudo, tanta ut nullo cum homine coniunctus² vixerim. Fecit hoc quidem singularis erga me tuus amor, ingenii suavitas, & eximia virtus quae tibi iamdiu locum inter claros nostri seculi homines celebrem dedit ut ego non parum amicitia & familiaritate tua me assecutum putem. Fuit sermo inter nos saepius non insuavis neque ieiunus de litteris deque litteratis huiusce temporis hominibus, inter quos tu amice quidem scio, an satis vere nescio, me numerandum putas, & tuo iudicio & virorum excellentis doctrinae testimoniis, quae te non latent, in eam opinionem adduceres, in quem sermonem cum proximis diebus incidissemus (eram tum forte domi meae) ac tibi ostendissem poeticos nostros libellos quos Bononiae nuper impressos (uti nosti) edidimus, laudis & famae (sicut videre potui) dulcedine tactus mihi quidem gratulatus plurimum & non paucis verbis gaudium quod tu ex ea re caperes egregie testatus es. Reticuisti postmodum & vultu in terram defixo aliquamdiu cogitabundo similis fuisti. Feci ego statim coniecturam quid in animo volueres, ac subridens, "Age," inquam, "mi Petre, quid te sic tristem ex gaudio & tam

² Lege: coniunctus.

suspensum repente video?" Respondes, "Felicem te, Flamini, qui adhuc vivens partam tibi nominis immortalitatem vides & per hora³ hominum volitas." Tunc ego, "Non ne & tu ea iam parasti monumenta propter quae tua fama, quae te etiam vivo celebris est, posteris commendetur? Legi ego egregium illud opus tuum quod de arte musica scripsisti pulcherrimum quidem ac utilissimum tantaeque expectationis ut omnes iamdiu illud efflagitent. Tu tamen cunctabundus ac haesitanti similis pulsatum diu limen egredi non sinis ac hominum vota moraris." "Scio," inquis, "esse quam plurimos qui dilla-tam (sic) editionem meam mirentur ac moleste ferant. Sed morae diuturnioris duae fuerunt causae, qua-(f. 5v)rum altera est quod horatiani praecepti memor supprimenda diutius scripta nec temere vulganda putavi. Altera quod me quidam pudor impediit quod eos libellos forte non insuisos neque contemptibiles propter illustrem materiam quam complexi sunt latino sermone non sim editurus. Scio enim quantum illis ob hanc rem absit & quantam illius⁴ auctoritatem, pondus, & gratiam latina oratio potuerit addere." Tunc ego, "Non ne," inquam, "latinos facere poteras?" "Poteram," inquis, "sed neque mihi plene neque tui similibus facturus eram satis. Fateor enim ingenue non esse mihi eam dicendi facultatem ac sermonis elegantiam latini quam tam grandis materia posceret, & ob id quidem communi potius & vernaculo sermone scribendos arbitratus sum, & hac una re tandem mihi

³ Lege: ora.

⁴ Lege: illis.

displacent, neque alia de causa editionem differo." Tunc ego apprehensa manu tua, "Quod, mi Aaron, quod," inquam, "si paucis diebus latini fiant?" "Paucis diebus," inquis, "latini fiant? Et cuius opera, aut quis tam brevi laborem tantum suscipiat & onus tam grave subeat?" "Flaminius," inquam, "tuus." Frontem contraxisti ac inter laeticiam & admirationem mirabundus, "Iocarisne," inquis, "Flamini, an serio dicis?" "At serio" inquam, "& sic quidem ut nulli studium meum ac operam libentius unquam prestiterim." Gaudium tibi vehemens continuo vocem preclusit, nec loqui statim potuisti, sed me complexus ac exosculatus post brevem moram: "Felicem me," inquis, "ac tum demum voti compotem si operam mihi istam insperatam quidem, sed adeo mihi desyderabilem, ac in supremis ponendam votis Flaminius meus mihi prestiterit. Iterum me recipio prestiturus & ubi velis aggressurus." Aderat tum forte Phileros meus Achilles Bocchius, iuvenis candidissimus & graece latineque doctissimus utriusque nostrum familiaris, qui Faventiam postridie profecturus ad Flaminium suum veterem hospitem diverterat. Aderat Leander Albertus Bononiensis & ipse necessarius noster vir quidem (nec me decipit amor) inter sectae predicatoriae viros litteris ac morum sanctitate monstrabilis. Aderat & filius meus iunior Flaminius adolescens (parcius ut de eo loquar paterna iubet verecundia) certe non illiteratus, & alii complusculi & candidi & docti viri qui te simul amant & ob sacerdotium ac virtutem colunt quique libenter me convisunt. Sustulerunt omnes in coelum manus, nec mihi

quidem visi sunt laetari minus (vide quo candore animi qua te benivolentia prosequuntur) quam si res singulorum ageretur, & ad me conversi omnes pro te rogare coeperunt, ne frustra spem tantam atque laetitiam simul tibi concitassem. Tunc ego, "Quandoquidem video quanto mean hanc operam usui fore iudicetis ac sua tantum referre noster Aaron autumat ut illam praestem faciam quidem, quod sum pollicitus (f. 6r) quodque illum maxime ac vos simul velle intelligo." Egisti tu quidem mihi gratias certe tantas quantae absoluto iam opere multo minus tibi quam ego sum coniuncto sufficere potuissent. Et quamquam videbam quantum negocium susciperem tum ob rei magnitudinem tum quod mihi & publice & privatim (ut nosti) occupatissimo vix quidem respirandi locus est, iussi tamen ut bono animo esses, me daturum enixe operam ne & ego promisisse & tu operam a me hanc frustra sperasse viderere. Ubi finem his fecimus conversus ad me Phileros meus, "Flamini," inquit, "video te rem grandem sed nequaquam supra vires tuas aggredi, & praeclarum Petri nostri opus divinum labore tuo futurum, & utrique gratulor quos non solum praesens aetas sed & posterum omnes magna cum laude sint celebraturi qui non minus vestra quam mea gloria laetor. Sed rogo te, quando insigni musico operam istam praestiturus es, priusquam hinc abeamus aliqua de laudibus Musices dicere ne graveris, non mea quidem vel Leandri vel iunioris Flamini causa, hi enim mecum iamdiu Musicae claritatem

& excellentiam magna ex parte noverunt, sed aliorum gratia siqui adsunt qui minus illam quanti sit facienda noverint."... (f. 7r) Haec pauca dixisse volui ut & vestrae petitioni aliqua in parte satisfacerem & ut artem eximiam sed & labores mi Petre tuos merita laude non fraudarem. S̄tudia enim praemio laudis augentur, & vetus sententia est, artes honore nutriri. Haec autem & tuo & omnium qui aderant miro assensu comprobata sunt. Tibi vero tantus ardor accessit, sic inflammatus es quod nactus esses hominem tibi amicissimum qui tuas vigilias oratione sua videretur posse illustriores facere, ut affirmaveris velle te novum opus formare ac multo plenius & uberius materiam tractare & te quidem (si ita mihi videretur) cotidie ad me accessurum praemeditatum ac dictarum⁵ quae ego exciperem pollicitus quidem te adiecturum plurima ex intimis artis penetralibus quae a nullo adhuc vulgata fuissent, ut nihil ultra desyderari oporteret, fassus quidem solere nostri temporis musicos talia suppressere & tanquam naturae invidentes pati quidem artis arcana in occulto latere. Probavimus omnes istum omni tui⁶ candorem ac tantam liberalitatem, ut affirmaremus divinum fore opus illud ac immortale si unquam in manus hominum veniret. Respondisti venturum quidem & brevi ni Flaminius ipse tibi

⁵ Lege: dictatum.

⁶ Pro "omni tui" malim: tuum.

deesset. At ego statim confirmavi & ea quae iam dixeram
& sum pollicitus me tibi cotidie satis⁷ horis vacaturum.
Igitur postero die ad me reversus in hunc modum exorsus
es.

3. Toscanello, dedicatory preface.

AL REVERENDO, ET MAGNIFICO MONSIGNORE SEBASTIANO
MICHELE, PATRITIO VENETO CAVALIERE HIEROSOLYMITANO,
ET PRIORE DI SAN GIOVANNI DAL TEMPIO DIGNISSIMO PIERO
AARON FIORENTINO CANONICO RIMINESE

Non è alcun dubbio gentilissimo mio signore, che di gran
parte di beni, & de mali, che gli huomini sentono, i
principi ne siano cagione, & questo a noi le antiche, & le
moderne historie apertamente lo manifestano. Ne punto è
da la ragione lontano darsi l'huomo a credere, che quegli che
hanno imperio sopra gli altri, possano molte cose operare,
si in utile, come etiamdio in danno di molti, assai piu
agevolmente, che qualunque altro privato. Et questo si come
in altre cose apertamente si dimostra, cosi in ciascuna
facolta di ingegno, percio che noi vediamo in ogni tempo
di quelle virtu essere stati gli huomini piu studiosi, de
lequali e principi piu si sono dilettrati percio che ciascuno
piu volentieri in esse si è affaticato per piacere al

⁷ Lege: datis.

principe, dalquale sperava a le sue fatiche premio alcuno, de laqual cosa per non dare a vostra signoria essemi antichi, percio che forse harebbono minore forza, uno solo mi bastara adducere de nostri tempi Leone decimo Pontifice, ilquale ben che fussi di molte virtu ornato, & studioso, nondimeno di niuna si è piu dilettrato, & niuna hebbe piu favorita, & esaltata che la Musica. Donde è proceduto che sotto il suo pontificato molti si sono affaticati, ciascuno secondo le lor forze, di far profitto in essa per gli ampi premi, che a le loro fatiche vedevano esser proposti. Tra gli quali io sono stato uno, il quale in tenue fortuna nato ricercando per alcuna honesta via di sostentare la mia tenuta ne gli studii di musica, mi sono non poco affaticato, se non cosi felicemente come harei voluto, almeno quanto l'ingegno & la industria mia ha potuto, & harei al tutto disperato il premio a le fatiche mie per la importuna [et a ciascuno gentile spirito lagrimevole]⁸ morte di Leone, se vostra signoria non mi si fussa offerta unico presidio a la afflitta mia fortuna, la quale quantunque di

⁸ The words in brackets appear only in the 1523 edition.

potere a Leone non sia pari, non pero è in alcuna virtu a quello inferiore, ne in studio di favoreggiare qualunque di virtu non sia spogliato. Il che sempre hebbe dimostrato nutrendo, favoreggiando, & esaltando in ogni tempo valenti huomini, & principalmente musici. Io adunque come colui, che in vostra signoria ha posto ogni speme de le fatiche sue, & in niuna cosa mi risparmiaro, se mi sara prestato occasione di dimostrare a vostra signoria quanto a gli commodi di quella sia pronto, & hora nel mandare in luce di queste mie compositioni, le ho voluto dimostrare. Fo adunque a vostra signoria presente di questo mio libretto, il quale come a la grandezza di vostra signoria non sia convenevole, non dimeno & al piccolo potere mio, & a la gentilezza di quella non molto si disconviene. Resti contenta vostra signoria, che essendo io suo, & anchora le cose mie (quali si sieno) sue & siano, & si chiamino.

4. Toscanello, privilege.

1523, 3 Luglio -- Concesso a don Piero Aron, musico, di poter far stampare un'opera nuova da lui composta che se chiama el Toscanello, con privilegio di dieci anni; pena al contravventore la confisca dell'opera e una multa di

ducati dieci per copia, da dividersi fra l'accusatore, l'Arsenale e il petente. L'esecuzione sia commessa ai Patroni dell' Arsenale.

5. Trattato, dedicatory preface.

AL MAGNIFICO ET GENEROSO MESSER PIERO GRITTI PATRITIO VENETO, PIERO AARON MUSICO FIORENTINO CANONICO IN RIMINI.

Essendo dalla natura concesso per gratia & dono a quegli che meritamente aquistano laude et honore, non è ragione alcuna ne lingua humana che spegner possa quello che nel mio core piu giorni et giorni per te era rinchiuso. Pur nondimeno fantasticando cercavo spasso, giunsi a luogo dove grande harmonia di suavi uccelletti si sentiva, gli quali infra le fresche fronde et verdi fiori si posavano, et ascoltando la dolcezza loro, veddi la dea Musa laqual chiamandomi a lei maccostai, Diceva che non altri era nel suo consortio degno che te Magnifico. Onde sentendo io presi ardire non solamente a questo, ma per la gentilezza et virtu tua essendo padre di chi di Musica si diletta, et piu per la grandezza del tuo nome elquale infra le Muse sacompagna, tal dedicatione a te conviene. Per tanto non

sia molesto a tua magnificenza el piccol mio dono, ma solo accetta il core la servitu et anima, elqual sempre sara in te signor Magnifico. Vale.

6. Lucidario, dedicatory preface.

ALL'ILLUSTRE SIGNOR CONTE FORTUNATO MARTINENGO
PIETRO ARON MUSICO FIORENTINO.

Molti giorni Illustre Signor mio sono andato pensando a cui questa novella opera mia di Musica dovessi indirizzare, conciosia cosa che havendo la natura tante diversità d'ingegni al mondo prodotto, Io temeva di non inviarla ad alcuno, l'animo del quale dal soggetto di quella alieno si trovasse; Onde poi fusse non solamente non laudata, ma etiandio disprezzata, Ma tosto, che V. S. a giochi della mente mi occorse, io presi ardire di doverla sicuramente sotto il felice nome suo dare in luce; Percioche facendo continuo in lei un soavissimo concerto tutte le vertu, non posso se non sperare, che questo parto mio non sia da essa con lieta fronte ricevuto; senza che mi pare, che gran torto havrei fatto a me stesso a non dedicarla alla vertu, & bonta vostra; Peroche essendo io tutto suo, è convenevole anchora; che ogni cosa, che da me nasce, sia sua, Et

togliendola allei, & donandola altrui, venerei non solo
 affare errore, ma anchora a cometter furti, Essa dunque
 accetti volentieri il picciolo dono, che da me suo
 devotissimo le si porge, ma che dico le si porge? anzi
 come suo, le si rende, conciosia che tutto quel poco di
 sapere, che in me si trova da lei proceda, come da quella,
 che col chiaro raggio del valor suo illustra le oscur
 tenebre del ingegno mio.

7. Lucidario, verses in praise of Aaron.

NICOLAI COMITIS ARCITENENTIS EXASTICHON IN P. ARON
 LAUDES.

Vivat Aron, saeclo sua virga reflorateat omni,
 Per quem oscura olim Musica, nunc rutilat.
 Ergo pulchra ferat tantorum dona laborum.
 Praemia quis tanto digna neget capiti?
 Vos vivum vates statua & decorate corona,
 Post obitum sydus Dii facite esse novum.

NB. These verses appear beneath a portrait bust of Aaron
 crowned with laurel, which occupies the larger part of the
 page. A caption above the portrait reads, "Virga Aron
 reffloruit."

8. Lucidario, privilege.

1545. Die. 30. Augusti in Rogatis.

La Gratia, & Privilegio della Illustrissima
Signoria di Vinegia.

Che per auttorita di questo Consiglio sia concesso a Don Pietro Aron, che per anni.X. prossimi alcuno senza permissione sua, non possa stampare, ne far stampare, ne vendere in questa nostra Citta, ne in alcun luogo del Dominio nostro, ne altrove stampata, in quelli vendere, l'Opera per lui composta, titolata Lucidario in Musica, sotto pena, alli contrafacenti, di perder l'opere, & di ducati.200. da esser divisi per terzo fra il Magistrato, over Rettore che fara l'essecutione, Laccusatore, & lui Supplicante, ilqual pero sia obligato di osservar tanto quello, che per le nostre leggi, è disposto nella materia di Stampe.

9. Lucidario, Pietro Aron a lettori.

Potresti facilmente di noi dolerti dottissimo & eccellente lettore, & forse far giudicio, che fossimo degni di qualche biasimo, imperoche havendo noi gia dato fuori il Toscanello in lingua volgare, hor questa presente

ultima nostra Opera, o Trattato harmonico nella istessa pure habbiamo mandato in luce, la dove che, et per variare, & perche essendo questo soggetto piu grave di quello, era convenevole, che fosse ancho trattato colla latina, come piu nobile & degna della volgare, & come che io habbia ferma oppenione, che essendo la latina piu honarata, & in maggiore prezzo li sarebbe stato piu agrado, che piu tosto in questa la ti havessimo recata, che nella volgare.

Tuttavia soccorrendomi, che tutto che appresso de Romani fossero due lingue l'una propria, & natia, la quale era la Latina, l'altra Straniera, & non naturale, si come era la Greca, nondimeno essi piu volentieri scriveano nella loro, come piu domestica, & familiare, che nell'altrui dalloro meno conosciuta, ho giudicato affine di giovare parimente adotti, & a gli idiotti, che fosse bene nella lingua, la quale dalle nutrici appariamo, iscriverla. Et se alcuno dicesse, che non si convenisse lasciare la piu degna per scrivere nella meno, si risponde, che non manco sarebbe disdicevole a colui, che volesse scrivere nella piu degna, & honorata per lasciare la sua propria, et naturale, che sarebbe a colui, che volendo fare una casa piu tosto in una citta strana, che nella sua propria per essere piu bella

della sua, & piu riguardevole, la ne fabricasse. A laqual cosa fuggire m'insegnano i tre maggior lumi della mia patria. Il Boccaccio, Dante, & il Petrarca, & molti altri de quali ciascheduno anzi ha voluto la sua lingua anchora povera arricchire, che all'altrui ampia poco giovamento apportare. Et appresso de latini Cicerone, il quale anchora che sapesse la lingua Greca, pure volle piu tosto nella sua scrivere, che nell'altrui. Appresso confortando i suoi Romani a Romanamente scrivere. Considerate le sopradette ragioni, & appresso, che latinamente danno essendo composta, haverebbe per avventura portato seco maggior difficulta, conciosia cosa chell'Oppenioni, le Oppositioni, & le Resolutionsi, che in quella si contengono, non sarebbero cosi da tutti state intese, se noi le havessimo latinamente scritte, ci e paruto per manco fatica di coloro, ch'ella aspettano, di scriverla nel Idioma nostro nativo, Per la qual cosa ti placera gentile, & candido lettore con lieto, & benigno animo accettandola di essa contento rimanere, quando non per altro mi sono mosso a questa fatica, che per solo desiderio di giovare altrui, cosi Iddio felicemente ti conservi.

10. Compendiolo, dedicatory preface.

Al molto Reverendo & Magnifico Signore Monsignor
Traiano da San Celso, Patrone Honorando.

Ho molti giorni considerato magnifico Signor mio alla
grandezza di quella, & conosciuto la nobile natione, &
Parentela di essa, Non è dubbio alcuno che' non vi naschi,
Magnificenza, Liberalità, virtù, & Gentilezza. Onde la
perpetua & fedele servitù qual tengo con vostra Signoria,
mi costringe à dedicarli le fatiche mie, quale è il piccolo
Libretto Compendiolo della Musica chiamato. Et benche io
habbi assai giorni affaticatomi, & esaminato di piu sorti,
& degne Nationi, A me non è paruto eleggere ne desiderare
maggiore Imperio della Signoria vostra. Laquale si degnerà
accettare il volere, & animo mio buono. Et nell'Accademia
de servi suoi minori Partecipe farmi. Vale.

APPENDIX B

DOCUMENTS CONCERNING PIETRO AARON

1. Letter, Franchino Gafori to Giovanni Antonio Flaminio, March 24, 1517 (from Flaminio, Epistolae Familiares [Bologna, 1744], p. 461.)

Joannes Spatharius musicus Bononiensis utriusque nostrum quam studiosissimus opus Petri Aaronis de Musice, quod tu mi Flamini e vernaculo sermone in latinam linguam eleganter transtulisti, abhinc paucos ad me dies legendum misit. Ego libellum libentissime perlegi admiratus scilicet latini sermonis curam & elegantiam; verum quae ad artem Musicam pertinent, tot tantisque sunt involuta erratis, ut auctor operis tam difficillima quaeque, quam ipsa quoque Musices elementa nescisse videatur. Spatharium statim per litteras quid de novo opere sentirem, certiosem facio, quod eo libentius feci, ut Aaroni operis retractandi facultas esset. Verum ille parum veri amicus, quique non (ut Chilo⁹ voluit)

⁹ Chilo Lacedaemonius apud Plin. lib. 7. c. 32. (Footnote in original source. Gafori's double negative directly contradicts Pliny's, and probably his own, meaning; Pliny says, "Nosse se quemque.")

se ipsum nescit, sed qui videri, quam esse mavult, excanduit secus, quam debuerat, rem in deteriorem interpretatus partem. Quare insigniora quaedam adnotavi, eademque ad te mitto, ut intelligas, quam periculosum sit, liberalium artium professoribus sua inconsulte immatura editione praecipitare, quamque ille impudens, & temerarius fuerit, qui injuriis conviciisque recte consulentem amicum lacessit, nedum auscultat. Ea igitur oro, ut perlegas, uti scias, an hominem jure carpan, eumque moneas, ut quam maledicendo capit voluptatem, eam male audiendo deponat. Vale, & boni consule, sintque haec mutuae nostrae amicitiae auspicia. Mediolano. Nono Calen. Aprilis MDXVII.

2. Letter, Flaminio to Gafori, May 1, 1517 (from Flaminio, op. cit., p. 462-464).

Gaudeo multum, praebitam mihi esse occasionem ineundae tecum amicitiae, quamquam bonos omnes (ut auctor est Plato¹⁰) amicos esse oportet, etiamsi sint minus noti, quorum mores, sectaeque conveniunt. Sed hac in re doleo, non integram

¹⁰ Plato in Phaedro, quem sequitur Aristoteles lib. 8. Eth. c. 3. (Footnote in source.)

mihi obtigisse voluptatem, quam interrupit, ac imminuit suborta quaedam inter te ac Petrum Aaron non parva similtas, quae jam in apertas erumpere inimicitias, mihi visa est, quod alter alterum maledictis incessit, & tanquam ad certamen jurgiis atque conviciis provocat. Verum de hac re postmodum. Tuae, mi Franchine, plenae humanitatis & officii litterae mihi praeter modum gratae fuerunt, in quibus duo me praecipue delectarunt; alterum, quod apertissime viderim, quantum mihi tuo iudicio tribuas, ad quem tanquam omnis vestrae controversiae iudicem provocas; alterum vero, quod non me latuerit, quantopere labores, ne apud Flaminium, quem neque malum, neque indoctum putes, boni viri opinionem amittas, aut labefactes, quod plane mihi non mediocre probitatis tuae atque candoris indicium est. Quare quum me talem jam animo praesumpseris, & non obscure litteris iisdem testere, minime dubito fore, ut ea, quae de meo Petro Aaron dicturus sum, apud te fidem & pondus habeant. Quae tu quidem sic a me velim dicta putes, ut ab homine benevolentissimo, & virorum talium cultore praecipuo profecta, non dubites. Neque hac in re plus apud me gratia valebit Aaron, quocum fateor summam mihi esse familiaritatem & consuetudinem, quam tu, quem ego sola mihi fama notum

tanti quidem facio, quanti ceteros virtutibus illustres viros semper consuevi, quos ego tanquam numina quaedam in terris veneror. Petrus Aaron vir quidem in arte vestra, clarorum virorum testimonio, non contemnendus magni (parum dixi) plurimi, quantum videre potui, te semper fecit, & quoties tui mentio facta est, sic laudavit, ut inter primos hujus seculi Musicos statuerit. Horum ego sum testis, qui de te saepius honorifice loquentem audivi. Is libros, ut jam nosti, institutionum Musices sermone communi & vulgato conscripserat, quos ille hortatu atque impulsu meo fieri latinos optavit, & facti sunt. Ii quidem, ubi ea diligentia, quam adhibere potui, & ornatu conscripti sunt, priusquam ederentur, censurae subjeci litteratorum hominum, amicorum ac eloquentium morem veterum secutus; neque enim mihi tantum in litteris arrogo, ut nulla in re me posse labi, putem: & quod ad nitorem dicendi & artificium attinet, laude sunt prosecuti magna, quod & tu facis, & quicumque hactenus legerunt. Aaron quoque hac in re non imprudens, neque moris hujusce scribentium inscius idem sibi faciendum ratus libros eosdem homini amicissimo, & inter Musicos nostri temporis (quemadmodum nosti) insignem locum tenenti Joanni Spathario tradidit libere castigandos. Praestitit ille vir longam &

diligentem, ut mihi visus est, operam, & si qua putavit esse mutanda, monuit auctorem, nec sua laude fraudavit publicae utilitati studentem. Traditum est tandem opus illud calcographis excudendum, sed incuriosis atque fallacibus, qui plurimis in locis & Petri artem, ac sermonem meum corruperunt, ac depravarunt. Quod quare factum sit, longum esset perscribere. Unum illud dicam, filium ego meum Bononiae studentem castigationi ex more adhibueram, adolescentem eruditione & editis operibus Italiae iam non ignotum, sed nunquam admissus est eorum fraude, qui non bona fide rem tractabant. Quare & multa quidem, quod ad me attinet, contaminata comperi, & quicquid graece interscripseram penitus sublatum. Impresso jam opere Joannes ipse Spatharius vir optimus, & vestri utriusque amantissimus rem se sibi ac Petro gratam facturum, arbitratus, insciis auctoribus, unum de exemplaribus dono tibi misit, quo tu mox lecto, multos errores deprehendisse te, rescripsisti. Scio, te id libertate quadam & simplicitate fecisse, nec ego certe miror; attamen visus es, non mihi, sed aliis quibusdam, & ipsi Aaron ea liberius in hominem tibi minus familiarem scripsisse, qui si dignus castigatione fuit, modestius ac humanius (uti ajebant)

admonendus erat. Hoc Petri animum pupugit, & ad scribenda quaedam impulit, quae nec ego, ut accepi, postea probavi, nec ille nunc probat, qui tametsi acrius in te, quam par fuerat, invectus videri potest, attamen ingenio est benigno admodum ac perhumano: nec si alius esset, possem illum tamdiu dilexisse. Si quid liberius in te dixit, ac intemperantius, famae id omne stimulis, (quam ille rebus, ut aequum est, anteponit) factum putes, velim, neque id quaeso dicacitati, aut odio tui, aut naturae tanquam ad maledicendum pronae adscribas; his enim vitiis, si quid mihi credis, prorsus Aaron caret, & tui amantissimus ac observantissimus est. Errata quaedam¹¹ de toto collegisti opere, legi diligenter, ac peritiam super ea re tuam ac diligentiam probavi, sed sunt pleraque (mihi crede) chalcographis adscribenda. Verum ille (ut puto) sic tibi ad ea respondit, ut non sit opus, nec me deceat, alienam hac in parte operam assumere. Unum illud te oro, priusquam finem faciam, ut quae tibi stomachum liberius a Petro meo scripta moverunt, ita expuas, & oblivioni tradenda putes, ut pristinus ille animi candor ambobus, & quae semper inter vos benevolentia fuit, redeat, tibi que persuadeas, Petrum Aaron non alium in te esse, ac in ceteros illustres Musicos

¹¹ Lege: quae.

& qualibet insigni virtute praeditos viros esse consueverit. Jurgia istiusmodi atque convicia magnis & gravibus etiam viris communia nihili vobis facienda sunt. In qua re succurret tibi Comici Poetae adagium,¹² Ira amantium redintegratio amoris est. Quod ad me attinet, sum tuus ego ita futurus, ut si periculum quacumque velis in re facias, polliceor fore, ut neque benevolentiosem, neque constantiosem in te amando quemquam experiare. Vale. Calen. Maii. MDXVII.

3. VL 5318, no. 85, f. 218r, Aaron to Fra Paulo de Lorino, April 29, 1525.

Reverendo padre mio come fratello honorando. etc. Gli dubbij gli quali vostra paternita a me ha domandati brevemente a quella gli mando. Et prima intenderete essere cinque figure overo note essenziale, cioe massima longa breve semibreve et minima, delle quali si genera quello che dicemo modo, tempo, et prolatione, el qual modo è dato alla figura massima et longa, la breve al tempo, et la semibreve alla prolatione, delle qual note una è prima et principale, la quale è la breve, detto tempo, del¹³ qual tempo due volte sumpto fa el modo minore imperfetto, et tre

¹² Comici Poetae, videl. Teren, Andr. act. 3. Scen.3. v.23. (footnote in source).

¹³ Lege: e1.

volte sumpto genera el modo minore perfetto, o siano le breve di tre semibreve o due, come sara quando la longa valera due breve perfette overo imperfette, et anchora tre breve o due, perfette o imperfette. El modo maggiore perfetto et imperfetto è generato dalla figura longa, et sumto tre longhe nella figura massima, o siano degli tempi perfetti o imperfetti, è domandato modo maggiore perfetto, ma quando in essa massima sono la valuta di due longhe perfette o imperfette si chiama allora modo maggiore imperfetto. El qual modo si diffinisce essere una regola data et ordinata alla figura massima, et longa. Tempo è quello intervallo che passa nella positione et elevatione di una breve cantando per el presente segno ¶ detto una battuta. Tempo anchora è detto quando una semibreve è pronuntiata sotto al seguente segno 0 cioe che è mandata in una battuta sola di due minime. La prolatione nasce del tempo diviso in parte minime cioe semibreve. Quando adunque la semibreve valera 3 minime diremo essere prolatione perfetta, overo maggiore, ma quando valera la semibreve due minime, diremo prolatione imperfetta overo minore, la qual si diffinisce essere una figura semibreve costituente 3 minime overamente due.

Circa la cognitione di tutti li tuoni di canto figurato, non dico altro salvo che vostra paternita aspettera el trattato di questo che subito si stampera, del quale senza altra fatica mia la quale saria grande sarete chiaro. Della qual cosa potendo per vostra paternita altro che a voi sia in piacere, sempre sono paratissimo, per quella alla quale mi offero et raccomando. El vostro come fratello. M. Pietro Aaron Musico F. Fatta in Vinetia el di 29 Aprilis 1525.

4. VL 5318 no. 84, f. 217r, Aaron to Don Lorenzo Gazio, February 14, 1533 (a copy in the hand of Giovanni del Lago).

Reverende pater. Cerca el quesito da vostra paternita fattomi cioe dove diceti, domando a vostra eccelentia qual sia quella proportione la quale manca a gli otto commi per arivare al tono, overo che manca al tono per arivare agli novi commi, a mi pare essere difficilissimo da risolvere et quasi existimato impossibile. Non dico perho che quello che domanda vostra paternita non si potessi trovarsi, ma dico quando fussi trovato el saria in numeri tanti grandi che non si potrebbero relevare, et anchora le loro proportioni non potriano essere nominate, come dimostra

boetio nel cap .12. del .3^o. libro della sua musica circa questi termini, nelli quali insieme comparati cade il comma ut hic 531441. ad 524288. Onde ch'el spatio preditto del comma ridotto al genere superparticolare cade in maggior proportioni di 75. ad 74. et minore di 74. ad 73. et perche sono difficili da conducerli sono da boetio senza altra terminatione relasciati dilche in maggiore difficulta se incorrerebbe volendo affaticarsi in componere lo intervallo del tono per spatii de comma come domanda vostra paternita cioe di voler vedere se intra tale extremita cade piu de otto o manco di novi commi etc. Onde essendo el quesito difficile et arduo, et quasi insolubile io non vorrei spendere il tempo in vano, perche cognosco che tal vostro quesito nasce dal cap. 15 del .3^o. libro della musica di boetio dove dice che el spatio del minor semitono piglia piu di tre commi, et manco di quatro et che el maggiore coglia piu di quatro et manco di cinque, alla quale sententia Jacobo fabri assai contra dice, perche nel cogliere insieme gli preditti commi, insieme si discordano, perche boetio dice che piu di tri commi et manco di quatro al semitono minore, et piu di quatro et manco di cinque appartiene al semitono maggiore, onde che insieme tolti (f. 217v) fanno piu di otto commi, et

manco di novi, delli quali dice che el tono sara reintegrato, ma el doctissimo iacobo dice che piu di tre commi et manco di quatro al semitonio minore, et piu di quatro et manco di cinque al semitonio maggiore, onde messi insiemli faranno piu di sette commi et manco di otto, di qua veramente si comprende che intra loro è non poca discordia in quello piu di tre et manco di quatro, et piu di quatro et manco di cinque, imperò che secondo boetio piu di tre, et manco di quatro et piu di quatro et manco di cinque in questa comparatione faranno piu di otto commi, et manco di nove. Vedendo adunque questa discordia infra questi dui sapienti, vostra Paternita me achordera questa cichera,¹⁵ et dipoi si degnera darmi aviso del suo parere con qualche dimostrationi di termini comparati, et quando circa questo sono chiaro, mi sforzera dare conveniente risposta al quesito di vostra paternita alla quale per mille volte me recomando et si altrove accade comandatione. In venetia a di 14. fibraro .M.V.XXXIIJ

Tutto de vostra paternita frate Petro Aaron.

¹⁵ Malim: chiachera.

5. VL 5318, no. 53, f. 173r, Gazio to Aaron, February 28, 1534. (A copy in Aaron's hand without indication of the addressee. Jeppesen, MuThKorr, suggests it was sent to del Lago, but it obviously answers no. 84 above.)

Reverende pater Salutem etc. Ho ricevute le vostre con grande appiacere, et considerato ben cio che scrive la vostra Reverentia ma nanti che piu avanti vada, vi prego, in visceribus iesu christi, che togli te le nostre parole con quella amorevolezza che ne le porgo. Circa quella particola ultima dove mi invitate a concordare la oppenione di Boetio, con quella del Fabro, vi rispondo brevemente. La vostra reverentia confessa quello che è el vero, che essi son concordi in la comma, et che in ricogliere sono discordi. Per dui ragioni vi provo che sono concordi, la prima si è che togliando li suoi numeri grandi, che fanno .4. commi coniunte, mettendeno una comma dentro alla parte grave, overo alla acuta, laqual lascio per manco fatica, et essa grave comma divisa per medium in .2. schisma, maggior, et minore, da poi esso schisma minore diviso anchora per mezzo, manifestamente vedete el semi. minore contenere .3. comme, et piu di tre quarti della quarta comma et li duoi mezzi, si che vedete che .2. fra .3. quarti fanno .6. delli quali .4. reintegrano, la comma, et li duoi mezzi. Pertanto

dico che in uno tuono accade piu de otto comme, et piu de .3. quarti della nona comma, come vi potria mostrare quando fussimo apresso, con la presente figura, che è pur li numeri ricolti secondo la dottrina di esso fabro, et ideo la vostra Reverentia non si affatichera altrimenti circa el quesito nostro, che gratia dei, sum id quod sum. La seconda ragione benche vi parera debile si è che in quello che esso fabro dice che el tuono piu di .7. et mancho di otto, l'è error del stampatore, chel sia el vero, vedete li nostri numeri ricolti ut dixi. Gli vedrete discordevoli, da quegli che sono stampati, anchora troverete errato in essi numeri la linea segnata o insieme con la sopra dette .r.p. Anchora che in quella .35^a. troverete errato in quello loco dove el dice, Duco .d. in .h. et.c. in .k. et .d. in .l. che doverriano dire. Duco .e. in .h. et .f. in .k. et .e. in .l. et molti altri errori che non est presentis dicere, gli quali tutti atribuisco agli stampatori. Si che se la vostra Reverentia considerera questi errori ultimi esser vero, potrete apresso pensare el primo esser verissimo, et tunc li sopraditti sapienti si vederanno essere conformi, et de hoc satis. In quella particola che dicete che el quesito nostro over proportione

nostra allegando Bac-(f. 173v)cheo greco, allegato dal mio Reverendo don franchino sia irrationale, over quasi irrationale, Vedete se l'è a questo proposito a quello che lui parla, in quello cap. tute le proportione da le multiplice, et superparticulare, excetto le domanda quasi irrationale, et dice del semituono et simile, el quale al suo proposito è quasi irrationale, al nostro, no. Alberto di Sassonia in lo primo cap. delle sue proportione circa al mezzo dice cosi, Proportio irrationalis non indiscretis, sed tantum in continuis reperitur, che fusseno difficile da levare, servando la dottrina del Caxo, et del Saliceo, et altri, non parrebbero cosi difficile. Non altro a vostra Reverentia, excetto che son tutto vostro et molto mi raccomando, et se ho scritto cosa che vi dispiaccia, perdonatemi. Data in San Fortunato, de Basciano a di penultimo di february .1534.

Di vostra S[ignoria] tutto Don Laurentio Gazio Cremonese.

6. VL 5318, no. 107, f. 252v, Aaron to Gazio, August 29, 1534.

Reverendo Don Laurentio quanto fratello honorando etc.

Per una di vostra Paternita a me mandata et examinata el

tutto ho inteso, et con tutto el core et forze mie la ringratio, et del dubbio quale havevo resto satisfatto, et gia sino ad hora havevo dato principio di componere dui extremi sesquiottavi per spatii di comma con integri numeri, solo per vedere de quante otto commi mancavano al compimento de gli extremi preditti sesquiottavi, et di quanto tali extremi sesquiottavi erano da nove commi superati, et perche a me era molto faticosa, non tanto per gli grandi numeri, che gli occorrerano, quanto per essere in altre cose piu necessarie occupato, non ho seguito tal mia deliberatione. Perche da me non è tenuto che in numeris si possi dare proportione inrationale: et dico che la proportione del comma et altre simile, per la difficulta della sua propria misura, et denominatione, è stata da Buëtio ditta per incerte proportione superparticolare, cioè come si denominano dui extremi proportionati arithmetice divisi, come el spatio sesquiottavo, ut hic .16.17.18. el mezzo del quale spatio sesquiottavo si dice esser minore di .17. a .16. et maggiore di .18. a .17. et quello tale modo, et ordine, è stato osservato da vostra Paternita dove dicete che in uno tuono cadono piu di otto commi et piu di tre quarti di uno comma, el quale ordine

è da quella osservato, per schivare quella difficile, et quasi impossibile denominatione della proportione cādente, intra quegli termini dimostrati la differentia la quale cade intra el minore semituono, et quatro commi, onde a me pare che dove vostra Paternita dice che in uno tuono cadono piu di otto commi et piu di 3 quarti, che quella erri. Perche si doverebbe dire di otto commi et non piu di otto. Et similmente a me anchora non piace, dove dicete piu di .3. quarti, perche contradicete alla figura vostra a me mandata, in la qual figura vostra Paternita dimostra chel spatio del comma non si potra in due parte equalemente dividere. Per tanto seguirà, che dove non si potra dar mezzo che anchora Geometrica, non si potra dar quarta parte. Per la qual cosa io credo che da Boëtio sia meglio stato scritto, dove dice, chel spatio del tuono contiene in se piu di otto, et manco di nove commi, onde concludo essere meglio ditto che el spatio del tuono contiene in se piu di otto commi, el quale piu di otto commi, piu si avvicina alli nove commi, che agli otto, et per tal modo vostra Paternita potra cognoscere, che siate huomo, et non idio, et che el bel ditto qual dite cioè Gratia dei sum id quod sum, non si conviene a voi, ma solamente, a lui. Mi duole molto non

potere confabulare con seco, dilche vostra Paternita mi perdonera, per essere assai occupato. Ma basta che quella si degni accettarmi per suo amico et benivolo, come sempre io tenere voglio vostra Paternita reverenda per mio maggiore, alla quale humilmente mi racomando. In Vinegia el di 29 augustis 1534.

Di vostra Paternita frate Piero Aaron

7. VL 5318, no. 51, f. 171r, Aaron to del Lago, May 12, 1535.

Messer Gioanni quanto fratello etc. In questa sera a cena col magnifico capitano si è trovato uno M. Gioanni Sanese, maestro de figliuoli del Magnifico M. Gioanni Cornaro, onde fu ragionato di musica, nella qual cena era lo arciepiscope, episcopo, et el signore abate col cavaliere, et tutti li figliuoli del ditto M. Gioanni, et cosi discorrendo molte cose fu ditto da quel maestro quasi svilando che el non era nessuno che havessi theorica di musica ma che componevano per pratica. Voi sapete la natura mia, et quasi videndo pubblicamente gli risposi, et dissi che lui haveva parlato molto prosimmosamente, et che lui doverrebbe havere piu rispetto allo honore de altri che non haveva et sopra questo

mi riscaldai, provandogli che non haveva ben ditto, come al mio venire intenderete, saria troppo prolisso. Tanto che per una parola che in ultima lui disse, resto confuso da tutti ridendo ogni huomo. Non diro altro, intenderete piu apieno, bastavi che quando bisogna, non dormo. Fra Giordano non è qua. Ho inteso da dui frati di Sancta Justina che el nostro Don Lorenzo è stato dui giorni a Vinegia, et andato da Messer Adriano et ha molto biasimato, et smachato el vostro tenore, per bocca di Don Valeriano, et che Adriano gli ha domandato quatro dubbii, et che lui gli ha subito resolti guardare se, e quello che pensavi. Qua questi frati me hanno assai honorato, venria (sic) presto, ma el magnifico capitano non mi lascia partire, se bisogna aiuto all'opera non mancate nec plura. Data in Padova el di 12 Maij 1535.

Piero Aaron

(f. 171v) A Venerando Religioso messer Pre Zanetto
Dallago/ quanto fratello etc.
Vinegia
A Santa Soffia

8. VL 5318, no. 62, f. 183r, Aaron to del Lago,
March 13, 1536.

Messer Padre Giovanni quanto fratello carissimo, etc.
Colui che non pensa al fine è peggio che una bestia.
Sappiate che idio a me ha voluto meglio che non merito
poiche al presente mi renovo in migliore essere et contento
che mai fussi. Prima io ho un patrone tanto magnanimo, et
dabene, quanto si posso uno immaginare et uno che veramente
fa grandissimo conto di me. Io sono da tutta questa terra
onorato, qua sono molti degni huomini in ogni faculta et
massimamente in musica. Io ho le spese alla tavola del mio
patrone, medico, medicine, che idio miguardi, il barbiere,
tenuto in una camera bellissima, et tenuto mondo et netto,
et il mio putto che mi servi, con venti ducati l'anno da
potermi vestire, da una mansioneria perpetua da una scuola
del corpo di christo. Qua non bisogna dire lo "la sta la va."
Ogni huomo sa el fatto suo. Io non ho voluto che altri col
tempo si rida di me. Io continuo son stato con gran maestri,
non ho sentito disagio et dubitando per lo advenire di
qualche mia fortuna me ho proveduto. Voi sapete bene quello
che in Vinetia al presento havevo, se me fussi venuto una
malatia, saria andato ramingo. Gli cinquanta ducati che

mi lascio monsignor con la croce di ligiario, sapete che non gli è stato mai mezzo poterli havere, che volete voi che io perda piu il tempo. Se portano la croce in petto di lisaro senza utile alcuno, al presente, la porto in mano de argente (sic) con utilita et, riposo perpetuo della vita mia, onde a vostra consolatione. El giorno del beatissimo Gregorio, dapoi tutti li vespri come plaque a dio tolsi l'habito della Religione de crosachieri, da molto popolo honorato, et aspettato, dove venne volontariamente per lo amore quale a me portano questi signori musici et cantori, messer Gasparo, maestro di cappella qua con ventidui cantori a honorarmi et qua fu cantato un vespro a dui chori da loro a psalmi spezzati molto egregiamente con un magnificat a dui chori et tutte le antiphone in contrapunto. Cosa che mai haria creduto tanto bene che sarebbe bastato in Vinegia. Da poi uno Veni creator spiritus quando fu' vestito con tanta moltitudine, che non si poteva stare in chiesa, ne etiam alla (sic) altare, daapoi a me non fu mutato nome et finito le cerimonie, fu' accompagnato dal Reverendo monsignore mio patrone in casa con tutti li cantori et parte del popolo, dove era apparecchiato una bellissima colitione (sic) abundante di marzapani et confetti, da poi fu cantato un mandriali a 6

voci del qual non sapevo niente in laude mia. Sicche frate carissimo io ho eletto questo partito. Se a voi e agli altri vi parra cosa non ben fatta, tal sia di voi, io me contento et credo essere quel Piero Aaron cosi come altrimenti. (f. 183v) Io non saria mancato come fratello et amico mio non vi havessi avisato del mio essere et perche so che voi me amate, non penso che di questo non vi habbi a essere piu tosto grato che altrimenti. Dilche sempre vi amero et divoi continuo mi ricordero. Vi supplico quando havete tempo, scrivermi una vostra, accio intenda del vostro bene stare, la qual cosa mi sara gratissima, et a voi sempre mi raccomando. Data in Santo Leonardo el di 13 Martij 1536.

Vostro quanto fratello Frate Piero Aaron

Al mio quanto fratello messer pre Zanetto dal Lago
musico dignissimo
A Santa Summia In Vinegia

9. VL 5318, no. 52, f. 172r, Aaron to Fra Gregorio de Corbegli, December 26, 1538

Per un altra mia te ho scritto a sufficientia, non replico altro, solum che tu per il primo mi dia aviso quello che è di pre Zanetto dalago qual veniva da me continuo. Tu sai ben chi io dico, mandami il tutto come si truova, et quello

che attende, et se gli puoi parlare leggigli la presente partita, cioè, come maestro Zanmaria lanfranco e fuggito da Verona dove che era come sai maestro di cappella vituperosamente, con perder la fama, con tutta la sua roba, sualigiato la casa, et se non si fuggiva, faceva male i fatti suoi, questo per causa di haver guasto un putto, cosa veramente che me rincresce molto, e che el sia altro non so. Qua si dice quello essere stato la causa, fallo intendere anchora a fra gioanni batista meo il mondo da di questi frutti, o chel sia per desperatione, o per vergogna lui, e fatto frate di Sancto Augustino, qua in bergamasco, in una villa et vilissimo castelletto chiamato a Romano presso a Bergamo dodeci miglia convento poverissimo e pien disagii, cosa che molto mi maraviglio, et piu ditto convento è lontano dal castello un miglio. Dubito non si muora per dolore et vergogna, idio lo aiuti. Non scrivo altro. Raccomandami al Revdo Priore, et a tutti i frategli, et tu dite satis dixi. Salva l'honor tuo, et qualche e stato, sia stato, et attendi alle virtu accioche tu non sia unaltro fra Leonardo da Bergamo. Io te ho advisato che non so che libri tu vogli. Darammi adviso. Se ci sara commodta gli manderò. Saluti tua madre, benche la non mi scrive. Data In Bergamo el di

26 Decembris 1538

Frate Piero Aaron.

Di a Pre Zanetto che io non pensavo mai che con meco dovessi usare tanta superbia che in tre anni non se sia mai degnato scrivermi un verso come io a lui ho fatto, et che se bene io son frate, come lui non voleva, ch'io non son malcontento, perche io son Pietro Aaron come ero, et se lui è prete, che non è altro che pre Zanetto ilqual forse patisce piu di me, et che da lui non merito questo, non mancare di leggelli queste poche parole.

(f. 172v) Frate Gregorio de Corbegli Venetiano figliuolo carissimo Nel convento de Crosachieri in Vinegia

10. VL 5318, no. 61, f. 181r, Del Lago to Aaron (in del Lago's hand, marked copia), August 27, 1539

Al reverendo frate pietro Aaron Musico eccellente
Salve Reverende pater. Il tardo realegrarsi con gli amici si suolo degnamente riprendere, et spetialmente quando per negligentia procede. Ma considerando ch'io impedito per il passato delle (sic) comune fatiche, et occupationi assai, non ho potuto sodisfare al mio debito, ma faro come dice il proverbio

che meglio è tardi che non mai daro al presente alle occupationi alquanto intervallo a congratularmi con vostra paternita della dignita et honori a quali per sua propria virtu è venuta. Mi fu significato dal vostro frate Gregorio corbelli venetiano, et per una vostra letera diretiva à me come quegli Reverendi padri vi hanno ricevuto per suo fratello nella religione sua con grande fausto¹⁶ etc.

Questa non è la fede promessa fra noi piu, et piu volte mai per alcun tempo di abandonarsi in sino alla morte, et esser buoni fratelli, et conferir insiemi l'un, l'altro i secreti nostri, massimamente di musica, et tuto è stato l'opposito. Hor mettiamo ogni cosa da canto per lo advenire si (sic) visiteremo con lettere. Quello desidero al presente intendere da vostra paternita è questo, che per sua inata gentilezza se degna resolvermi questo dubbio, cioè gli modi da gli antichi inventi dimostrati per i loro segni quante spetie sono, et qual di loro deve esser primo in ordine numerato nella prattica, et similmente quegli inventi da gli moderni dimostrati per le pause de (sic) lunghe. Perche io trovo che frate Gioanne Othobi Anglico dell'ordine de frati carmelitani, Eloi, et Tintoris, sono tra loro differenti quant'all'ordine di ponere tali modi nel canto misurato. Perche frate

¹⁶ Malim: fasto.

Gioanne Othobi tiene un'ordine, come appar in (f. 181v) una sua nota, nella qual dimostra il valor delle notule. Et Eloi in una sua Messa composta sopra la Antiphona, *Dixerunt discipuli ad Beatum Martinum*, tiene un'altro diverso di quello che ha tenuto Othobi. Et Tintoris in uno suo canto à tre voci fatto sopra alcuni versi gli quali dicono cosi, *Difficiles alios delectat pangere cantus.* etc. Similmente tiene un'altro modo quanto all'ordine molto diverso à quello che hanno tenuto gli suoi sopra nominati, cioe Othobi, et Eloi, come appare nelle soe glosse fatte in dichiarazione di tal suo canto, cioè nella glossa del soprano, et in quella del tenore della prima parte, et similmente in quella del tenore della seconda parte. Ma Eloi, et Tintoris dicono esser sedici spetie di modi, et in questo solamente si concordano, ma quanto all'ordine, cioè primo, secondo, terzo, etc. molto sono discrepanti l'un da l'altro. Ma trovo anchora che frate Stephano dell'ordine de frati eremitani Musico moderno ha tenuto diverso modo et ordine, quanto à tali modi oltre gli preditti, come appar nel suo trattato di Musica intittulato *Recanetum de Musica Aurea.* nel cap. vii. del 2^o libro nel qual dimostra esser ventiquattro spetie de modi. Similmente

vostra paternita ha dimostrato nel suo trattato di Musica intitolato Toscanello ventiquattro modi, et in questo anchor voi sete discrepanti quanto al procedere de tali modi dal sopradetto. Similmente M. Gioanne Maria Lanfranco nella sua opera chiamata Scintille di Musica nella seconda parte dove lui tratta delle spetie del (f. 182r) genere quantitativo dice queste parole, Dal genere quantitativo il quale non è altro che la varia quantita causata dal mescolamento della perfettione, et imperfettione di essi tre gradi, cioè modo, tempo, et prolatione, le quali spetie ad una, ad una secondo l'ordine del mio Reverendo Don Lorenzo Gazio cremonese Monacho di Sancta Giustina delle sistematiche dimensioni osservemo et delle ragioni della pratica grande intelligente saranno sotto poste etc. Lequali spetie che dimostra per essempli una per una, tutte diverse (dico) quanto all' ordine del procedere, cioè prima, spetie, seconda spetie, terza spetie, etc. dalli prenominati. Ma tal modo, et ordine di procedere dice esser del sopradetto Don Lorenzo Gazio, et non suo, nientidimeno lui afferma tale opinione perche nulla dice in contrario. Pertanto prego vostra paternita che quella voglia esser contenta di scrivermi amplamente il parer suo sopra tal materia come

credo quella farà per l'amor et benivolentia che è tra noi, et di questo assai vi prego. Non altro a vostra paternita me raccomando. In Vinegia a di. xxvij. di Agosto .M.D.XXXVIIIJ.

Pre Gioanne del Lago SS

Io ho mandato a richieder lo soprascritto dubbio a Frate Pietro Aaron, per tentarlo.

11. Berlin, Deutsche Staatsbibliothek, Mus. ms. autogr. theor. 1 (no. 111 in Jeppesen's list), Aaron to del Lago, October 7, 1539

Qual huomo vivente harebbe potuto dimostrarmi il tanto a me tardo scriver vostro, che son passati tre anni e mezzo senza haver visto littera vostra alcuna; ma so ben ch'io a voi ne ho mandate. So certo che l'havete ricevute, massime una, quando eri amalato data per il comune amico nostro maestro pre Mathio (sic) maestro di scuola apresso santa Iustina, dove che lui mi scrisse haverla data et che per altri mi daresti risposta. Se hora vi scusate, è cosa honesta et lecita rimettere lo amico et accettarlo in pristino amore. Non dimeno quasi havete parte osservato lo intento et volonta vostra, di non mi scrivere et mai piu parlare, se habito alcuno pigliavo da frate. Se io son frate, son Piero Aron

et non per questo penso esser discaduto. Sapete ben, quanto tempo ho perso ne signori, et piu mi duole de sedici anni in ultimo persi con monsignor di San Giovanni, che idio volessi non l'havessi mai visto. Ch'io sia malcontento haver questo habito [?] No; ma duolmi non l'haver preso venticinque anni avanti. Io sto meglio ch'io stessi mai: ben visto, ben acharezzato, buon vivere con riposo libero et qualche scudo in borsa. Son stato in Brescia un mese, diro questa materia, quassi adorato massime da tuti quegli conti da Marteningo et il conte Zanpaulo da Cavriole et suo figliuolo maestro Lorenzo, tutti buoni cantori, dagli quali havevo pasto dui giorni da Marteninghi et due da Cavrioli, tanto che consumai un mese con loro sempre in musica et da altri gentili huomini in particolare acharezzato, dove che ho fatto una amicitia con il conte Fortunale (sic) Marteningo che certo me ama come suo fratello et al mio partire mi mando per Bergamo cavalcature degna et servitore, per Marteningo anchora. Dil che sua signoria vuole che con lui in ogni modo mi truovi questo carnovale in Brescia a farlo con loro. Per tanto se loro non hanno rispetto al habito fratesco, mancho ne dovete haver voi; loro considerano alle virtu et non al habito. Se io ho

mutato habito, non ho mutato le conditioni: perche piu son amato in Lonbardia che non ero in Vinetia, et sappiate che a molti ho scritto, senza haver di loro una risposta: quando piu gli scriverro, se ne nettino il culo. Dilche certo havevo con voi deliberato non darvi risposta, ne manco scrivervi; perche se voi prometesti usque a[d] mortem conservar l'amicitia, come al presente havete (fol. lv) scritto, dovevi scrivermi, et non guardare al habito. Hor su, sia con dio recet[to] canamus; basta queste poche parole per concludervi, che, se io son frate, son da tutti ben visto et amato: meglio faresti voi a provedervi in altro luogo che in quel che vi trovate: et non star in paludi et in luoghi vili senza reputatione et perdergli la vita: perche tal luoghi son destinati a gente ignorante et di vil conditione etc. Ma se io son frate, Re, Duchi, Signori, Cardinali, Episcopi et de ogni altra degna generatione han preso habito fratesco. Dilche concludo, che preti et frati e mondani, o siano frati o no, havendo qualche virtu sono esestimati et meritati apresso idio et da gli huomini dil mondo, ma gli ignoranti et poltroni non hanno parte in Regno dei. Hor su ad rem nostrm.

Voi desiderate il mio parere circa gli modi antichi

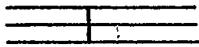
et moderni, cioè, qual sia prima spetie in ordine, et quanto siano le spetie di essi modi nella pratica musicale, et dite che Giovanni Othobi, Eloy et Tintoris sono tra loro non simili quanto al ordine di poner tali modi, cioè che loro si concordano circa le sedeci spetie, ma circa l'ordine no : et che io similmente ho dimostrato le sedici spetie ma discrepante da gli sopraditti circa l'ordine, et che etiam maestro Gianmaria Lanfranco ne aduce anchora 16 et che tal dimostratione non è sua, ma è di Don Lorenzo Gazzo. So benissimo, che è sua inventione et come il ditto maestro Zanmaria per non dir altro incontrario, fate iuditio che lui sia di quella medesima opinionone, alla quale rispondero nanzi la fine. Prima diro, che se Othobi Eloy Tintoris et io siamo concordi al numero delle spetie, et incontrario al proceder per ordine, credo che loro habbino considerato quello che considerai io, cioè che solo attesi a dimostrare gli precetti moderni per essere io a tal tempo venuto senza ordine di primo 2^o, 3^o ne quarto: da poi pervenni a gli antichi con la intelligentia et dichiarazione appartenenti a loro. Et quando loro et io havessimo voluto procedere al ordine delle spetie, era idem per diversa, et cosi a voi è parso. Ma pertornare agli modi adutti da

maestro Zanmaria tolti da Don Lorenzo Gazzo, vorrei in servizio di loro ne fussino digiuni: perche non mancano solo del ordine, ma incorrono et conmetto-[no] (fol. 2r) assai errori. Vorrei intendere, quale è quello autore che dice, che il presente segno ut hic $\odot 3$ sia segni di modo maggiore imperfetto, minore tempo et prolatione, laqual figura dice lui essere 3^a spetie, et similmente la quarta 7^a ottava, undecima, 12, 15, et decima sesta, lequali tutte incontrario sono adutte con mille falsita. Costoro non fanno alcuna differentia tra la figura circolare et semicircolare con una cifra quanto siano quelle de dua cifre: certo non mi maraviglio di loro: che molti et molti maggiori errori gli ho trovato; ma di voi piu stupisco tenendovi huomo qual tengo che mi adducete tale opera, over sententia connumerata a quelle di Othobi Eloy et Tintoris, se Don Lorenzo ha messo tal dichiarazione: lui l'ha trovato in un fondo dun Tanburo. Non voglio piu fatica circa a questo: ma solo cerchero in parte satisfacervi, perche tal segno e figura ut hic $\odot 3$. $\odot 3$. $\odot 2$ etc. non saranno mai chiamati segni di modo maggiore imperfetto modo minore etc. ma solum modo minore con tempo et prolatione. Or su, transeat.

Per satisfacervi in parte alla domanda vostra, mi

disconmodero circa gli negotij miei, et forse se altri mi havessi fatto alcuna domanda, non so, se da me havessi havuto riposta. Questo solo è, che il scrivere in tal facolta porta troppo tempo: perche quello che se ha a esprimere in carta è di maggior fatica et tempo, che quello che afaccia afaccia si conclude. Pur non dimeno a uoi non mi sara molesto, et cosi dico, che il nascimento di tutte le figure essenziali overo creatione nascono dal tempo piu volte colto, dal qual tempo over breve e considerato il modo haver due varietà scilicet modo minore et maggiore; et similmente dividendo il tempo in parte sue minute nasceranno due prolationi: una detta minore, quale è la semibreve, et altra maggiore e costituito la minima. Ma il tempo, che è solo fermo et stabile, non patisce divisione alcuna di maggiore ne minore; sara detto un transito invariabile, dal qual nascono tutte le altre spetie. Et dato che essa breve o tempo sia diviso in tre parte tertie et in due parte medie, non si dira esser due varietà di tempo, cioè maggiore et minore, ma si dira perfetto et imperfetto rispetto al ternario numero et binario, perche esso ternario, quanto al numero, par che sia maggiore, ma quanto alla virtu et atto sara equivalente al binario numero. (fol. 2v) Il quale

effetto non concede Franchino, come appare al cap. VIII del 2^o libro della Pratica sua, dove che lui dice ch'errano coloro gli quali dicono, che la semibreve del tempo imperfetto è maggior di quella del perfetto, et dice che le semibreve del tempo perfetto et imperfetto son tutte eguale. Per la qual cosa lui grandemente se inganna, perche apresso tutto il mondo un terzo non sarà mai ditto essere eguale a un mezzo. Ma per non scrivere in lungo, laszieremo tal disputatione per esser cosa certa. Dilche da esso tempo ne nasceranno cinque spetie principale cioe, tempo, modo minore, modo maggiore, prolatio minore, et maggiore. Onde per esser ditto tempo nella musica stato creato et formato dagli antichi di natura binaria, sarà chiamato prima spetie; da poi per potersi transferire de binario in ternario essi antichi ordinorno la circular figura a significatione del ternario numero in essa due; et piu oltre considerorno volersi transferire della semibreve binaria nella ternaria, ordinorno il punto nella figura circolare et semicircular. Onde per tal ordine da loro osservato per consequente ne seguirà la vostra domanda, et mio parere cioe che, si come dagli antichi fu ordinato il primo tempo over prima spetie di natura binaria per non previricare (sic) tal ordine,

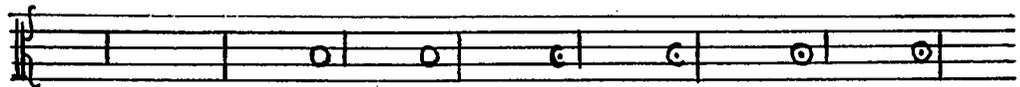
havendo ditto tempo creato il modo, dico che la prima spetie di essi modi antichi sara la presente ut hic C2, la moderna ut hic  Le quali spetie, per terminare il parlamento, le metterò gradatim tutte, come dimostra la figura:

1.	C2	9.	C22
2.	O2	10.	O22
3.	C3	11.	C33
4.	O3	12.	O33
5.	C2	13.	C22
6.	O2	14.	O22
7.	C3	15.	C33
8.	O3	16.	O33

Spetie 16 secundum morem anticum

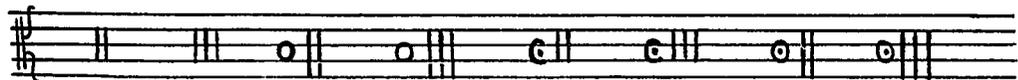
(fol. 3r)

.1. .2. .3. .4. .5. .6. .7. .8.



Modi secundum morem modernum

.9. .10. .11. .12. .13. .14. .15. .16.



Considerate, se io non ho tenuto ordine retto circa gli modi per me nel Toscanello mostrati, e stato solum per la causa di sopra ditta, come etiam han proceduti Othobi Eloy et Tintoris, gli quali credo con la medesima oppenione habbino proceduto.

Ma torniamo allo autore da voi allegato Maestro Stephano del ordine de frati heremitani il quale se è allontanato da tutti coloro per voi allegati cioè che ha adutto in campo 24 modi, lui certamente è stato contro alla autorita aristotelica, qual dice come sapete: Frustra fit per plura, quod potest fieri per pauciora. Lui ha superato la quantita degli altri in mettere 24 modi et non ha considerato, che lui è stato frustratorio et superfluo, conciosia che quello, che dimostrano i sedici modi, mostrano il medesimo in ventiquattro. Perche si vede chiaro, che cominzando da la nona spetie in fino alla decima sesta, si comprehende per i precetti di tutti gli autori in questa facolta eccellenti, che'l circulo et semicirculo con dui cifre significano modo maggiore minore con tempo cioe: se la prima cifra o ternario o binaria dimostra modo minor perfetto et imperfetto et similmente del tempo, il che è — dimostrato idem per diversa, onde concludo che piu tosto sia

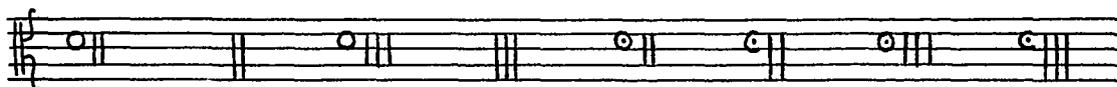
stato frustratorio che altrimenti, perche in essi non sono altre figure che sono propriamente nella spetie 9 insino alla decima sesta. Pur non dimeno per la variatione che fanno dette cifre per esser prima et 2a si potranno appropriare come ho ditto idem per diversa altre 8 spetie antiche et moderne, lequali hanno relasciate gli sopra detti et io similmente per essere spetie et segni dagli moderni non usitati, ma in tutto abbandonate, salvo che quelle che dimostrano modo minore con tempo et prolatione et se pur voi havessi desiderio da me vederle secondo lo antico et moderno modo, son molto contento darvene figura. verte

(fol. 3v)

.17.	.18.	.19.	.20.	.21.	.22.	.23.	.24.
C 23	C 32	O 23	O 32	C 23	C 32	O 23	O 32

Antichi musici

.17.	.18.	.19.	.20.	.21.	.22.	.23.	.24.
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Moderni musici

Non ho potuto tanto considerare ne manco nella mia mente fantastichare, donde proceda tal domanda fatta per voi a me al presente cum sit che per il passato me havete havuto a saccomanno anni 10 sia per qual causa vi piace, che tutto ho fatto volentieri, et se da me sarete sadisfatto, ne haro consolatione, et se incontrario dispiacere, dil che voi cercherete migliore espositore di me qual son infimo tra gli eccellenti. Vale Data in sancto Leonardo di Bergamo el di 7 octobris 1539

Vostro quanto fratello Piero Aron M.

Di qua per un bergamasco ho inteso come è quasi un mese che il nostro eccellente maestro Zan Spataro e morto; Vi prego per mio amore, condiligentia interveniate, se è vero o no, con quella prestezza che potete con qualche amico vostro et darmi subito risposta, perche qua non è via corrente da quelle bande etc.

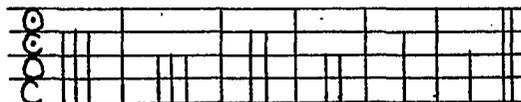
(f. 4r) A Maestro Pre Zanetto dal Lago, Amico carissimo
In Vinetia o dove si ritruova.

12. VL 5318, no. 63, f. 184r, Del Lago to Aaron, May 12, 1540 (in del Lago's hand, marked copia).

Al Reverendo fra Pietro Aaron Musico eccellente.

Salvo Reverende Pater. Forssi vostra paternita ha fatto molti et diversi pensieri per il passato nella mente vostra quanto al mio tardo scrivervi, non pensate che sia stato altro se non per che io non ho potuto imprimere piu presto queste mie picciole regolette di Musica le quali à vostra Reverenda paternita le mando con questa mia legato, pregando quella che per vostra inata gentilezza voglia degnarsi di leggerle con diligenza, et se in quella saranno errori per vostra bonta mi scriverete sopra gli errori che in quella troverete, accioche io possa conoscer i miei errori ch'io non stia cosi lungamente nella fetida ignorantia perche la ragione vuole che l'huomo se emendi degli suoi errori quando ò per se medesimo, ò per altrui li siano manifestati, pertanto prego quella volio esser contenta di farmili noti. etc. Quanto alla risposta vostra fattami delli sedeci modi, io non son in tutto rimasto sodisfatto, massimamente dove vostra paternita riprende frate Stephano di l'ordine delli eremitani, dove dite che lui a posto ventiquattro modi, et allegati solamente questa autorita philosophica, frustra

fit per plura etc. Ma pare à me che sete caduto nella medesima sententia, perche anchor voi havete posto ventiquattro modi nel vostro Toscanello, come appar in quelle quatro demonstrationi, over figure i quali dimostrati con queste pause ut hic



Ma perche io voglio esser vostro buono amico et fratello candido usque ad mortem, (f. 184v) altro non dico sopra tal materia (benche se potria dire cose assai) perche sapienti pauca. Vi prego piu presto sia possibile mandatimi risposta, non altro a vostra paternita mi raccomando. In vinegia a di .xij. di maggio .M.D.XXXX.

Pre Gioanni del Lago SS

Io ho mandato à richieder la sopra scritta domanda à frate pietro Aaron per tentarlo.

13. VL 5318, no. 56, f. 176v, Aaron to Del Lago, July 17, 1540.

Salve pater carissimo. So che da voi per le cause occorse non a me grate circa frate Gregorio mio sarò sommamente escusato, se gli dubbi del trattato vostro saranno tardi a voi pervenuti. Gli mandai subito, ma per non essere frate Gregorio in convento, et piu venuto qua, furno a me dal

cavallare (sic) riportati, questo perche glinposi gli dessi in le mane di ditto fra Gregorio et non ad altri, accio nessuno potessi sapere l'intento nostro. Hora vegli mando meglio ch'io posso; so da altri non sono stati visti. Se grati a voi saranno che idio il voglio, ne haro sommo gaudio; se incontrario, tenerete la oppenione vostra, et io la mia. Se altro per voi posso, sono paratissimo. L'opera vostra a me è gratissima per esser voi come scrivete amico perpetuo, dilche ne tenero buon conto. Data in Santo Leonardo di Bergamo el di 17 Julii 1540.

Vostro Frate Petrus Aron

(f. 176r) al mio quanto fratello messer pre giovanni Dallago, musico honorato etc. In Vinegia.

14. Paris, BN, Ms. It. 1110, f. 29r, Aaron to del Lago, undated, but probably within a few months of the preceding letter dated July 17, 1540. In Aaron's hand, but probably a copy of the actual letter sent to Del Lago; no signs that it was posted are apparent.

Certamente, Messer Pre Giovanni mio, di non volentieri ho preso inconmodo circa il trattato vostro a me mandato per molte cause, et perche voi mi scrivete volere essere usque ad mortem amico mio ho preso faticha circa acio per

satisfattione vostra, et piu per esser cosa conveniente
infra uno amico et l'altro comunicare le cose sue,
massimamente dove ne resulta l'honore con l'utilita. Ma
dubitando io di non incorrere in quello di molte volte
puo accadere; son stato dubbioso non perder con voi
l'amicitia nostra vetusta dil che me sono confidato
nella prudentia vostra, che ogni cosa piglierete in buona
parte conciosia che sempre vi fui amico, et se da voi non
fussi in questo stato pregato, sappiate certo che tal
faticha non harei voluto; come per il passato fu anchora
con littere piu volte ricerchato da Maestro Zanmaria
Lanfranco dovessi rivedere l'opera sua onde per premio delle
fatiche mie, et perche Veritas odium parit un tempo gli
restai non troppo amico. Pur considerando lui che di tale
impresa ne fu causa si rimesse, et con una sua, mi saluto,
et ringratiommi assai, con offerirmi tutto il suo potere,
et era in animo per l'honor suo nuovamente imprimerla.
Ma per esser gli stato inimica la morte, la quale al altro
mondo l'ha portato non ha potuto seguitare suo animo dilche
Requiescat in pace. Per tanto, Maestro Pre Giovanni mio,
se al trattato vostro vi parera chè io gli (sic) apponga,
non è per malignare, ne in publico manifestarlo, ma solo per

satisfare ai preghi vostri. Ben di voi mi doglio, tenendomi quello amico che per voi sento (sic), che prima che adesso non mi habbiate di tale opera advisato, et fatto noto nanzi lo imprimer suo. Questo puo nascer da due note cause, prima che di voi solo vi siate confidato, cosa non certo da nessun laudata, perche non è si sapiente, che ad altri non conferisca le fatiche sue, onde se a me prima vi confidavi mandarle, piu rettamente si sanava la piagha, laqual mi rendo certo satisfaceva a tutti, et perche voi sempre troppo vi siate reputato, senza altro parere l'opera havete impresa, et perche forse a voi è parso non si potere oppongli, a me scrivete intender l'oppenione mia, la mando, come benivolo vostro. Et se a voi parra cosa alquanto strana fate iudicio come a voi piacera, perche el si, el no, col tutto a voi (f. 29v) rimetto. S'el dir contra di voi v'è noioso? Non vi turbate, e a me date perdono, perche voi amo. Se i ditti miei vi saranno grati, ne haro sommo piacer con allegrezza. Se in contrario gli riproverrete, tenetevi gli vostri, e i miei a me lasciate, perche non manco vi saro amico, tenendo l'opera come se fussi la prima.

Ho inteso circa gli modi a me domandati, voi dite non

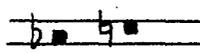
in tutto satisfatto restate, et di molte cose si potrebbe dire, ma per essermi amico altro non dite, cosi anchora io nel ordine da voi tenuto, non resto satisfatto. Hor mai cerco riposo, ne è piu tempo consumar carta, ne inchiosto, massime in quelle cose che nulla aquistar posso. Solo ci basta reintegrar l'amicitia, et con benivolentia perserverare in amore, et ritrovandoci come spero piacendo a dio dicurto, con piu commodo modo il tutto extingueremo. Vale.

Dubbio del primo cap. Dico cosi.

Frate Piero Aron

15. Paris, BN, Ms. It. 1110, f. 30r, Aaron to del Lago (commentary on del Lago's treatise).

Salve carissimo frate

Considero che forse inadvertentemente havete dimostrato la mano in figura senza fare altra consideratione circa le positioni, perche nel primo et secondo bfaḥmi, havete dimostrato le due syllabe, over note, in eodem spatio et linea, la qual cosa a me non piace, perche essendo diverse et sotto due littere, è dibisogno in figura dimostrarle come qui  rispetto che infra loro chade

distantia de uno apothome, come in processo voi dichiarate, et piu rettamente haresti anchor proceduto dimostrando la seconda positione, over terza, inquesto modo \natural mi et non coi B mi, perche sapete che la figura o pur littera, naturalmente e quadra et non rotunda. Il simile havete fatto nominando la proprieta quarta ut hic \flat quadro acuto, non licet perche il \flat rotundo, et quadro differunt in forma, si debbe dimostrarlo colla littera natural sua come qui \natural quadro, il qual ordine tiene ciascun mediocre musico.

Appare seguitando dove date Regola circa le chiave dicendo cosi, Et nota che sempre dove è la chiave li è sempre fa salvo se el \flat molle non lo impedisce. In questo voi vi siate ingannato, dicendo che questa littera G alcuna volta in canto figurato si mette in luogo di chiave. Dilche vi mostrate non esser naturalmente chiave. Dico che tal littera per se è chiave naturalissima, quanto siano le altre et piu perche in musica omnis littera vocatur clavis; pertanto havete errato quando dite dove è la chiave sempre li è fa. Nella positione di G non è fa. Seguita adunque essere incontrario, dilche bisognava eccettuare tal chiave.

Da poi dove dite che in \flat fa \natural mi glisono due proprietati, et per consequente non si gli puo far mutatione, per essere

el mi distante del fa un semituon maggiore etc., vi rispondo et dico che questo modo non è conveniente ne al proposito, perche voi dimostrate che le due syllabe siano due proprieta, et per consequente seguiterebbe che dove sono due note, sono due proprieta, et dove è tre note ne sarebbe tre, quod falsum est, bene è vero che tal note son cantate per due proprietati, (f. 30v) bastava dire che non gli era mutatione per esser le voci diverse di luogo et suono come comanda la regola, et dire ch'el ditto mi era superiore al fa, il spacio dillo apotome, et non distante dal fa, perche il nuovo discipulo potra cosi intendere che ditto mi possi esser cosi di sotto al fa come di sopra per la cognitione delle sei syllabe ordinarie.

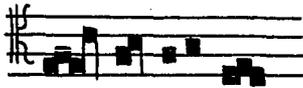
Et procedendo dite che il sengo del b molle fu trovato per tre causa (sic). La prima per torre la durezza al tritono, et per potere procedere per il modo diatonico, la seconda per miglior sonorita, la terza per necessita. Qua alquanto voi siate superfluo et quasi fuori del retto ordine, conciosia che el bastava assegnare la regola di Guido nella quale se gl'include ch'el b mollè fu trovato per la durezza del tritono, et per necessita, et pero siate superfluo dicendo ch'el b molle fu trovato per causa della durezza del tritono,

et a miglior sonorita, perche ogni volta che voi mitigate il tritono colla figura \flat , subito si genera la sonorita che l'una e l'altra è una cosa sola.

Che siate fuora del retto ordine, vi domando quale authore si truova che dica o disse mai ch'el segno del b molle fussi trovato per poter procedere per il modo diatonico. Questo certo non è da credere, perche il genere diatonico procede per semitono, tuono, et tuono, et non è converso. Et dato che tal transito vostro fussi diatonico processo lo vi domando se sara diatonico procedendo da f grave a \natural acuto senza b molle. Cosa certa è che sara, perche nella musica esercitata et atta, ogni spetie naturale et accidentale, resta diatonica, come Boetio al cap. 21 nella musica sua dice, Et Diatonici quidem aliquanto durius et naturalis, il qual si dimostra con la proportion minore nella parte grave, come esso Boetio al cap. preallegato dice, In his omnibus secundum diatonum cantilene procedit vox, per semitonum, tonum, ac tonum In uno tetrachordo.

Nel dar regola circa le mutationi voi dite che la sesta mutatione si fa mutando ut in re per causa di ascendere da \natural duro in b molle. Et queste tali mutationi le chiamo dirette et regolare. Messer Pre Giovanni mio, qua mi pare

che siate fuori della via perche tutte le mutationi che si transferiscono di \flat quadro in b rotundo non possono esser ditte Regolare, ne dirette, questo perche esso b molle, come voi confirmate, è accidentale, et non regolare, come dimostra il venerando Don Franchino nostro al luogo medesimo nella pratticha sua al cap. 4 dove che dice. Ac sexta rursus irregulariter et indirecte procedit, id est quinte precedenti ex b molli in \flat dura ascendenti persimilis ut hic



. Et concludendo dice, Est

enim ad inventa Irregularis

et Indirecta mutatio ad evitandum dissonum etc.

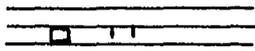
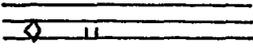
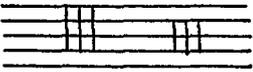
Io ho considerato domandando voi questi seguenti segni, \odot \odot maggior perfetto, et minor perfetto questi. \circ \circ che anchor voi siate della oppenione del vulgo, perche ditechel si chiama maggior perfetto per il punto, et gli altri minore perche non hanno punto. Voi sapete pure che gli antichi et moderni hanno il semicirculo et circulo per segno di tempo imperfetto et perfetto, et quando gli accompagnorno una sola numeral cifra, lo domandorno modo modo con tempo come qui \odot \odot \circ \circ et volendo prevalersi della semibreve perfetta gli dimostrorno con punto in medio. Gli quali furno da loro domandati tempo con prolatione, et piu dite che apresso gli antichi erano solamente questi quatro principali \odot \odot \circ \circ .

Io iudico essere in contrario, perche tali segni furono inventi dapoi questi C3, 03, C2, 02. come testifica Franchino al cap viii nel libro secondo della pratticha sua, Non autem haec predictarum quantitatum signa duximus reprobanda cum apud philosophum, etc. [In the 1496 and 1512 editions of Gafori's Practica the passage quoted by Aaron reads, "Nos autem haec predictarum, etc."] Et piu il nostro eccellente Messer Giovanni Spataro nel trattato suo de sesquialtera al cap. vi et piu volte troverrete che gli sopraditte quatro segni furno inventi (f. 3lv) da poi questi 03 C3 02 C2. Onde per venire alla conclusione, a dire maggior perfetto et minor perfetto non è rationabile modo, et se in questo è due perfettioni \odot cioè la breve et semibreve, In questo n'è solo una \odot cioè la semibreve, il quale quanto alla perfettione sara simile a questo 0 et questo \odot per consequente sara detto minore imperfetto per non haver nota in se perfetta, pertanto se gli presenti segni sono da voi ut hic $\odot \odot$ chiamati maggior perfetto, et imperfetto, rispetto al punto, Io vi domando come da voi saranno chiamati questi 033 \odot 33. Si hoc¹⁷ che i vostri siano da voi chiamati maggior perfetto et imperfetto, per consequente quegli bisogneranno essere piu che maggiore

¹⁷ Malim: est.

perfetti et imperfetti. Dilche ne nascerebbe confusione. Ma perche gli antichi usavano cantare per tal segni in una misura una semibreve perfetta over tre minime, o suo valore, massime quando tutto el concento era segnato per uno degli duoi segni, tal modo da loro era chiamato cantar per maggior, et par tal causa preterite al suo vero nome, qual è tempo con prolatione, et non maggior perfetto ne minore, et agli altri Modo con tempo et prolatione.

Degli segni

Da voi è concluso che nota alcuna si puo perficere per virtu de segni ut hic 0 0 salvo che la breve et la semibreve, et la massima et longa per virtu delle pause. Dico che havete mal considerato, perche non solamente la breve si fa perfetta per virtu di questo segno 0, ma anchora per virtu di pause et cifra numerali ut hic 03  , la semibreve ut hic  . Così truoverrete incontrario circa la massima et longa che non solo resta perfetta per virtu delle seguente pause  Quanto restano perfette in questo segno nel quale la massima val tre longhe, et la longa 3 breve, et la breve 3 semibreve. Pertanto dovedi dire che la breve

si fa perfetta per virtu del circulo, pause, et cifra numerale ut hic .3. similmente la massima et longa per virtu delle pause si perfice, et etiam per virtu del segno et cifra numerale, come la semibreve per le pause ut supra.

Della Imperfettione

Voi concludete che la breve è sempre perfetta quando sara locata nanzi due semi-(f. 32r)breve ligate over dinanzi a due pause di semibreve parimente poste. Et se voi dite se la breve perfetta vien posta dinanzi etc. se è perfetta, non siate voi superfluo? a dire sempre resta perfetta. Dovevi dire, Et se la breve atta alla imperfettione vien posta dinanzi a due semibreve ligate, sempre è perfetta, questo stava meglio, ma secondo me non vel concedo, perche dicendo sempre è perfetta ne parturisce errore. Et dico che tal breve dato che si truovi nanzi le due pause, o semibreve legate, non sempre resta permanente perfetta, ma in arbitrio compositoris, come in molte compositione chiaro si vede. Questo dir sempre perfetta, importa assai, et solo se intende simile nanzi la simile, col punto, et nanzi la sua propria pausa; gli altri modi restano

arbitrarii per non haver gli effetti disopra ditti.

Del punto in canto misurato

Messer Pre Giovanni voi me inviluppate el cervello a metter tanta confusione, ma per havervi come sempre ho tenuto in luogo di fratello, non mi rincresce fatica alcuna. Qua voi non fate differentia alcuna dal punto di divisione a quello di perfettione. Et dite, Il punto di divisione e quello che divide le figure una da l'altra, over riduce. Et questo tal punto è quello che anchora si pone appresso a ciascuna figura perfetta, il qual vien domandato da alcuni punto di perfettione. Voi dite da alcuni domandato di perfettione, quasi che alcuni altri nol domandino cosi. Dovevi mettere in tal particula il parer vostro o di altri, accio coloro che imparar desiderano non restassino confusi, et piu di voi resto sospeso, quando voi dite che tal punto si pone appresso di ciascuna perfetta figura. Se la figura è perfetta, che gli bisogna punto? Non si direbbe tre alla nota perfetta? Et una al punto? Che sarebbon quatro, Pertanto dovevi dire chel punto di perfettione come piace al nostro venerando Don Franchino, dove che al Cap. 12 del libro secondo della pratica sua dice, Punctus autem

perfectionis est qui post positus alicui notulae ipsam perficit: tris in partes equas divisibilem reddent. Et non dire ch'il si pone a ciascuna figura perfetta, come meglio vedrete al cap. 32 al libro primo del Toscanello nostro: Et ch'el punto di divisione sia dissimile a quello di perfettione chiaro si vede perche (f. 32v) esso punto di perfettione solo attende a reintegrare, et perservare la nota alla perfettione: e quello di divisione separa la nota dal l'altra et parturisce imperfettione et alteratione, et transporta la nota alla sua propinqua maggiore.

Negli essempli de l'alteratione considerate questa

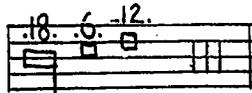


figura quale è falsa. Le due breve a mio iudicio vogliono esser longhe. Dapoi ne

trovo un altra, la quale non molto mi piace, et da niuno quasi usata, ut hic,



figuratione è superflua

. Dico che tal

e vana, perche

potendo havere le sue due terze parte in pause unite et

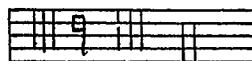
continue, a reintegrare il modo maggiore, senza offendere

la similitudine, o altro precetto, non è di necessita

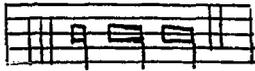
transportare un terzo di esso modo dapoi unaltro unito, non

essendo constretto da qualche necessario inconveniente, come

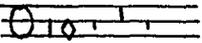
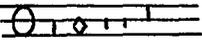
sarebbe in questo modo

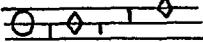


overo in questo



. Nel sopra dimostrato esemplo l'è
di necessita da questa longa sola
per non si potere applicare alle

tre pause seguente del modo maggiore unito, vadi a ritrovare
le due parte sue terze, dapoi il modo: et nel secondo,
similmente per le due massime perfette, causate dalla
similitudine, dilche alla mia oppenione tal vostro esemplo,
et altri simili saranno inusitati. Che causa mi stringe
a questo esemplo  piu che a questo 
qual si vede essere con miglior ordine posto: non ne
seguendo altro che taciturnita: l'è inconveniente a

transportar pausa, Ben vi concedero questo 
per essere dimostrato la terza sua parte in nota et non in
pausa, et questo è in arbitrio compositoris. Concludo che
se tale esemplo fussi stato da voi adutto in questo modo



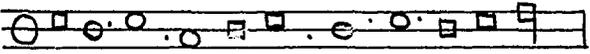
rispetto alla pausa dapoi la longa,
qual non puo alterare, et apparendo in

ultimo la sua terza parte in nota era iusta positione et
rationale et non nel modo da voi dimostrato.

Nella prima figura dove voi dite del punto di divisione
havete conmodato il segno circolare del suo ternario numero
circa le semibreve, et escluso il ternario numero delle

minime, dove che un tempo resta diminuto da una terza parte (f. 33r) la quale reintegrava el tempo, se l'ultima nota era semibreve, et non breve. Il simile errore nasce seguitando al punto di perfettione dove manchate di numero. Salvo se voi non intendessi che fussi alterata l'ultima semibreve, la quale subintelletta alteratione, non conviene in tale essempro, trattando solum del punto di perfettione, et perche etiam è intelligenza laboriosa et non consueta: et dato che voi havessi tale intentione senza metter confusione dovevi dire, perfectionis, et alterationis, sicome in fine voi dite, divisionis et alterationis. Ma quella ultima breve cum punto, dico che tal punto e superfluo: perche si vede chiaro che essa breve non puo patire, da parte propinqua dinanzi, ne dapoi, ma resta preservata perfetta, per esser mediata dalla sua simile et maggior di lei, et perche anchora è contrario alla operatione di tal punto, come di sopra è stato dichiarato. Ma perch'io comprehendo che la intention vostra vuole che altri indovini circa il punto di reduttione, son contento per farvi cosa grata dirne alcuna cosa, perch'io vedo che post mortem vi siate aderito alla oppenione Gafuria per quella semibreve da dui punti mediata, con una sola minima anchora mediata,

i quali punti son da voi ditti di reduttione. Messer
 Pre Giovanni carissimo, io non vorrei circa a questo che
 voi vi havessi fatto authore, Dato ch'altri che Franchino
 hebbi usato tali punti, perche se bene advertirete
 Franchino in questo non si fa authore, ma Recitatore, come
 dimostra al cap. 12 de puncto, dicendo, Sunt et qui
 notulam huiusmodi transportanda duobus utrinque punctis
 circumveniunt ut in tenore superposito percipitur, etc.
 Per le quale paroli come di sopra ho dicto si dimostra
 recitatore, perche certamente se da lui fussi stato tal
 cosa creduta, non pocho harebbe errato. Perche la nota
 sola infra dui punti mediata non si truova; ma ben si
 truovono piu figure infra dui punti serrate ut hic



Perche se una sola
 figura atta alla reduttione fussi collocata in mezzo di
 dui punti tal nota sarebbe immobile, questo perche gli dui
 punti dimostrano stabilita fermezza et permanentia, dilche
 non si puo declinare, ne congiungere verso el principio, ne
 al fine accio si possi con qualche altra nota accompagnarsi.

(f. 33v) Non so se io mi debba credere, messer Pre
 Giovanni mio, tutto quello che davo i truovo scritto,
 massime vedendo voi esservi incontrario. Non dimeno son

560
159

sforzato per la amicitia nostra dirvi il parer mio. Et dico che voi dimostrate et date Regola che il modo maggior perfetto sia generato per alcuni accidenti, come punti, alterationi, et note negre, adducendo un essempla di massime, longhe sotto la circolare figura ut hic .0. A tale oppenione vi rispondo, et provo voi esser vi in contrario, conciosia che al cap. de segni, voi concludete, che dove è circulo, la breve è perfetta, et dove è semicirculo, imperfetta, et dite, Siche niuna figura si puo perficere per virtu de segni salvo che la breve et la semibreve. Ma la massima et longa, per virtu de segni di pause. Se la breve adunque in questo segno e sol perfetta ut hic .0. et la semibreve in questi .0 C. et la massima solo e perfetta per virtu de pause quale è la cause che voi la dimostrate perfetta sotto il segno appartenente alla breve senza le sue pause? Voi direte che sicome il tempo over breve senza la figura circolare, per note negre, punti infra le semibreui, pause di semibreui parimente poste si dimostra perfetta, per consequente la massima ancora debbe esser perfetta, quod falsum est, perche voi medesimo confirmate, quello che ogni musico anticho et moderno dimostra che la massima non puo esser perfetta salvo che

per virtu et apparenza delle 3 pause di longa parimente
 poste, et per il segno de gli antiche invento ut hic .033.
 et altri simili. Onde concludo che lo essem~~pio~~ da voi
 addutto non sara chiamato Modo maggiore perfetto, ma
 maggiore imperfetto, minor perfetto, con tempo, per la
 regola da voi data.

Nel ultimo essem~~pio~~ dove dite del accidentie
 appartenenti alla prolazione perfetta, non truovo numero,
 se le semibreve appresso de due pause di minime secondo il
 parer vostro restono perfette, si hoc est, Dico che havete
 preterito la regola qual voi affirmate, circa la similitudine,
 perche la penultima semibreve resta imperfetta, ma numerando
 le ditte semibreve appresso le due pause di minime imperfette,
 tutto il processo hara iusto numero, ma tale errore reputo
 non da ignorantia (f. 34r) ma da la poco advertentia vostra,
 perche havete considerato solo agli accidenti et non al suo
 natural modo. Havevo preso errore. [The paragraph is crossed
 out with a line from "Nel" to "ignorantia" and from "ma"
 to "modo."]

Sono arrivato per gratia di idio al cap. delle
 proportioni, et ho visto come voi mettete gran confusione
 in voler mostrare termini di inequalita in questo modo,

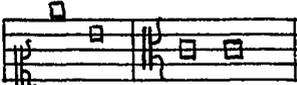
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co 2. tre a 3 cinque 5 et otto .8. me e duo ad uno .1.
due 2 a due 2 a tre 3 etc. Del qual ordine certo sara a
molti laborioso, nondimeno appresso quegli che intenderanno
sara noto, et cosi in ogni altra comparatione havete
proceduto, cosa che a me troppo non piace. Per che è un
ordine rotto et atraversato. Da poi seguitando dite,
Alcuni tengono questa nostra oppenione, cioè che la
perfettione et imperfettione delle note non si causa per
cagione delle proportioni ma per virtu de segni. Per questo
parlar vostro, el pare che ne termini di proportioni si
possa generare perfettione. Dico che altra proportione che
la sesqualtera potra generare perfettione alle note non per
il segno, ma per lo effetto sesqualtero, secondo la oppenione
dello eccellente Messer Giovanni Spataro, come in piu
luoghi nel trattato suo di sesqualtera si dimostra. Et
perche nelle opere mie non tengo tale oppenione Daro a
questo per risposta il tacere, et piu perche mi siate amico,
vi advertisco che a voi medesimo siate contro et non tanto
a voi, ma a coloro che alla vostra oppenione se aderiscono.
Perche se di sopra voi dite, che la perfettione non si causa
per termini proportionati, Quare dixisti, Ma perdendo ogni
figura perfetta la sua terza parte per la negrezza, et che

tal note negre sono da molti chiamata Emiolea, seguita la consequentia che nella Sesqualtera proportione chade cosi perfettione alle figure, come anchora per i segni, et chiaro lo manifestate quando dite Adunque tali figure over notule presuppongono perfettione: et per meglio confirmarlo, voi dite che nella emiolea over sesqualtera, sempre le pause restono permanente nella sua perfettione: et qua concludete contro di voi che la perfettione anchor si truova nelle pro-(f. 34v)portioni quanto si truova per i segni: Dilche se non harete a memoria li ditti vostri primi termini facilmente chascherete in errore.

Certo io diro un altra volta esser vi amico et fratello, et perch'io so che da me sempre fusti reputato. Vorrei per mia satisfatione non havessi tolto tale impresa circa queste vostre regolette, cum sit che in esse son cose da molti, et molti dichiarate et ditte, onde essendo voi hormai consumato nel arte musicha, vi si richiedeva opera piu alta et sublime di questa: considerando che in essa si contien solo i principi musicali per coloro che nulla sanno. Et quando che dal mio Frate Gregorio intesi per sue lettere, che presto mi mandaresti una operetta vostra nuova, stetti certo molto allegro, pensando veder da voi qualche processo, non da molti ditto, et dallo ingegno vostro

alcune cosette non cognite. Per non dimeno da voi l'ho
accettate con quella benivolentia, et amore quanto possa
essere se bon passassi Boetio, et gli altri Dotti musici,
seguitando pero il resto della fatiche vostre.

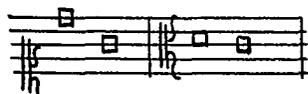
Circa la seconda Regola del contrapunto da voi data,
massime dove dite che non si puo fare due consonantie
perfette eiusdem generis simul ascendentes et descendentes,
non resto da voi troppo soddisfatto perche alla oppenion
mia quella non è la causa, et poi dite, Onde se volessimo
procedere per spetie perfette ascendendo et discendendo,
ne resulterebbe dissonantia. Questo è contro a natura a
credere che un processo perfetto possi rendere dissonantia,
ma ben puo essere che non sara grato. Quanto sara
interponendo infra esse alcune imperfette, dapoi dite che
non laudate colui che procedera in ascensu de la quinta
alla ottava, ma ben si concedete in descensu de la quantita
alla ottava alla quinta. Io vi domando per che causa non
sara grato questo processo ut hic  come
questo  . Voi dite
che sara questo ultimo per il moto che sara
tardo in discendendo, cosa non piu udita, perche tanta
tardita ne resultera alla pronon-(f. 35r)tia in ascendere

dalla quinta all'ottava con una figura medesima quanto
che dal'ottava alla quinta. Ma pensando, io ho
considerato che questa non sia la intention vostra, et
per essere simile a voi, credo che diciate da la quinta
all'ottava in questo modo ut hic:



il qual processo laudate, ma si il

seguinte



Si hoc est, Io vi rispondo che
ne uno ne l'altro è conveniente processo

ne usitato appresso dotto alcuno, ascendere, et descendere
insieme per consonantie perfette. Dato che non siano

eiusdem generis. Circa la sesta Vostra Regola cioè che
non volete chel si possi fare mi contro fa in consonanza

perfetta, dico che si usa e fa da molti, et tal regola pure
eⁿ assai volte patisce, della quale altro non dico, solum che

il tutto vedrete, essaminando le compositione de i dotti.

Dato che dagli authori et da noi sia evitata, non dimeno
patisce. Io fara fine, dato che nel resto del vostro

contrapunto si potrebbe dire molte cose, et perche in ultimo
voi siate entrato in un lago non troppo al proposito, vi

lascio et nella gratia vostra mi riposo. Vale.

16. VL 5318, no. 69, f. 189r-191v, undated, unsigned, and with no indication of the addressee; in Aaron's hand.

Reverende Pater, uti frater amantissime etc. Havendo io diligentemente esaminato una epistola di vostra reverentia a me mandata, non posso trovar causa, la quale mi contradisca (sic) a non soddisfare allo appetito, et desiderio di quella, et questo solo procede per lo immenso amore, portato a vostra reverentia. Pertanto quantunque che a presente a me incommodo assai mi sia, non mancherò secondo la solita mia di voi amichevole benivolentia, con quella migliore, et breve che a me sarà possibile tal domanda di chiarire. Dico adunque che essendo lo strumento organico secondo il comune ordine di uso in quantita maggiore di voci che non dimostra la ordinata nostra mano, è stato necessario mettere ventinove tasti bianchi così dal universale uso chiamati, cioè voce naturale, et accidentali 18, chiamati tasti negri, non per altro harete a sapere, solamente per la comodità, et facilità degli sonatori, gli quali possono meglio esercitarsi agli intenti loro, perchè non si trovando altro che le venti corde della man nostra, facilmente, et senza dubbio alcuno sarebboni (sic) impediti, et disturbati. Per la qual cosa, dal primo tasto chiamato F ut secondo l'ordine nostro

della mano, et collocato di sotto unaltro distante dal sopra detto Γ , la quantita di uno tuono, nel qual luogo gli sara ditto, et pronuntiato fa, per conrispondere alla chorda di F fa ut primo, lontano per una diapason, overo ottava. Ma da Γ ut detto prima chorda nostra, a proslambanómenos greco chiamato A re è similmente uno intervallo de un tuono. Così sara da A re a η mi dagli greci detto hypáte hypatôn. Seguitando dal η mi, al c fa ut detto parhypáte hypatôn non sara tuono, ma un semituono minore. Hora che fra a re, et η mi appare un tasto negro, Sappi che quella voce è sopra di detto a re la quantita del semituono minore, et da η mi la quantita del semituono maggiore da gli greci chiamato apotome, come chiaramente si vede per la quantita apparente fra hypáte hypatôn a parhypáte mesôn, chiamati de noi η mi, et F fa ut, diminuta del ditto semituono maggiore, et per tale reintegracione è stato dibisogno ordinare quella voce over tasto negro, la quale quinta viene suave, et grata allo udit (o). Da C fa ut, a D sol re, detti parhypáte hypatôn, et licanòs hypatôn, sara uno spatio del tuono, fra gli quali si vede il tasto negro in mezzo, onde in questo luogo sara el semituono maggiore da C fa ut al tasto detto negro, et seguitando al bianco qual e D sol re,

sara minore. Questo appare da A re et C fa ut, essendo terza minore et bisognandola acrescere alla perfettione o quantita della maggiore gli mancherà un semituono maggiore, qual sara quella distantia che è da C fa ut al tasto negro. (f. 189v) Dal detto D sol re, et tasto negro cade un semituono un poco piu maggiore del suo bisogno, per il quale non si puo evitare la terza minore la qual cade da \flat mi a D sol re, come in tutti gli altri tuoni divisi si cognosce. Volendo adunque in questo luogo fare che ditta terza sia maggiore, bisogna che quel tal semituono, o tasto negro disopra della positione o chorda D sol re, sia alquanto sbassata, et sbassandosi, vengono guaste le quinte, et ottave conrispondenti al detto tasto negro, cosa inconveniente et di grandissima confusione, et molto peggio che prima non era. Questo inconveniente solamente si truova tra D sol et E la mi et nelle ottave et quintedecime, perche sempre mai l'acuto et sopracuto corrispondono al grave. Nascono questi inconvenienti per cagione degli organisti, gli quali piu attendono al commodo del C fa ut, per la terza minore, che il \flat mi della maggiore, per essere da loro questa positione poco exercitata,

et per tal cosa manca che quella terza minore non si puo far maggiore, se non si tagliassi il tasto di sopra detto negro, ilquale farebbe che una parte di esso sarebbe piu bassa che la prima, et in questo modo sarebbe aiutata, di quel semituono maggiore che a lei manca. Et passando piu oltre col tasto negro alla chorda di E la mi, troverrai similmente el semituono maggiore, il quale dà la perfettione alla quinta dimostrante¹⁸ dal ditto E la mi, alla chorda di *¶*fa acuto. Da E la mi et F fa ut ovvoi dire *hypáte mesôn* a *parhypáte mesôn* naturalmente cade el semituono minore. Ma da *parhypáte mesôn* a *lichanòs mesôn* nominati F fa ut et G sol re ut il tuono si cognosce, et diviso in mezzo con il tasto negro, veniva da esso F fa ut la quantita del semituono maggiore per cagione della sesta minore laquale nasce da A re, et F fa ut. Quando anderai alla sua ottava, ma da esso tasto negro al bianco di G sol re ut tu troverai el semituono minore. Da G sol re ut, ad a la mi re, chiamato *Mése*, cade un tuono naturale, nella qual divisione appare il tasto negro, dal qual tasto negro venendo in giuso alla chorda di G sol re ut nasce il semituono maggiore, per quella sesta minore di *¶*mi a G sol re ut, la quale per cagione del ditto tasto negro diventa maggiore, et discorrendo dal tasto

¹⁸ Malim: dimostrata.

negro alla chorda del sopradetto a la mi re, sara apunto el semituon minore, come facilmente si vede dicendo ut in E la mi grave, et il re al quarto tasto negro, la voce mi al quinto, che son dui tuoni, et el semituono minore da esso ditto tasto negro quinto al seguente bianco, quale è a la mi re, la qual (f. 190r) compositione genera un diatessáron, da a la mi re, a trite synemenon ditto \flat mi acuto, cade un tuono, et diviso, sara da ditto a la mi re, al tasto negro, un semituono minore et seguitando al bianco il maggiore, come chiaramente tutti gli musichi dimostrano massimamente quando delle mutationi parlono. Da \flat mi acuto a trite diezeugmenôn chiamato c sol fa ut, cade il minore semituono, negli quali intervalli non e mezzo alcuno. Da c sol fa ut a parenéte diezeugmenôn, detto d la sol re, cade un tuono, diviso dal tasto negro, dal qual tasto negro al c sol fa ut preditto è una distanza dun semituono maggiore, et seguitando da esso tasto negro al seguente bianco è il semituono minore et questo per cagione della sesta minore, formata de E la mi a c sol fa ut, volendo adunque farla maggiore, è dibisogno toccare il sopraditto tasto negro, perche formando il diatessaron terzo, non troverrai nel l'ultimo intervallo altro che un semituon minore, dicendo ut

in a la mi re, re in bfa hmi, mi al settimo tasto negro, qual son dui tuoni, et il semituono per conseguente sara del settimo tasto negro al bianco che è d la sol re. Da d la sol re a néte diezeugmenôn chiamato e la mi, è un natural tuono diviso dal semituono negro il qual sara distante quanto fu quello che da hmi et D sol re fu dichiarato. Da e la mi a trite hyperboleôn detto f fa ut cade un semituono minore. Da f fa ut, a parenéte hyperboleôn chiamato g sol re ut secondo similmente un tuono, et in mezzo il tasto negro il quale è distante da f fa ut un semituono maggiore. Essendo adunque il semituono maggiore in detto luogo resta il minore al sequente bianco chiamato g sol re ut. Da g sol re ut a nete hyperboleôn detto a la mi re cade un tuono, diviso dal tasto negro, il quale è distante per uno semituono maggiore, lo qual augmenta la sesta cadente da hmi acuto a g sol re ut secondo, segue adunque che il semituono minore sara da a la mi re al tasto negro di sopra ordinato. Da a la mi re a hmi sopraacuto, cade naturalmente un tuono, nelqual si vede diviso dal tasto negro, il quale è disopra ad a la mi re la quantita del semitun minore et seguendo all'altro tasto bianco il maggiore. Seguendo piu oltre alla chorda di c sol fa, allo (sic)

chorda di d la sol similmente è un tuono, et da ditto c
 sol fa al suo seguente tasto negro un semituono maggiore,
 et seguitando el minore. Da d la sol a e la ultimo
 positione cade un tuono, et da ditto d la sol al tasto
 negro è la quantita del semituono dinanzi detto cadente
 tra lichandòs hypatôn ad hypáte mesôn, et da paranéte
 diezeugmenôn a nete diezeugmenôn, et da esso tasto negro
 ad e la il maggior semituono nasce, et tal positione si
 puo intendere quella che nello (sic) consonantia diapason
 risponde quale è e la mi replicato, perche passando sopra
 di e la, bisogna replicare sempre l'ordine medesimo di sotto
 di-(f.190v)mostrato, la qual consideratione sara intesa
 per il medesimo ordine di sopra dimostrato, et secondo che
 dinanzi dette (sic) hanno havuto ordine, cosi le chorde
 aggiunte saranno conrispondenti alla (sic) parti acute et
 gravi. Et perche forse a vostra Reverenda paternita sara
 grato intendere anchora quanto (sic) distantia sia da tasto
 negro a negro, torro volentiere la fatica, accio che quella
 habbi notitia, et intelligentia di tuto lo instrumento, et cosi
 diro. Dal primo tasto negro al secondo seguente è la distantia
 di un tuono, et semituono maggiore, gli quali congiunti insi-
 eme generano la compositione d'un semidittono, et comma, perche

da esso semituono negro al seguente resta in mezzo il semituono minore, come dal terzo al quarto, sesto et settimo, ottavo et nono, undecimo et duodecimo, terzodecimo et quartodecimo, sestodecimo et decimosettimo quel medesimo intervallo troverrai. Da poi seguitando dal secondo al terzo ne resulta un tuono alquanto maggiore di sua natura. Dal terzo al quarto un semidittono quasi superfluo, et dal quarto al quinto un tuono. Dal quinto al sesto dui semituzioni minori. Dal sesto al settimo un tuono et semituono maggiore. Dal settimo allo ottavo un tuono alquanto maggiore, ma dallo ottavo al nono è una quantita di trihemituono. Dal nono al decimo, un semitun maggiore et minore. Dal decimo allo undecimo duoi semituzioni minori. Dal undecimo al duodecimo, un tuono et semitun maggiore. Dal duodecimo al terzodecimo, è quella distantia qual fu tra il settimo, et ottavo. Dal terzodecimo al quartodecimo, tre semituzioni, si come fu infra lottavo et nono tasto. Dal quartodecimo al quintodecimo nasce un tuono, et dal quinto decimo al decimosesto sono dui semituzioni minori. Dal sestodecimo al decimosettimo, un tuono, et semituono maggiore. Dal decimo settimo al decimoottavo, un tuono alquanto maggiore, della qual comparatione Reverendo padre

74
573

mio poca suavita et harmonia si cognosce excetto che dal secondo et quinto, ne quali si sente la consonanza diàpente, et cosi dal terzo et sesto, quarto et settimo, et similmente dal settimo et decimo. Dal primo al sesto, et dal secondo al settimo un diàpason nasce, et el medesimo dal terzo allo ottavo, et dal quarto al nono. Da lottavo al undecimo la quinta, cosi anchora dal nono, al duodecimo. Ma dallo ottavo et terzodecimo una ottava, come si vede dal nono al quartodecimo, similmente dal decimo et quinto decimo, come dal terzo decimo, al decimo sesto. Dal duodecimo et decimo settimo (f. 191r) el diàpasôn, come dal terzo decimo et ultimo si comprehende. Dal quarto decimo et decimo settimo la quinta, et concludendo anchora dal quinto decimo al lultimo. Onde Reverendo padre honorando, se inquesta presente mia dichiaratione, non havessi satisfatto a quella, mi duole assai, et domandone perdono. Io mi sono affaticato con quel miglior modo che a me è stato capace el mio piccolo ingengno, pigliaro nuova fatica in demostrarvi il modo del partidpare le voci secondo che si richiede in tali instrumenti. Diro adunque cosi, Da poi che sara intonato la chorda di C fa ut in tuo beneplacito, piglierai la ottava sopra di esso C fa ut, et fa che sempre sia bene unita, perche come dice Aristotile, nichil datur

575
574

ultra perfectum, neque diminuitur. Et seguitando piglierai la terza di sopra quale è E la mi, et fa che sia giusta terza maggiore, et advertisci che ditta terza sia bene concordante, et sonora. Da poi unisci la Quinta in mezzo, la quale e G sol re ut, nota che ditta quinta vuole essere un poco scarsa, et spuntata, et seguitando a l'altra quinta di sopra qual sara nella chorda detta D la sol re, a quella medesima natura, come è stato la prima. Dapoi a chorda D sol re, ottava di detto d la sol re, et seguitando piglia la sua quinta sopra di D sol re, qual sara a la mi re, le qual quinte in questo accordo non si uniscono al suo perfetto, massimamente allo extremo superiore, come sono le quinte di sopra a C fa ut, D sol re, et E la mi. Considerando che el c sol fa ut è unito, giusto bisogna che la quinta sua inferiore quale e F fa ut, sia accordata allo opposto delle altre di sopra dette, cioè che siano unite al possibile, et sopra avanzino alquanto la perfettione. Onde per tal participatione, torna giusta et vera unione, et di qua nasce che tutte le terze, et seste, restono puntate, et diminute, et cosi passando piu inanzi accorderai el semituono di bfa hmi sotto di f fa ut, et quello di e la mi sotto bfa hmi, el quale è quinta, con quel medesimo ordine, et modo

che accordasti F fa ut, con c sol fa ut. Et ultimamente advertirai di concordare gli semituoni maggiori fra le sue terze, come è el semituono di C fa ut, toccando A re, insieme con E la mi. Et medesimamente la terza in mezzo di D sol re, et a la mi re, con il semituono di F fa ut, con quel modo che fu la passata, seguitando insino al fine del tuo instrumento tutte le ottave accorderai, della qual consideratione ne resulta la vera participatione delle voci. Io Reverendo padre honorando non (f. 191v) mi estendero in altro, salvo che sempre mi offero a vostra Reverenda paternita, affaticarmi con tutto il cuore in qualunque bisogno sara possibile a lingua humana esplicare. Raccomandomi adunque alla sua gratia buona. Vale. Etc.

17. Notarial attestation, Imola, February 15, 1521, by V. Gibetti on behalf of Pietro Aaron, as printed in Angelo Catelani, "Pietro Aron," Gazetta Musicale di Milano, IX, no. 17 (April 27, 1851), p. 77-78.

In Christi nomine amen. Anno Domini 1521, die XV Februarii.

Cum fuerint vocati omnes tam in dignitate constituti (praeterquam Dominus Archipresbyter, et Dominus Petrus Maria Thesaurarius) quam omnes Canonici existentes in civitate Imolae, ac Mansionarii Ecclesiae Imolensis die

577
576

precedenti, quae fuit 14 praesentis mensis februarii,
pro praesenti die et hora, celebrata missa majori ad
deliberandum, et mature consulendum super conductione D.
Petri Aron Cantoris in Ecclesia ipsa, et super provisione
eidem prestanda, sicut Dominicus de Berris nuntius dictae
Ecclesiae retulit vigore cedulae ex parte domini Praepositi
sibi datae, quam vidi et legi, sic omnes vocasse, et de
constitutis in dignitatibus, et Canonicis nullus interesse
curaverit, exceptis infrascriptis videlicet quorum nomina
sunt haec,

D. Praepositus Vulpensis.

D. Baptista Angelinus.

D. Bartholemeus Angelinus

D. Vincentius Cavina

D. Jacobus de Pictoribus.

Et de Mansionariis nemo ultra infrascriptos se
presentaverint, videlicet,

D. Petrus Ravennas Angellinus Syndicus,

D. Antonius Faba.

D. Petronius a Sellis.

D. Franciscus Tuschinii.

D. Antonius Carota.

D. Bernardinus de Loreto audito partito posito
disentiens discessit.

178
577

Qui omnes, accusata contumacia et negligentia
caeterorum pro honore et conservatione divini cultus in
Ecclesia praedicta, volentes per praesentes facultates
exponere, se obligaverunt dicto Domino Petro Aron praesenti
eidem dare, et solvere, et consignare corbium frumenti
quantitates infrascriptas, modo et forma infrascriptis,
videlicet,

D. Praepositus corbes quatuor	4)) frum. ad mensuram Imolae
D. Vincentius Cavina tres	3)	
D. Baptista et D. Bartholomeus de Angellinis)	
corbes quatuor	4)	
D. Jacobus de Pictoribus una	1)	
D. Vincentius Cavina nomine Domini)	
Archidiaconi de Brocardis alias corbas	2)	
duas frum.		

Et praedicti Syndicus mansionariorum, et mansionarii
praedicti, obtento partito per fabas quatuor albas ex
quinque de dando dicto D. Petro Aron corbes XVI frumenti
de predicta mensura, se obligaverunt dare et consignare
in reollectu proxime futuro dicto Domino Petro Aron dictas
corbes XVI frumenti, pro eo quod promisit in Choro divinis
interesse et Cantu se occupare diebus solemnibus et

festivis per annum incipiendum in Kalendis martii proxime futuris, et ut sequitur, hac tamen conditione, quod non facta interpellatione per mensem ante finitum annum per alteram partem de conducta non perseveranda: intelligatur perseverare eo modo et forma quo anno tunc preterito, et sic per transitum mensem perdurare per alium annum cum eodem salario.

Quae omnia et singula etc. obligaverunt etc.
renunciavit etc. juraverunt etc. et fiat plenum etc.

Actum Imolae in Capella S. Donati in Sacristia Sancti Cassiani praesentibus ibidem Domino Francisco de Dutia, et D. Francisco de Burchellis testibus.

Ego Vincentius Gybettus Notarius rogatus scribere scripsi.

18. Frottola, "Io non posso piu durare," Petrucci,
Frottole Libro quinto, 1505, attributed to "Aron."

Io non pos-so piu durare Vincto son dal
 Io non posso piu durare
 Io non posso piu durare
 Io non posso piu durare

This system consists of four staves. The top staff is the vocal line with lyrics. The second staff is a treble clef accompaniment. The third staff is a bass clef accompaniment. The fourth staff is a bass clef accompaniment. The music is in a simple, rhythmic style characteristic of the frottola.

sa - - - cro amo- re io ti do- no, do- no el cor- e

This system consists of four staves. The top staff is the vocal line with lyrics. The second staff is a treble clef accompaniment. The third staff is a bass clef accompaniment. The fourth staff is a bass clef accompaniment. The music continues with a similar rhythmic pattern.

Fa di me quel' che ti piace Tue vir-
 Las-sa in-

This system consists of four staves. The top staff is the vocal line with lyrics. The second staff is a treble clef accompaniment. The third staff is a bass clef accompaniment. The fourth staff is a bass clef accompaniment. The music concludes with a final cadence.

tu-de e tua belle-za
grata og-ni du-re-za

Posto al col ma la cathena
Non ho spirto non ho le-

na Per tuo amor sofra coperia Poi che son ^{fra}scogli/in ma-

re.

Non voler esser crudele
Un amante piu fidele
Io sero come el diamanto
Contra quel che tama tanto
Mai non fu ne piu constanto
Ch'io non vo dise mancare.

Io non posso.