



Vicentino and the Greek Genera Author(s): Henry W. Kaufmann Source: *Journal of the American Musicological Society*, Vol. 16, No. 3 (Autumn, 1963), pp. 325-346 Published by: University of California Press on behalf of the American Musicological Society Stable URL: https://www.jstor.org/stable/829826 Accessed: 08-09-2019 10:38 UTC

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Vicentino and the Greek Genera

BY HENRY W. KAUFMANN

VICENTINO HAS BEEN greatly maligned for his lack of understanding of ancient Greek theory.¹ True as these accusations may be, it should be remembered, however, that the purpose of his famous treatise, *L'antica musica*..., was not to offer a scientific exposition of Greek theoretical concepts but to adapt or "reduce" them to contemporary 16th-century practice. In fact, Vicentino often took the opportunity to extol the music of his day above that of the past, since, with the increased number of sonorous possibilities, music, in his opinion, had become far more rich and abundant than before. One such observation is made when, in the discussion of intervals, he mentions several that the ancients did not employ:

I have made this little digression only to quiet the minds of some who read musical histories and say, "If one could compose the music of the ancients, one would create great things." On this point, henceforth, they shall be silent, because I have explained it to them...²

Vicentino's treatise, as a whole, is divided into two main parts, one consisting of a single book "della theorica musicale," and the other of five books "della prattica musicale." This two-fold division into theory and practice harks back to Greco-Roman antiquity, was implied in the medieval distinction between *musica speculativa* and *musica activa*, and was particularly favored by Renaissance theorists.³ The theoretical aspect of music treats the subject as a mathematical science, a part of the more advanced liberal arts consisting of arithmetic, geometry, astronomy and

¹See especially Io: Baptistae [Giovanni Battista] Doni, *De praestantia musicae veteris* (Florence: typis Amatoris Massae Forolivien, 1647), p. 22, where he states that Vicentino and his imitators would not have fallen into error had they understood the writings of Aristoxenus and others: "Quem in errorem delapsi profecto non essent, si antiquas illas germanasque harmonias ex Aristoxeni, aliorumque scriptis, percepissent."

² ^{d'}Ho fatto questo poco di digresso, si per acquietar gli animi d'alcuni che leggono l'historie Musicali, et dicono, s'el si potessi far la Musica de gl'antichi; si farebbe gran cose; sopra questo passo, da hora in poi taceranno, perche gliho chiariti. . . ." Nicola Vicentino, *L'antica musica ridotta alla moderna prattica* . . . (Rome: Antonio Barre, 1555), fol. 34.

⁸ Gustave Reese, Music in the Middle Ages (New York: W. W. Norton, [1940]), pp. 118-119. For a brief discussion of the definitions and classifications of music by medieval and Renaissance theorists, see Renate Federhofer-Königs, Johannes Oridryus und sein Musiktraktat (Düsseldorf 1557) (Beiträge zur rheinischen Musikgeschichte, 24 [Cologne: Arno Volk-Verlag, 1957]), pp. 170-180.

music.⁴ It concerned itself chiefly with speculative investigations into the nature and properties of the tonal system. The practical side of music, on the other hand, concentrated on putting these precepts of the art into actual use, and, if necessary, adjusting them to the needs of the practicing composer and performer. Such an adjustment was made by Vicentino in his use of ancient theory, derived chiefly from his reading of Boethius.

The bulk of his speculative observations are contained in the very short "Libro della theorica musicale" with which the treatise begins. Since his aim was to be as concise as possible, clarifications of difficult theoretical points were often postponed until they could be combined with practical examples. Thus, after mentioning the Pythagorean ratios of the tones and semitones in tetrachords, he first recommended the study of Boethius for more details, and then promised that

because we have spoken of these things succinctly, [a discussion] of these [matters] not being very useful here, [all] of this will become clear in our prattica where, in its chapters, I shall explain to you rather extensively the differences between the tones and semitones of antiquity, by giving clear examples.⁵

This practical approach dominates almost all of the first book. "All these things first explained theoretically," he writes, "I shall show reduced to practice,"6 and this reductio ad practicam involves the omission of many of the finer details of older theory. He refuses, for example, to give the Greek names for the tetrachords:

I have not used the Greek names in order not to obfuscate with their obscurity the intellect of the listener, and whoever wishes to know them, let him read Boethius; and to me it seems rather strange to compose a work in the common tongue, and [then] to speak sometimes with Greek or other foreign words....7

In the last chapter of "nostro Libro sopra la Musica di Boetio," as he later⁸ refers to his book on theory, Vicentino lists some of the items which he has omitted from his survey of Boethius, including the discussion of musica mundana, musica humana and musica instrumentis consti-

⁴ These subjects form the disciplines of the Quadrivium, a term that Boethius himself is reputed to have introduced into the Latin world. Leo Schrade, "Music in the Philosophy of Boethius," The Musical Quarterly XXXIII (1947), 189.

5"... perche noi ne haviamo parlato succintamente non ci essendo intorno à questo molto utile, del che vi chiarirete nella nostra prattica, ove si dirà anchora la differenza de i toni, & semitoni Antichi diffusamente nelli suoi Capitoli dandone chiari essempi." Vicentino, op. cit., fol. 4.

⁶ "Lequali tutte dichiarate prima Theoricamente, vi mostrarò come alla prattica si riduchino. . . ." Ibid., fol. 3^v.

7 "Non hò posto li nomi Greci, acciò con la oscurezza di essi non offuschi l'intelletto dall'oditore, e chi vorrà saperli, legga Boetio; & mi pare anchora strano comporre un'opera in Lingua Volgare, & parlare alcune volte con Vocaboli Greci, ò altri strani. . . ." *Ibid.*, fol. 4. ⁸ *Ibid.*, fol. 71.

tuta, of the species of the proportions, and of the nature of sound, interval and consonance, "because they are shown better by experience than by reason."9

This empirical approach to theory causes him to avoid, in addition, Boethius's speculative recounting of the divisions of the monochord, probably because Vicentino felt that his own archicembalo provided a more suitable method for deriving the tones of the diatonic, chromatic, and enharmonic genera. Other topics covered by Boethius, such as the difference between a singer and a musician, are left out, ostensibly because the subject has been discussed in detail by many writers, but undoubtedly because to a practical musician like Vicentino, the small repute in which the medieval theorist held the performers of music militated against a newer outlook heavily weighted on the side of musica practica.

In general, it can be said that only those elements of Boethius that supported Vicentino's theories, or, at least, did not oppose them, were included in his brief excursus into musica theorica. His excuse for the omissions (which he was careful enough to list) was stated simply: "We have refrained from speaking of all these things because they are not at all useful to us today in our practice. . . . "10 Which aspects, then, of Boethius's teaching did he feel important enough to mention?

Of the many philosophical disputes Boethius recounts, Vicentino retains only a few general observations, and even these are weighted in favor of his own concepts. "Greatly varied, candid reader, have been the opinions of the philosophers about the origin and purpose of music,"11 he writes, and as a result these views have left more doubt than science or knowledge. He then remarks that Aristoxenus, drawing only on the senses, negates reason, whereas the Pythagoreans rely only on reason and not the senses. Ptolemy, on the other hand, more sanely embraced both sense and reason. By means of his book, however, Vicentino asserts that

you will understand many things, wherein reason is not friend to sense, nor sense capable of reason, and how much sense and reason can be composed together, I will give you minute information so that you can judge how much the past has been deprived of many and sweet musical harmonies.¹²

Although Vicentino here seems to favor the Ptolemaic viewpoint as

[&]quot;... perche con la prova molto piu che con le ragioni si manifesteranno...."

Ibid., fol. 67. 10 "Haviamo lasciato à dire tutte queste cose per non ci essere hoggi utile alcune alla nostra prattica...." Ibid.

¹¹ "Molte Varie, Candido Lettore, sono state l'oppinioni de Filosofi intorno all'origine e fine della Musica...." Ibid., fol. 3.

¹²"... intenderete molte cose, ove la ragione non è amica al senso, ne il senso è capace della ragione: e per quanto il senso e la ragione si potranno insieme com-porre, ve ne darò minutamente notitia, per ilche giudicarete quanto li tempi passati sieno stati privi di molti e dolci concenti Musicali." Ibid.

opposed to the predominantly Pythagorean outlook of Boethius,¹⁸ he implies that his own musical theories go far beyond any of the achievements of the past.¹⁴ As a matter of fact, despite the moderate tone of his philosophy at this point in the treatise, Vicentino came closer to the Aristoxenian doctrine than to either of the other two positions. Time after time he states that the ear and the musician's instinct play a more important role than reason in deciding the value of a musical effect. Since there is so much diversity of auditory perception,

to wish to satisfy everyone's judgment concerning his sense of hearing, it is necessary for the composer to create as great a variety of musical compositions as there are judgments of listeners, and one sees that some praise a composition which is discordant, and find fault with another [that is] harmonious; and contrary to these extremes, some wish to pay attention to ordinary compositions, and others want concord and discord together, and to some concord without any discord will be pleasing; and others resent harmony, some want harmony with slow motion, others [with] fast [motion] and some others neither slow nor fast, and by this variety of nature, one recognizes the difference between the learned and the ignorant, the practical and the non-practical; for it is necessary, when you wish to pass judgment on a composition, that the judgment of those most concerned with the profession of such a composition be given...¹⁵

Again, in the discussion of cadences used in the enharmonic gender, Vicentino observes that

the nature of the enharmonic gender breaks the order of the diatonic and chromatic genera, and allows one to make steps and leaps beyond all reason, and because of this, such a division is called an irrational proportion. Thus the student ought to learn to compose for singing such disproportionate steps and skips as these in order that he be a perfect musician and a perfect singer; and so that in his compositions he may learn to bring into agreement and to accompany with harmony every kind of disproportionate and irrational pitch, and also to sing them with his voice. By this he will show to the world

¹³ That Vicentino realized that he was not presenting the views of Boethius can be seen in the fact that he lists his mentor's exposition of the disputes of Plato, Nicomachus, Aristoxenus and Ptolemy among the items which have been omitted in his survey. *Ibid.*, fol. 6^{*}.

¹⁴ Vicentino was apparently not deterred from his experiments by the statement of Ptolemy that the enharmonic was no longer practical nor in use.

¹⁵"... à voler sodisfare à tutti li giuditii nel senso dell'odire è necessario che il compositore facci tante diversità di compositioni nella Musica: quanti sono li giuditii de gli ascoltanti, & si vede ch'alcuni lodaranno una compositione che discorde: & biasmeranno unaltra armoniosa, e per il contrario di questi estremi, alcuni voranno attendere à le compositioni mediocri, et altri vorranno l'accordo et discordanza insieme, ad alcuni piacerà, l'accordo senza discordanza alcuna; et altri hanno in odio l'armonia, alcuni vogliono l'armonia con il moto, tardo, altri veloce, et alcuni altri ne tardo ne veloce, et per questa varietà di natura si cognosce le differe[n]ze delli dotti, dall'indotti, delli prattichi dalli no[n] prattichi; ma sarà di necessità quando vorrai far giudicare una compositione, che diano il giuditio, di quella li piu affaticati della professione di tal co[m] postione..." Vicentino, op. cit., fol. 7.

that he is a rare artist, and that he does with art that which reason has not been able to do.... 1^{6}

As Norman Cazden writes,

where it [the Aristoxenian view] is not tempered by historical perspective, it seems to make a fetish of irresponsible, subjective judgment, substituting arbitrary taste for natural law. Then sundry capricious and intuitive schemes for the conjunction of tones are proclaimed proper frameworks for art by the sovereign wills of their inventors. After all, who may question what the creative inner ear postulates?¹⁷

Vicentino's conception of the chromatic and enharmonic could well fall into the category of "capricious and intuitive schemes." With respect to Don Nicola's arduous efforts on behalf of his enharmonic, Galilei later offered the following very human explanation:

I doubt if the enharmonic music pleased even Don Nicola himself. I think what happened to him was that which occurs to many other people: and this is that inadvertently, because of their simplicity, they abuse what deserves praise and praise what merits to be abused, and afterward, ashamed to contradict themselves, they remain obstinate; others because of their ambitions boast of being capable of things beyond their powers, and badly as they succeed in their ventures, always wish to sustain them as well done.¹⁸

On the other hand, it should be remembered that Vicentino at least paid lip-service to reason, decrying "those who are governed solely by nature (as are the wild animals, without reason)."¹⁹ Perhaps he was motivated subconsciously by the feelings of the Aristoxenians "that behind the extravagant concepts of natural consonance lies a compelling conviction that the Pythagorean measurements are indeed relevant to the problem..."²⁰ Be this as it may, the rest of the first book of theory concerns

¹⁶"... la natura dell'Enarmonico genere rompe l'ordine del genere Diatonico, & del Cromatico, & comporta che si facci i gradi & i salti fuore d'ogni ragione, & per tal cagione tal divisione si domanda proportione inrationale. Si ch'il Discepolo dè imparare à comporre di cantare questi tali gradi & salti sproportionati, acciò sia perfetto Musico, et perfetto Cantore; & che nelle compositioni sappia accordare et accompagnare con l'armonia ogni sorte di voci sproportionate, & inrationali, & anchora con la voce cantarle, che dimostrerà al mondo esser raro, & far con l'arte quello che non hà potuto far la ragione." *Ibid.*, fol. 66[•].

¹⁷ "Pythagoras and Aristoxenus Reconciled," this JOURNAL XI (1958), p. 100.

¹⁸"... et dubito anco ch'ella non piacesse al medesimo Don Niccola: ma avvenne credo io a lui, quello che a molti altri occorrer suole; et questo è che inavertentemente usan loro quello che merita lodo per loro semplicità biasimare et lodare quello che merita di esser biasimato et reputandosi dopo a vergogna il contradirsi ne stanno ostinati, altri come ambitiosi si vantano alle volte di cose sopra le forze loro, le quali per male ch'elle rieschino, le voglino per ben fatte sostenare." The quotation and translation are given in Claude Victor Palisca, "The Beginnings of Baroque Music; Its Roots in Sixteenth Century Theory and Polemics" (Harvard University Dissertation, 1953), p. 343.

¹⁹ "... colui, che solamente dalla natura è retto (come sono gl'animali bruti, senza ragione)...." Vicentino, op. cit., fol. 7.

²⁰ Cazden, *loc. cit.*

itself with an examination of the mathematical principles underlying the science of music, derived chiefly from the Boethian account of the writings of Pythagoras and other ancient authors.

The often repeated legend of the Pythagorean invention of musical proportions by means of experiments with weighted hammers is discussed in Chapter II, followed by a brief account of the perfect system of Greek theory.²¹ This includes a description of the five tetrachords, conjunct and disjunct, that were involved in the construction of both the Greater and the Lesser Perfect System.²² Since these systems were described in terms of tetrachords belonging to the diatonic genus, Vicentino next explained the composition of that gender, and then the chromatic and the enharmonic, as they were determined by Pythagoras on his monochord. The usual diagrammatic representations of these genera (Diatonic: T T S [tone, tone, semitone]; Chromatic: Minor 3rd S S; Enharmonic: Major 3rd Q Q [quarter-tone]) do not reveal the subtle differences that exist among the various degrees depending on the tuning used, and for this reason, Vicentino supplements his diagrams by indicating in the accompanying text the Pythagorean ratios for all the intervals. He also distinguishes between "composite" and "incomposite" intervals, that is, those not bounded by consecutive notes ("composto") and those made of consecutive notes ("incomposto").23

He explains that the various ways in which the order of tones within

²¹ Vicentino describes the system in an ascending order starting from the *proslambanomenos* or "acquistata," as he calls it, instead of the descending order favored by modern scholars. Cf. Curt Sachs, The Rise of Music in the Ancient World East and West (New York: W. W. Norton [1943]), pp. 220-221. See, however, Isobel Henderson, "Ancient Greek Music," Ancient and Oriental Music (New Oxford History of Music, I [London: Oxford University Press, 1957]), p. 353, n. 1: "Tonos-scales were read downwards at first; later upwards."

²² Since he refused to use the Greek terminology, Vicentino described the various tetrachords in the following terms:

Hyperbolaion	Eccellente	Extra Tetrachord
Diezeugmenon	Tetracordo delle corde divise	Tetrachord of the Disjunction
Synemmenon	Tetracordo delle (Tetrachord of the Conjunction corde congiunte	
Meson	Principale delle cordo di mezzo	Tetrachord of the Middle
Hypaton	Principale delli principali	Highest Tetrachord

Vicentino, op. cit., fol. 4. The Greek and English designations are from Reese, op. cit., p. 22.

²³ Certain intervals may be considered either as composite or incomposite, depending on the genus in which they are situated. Thus, the minor third is composite in the diatonic genus (c-d-eb) but incomposite in the chromatic (c-eb). Similarly, the semitone is composite only in the enharmonic genus where it is constructed of two quarter tones, but incomposite in the chromatic and diatonic where it appears as an indivisible unit. In Greek theory, based on the tetrachord, all intervals smaller than a composite interval can be arranged are called "species." In the case of the fourth, three mutations of "spetie" occur: S T T,²⁴ T S T, T T S. Similarly, it is possible to derive four species of fifths: T T T S, T T S T, T S T T, S T T T. Since the octave contains both the fourth and the fifth, it encompasses seven species in all.²⁵ By combining these species in different ways, the whole apparatus of the ecclesiastical modal structure arises.

Vicentino is here reiterating the common error concerning the origin of the medieval modal system, confusing the modes with the Greek tonoi. Otto Gombosi has presented the thesis that the Greeks knew no modes in the ecclesiastical sense especially since

one quality inherent to the mode is utterly alien to the Greek octave species: while the latter is composed of a fourth plus a fifth, or of a fifth plus a fourth, it has no main tone, nor final tone, nor any differentiation of its tones as to their importance or specific role. There is not a single word to be found in the whole literature of antiquity that would in any sense specifiy any such quality in any aspect of the octave species. Since, however, there is no mode without a final tone, and no key without a keynote, the Greek eide diapason (octave species) is neither a modal concept nor a tonal one. It is merely an octave segment put together by a fourth and a fifth-a certain fourth and a certain fifth-in accordance with the intervallic structure of the Greek keys.²⁶

the semitone are incomposite, and all intervals larger than the major third must be composite. Cf. the excerpt from the Harmonic Introduction of Cleonides in Oliver Strunk (ed.), Source Readings in Music History (New York: W. W. Norton, [1950]), p. 38. Later in Vicentino's theory, the idea of composite and incomposite intervals is extended to other intervals within the octave. Thus a "composite" fourth would be an interval that is filled in stepwise (c-d-e-f) whereas the "incomposite" form of the same interval would be written without any intermediary tones (c-f). Cf. Vicentino, op. cit., fol. 23.

²⁴ Vicentino gives this arrangement first because he is reading the Greek system in an ascending rather than descending order. See ibid., fol. 3": "... il primo Tetracordo cominciarà per semitono, tono, & tono, & il secondo medesimamente ... perche ogniuno delli Tetracordi dè cominciare in semitono, & finire in tono. . . ."

²⁵ It should be noted that all the examples given by Vicentino are expressed in

terms of the diatonic genus. 26 Otto Gombosi, "Key, Mode, Species," this JOURNAL IV (1951), p. 21, col. 2. The views of Gombosi concerning Greek music have not gone completely unchal-lenged. Cf., for instance, R. P. Winnington-Ingram, "The Pentatonic Tuning of the Greek Lyre: A Theory Examined," The Classical Quarterly L [New Series, Vol. VI] (1956), 169-186. Most of the criticism has concentrated on details of tuning, but has not seriously abrogated Gombosi's overall concepts. With respect to modes, even so cogent a critic as Winnington-Ingram concedes (in a discussion of J. Chailley's article, "Le mythe de modes grecs," in Acta Musicologica XXVIII [1956], 137-163) that Chailley is right in stating that there is nothing in the passages of ancient theorists "which in itself suggests mode: there is no question of final or tonic, of privileged degree or hierarchisation, or any other characteristic of mode." R. P. Winnington-Ingram, "Ancient Greek Music 1932-1957," Lustrum III (1958), 35-36. In a summingup paragraph (ibid., p. 36) he states further that the "octave species have lost their privileged position. Few, if any scholars would now regard them as giving an adequate account of the harmoniai or as equivalent in their nature to the modes of medieval church music." For this author, the estimate of Rudolf Wagner in his

To confuse the issue further, Vicentino has combined the wrong octavesegments to produce his modes, but since he names them in the customary sequence—Dorian, Hypodorian, Phrygian, etc.—his intentions are easily discernible.

The final observation that Don Nicola makes with respect to the tetrachords concerns the classification of their pitches into three types: (1) stable, or immobile, (2) mobile, (3) not completely stable nor completely mobile. Chief among the stable pitches are the beginning and ending of each tetrachord, since these notes remain constant in all three genera regardless of how the internal space is filled.

The movable pitches are mainly those modified or inflected by accidentals, especially those involved in defining the different genders. The semitone is given as an example of a pitch which is neither completely stable nor completely mobile. Although it is the same in both the diatonic and chromatic tetrachords and hence stable with respect to these two genera, it is nevertheless capable of division in the enharmonic genus, and thus, from that point of reference, mobile.²⁷

His theoretical discussion continues with a brief discourse on the method of calculating the harmonic mean between two numbers.²⁸ Vicen-

²⁸ There are three kinds of proportion in common use: arithmetic, geometric and harmonic, a mixture of the first two. An arithmetic proportion occurs whenever numbers in sequence are constructed by the addition of a constant quantity. For instance, 1 in the series 1,2,3 or 2 in the series 2,4,6,8,10 are the constant quantities. A geometric proportion occurs whenever the ratio of any term in a series to its predecessor is a constant, as in the series 2,4,8,16,32, etc. A harmonic series consists of an arrangement of numbers, the reciprocals of which are in arithmetical progression. In a sequence of the three numbers 3,4,6, the ratio of the largest to the smallest, 6:3, is the same as the ratio of the difference between the two largest numbers, 6 - 4, to the difference between the two smallest numbers, $4 - \overline{3}$, or 2:1. Once these progressions have been established, a mean, that is, an average quantity with a value intermediate between other quantities can be deduced. An arithmetic mean is obtained by adding a series of numbers together and dividing by the sum of the number of quantities, e.g., $1,2,3 = 6 \div 3 = 2$. A geometric mean is derived by multiplying the quantities involved and taking the root of the product with a factor equal to the number of integers used, e.g., $1,2,4 = 3\sqrt{8} = 2$. The harmonic mean is obtained by taking the reciprocals of the average of the reciprocals of the numbers. In algebraic terms, the harmonic mean between a and b is the reciprocal of (1/a + 1/b) / 2 or, in simpler terms, 2 ab / (a+b). The harmonic mean between 6:12, for example, would equal $2 \times (6 \times 12)$ or 144 divided by (6 + 12) or 18. The end result would give the mean, 8. Glenn James and Robert C. James, Mathematics Dictionary (Van Nuys, California: The Digest Press, 1942), pp. 17-18, 113, 190.

review of Gombosi's *Tonarten und Stimmungen der antiken Musik* (Gnomon XXVII [1955], 115) still is pertinent: "Es bleibt einer der wichtigsten Beiträge zur Erforschung antiker Musik."

²⁷ In the practical application of this concept, Vicentino extends the number of pitches to include some not employed by Boethius. He makes special mention of the "major" semitone used in his day in contrast to the "minor" semitone known to "i Filosofi." Vicentino, op. cit., fol. 71[•]. Cf. note 30, infra.

tino derives all the consonances from the ratio of the octave and the harmonic mean. In order to clarify his calculations, he uses the ratio 6:12 for the octave (equals 1:2) and then explains the derivation of the mean in the following way: first he subtracts the lesser number from the greater, that is 12 - 6 = 6. This remainder is then multiplied by the smaller number, $6 \times 6 = 36$. The product is divided by the sum of the two original numbers, 6 + 12 = 18, and the result, $36 \div 18 = 2$, is then added to the lesser number to make 8 the harmonic mean. From the series 6:8:12, he derives the proportions of the fifth (8:12 = 2:3), the fourth (6:8 = 3:4), and the octave (6:12 = 1:2).²⁹

The smaller intervals are based on the proportion of the Pythagorean whole tone, 8:9, used in its doubled form, 16:18, to allow for the insertion of 17 as a mean. From the arithmetical series 16:17:18, he derives the minor semitone 17:18 and the major semitone 16:17. The diesis is exactly half of the minor semitone, and the comma is the difference between the two semitones.³⁰

One of the most striking features of Vicentino's treatise as a whole is found in the frequent references to the practices and procedures of the past as a justification for his forward-looking ideas. As he states it, "many have laughed at the efforts of their predecessors, which they ought not to do, because nothing can arrive at perfection without a beginning."⁸¹

²⁹ Vicentino, op. cit., fol. 6. Vicentino's calculations for the harmonic mean differ in procedure from that outlined in n. 28 supra. His method, which can be reduced to the formula (b-a) a/a + b plus a, is equivalent to 2ab / (a + b) and thus will give consistently correct results. It may well be that Vicentino included the consideration of the harmonic mean in his treatise because the subject had been a point of dispute between Gafori and Spataro. The former favored the Pythagorean mediation, 3,4,6. The latter expressed his idea of the harmonic mean in the numbers 3,5,6. See the translated quotation from the Apologia Franchini Gafurii Musici adversus Joannem Spatarium . . . in John Hawkins, A General History of the Science and Practice of Music (new ed., London: Novello, Ewer & Co., 1875), Vol. I, p. 289, col. 1. Vicentino obviously knew Gafori's works, especially the Practica musicae. Cf. Vicentino, op. cit., fol. 87.

⁸⁰ These practically equivalent proportions for the semitones are very irregular. They are mentioned in the sixteenth chapter of the first book on music by Boethius to indicate that the tone cannot be divided into two equal parts, as the Aristoxenians implied. Gottfried Friedlein, ed., ... Boetii ... "De institutione musica"... (Leipzig: B. G. Teubner, 1867), pp. 201-203. In the Pythagorean system, the favored semitone was the semitonium minus or the limma with the ratio 243:256. This was far more commonly used than the semitonium maius or apotome with the ratio 2048:2187, which resulted from the difference between the major (64:81) and the minor (27:32) third. Wilhelm Dupont, Geschichte der musikalischen Temperatur (Nördlingen: C. H. Beck, 1935), p. 4. The practical use of the ratios 16:17 and 17:18 is implied in the division described by Sylvestro Ganassi in his Regola Rubertina (1542-1543). J. Murray Barbour, Tuning and Temperament (East Lansing, Mich.: Michigan State College, 1953), pp. 141-143. The other ratios are all based on Boethian calculations. See Friedlein, op. cit., pp. 241-249. ^{\$1"...} molti hanno riso delle fatiche de gli antecessori, ilche non si dovrebbe,

³¹"... molti hanno riso delle fatiche de gli antecessori, ilche non si dovrebbe, perche nissuna cosa senza principio può venire alla perfettione sua...." Vicentino, op. cit., fol. 3.

If, as has been suggested,³² historical perspective can temper the most rabid Aristoxenian viewpoint, Vicentino has been saved from such unbridled excesses by his respect for those who came before him and whose music he "reduced to modern practice."

Historical awareness of the past became a veritable sign of Renaissance thinking which tended to crystallize in the 16th century into a rationally organized historiography. This was especially true of the concepts that motivated Vasari in the publication of his *Lives* in 1550 and may also have worked to influence the categorical observations of Vicentino. Both men still felt the vivid reality of the High Renaissance and were unaware that its greatest achievements had already passed, although Vasari feared that a decline was inevitable.³³ Vasari's contribution lay in the fact that he

created for the first time a conception of Renaissance art as an organic whole, developing by clearly marked stages, each of which was admirable in relation to its own place in the steady progression toward the perfect style of his own day.³⁴

A similar evolutionary progression towards perfection animates Vicentino's philosophy, revealed in the historical comments with which he introduces the various elements of his "prattica musicale." The very beginning of the first book of the "prattica," for instance, tells of the "improvements" which Guido d'Arezzo brought to musical practice, and the ire which these inventions aroused in other musicians. Don Nicola does not hesitate at this point to inform his readers that the Abbey of Pomposa, where Guido eventually retired for further musical study, was now in the charge of his patron, Cardinal Ippolito II—a rather broad hint that the Vicentine musician's association through the Cardinal with this venerable spot could also result in innovations as significant but as greatly misunderstood as those of his illustrious predecessor.³⁵

After a brief excursion into the contribution of Jean de Muris,36

82 Cf. p. 329 supra.

⁸⁸ Wallace K. Ferguson, *The Renaissance in Historical Thought* (Boston: Houghton Mifflin Co., [1948]), p. 63.

⁸⁴ Ibid., p. 61.

⁸⁵ Francesco Patrizi, Della poetica . . . La deca istoriale . . . (Ferrara: Vittorio Baldini, 1586), sig. 3[•], makes a similar point in the preface of this work dedicated to Lucrezia d'Este: "Ferrara . . . si può dire d'essere . . . rigeneratrice della Musica, poi ch'ella nella Badia di Pomposa, opera de'vostri maggiori da Guido Monaco, fu regenerata, e poi cresciuta, e raffinata da Lud.^{co} Fogliani Modanese, in teorica insegnata, ed esercitata, da' Giusquini, da gli Adriani, e da' Cipriani . . . e finalmente, e la Cromatica, e la Enarmonica per D. Nicola Vicentino, ne'servigi di vostra casa, prima qui si fe sentire."

⁸⁶ Vicentino, op. cit., fol. 9. Early references to de Muris often cited the Speculum musicae wrongly attributed to him and now known to have been written by Jacques de Liège. Roger Bragard, ed., Jacobi Leodiensis Speculum Musicae (Corpus scriptorum de musica, 3 [Rome: American Institute of Musicology, 1955]), p. vii. Bragard himself is not sure as to whether Vicentino used the Speculum musicae or authentic texts of Jean de Muris. Roger Bragard, "Le Speculum Musicae du Compilateur Vicentino again asserts his own position as a successor to these imaginative and creative forerunners whom he has been extolling:

Although in these times there can be found some professors of music who disparage the efforts which are made in order to learn, and even do not praise those struggles which were undertaken by so many celebrated philosophers in their desire to understand the ultimate divisions of music, nonetheless, such as these [the professors of music] will not deter me from learning and investigating new things, because knowledge is proper to man, and for this reason, I shall incessantly continue to reduce to practice said genera and species. ... And if I am unable to make a great gain in that practice, at least I shall give an impetus to fine minds that they will then reduce it to a better state from time to time. How much one sees the comparison of music used in our time to that which was already used a hundred, fifty, twenty-five, and ten years ago, and for the present age, how great a gain one sees and hears in the compositions already created from time to time. And similarly with this my effort for the future, of ten, twenty, fifty and one-hundred years and more: [to] those who will be able to see and hear my compositions and those of others written at this time, how intricate they will seem in comparison to the [compositions] of our posterity, and the reason will be that it is easy to add to things discovered but the invention and beginning of things are very difficult.³⁷

Vicentino apologizes for commenting, in his theoretical arguments, on subjects which have already been discussed by others, especially since he had promised not to do so,³⁸ but he excuses himself on the grounds that

Jacques de Liège," Musica disciplina VII (1953), 84. L'antica musica offers little help since the author is haphazard in his chronology. He states that an interval of 329 years elapsed between the invention of Guido and de Muris (fol. 10). Since, according to Vicentino, Guido's achievements occurred in 1024 (fol. 9), this placed de Muris's activities ca. 1353, two years after his alleged demise. On the other hand, Don Nicola claims an interval of 250 years between the time of de Muris and his own day (fol. 10), which would place the accomplishments of the former ca. 1300, a remarkable feat for a man born ca. 1290. Vicentino does, however, state definitely that the theorist to whom he referred worked at Paris. One of de Muris's authentic works, Musica speculativa, bears the inscription:

"abbreviata Parisiis in Sorbona, A.D. 1323." Perhaps this is the treatise to which Vicentino refers. Certainly he would have preferred the progressive viewpoint of de Muris to that of the arch-conservative Jacques de Liège.

⁸⁷ "Benche à questi tempi si ritrovano alcuni professori della Musica, che biasmano le fatiche che si fanno per imparare, & anchora non lodano quelli stenti, che sono stati presi da tanti celebrati Filosofi circa il voler intendere le divisioni ultime della Musica, non dimeno questi tali non mi rimoveranno dall'imparare & investigare cose nove, perche è proprio dell'huome il sapere, & per tal cagione non cesso continuamente di ridurre alla prattica li detti generi & spetie. . . . Et se non potrò far gran profitto in detta prattica, almeno darò tal principio à belli ingegni, che la riduranno poi à migliore stato, di tempo in tempo, come si vede il paragone della Musica da nostri tempi usata, à quella, che gia cento anni si usava, & gia cinquanta, & venti cinque, & gia dieci; & per il tempo presente quanto guadagno si vede, & ode per le compositioni gia fatte di tempo in tempo. Et così con questa mia fatica per l'avenire, di dieci anni & venti cinque & di cinquanta & cento anni, & di più chi potrà vedere & udire le compositioni mie & d'altri à questi tempi fatte, quanto pareranno malegevoli à co[m]paratione di quelle di nostri posteri; & la cagione sarà, perche sarà facile aggiungere alle cose ritrovata. Ma sono molto difficili l'inventioni & principii di tutte le cose." Vicentino, *op. cit.*, fol. 10.

³⁸ In the preface to the first book of theory, *ibid.*, fol. 3.

his procedure differs from that of other writers in not mentioning any fact "without adding to it something new to present to the reader."³⁹ This policy is followed throughout most of the "prattica" since the historical information which it gives is either amended by reference to later practice or treated as part of an evolutionary development which culminates in new forms and structures. Don Nicola is very critical of those singers and musicians who shun novelty and refer only to past composers for justification of their narrow viewpoints. Little do these "impoverished and denuded" minds realize that even their admired practice would have come to a complete and final end had they not been able to add to it or take away something from it:

But because some have added one thing and others many [things], it has seemed right to me to commemorate said inventions, as much for the pleasure of those who read [in] the history of our predecessors that they have always amplified and clarified their science and practice as indeed to show to the present and the future that I have increased and enriched the intelligence of the practice and science of music more than usual....⁴⁰

Vicentino's procedure can be clearly demonstrated by his conception of the "seven hands," derived from the Guidonian model but extended to include the chromatic and enharmonic as well as the diatonic. The diatonic "hand" corresponds to that of Guido with one important modification: the initial hexachord of the Guidonian system contains no b-flat, but within the same range in polyphonic music, this accidental will often occur. For that reason, it is suggested that the denominational and specific names for these notes be amended from A *re*, B *mi*, C *fa ut*, etc. to A *la mi re*, B *fa* b *mi*, G *sol fa ut*, etc. in order to accommodate the larger gamut of later practice.⁴¹

Although both the original and modified forms of the diatonic are related in concept, Vicentino apparently considers them as separate entities, that is, Guido's diatonic as the first hand and his own as the second, since the ensuing folios of the treatise are concerned with only five more "hands." In order to explain these rather complicated structures, he first describes the accidentals which he employs and their meaning in relation to the subdivisions of the different genera. The actual significance of an accidental will depend on whether it is used in an ascending or descend-

³⁹ "... che non aggiunga à quella qualche cosa di nuova da ripresentare al Lettore..." *Ibid.*, fol. 73.

⁴⁰ "Ma perche alcuni hanno aggiunto una cosa, & altri molte, m'è parso commemorare dette inventioni, si per dilettare à colui, che leggerà le historia de nostri precedenti, che hanno sempre ampliato, & dilucidato le scienze & prattiche di esse, come anchora per dimostrare alli presenti & alli posteri, che s'io aggiungo, et faccio ricca la intelligenza della prattica, & scienza della Musica più dell'usato. . . ." *Ibid.*, fol. 11.

⁴¹ Ibid. Guido divided the gamut into three groups: graves, acutae, superacutae. Reese, op. cit., p. 150, n. 6. Vicentino, op. cit., fols. 99^v, 108^v, makes a similar distinction among gravissimo, grave and acuto. ing progression. A flat, for example, will denote a major semitone when it ascends and a minor semitone when it descends. The sharp, called diesis cromatico by Vicentino, will conversely create the minor semitone when used in an ascending order and the major semitone, when descending. A new symbol, a dot over a note, signifies one-half of the value of the minor semitone and is used to designate the subdivisions of the enharmonic gender. This last accidental, called diesis enarmonico, is further classified into two categories, minor and major, depending on whether it is involved in the subdivision of the minor or the major semitone. The minor semitone divides into two major enharmonic dieses. The major semitone, on the other hand, will consist of a minor enharmonic diesis and a major enharmonic diesis which is itself the equivalent of the minor semitone.42 Whenever the ascending major semitone is partitioned, the first diesis will be minor and the second major, and when the major semitone descends, the reverse will be true.

On the basis of these observations, Vicentino proceeds with the exposition of the "hands." 43 In addition to the Guidonian diatonic and his own diatonic, he lists two forms of the chromatic: one which ascends and descends with an initial minor semitone, and the other, with the initial major semitone. For example, the chromatic hand with the ascending major semitone will contain the following notes: a, bb, bb, c, db, db, eb, $e \natural, f, g b.$

The fifth hand bears the curious name, enarmonica diatonica. It is based on the original Guidonian hand, except that every note in the series is supplied with a superimposed enharmonic dot. The name is probably derived from the fact that, although all the tones, because of the dots, will be sounded higher than written, their relationship to each other parallels that of the diatonic. The notes of this diatonic enharmonic hand

are: a, b, c, d, e, f, g.

Finally, the enharmonic "hands," like the chromatic, also appear in two forms, based on the use of the major or minor semitone in the initial subdivision. The notes contained, for instance, in the enharmonic hand with the ascending minor semitone are shown in example 1:

The next portion of the treatise⁴⁴ deals with the practical use of the

⁴² This rather confusing usage of the word diesis occurs also in the Pythagorean system. The term is applied to the *semitonium minor* or *limma*, as well as to the smaller divisions of the enharmonic genus. Cf. the observations of Hawkins, *op. cit.*, Vol. I, p. 27, col. 1, on this problem. Vicentino, *op. cit.*, fol. 14^v, explains that the term diesis really means the division of the tone into two unequal parts; these he designated "diesis cromatici" since they were used in the chromatic gender, to distinguish them from the smaller particles of the enharmonic gender, the "diesis enarmonico."

44 Ibid., fols. 13*-17*.

⁴⁸ Ibid., fols. 11*-13.





three genera, which differ in important details from those Vicentino knew from his study of Boethius. In the diatonic, for instance, the interval of the fourth consists not of a minor semitone and two equal sesquioctave tones, but rather of the major semitone and two different whole-tones, one with the ratio 9:10 and the other 8:9. "This inequality of tones," he continues, "gives rise to the convenience of being able to use the consonances of the thirds and sixths, major as well as minor."⁴⁵ Vicentino here seems to be an advocate of just intonation, at least in theory, but he also adds that the fourths and fifths used in his day were shortened ("spontate"), so that in actual practice, his music would have involved temperament.⁴⁶

The chromatic genus also differs from that of Boethius, who divided the tone into two equal parts "contrary to the opinion of many philosophers,"⁴⁷ and completed the interval of a fourth with the incomposite trihemitone or minor third. Vicentino's chromatic begins with the major semitone, then the minor, and is completed with a trihemitone which also departs from the Boethian prototype since it is constructed of a tone and a *major* semitone expressed as a unit (a large minor third). Similar variations can also be found in the enharmonic gender of the two theorists. Boethius constructs his enharmonic tetrachord with two equal dieses and a ditone or major third consisting of two 8:9 tones. Vicentino uses both the major and minor semitone so that his dieses are of unequal value. The ditone, too, is made up of two dissimilar tones, one 8:9, the other 9:10. As a result of all these subtle divisions, "we have more richness of steps and consonances and harmony than the ancients."⁴⁸

⁴⁸ "... noi habbiano piu richezza di gradi & di consonanze, & di Harmonia, che non havevano gli antichi...." *Ibid.*, fol. 15.

⁴⁵"... questa inequalità di toni, fa nascere la commodità di poter usare le consonanze delle Terze, et delle Seste, così maggiori come minori." *Ibid.*, fol. 13[•]. ⁴⁶ See the author's article on "The *Arciorgano* of Nicola Vicentino," in the April,

⁴⁶ See the author's article on "The Arciorgano of Nicola Vicentino," in the April, 1961 issue of the *Journal of Music Theory*, pp. 32-53 for more details about Vicentino's system of tuning.

⁴⁷ "... contra l'oppenione de molti Filosofi ...," Vicentino, *op. cit.*, fol. 14. The Pythagorean division of the tone in this genus consisted of a minor, then a major semitone.

Of particular significance to Vicentino's concept of contemporary musical practice was his explanation of the species of the various genera. Not only were different arrangements of the tones allowed within each of the tetrachords of the diatonic, chromatic, and enharmonic, but it was also possible to shift the characteristics of one species into the order of another. In other words, a distinction should be made between the species of a genus and a genus species. For example, the species of the chromatic would refer to the complete succession of semitone, semitone, minor third, in any arrangement of its components. The chromatic species, on the other hand, does not observe the order of its own gender, but transmutes any single element into another gender. Thus, if the natural tone of the diatonic is altered into a semitone by means of an accidental, that step alone would indicate that a characteristic of the chromatic species had been used within the diatonic. Displacements of this kind are referred to by Vicentino in such terms as "chromatic species diatonically placed" ("spetie Cromatica Diatonicamente posta," or more simply, "Cromatici Diatonici") and "Cromatici Enarmonici," depending on which genus has been affected.49 This concept played a large part in the famous debate between Vicentino and Lusitano in which the latter argued that all music commonly performed was diatonic, and the latter argued that the mere presence of a minor third or a major third in the musical context indicated the invasion of the diatonic by the chromatic and enharmonic species respectively.

This same idea will also assume a degree of importance in the third book of the "prattica," which deals chiefly with the eight diatonic modes and their extension into chromatic and enharmonic forms. First, however, Vicentino reviews the three species of fourths and the four species of fifths that combine to evolve the seven natural diatonic octaves from which the traditional ecclesiastical modes are derived.⁵⁰ Each mode is illustrated with an example which indicates not only its composition and organization, but also its typical melodic contours. In the Dorian mode, for instance, after the range has been indicated, each of the component segments of the octave is then isolated, "using however many times the endings of its fifth and of its fourth . . . in order to keep the mode within limits."⁵¹ These "endings" represent what is commonly called the dominant and final of the mode (Ex. 2).

⁴⁹ *Ibid.*, fol. 15^v. Vicentino states that this idea of displaced species goes back to Boethius: "Boetio domanda Cromatica spetie overo Cromatico ordine, quello che sarà tramutato dal suo luogo, & posto in altro in ogni genere, così nel Diatonico, e Cromatico come nell'Enarmonico." *Ibid.*

⁵⁰ To account for the eighth or Hypomixolydian mode, Vicentino credits Ptolemy with an additional combination of octave species consisting of the first fourth and the fourth fifth. *Ibid.*, fol. 46.

⁵¹ "... usando però molte volte i termini della sua quinta, & della sua quarta ... per mantenere il suo Modo sempre ne suoi termini...." *Ibid.*, fol. 44[•].

Example 2 (fol. 44v.)





The illustration of the second or Hypodorian mode does not give the ambitus, but shows instead the relationship of the component fifth and fourth to their point of conjunction, d, so that especial stress can be laid on the final of the mode (Ex. $_3$).

Example 3 (fol. 45)



Each of the other modes, the Phrygian, Lydian, Mixolydian, and their plagal forms, is developed in a similar manner. One interesting departure from medieval theory is found in the placement of the dominant: the dominant of each authentic mode is always a fifth above its final, even in the case of the Phrygian mode in which it falls on b. In addition, the plagal modes emphasize not only the same final as the authentic, but also the same dominant.

Vicentino was not unaware of the attempts made by Glareanus and others of his contemporaries to increase the number of modes, but he rejected them because the octave-species from which these were formed consisted of unorthodox conjunctions of fourth and fifths:

Some wish that there might be four other kinds of modes or tones and that in all there should be twelve, but because they are formed of false fifths and fourths, for that reason I shall not teach them now. ...⁵²

Transposition of the modes does not change their essential diatonicism, since the species undergo no mutation in the process. The use of one

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⁵² ". . . alcuni vogliano che siano quattro altre sorte di Modi, ò Toni, et che in tutto siano 12, ma perche sono formati di quinte, & di quarte false, per tal ragione non l'insegno hora. . . ." Ibid., fol. 44. See, however, infra, p. 343.

flat in the signature does not indicate a real chromatic change from $b \nmid$ to $b \nmid$; it is employed only to reorder the tones and semitones within a fourth so that the species will be relatively the same. For instance, if the species T S T (tone, semitone, tone) were written as $a \ b \ c \ d$, the arrangement on g would demand the flat: g a $b \nmid c$. The difference would only be visual, since to the ear, no fundamental change has occurred except in the overall pitch.

Several aspects of ancient Greek theory are mixed and confused in Vicentino's account of his modal system. In the first place, modes in the ecclesiastical sense were unknown to Greek theorists. The nearest equivalent of the medieval modes would have been found in the Greek Dorian, Phrygian, etc., keys, especially because of their clearly defined ambitus and their stress on a fixed focal point as final or keynote.53 These keys, however, were based on the tetrachord, whereas the modes use the fourthplus-fifth construction of the octave species. The octave species of antiquity represented an abstraction of the key in terms of its intervallic sequence without reference to any point of tonal focus. They actually stood in filial relationship to the keys, which were of older genesis.54 In Vicentino's treatise, as in most medieval and Renaissance expositions of the modal system, a reverse order is followed: the Greek octave species becomes the framework from which all the modes are derived. In the process, the nature of the species of antiquity is denied, since these octave segments are now characterized by an emphasis not only on a final tone but also on at least one additional focal point of reference. Such a "modalization" is completely foreign to the pure species of the ancients.

In his conception of transposition, however, Vicentino retains some idea of the original meaning of octave species. To quote Gombosi:

These octave series are therefore segments of a diatonic system. If one transposes this system, the octave segments are also transposed with it, or to put it another way: if one wants to have the octave segments at a specified pitch, then one transposes the system. One can, therefore, certainly set up the Dorian series between e^{1} -e, f^{1} -f, f sharp¹-f sharp, etc., on every half-tone step, and conversely, one can construct all octave species within the octave e^{1} -e, by raising or lowering specific tones.⁵⁵

These pitch adjustments are not to be confused with chromaticism, since nothing in the basic octave pattern has been changed. Or, to explain it

53 Gombosi, op. cit., p. 20, col. 2; p. 24, col. 1.

⁵⁴ *Ibid.*, p. 21, col. 1.

⁵⁵ "Diese Octavgattungen sind also Ausschnitte aus einem diatonischen System. Transponiert man dieses System, so werden auch die Octavausschnitte mittransponiert, oder anders ausgedrückt: will man die Octavausschnitte in einer bestimmten Höhenlage haben, so transponiert man das System. Man kann also etwa die dorische Reihe zwischen e¹-e, f¹-f, fis¹- fis usw. auf jeder Halbtonstufe herstellen und umgekehrt, man kann in der Oktave e¹-e alle Oktavgattungen herstellen, indem man bestimmte Töne herauf-oder herunterstimmt." Otto Johannes Gombosi, *Tonarten und Stimmungen der antiken Musik* (Copenhagen: Ejnar Munksgaard, 1939), p. 5. Cf. Henderson, op. cit., pp. 353-354, which is in basic agreement with this idea. in another way, the important point to observe about the relationship of the hard and the soft hexachords is not that one contains a $b \natural$ and the other a $b \flat$, but that both consist of the same interval pattern represented by the solmization syllables, *ut re mi fa sol la*.

The modes which he has presented so far are, in Vicentino's opinion, a simple and pure diatonic variety not employed in actual practice. No one writing a composition restricts himself to the diatonic genus alone. Every time that a minor or a major third is used, the chromatic and enharmonic gender has intruded into the diatonic order. It is not necessary to indulge in any alteration by accidentals to achieve this result. Therefore, it would be better to identify musical practice with a terminology other than diatonic, chromatic, and enharmonic in order to show its true nature.

For this reason, the music which has been used and which is used in the world ought to be called music [resulting from] a participation and mixture of certain species of all the three genera...⁵⁶

In the examples which he writes to illustrate the modes of this "musica participata & mista," Vicentino keeps the name of each mode as well as its dominant and final as before, but because an actual melody is shown with a variety of leaps and steps instead of the previous exposition of the mode by means of scale-wise segments, he feels justified, on the basis of his broad concept of gender, to label this music with the new term. Each mode, furthermore, is given not only in its natural form ("per incitato"), but also transposed up a fourth ("per b molle") and down a second ("per Musica finta").⁵⁷

The study of modality concludes with a gesture in the direction of those who were theorizing about additions to the system. Two new modes are presented, in their authentic form only, which are considered mixtures of diverse fourths and fifths. The first of these, containing the first fifth and the second fourth of the first and third modes respectively, resulted in a form identical with our natural minor scale, often referred to as Aeolian. The second, constructed with the fourth fifth and the third fourth found in the seventh and fifth modes respectively, delineated the major scale, also known as Ionian. Vicentino did not pursue this course further, particularly since any modifications which they showed were more than compensated for in the complexities of his chromatic and enharmonic modes.

Since the "musica participata & mista," which Vicentino favored, is in reality a combination of the species of all three genera, it premises, in

⁵⁷ Ibid., fol. 48^{*}-51.

⁵⁶ "... per tal ragione la musica che è stata usata e che si usa hoggi nel mondo, si dè domandare musica participata, & mista de certe spetie de tutti tre i Generi..." Vicentino, *op. cit.*, fol. 48. The term "participata," is also used by Vicentino to mean "tempered." *Ibid.*, fol. 64^v.

order to be comprehended intelligently, the existence of pure chromatic and enharmonic modes. Practically all the rest of the third book of the "prattica" concerns itself with the exposition of these new structures.

All the chromatic and enharmonic modes are, like the diatonic ones, evolved from a combination of species of fourths and fifths. Compare, for instance, the three fourths and the four fifths of the diatonic, with their chromatic counterparts (Ex. 4).

Example 4 (fol.
$$62^{v}$$
-64)





[4]

[約]

third fifth 🗮

fourth fifth 🗂

[4]

[4]

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TABLE I

Fourths

Diatonic	First:	tone, major semitone, tone
	Second: Third:	major semitone, tone, tone tone, tone, major semitone
Chromatic	First: Second: Third:	major semitone, minor 3rd, minor semitone [minor 3rd, major semitone, minor semitone]* [major semitone, minor semitone, minor 3rd]
Enharmonic	First: Second: Third:	minor diesis, ditone, major diesis ditone, major diesis, minor diesis minor diesis, major diesis, ditone
		Fifths
Diatonic	First: Second: Third: Fourth:	tone, major semitone, tone, tone major semitone, tone, tone, tone tone, tone, tone, major semitone tone, tone, major semitone, tone
Chromatic	First:	[major semitone, minor 3rd, minor semitone, major semitone, minor semitone]
	Second:	[minor 3rd, major semitone, minor semitone, major semitone, minor semitone]
	Third:	[major semitone, minor semitone, major semi- tone, minor semitone, minor 3rd]
	Fourth:	[major semitone, minor semitone, minor 3rd, major semitone, minor semitone]
Enharmonic	First:	minor diesis, ditone, minor diesis, minor diesis, minor diesis, major diesis, minor diesis
	Second:	ditone, major diesis, minor diesis, minor diesis, major diesis, major diesis, minor diesis
	Third:	minor diesis, minor diesis, major diesis, minor diesis, minor diesis, major diesis, ditone
	Fourth:	minor diesis, major diesis, ditone, minor diesis, minor diesis, major diesis, minor diesis

* The series enclosed in brackets are shown in the treatise in an example but are not described in the accompanying text.

These species of fourths and fifths combine into a series of chromatic and enharmonic octaves from which modes of the same type can be derived.⁵⁸ The fifth chromatic and the first enharmonic modes from Vicentino's eight examples in each genus are here given as an illustration of the procedure (Ex. 5).

⁵⁸ Gombosi, "Key, Mode, Species," p. 21, col. 2 states that such "monstrosities" as the "chromatic" and "enharmonic" species have never existed in Greek theory.

Example 5 (fol. 61, 66)



Vicentino adds to his theoretical observations some practical examples of compositions written in all the genera. The first of these is an illustration of the pure diatonic, using only the natural tone and, on occasion, the natural semitone, but no minor or major thirds.⁵⁹ "One hears in this music," writes Vicentino, "a great harshness in comparison with that which is 'participata & mista.'"⁶⁰ This is followed by two completely chromatic pieces, the four-part "Motettino" based on the words of the Easter Gradual, *Haec dies*,⁶¹ and the five-part Lamentation, *Hierusalem*.⁶² The use of the enharmonic in a composition is also illustrated by means of a four-voiced madrigal, *Soav'e dolc'ardore*, of which the composer gives only the opening measures.⁶³

It is even permissible to use each of the genera in turn within the same composition. To demonstrate this possibility, Vicentino composed a Latin ode, *Musica prisca caput*, in honor of his patron, Cardinal Ippolito d'Este, the first verse of which is written entirely in the diatonic genus, the second in the chromatic, and the third and final one in the enharmonic.⁶⁴

In reality, however, compositions in the pure chromatic and pure enharmonic genera are as unfeasible as those written in the pure diatonic. In actual practice, mixtures of all sorts are possible and desirable. Don Nicola gives as his first example a short madrigal, *Dolce mio ben*, which, as written, presents a combination of the chromatic and enharmonic,

⁵⁹ Cf. Vicentino, op. cit., fols. $5^{2}-5^{2^{\vee}}$. An interval that appears to be a third can be obviated by the insertion of a rest between its component notes. *Ibid.*, fol. 5^{12} .

⁶⁰ ". . . si sentirà in questa Musica una asprezza grande, à rispetto di quella che è participata & mista. . . ." *Ibid.*

⁶¹ A transcription of this work can be found in Luigi Torchi, L'Arte musicale in italia (Milan: G. Ricordi [1897-1908?]), I, pp. 147-148.

⁶² A transcription of this work can be found *ibid.*, I, 145-146.

63 Vicentino, op. cit., fol. 67.

⁶⁴ A transcription of this composition appears in an article by this author, "The Motets of Nicola Vicentino," *Musica disciplina* XV (1961), pp. 184-185.

without the diatonic.⁶⁵ Only the first part of this madrigal is given in the treatise.

Other modifications of this work are suggested by the composer. By ignoring all the accidental signs, the piece will become essentially diatonic. Another method of performance would be to acknowledge only the sharps, naturals and flats but omit all the smaller signs of the diesis, "and the whole composition will be sweetly chromatic." 66 A judicious selection of accidentals to be used or rejected will allow several other combinations, such as a mixture of diatonic and chromatic, or even diatonic, chromatic and enharmonic. The number of ways in which this madrigal could be sung would then total five.

Vicentino goes so far as to suggest that any contemporary compositions could be altered in the same way, and "if there are added to these some sharps and enharmonic dieses between the tones and semitones, one would hear a great gain of harmony in them."67 If these remarks are a reflection of contemporary practice, they help to bolster Lowinsky's thesis of a "secret chromatic art."

The earlier concept of "musica participata & mista" could now be extended to include all the subtleties of the enharmonic-not only the ditone but even the diesis-and the result would be an enrichment of music and an increase in the varieties of expression. An example of such a mixture can be found in the madrigal, "Madonna il poco dolce." Again, only the first part of this composition is given in the treatise.68

It is easy to understand, on the basis of this thinking, why Vicentino was unable to accept the diatonic as the only category for the common music of his day. Regardless of the illogicality of many of his percepts, their real significance lies in an awareness that mid-Cinquecento music was in a state quite different from that of the High Renaissance. And no one should dismiss lightly the ideas of a musician trained in the school of Willaert, even one so avant-garde as Vicentino. His theories may have been extreme, but they were nearer the truth of actual practice than his more conservative critics were ever able to suspect.

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65 A transcription of this work can be found in Theodor Kroyer, Die Anfänge der Chromatik im italienischen Madrigal des XVI. Jahrhunderts (Publikationen der Internationalen Musikgesellschaft, Beiheft IV [Leipzig: Breitkopf & Härtel, 1902]), Appendix, pp. 154-156.

66 "... sarà tutta la compositione Cromatica dolce. ..." Vicentino, op. cit., fol.

67[•]. . . sè si agiogneranno à quelle de i Diesis Cromatici, & de gli Enarmonici fra i toni, & fra i semitoni; si sentirà gran utile di Armonia in quelle. . . ." *Ibid.* ⁶⁸ Cf. *ibid.*, fols. 68[•]- 69.