

Guido d'Arezzo
MICROLOGUS OF GUIDO

Translated and edited

by

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A THESIS

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INTRODUCTION

Life

Guido d'Arezzo's birth is surrounded by some faint mystery for there is much discrepancy concerning his birth date, but it is generally accepted as approximately 995 A.D. He was born in Arezzo, a small Italian town; and he first entered a Benedictine monastery of Pomposa. He taught singing here, invented many new methods of instruction, and was so successful that he was envied by all his contemporaries.

So he left Pomposa, where he remained until about 1034 when Pope Johannes XIX called him to Rome. He traveled into France, perhaps even England. He seems to have spent some time at the French monastery at St. Maur, which had begun to display great musical interest, since the Cluniac reforms. It may have been here at St. Maur that Guido was in contact with Odo, a monk of Cluny, who had been choir master there.

Guido returned to Italy to his native town of Arezzo, rather than to Pomposa. He was in charge of the choir school here. It was during this period that Theobaldus, his Bishop, commissioned him to write the *Micrologus*. He was invited twice to Rome by the Pope himself to explain and teach his system, and he achieved great fame through those pilgrimages to the Papal court. His former Bishop of Pomposa urged his return, but Guido went instead to the monastery at Avellana. Ultimately, however, he seems to have been led back to Pomposa, where he died about 1050.

There is little information regarding this man's education, work,

environment; his only record appears to have been that of his work. He was known by many writers of the 15th and 16th centuries as the "Father of Music," and there is a statue in Arezzo erected to him with that title.

Importance and Influence

The value of Guido's work and teaching has been the object of much discussion during the centuries. At one extreme there were those writers who titled him "The Father of Modern Music," -- he was credited with every discovery that occurred in his century if the exact date was unknown, or even doubtful.

Then there were those writers who spoke of Guido as "he, to whom much has been attributed, but who was rather behind than before his age."¹ His true position is undoubtedly at some point between these extreme views, for he did make many definite contributions, though perhaps not all those credited to him by over-enthusiastic writers.

First, the contributions within the *Micrologus* itself are of interest. It is within its pages that the state of music in the 11th century is made clear. One reads that the new free diaphony is preferred to the older strict forms; his examples in Chapter XIX are indicative of this. He was the closing of the period of the old diaphony, for after him the new system, based on contrary motion, appeared. Guido in Chapter XVIII shows himself opposed to contrary motion.

¹William Chappell, History of Music (London: Chappell and Company, 1874), p. 21.

The rules that he gives for diaphony are too obscure to be easily understood; the reader is apt to conclude that his rules are illogical and without reason. This is, to a limited extent, true, for his rules are those of a practical teacher, not of a musical theorist. His proofs are based on custom and usage, rather than tested theories. For example, the diaphony which he sets forth as a successor to the old organum can scarcely be said to be a great improvement, "For G, finding successive fifths too harsh, substituted fourths as more agreeable, an alteration that can be considered but a very moderate improvement."¹

His complete explanation of the method of obtaining notes upon the monochord is interesting; the system of uniting the tones in hexachords, the relationship of the four keys, -- all these discussed in the *Micrologus* are important for their contribution to the conception of music at that period.

The greatest contribution found within the book, however, is probably his discussion of the third. "The ending from a third to a unison by contrary motion is new and of great importance for the future....there is an illustration of organum in which the third is the important interval."²

Other contributions of Guido are, (1) the results of his hexachordal system. It definitely pointed to the major scale; because of the emphasis which was placed upon the internal interval structure. For example,

¹Emil Naumann, History of Music, (London: Cassall Company, 1874, Special Edition), p. 209.

²Thomas M. Finney, A History of Music, (New York: Harcourt Brace and Company, 1935), p. 63.

the half tone always fell between mi and fa. Then the relationship of the "finals" led directly to our scale; for these finals were essentially the I, IV, and V of our major scale. (Note the charts on pages 25 and 29). Thus his system of mutation, that is, of moving from one hexachord to the next, points toward the modern scale, capable of transposition. His work in solmization is of great value; he adopted names for the notes of the hexachord, so establishing a standard simplified system. He took the names of his notes from the first syllables of an ancient Sapphic hymn, because the initial notes for these lines happened to form the scale:

ut queant laxis resonare fibris
mira gasterum famuli tuorum
solve polluti labii reatum

It is also possible that Guido knew the Arabic names of the notes, and only used this hymn as a mnemonic device. The Arabic notes: min, fa, sod, lam, sin, dol, re.

In addition to all these, "Guido is credited with the invention of the Guidonian Hand, a figure representing the tones of the gamut on the left hand, used in teaching solmization. Each note of the scale was assigned to a joint of the hand, to which the singing master pointed."¹

Finally, Guido invented the four-line staff, that is, he popularized the use of this staff. Lines had been in use before his day, but they never could indicate the exact interval, until the advent of the four lines.

¹Paul H. Lang, Music in Western Civilization, (New York: W. W. Norton Company, 1941).

The work of this man surely does merit some study in the perusal of music history for he occupied a place of importance in his time, and he contributed much knowledge to the fund of musical information following him.

Style of Guido

The usual difficulties common to all translation were encountered in this attempt; even more acutely because of the double translation, that is, from the original Latin to the German, then from the German into English.

The sentences are long and unwieldy, composed of many dependent clauses and phrases. The author has taken the liberty of shortening many of these, breaking some into independent clauses, and omitting words which seemed unnecessary.

The style is verbose and flowery at times; yet very vague and obscure. His explanations of various phenomena of diaphony, definition of terms, his reasons for musical rules, are inadequate and, in some cases, inaccurate. These passages have been indicated by footnotes.

Editions

The first available edition of Guido's *Micrologus* appeared in the "Scriptores" of Gerbert, and of Coussemaker. This was reedited in Amelli, Milan, 1880. This translation by Michael Hermesdorff, was published at Trier in 1876.

MICROLOGUS GUIDO

BRIEF HANDBOOK OF GUIDO COVERING RULES OF MUSICAL ART

Translated and Explained

by

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With an appendix of tables

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INTRODUCTION

In the story of music, the name of Guido d'Arezzo has attained such fame that it must be of great interest to every musician to know his writings better. The "Epistola Guidonia Michaeli monacho de ignoto cantu directa," is of particular interest, for it sheds the most light on Guido's personality and his life from a musical standpoint. This Micrologus of Guido's is his most important writing, for from it are derived the tracts: "Musicae Guidonis regulae rhythmicae in antiphonarii sui prologum prolatae" and "Aliae Guidonis regulae de ignoto cantu identidem in antiphonarii sui prologum prolatae." These are the contents of the Micrologus, only in another form. Of the treatises "Tractatus Guidonis, correctorius multorum errorum, qui fuit in cantu gregoriano in multis locis" and "Duomodo de arithmetica procedit musica" (the latter was not necessarily originated by Guido) the first is frequently seen, with additions added at a later time. But to us, the Micrologus is of greater interest, for Guido himself, at the conclusion of the above cited epistle, refers his students to the study of it, as a complete handbook of the theory of music. And we also have, in this same volume an authentic view of the position of tonal art in the eleventh century preserved by a man who is regarded by his contemporaries as the most important judge and patron of musical art, and as such he was so honored and famed that he was pursued and envied on all sides. We have laid the foundation of our translation of the text on Abbot Gerbert, in his work "scriptores ecclesiastici de musica sacra potissimum," from the manuscripts of the library

of his monastery, St. Blasien, combined with two manuscripts of St. Emmeram with one of Admont and with fragments of Ottenbeuren and Cassini, made public for the first time. Through the goodness of our very honorable and beloved friend, the Dr. R. Schlecht of Eichstadt, we are enabled however to add this text of Gerbert, a different reading from Codex Latin 9921 (Ottenbur) Codex 14,633 of the Munich "City and State library" and Codex 14,965 a and b which have assisted substantially in the clearing up of the manuscript, for which we feel obligated to give our deepest thanks to the gentleman.

the author,

M. Hermesdorff

SHORT HANDBOOK OF GUIDO OVER THE RULES OF MUSICAL ART

G ymnasio musas placuit revocare solutas,
U t pateant parvis, habitae vix hactenus altis.
I nvidiae telum perimat dilectio caecum:
D ira quidem pestis tulit omnia commoda terris
O rdine me scripsi primo qui carmina finxi.

Document¹

Guido's, of the monks and musicians, to Theobaldus,² his bishop, on the rules of musical art.

In intense fear of God to the very famous and very beloved father and host, Herr Theobaldus, the most worthy of priests and bishop, from Guido, the most unimportant of his monks, his servant and his son.

While I should prefer to live a simple and secluded life, your Honor requests my humble self to unite in the study of the word of God.

¹In the custom of that time the author has begun with an acrostic, which subtly intimates the principal aims of his musical life and work. Since Hucbald and earlier, men had been striving to find a tonal writing through which melodies could state their material indubitably. With this noble intention men had tried to solve this problem through various attempts but Guido finally has succeeded. He freed music, that is -- songs were never represented so correctly before in writing, so that they could be clearly grasped by the boy choristers. Formerly even very devout, careful singers after years of traditional use could scarcely hold fast these songs in their memory. The author realized the envy and the persecution that his findings would elicit; he sought to avoid them and so the results of his findings became the common good of all.

²Theobaldus, bishop of Arezzo from 1014 until 1037. According to Baronius, (Ad ann 1022 n 22) Guido probably wrote the Micrologus in his 34th year under Pope Julliam the 20th (19th) who according to Benedict the 8th, sat on the Papal seat from 1024 to 1038, "Joaness XX Gubernante Ecclesian Micrologum Suum Edidit Guido, anno Trigesimo Quarto Aetatis,"

Not that your Holiness is wanting for any gifted men, who grow strong by the exercise of every virtue, who are abundantly blessed with the treasures of all wisdom, who together with you instruct the trusting people and who pursue Holy meditation indefatigably. The spiritual weakness of my limited person you have treated with kindness and have defended with fatherlike protection. I pledge steadfast devotion so that if I, through the holy God, should be of some use, God will reckon it as from your most devoted servant. When you headed the highest of the church councils, your Honor made a grant that a work on the musical art be written, which I, if God wills, will make public so that to you, as God's representative, and to the church of Matyr's Donatus, the servant of this same church, in admiration and in respect, lays down these rules for the clergy of the world. Indeed already those worthy of admiration and imitation have agreed to this -- that the boys of your church surpass in the preparation of songs the most capable excepting none. The holiness of your position and of your servants will be increased through it; great and distinguished splendor of knowledge has sprung from the church, directly through you. Because I neither would be, nor could be, opposed to so great a task, I dedicate to you, with most loving fatherlike affection, these rules of musical art, which I have explained as clearly and

sometime in that year (1024-25), certainly upon the command of the Bishop of Arezzo, Guido, prepared by a long period of musical instruction, must have taught his new method, for the church of Arezzo had been widely mentioned. It had achieved such great fame that the songs of the boys were executed more surely and more exquisitely than all the other praised singers of this art.

as briefly as possible, in relation to religion, yet without following the analogy completely, either in the whole, or the details. For my principal aim was, besides to be of use to the church, to be an aid to our little choir boys. This knowledge was until now, hidden and unknown, because a previous explanation had never been made available to the church at large. So with this motive I have undertaken this work, from which view and with what end I will explain here in a few short words.

FOREWORD

Natural inclination, as well as the example of good men, has led me to a particular love for this popular activity; so I begin another favorite occupation, to instruct boys in music. The Godly Holiness came to me for assistance, so that anyone, with the use of the monochord and with careful instruction in the use of our notes, might, at the end of one month, be in a position to sing songs neither seen nor heard before, on the first glance, with such assurance, that he would be an object of highest admiration.¹ The rest I do not include; a person who is not in the position to do this, should not dare be known as a musician or singer.² For that reason I have been deeply sorry to see that our

¹This is in contrast to the circumstances of that time, when the singers with the help of the teachers appropriated singing by imitation repeating the traditional songs and, as Guido himself says in the following, -- in spite of 100s of years of studying no accuracy could be achieved in singing. The new method of Guido, with its considerable following, must have surely called forth the greatest astonishment. The fame of Guido, and also soon that of his art, spread, so that Pope Johannus XX himself through three ambassadors, bid him come to him and let him explain his method, and did not rest until he himself had learned a verse, which he had not before heard sung, -- as Guido himself in his letter to the monk Michael -- "de ignoto cantu --" has recorded.

²Guido did not hold back his opinion of the music and the singers of his time, and he appears to have made, through envy of his fame, many personal enemies of whom he has complained many times in the epistle. His writing, "Aliae Guidonis regule de ignoto cantu," begins with the following sentence: "Singers are, in our day, the silliest of all men. In every art there are a few to whose understanding we may appeal, but for the greatest part there are more who must learn with the aid of teachers. When the boys have read through the Psalter then they could read all other books. People of the country learn very soon the knowledge of land management. For we evaluate a vineyard, we plant a tree, we know how to

singers when they have persevered for a hundred years in the study of songs, nevertheless are not in the position to bring out of it the smallest bit of antiphony -- always learning, as the apostle says, without ever attaining to the fullest mastery of their art. Now inspired by this desire, -- to convert our favorite useful occupation to the general good I have, from the many musical subjects which I have collected together at various times, with the aid of God, put together those that I held most worth knowing for singers, in the shortest possible manner. That which in music is of little significance for the art of singing, or which would not be easily understood, I have not held worthy of mention. At this I feel no regret.

end of foreword

pack a donkey; what would apply in one case applies in all other cases."

"But particularly our singers and singing teachers, if they were to sing daily for a hundred years could not sing without a teacher a single antiphony, while they waste such time with their singing that they could learn completely all worldly and spiritual knowledge." His "regulae rhythmicæ," Guido introduces with the following:

Musicorum et cantorum magna est distantia,
 Isti dicunt, illi siunt, quae componit Musica;
 Nam qui facit, quod non sapit diffinitur bestia.
 Caeterum tonantis vocis si laudent acumina,
 Superabit philomelam vel vocalis asina.

That is, "between musician and singer is a great contrast. Each one understands the position music is in. But he who does that which he does not understand is as an animal. When one praises the high bellowing of a thundering voice as beautiful, then one has the right to bear out the praise of a crying ass over a nightingale." The manner of expression is crude, but essentially the comparative judgment has a certain application in our time.

CHAPTER I

CONCERNING THE NECESSARY STEPS TO MUSICAL ART

He who desires our musical information must learn first of all a reasonable number of songs, which are written with our notes; second, he must discipline his hand in the use of the monochord. He must go often through the rules herein stated, until he has comprehended the nature of the tones fully, and is in a position to sing with pleasing execution the less-known as well as the more familiar songs. As the first fundamental of this art, we should note the tones upon the monochord, as we see that the art has been limited to the imitation of nature.

CHAPTER II

CONCERNING THE SPECIES OF NOTES AND THEIR NUMBER

The notes on the monochord are the following: At the bottom has been set the Greek Γ (gamma) which has been added by the new method.¹ It is followed by the seven letters of the alphabet, which are indicated with the large letters in the following manner: A, B, C, D, E, F, G. After this the same seven tones are repeated in a higher range, which will be indicated with the small letters. But in the successions is set between a and b^\sharp another b which is formed round, while we have made the other square; so; a, b^\flat , b^\sharp , c, d, e, f, g. These seven letters may be joined, but with different symbols, yet still with the Tetrachord in command, in which the b will again come in its twofold position:

a b^\flat b^\sharp c d

a b^\flat b^\sharp c d²

¹Thus the f was not, as one might maintain, added by Guido himself or by the reputation of his system; but was prepared before his time. Besides Guido could not have done without the tone f , for both of his methods in Chapter III for the division of the monochord cannot be accomplished without the tone f . He could not have found the tone c from A by simple, direct division. It is very probable that the word "neuern" was only added to the tone f , so that a simple division of the monochord from this tone could be executed. Guido at least (and probably also the "moderns" before him) always observed the tone f as not belonging to the system. In his "epistle de ign. cant." he names A as "prima littera" the first letter, B the "secunda" the second; C, the "tertia," the third; and a the "altera prima" the other first, etc. Practical application has found the tone only in choral singing in the responses on Palm Sunday: "Colle gerunt principis."

²The Greeks furnished only to a^2 from the great system of Aristoxenus.

These letters will be regarded as superfluous by many, but we would prefer too much of something than to have too little. Altogether therefore, there are 21 tones, namely: Γ , A, B, C, D, E, F, G, a, ~~b~~, ~~f~~, c, d, e, f, g, a ~~b~~ ~~f~~ c d. The arrangement¹ of the notes (upon the monochord) either was overlooked by the teachers up to this time or else it had been too obscure and difficult to understand. So now it should be explained here in brief and in an easily understood manner for the choir boys.²

Hucbald extended it to $\overset{b}{b}$ $\overset{c}{c}$; Guido to $\overset{d}{d}$ and $\overset{e}{e}$ through the laying out of the hexachords by mutation. The reader will perceive better by a clear look at table A on table I of the index.

¹Dispositio, the planned placing, = order = division, that is the form exhibited by the division of a stretched string or through placing a bridge in the indicated division points, the named tones are placed and so could have been brought to attention. The remainder is seen in Chapter III.

²"That is, setting down each note helps the great masses, as a blind man is guided in progress by his leader, to learn the seven notes with their signs: , A, B, C, D, E, F, G, A, B, C, D, E, F, G, a. For the other notes, which follow the first seven, are not actually others, but will be combined as under one rule. For the tones are certainly, like the days, only one of seven (a Hebdomas). But when you observe the tones as they will be heard with the ear, then will you see them also with the eye; you must meanwhile be silent, and follow certain proportions made with the hand" (following the division of the monochord.)

CHAPTER III

CONCERNING THE ARRANGEMENT OF THE NOTES ON THE MONOCHORD

After the letter Γ has been placed at the bottom, the whole length of string is divided to the end into nine parts, and then at the extremity of the first part is placed the letter A, from which all the old theorists made their beginning. Then after it has been divided in like manner from A to the extreme end, at another ninth is set in the same way, the letter B. Here one goes back to Γ and all of the string is divided to the end into four parts; at the high point of the first part is C. Through this same division into fourths, one finds, that as C has been found from Γ the distance from A to D is found, from B to E, from C to F. From D one may find G, from E to the high a and from large F to the round b . The following letters can now easily resemble the series already done through the bisecting of the space as in the preceding fashion -- as for example, measuring from B to the extreme end, one puts the other \sharp in the middle of the string. In like manner C determines the other small c, D the other d, and E the other e, F the other f, G the other g, and A the other \flat , \sharp the other \sharp , \flat the other \flat , \sharp the other \sharp , c the other c, and d the other d. So one could progress endlessly above and below, if the physical laws of hearing would not prevent.¹

¹The finished division of the monochord is also given in the "Epist Guid, Mich. Monacho directa angegeben." It depends on the nine divisions, the division into four and the division into two. The purpose was the same, to bring that tone series, as set up in Chapter II, to the student

Of the various ways of dividing the monochord, I have set down here only one, to which one may devote his whole attention instead of to

for practice in hearing, and to give him a means at hand to help him to build a musical ear, so that he could do so without the aid of a teacher. It rested upon the important principle of the variation of the tone through shortening a stretched string, be it through the naked pressure of a finger, as in our stringed instruments, or be it through the putting under of a bridge as in the bands of our guitars, zithers, mandolins, lutes, etc. The point at which the stretched string is shortened with the touch of the finger, or with the bridge, brings forth the open directed tone -- from that the student should learn definitely the instructed division method. Therefore one tunes a stretched string, ST, over a hollow resonance box and moves over, at y and x, two bridges, and marks the tone of the free part yx of the string ST with Γ ; then one finds the point at which the tone A will be found; while one divides the whole string yx or Γx times, or the remaining space into nine equal parts exactly (studiosissime, as Guido says in his epistle). The point at which the first division falls is where the tone A will fall, that is, when I allow the division Ax of ST to swing, through the pressing down of the string or setting a bridge, then this part of the string gives forth the tone A. In the same manner can be found through nine divisions of the string Ax, the division point B for the tone B. One finds the dividing point C for the tone C when one divides the whole string Γx into four equal parts. In the same way one finds the dividing point D when one divides the string length Ax, E from Bx, F from Cx, G when one divides Dx, a from Ex, b rotundum when one divides Fx into four equal parts. The remaining division points: \sharp , c, d, e, f, g, a \flat \sharp c d
a \flat \sharp c d
one finds through dividing in half the respective string lengths: Bx, Cx, Dx, Ex, F, Gx, c ax, \flat x, \sharp x, cx, and dx. One computes the length of the piece of string for each tone on the basis of the forenamed division. So it is marked when one shows Γx with 1.

| | | | | |
|---------------------|-----------------------|----------------------|------------------------|-------------------------|
| Ax = 8/9, | Bx = 64/81, | Cx = 3/4, | Dx = 2/3, | F x = 32/81, |
| Fx = 9/16, | Gx = 1/2, | ax = 4/9, | b x = 27/64 | ^a ax = 2/9 |
| dx = 1/3, | ex = 8/27, | Fx = 9/32 | gx = 1/4, | cx = 3/8 |
| \sharp x = 16/81, | ^c x = 3/16 | ^d x = 1/6 | Ex = 16/27, | b x = 27/128 |

The length of the string yx or Γx . From this measuring of lengths is proven the following relations of intervals contained in the tonal series:

| | |
|--------------|---------------------------------|
| small second | B-C, E-F = 243:256 |
| large second | Γ -A, A-B, etc. = 8:9 |
| small third | A-C, D-F, etc. = 27:32 |
| large third | C-E, F-a, = 64:81 |
| pure fourth | Γ -C, C-F, etc. = 3:4 |
| pure fifth | Γ -D, C-G, etc. = 2:3 |
| small sixth | E-C = 81:128 |
| large sixth | Γ -E, C-a, etc., = 16:27 |

many, and grasp this same without complicating questions; also it is of the greatest importance that the method of division be clearly understood, and once understood never to be forgotten. One other method of division should follow here, which is not so easy to impress on the memory, but which is accomplished more quickly. When one makes at first nine equal divisions from the Γ to the extreme end the first division ends in A, the second is free, the third ends in D, the fourth is blank, the fifth ends in a, the sixth in d, the seventh in $\frac{a}{2}$, the remaining is unmarked. In the same way when one makes nine equal divisions from A to the end, the first division ends in B, the second is free, the third ends in E, the fourth blank, the fifth ends in $\frac{4}{2}$, the sixth in e, the seventh in $\frac{4}{2}$, the last remains free. In the same manner when one divides into four equal parts from Γ to the end of the string the first part ends in C the second in G, the third in g, the fourth reaches to the end. But when one divided to C to the end in four parts the first ends in F, the second in c, the third in $\frac{c}{2}$, the fourth reaches to the end. When one divides from F in four equal parts the first part ends in the round \flat , the second in f, the third in c.¹ When four divisions are made from the round \flat ,

small seventh Γ -F = 9:16
 large seventh C- $\frac{4}{2}$ = 128:243
 octave Γ -G = 1:2
 large fourth F- $\frac{4}{2}$ = 512:729
 (tritone)
 small fifth (as inversion of the large fourth) = 729:512

¹Cod. 14663 reads: Tertius in ff vel vacat. That is, "The third ends in ff or remains empty." The text by Gerbert, "Tertius in c" is incorrect for in the division into four from F at the first fourth is the fourth \flat rotundum in the proportion for 4:3: the second fourth (therefore the half) is the octave from F, namely f, and the third fourth (that is, the half from the little f) must give the octave from small f --

the second division point $\frac{1}{4}$, the rest remains blank.¹ When one divides from the high $\frac{3}{2}$ into four equal parts one finds, at the first division point $\frac{1}{2}$, the others remain free. These two methods of division of the order of tones upon the monochord will suffice; the first method is very easy to figure; the last is accomplished very quickly. In the following chapter all of the divisions will be made clear, briefly.

namely, ff. Moreover this ff falls above that tonal series of Guido's which has already stopped with $\frac{1}{2}$. The words "vel vacat" are also added in this place.

¹Also, this statement in the text from Gerbert is false for in the division into fours from \flat rotundum at the second fourth (therefore at the half) is not $\frac{1}{4}$, but only $\frac{1}{2}$. In another annotation to this sentence Gerbert has added another manner of reading in the cod. of Ottenbeuren and Admont, which reads "A item rotunda ad finem duorum passuum prior terminabit, secundus finit. Ad vero ad finem duorum similiter passuum prior terminabit in, secundus finit." That is, "when one makes two divisions from \flat to the end, the first part ends in \flat , the other closes it; but when one in the same way makes two divisions from \flat to the end, the first division ends in $\frac{1}{2}$, the second finishes." Therefore, the division into two has also been named, as well as the nine and the division into four, as an aid, which the aforementioned text seems to exclude -- also the $\frac{1}{2}$ was determined through the division into four from \flat . The result of this second method of monochord division is that the interval-ratios fall just like the first method. Through the division into nine from Γ , one obtains at the first division point ($\frac{8}{9}$ of the whole string length), the second A, at the third division point ($=\frac{6}{9}$ or $\frac{2}{3}$), the fifth D at the fifth division point ($=\frac{4}{9}$) the a ; at the sixth division point ($=\frac{3}{9}$ or $\frac{1}{3}$) small d ; at the seventh division point ($=\frac{2}{9}$) $\frac{1}{2}$. Through the division into nine from A (that is, of $\frac{8}{9}$ of the string length) one obtains at the first division point ($\frac{8}{9}$ of $\frac{8}{9}$ equals $\frac{64}{81}$ of the whole string length), the second B; at the third division point ($\frac{6}{9}$ of $\frac{8}{9}$ equals $\frac{48}{81}$ or $\frac{16}{27}$ of the whole string length), the fifth E; at the fifth division point ($\frac{4}{9}$ times $\frac{8}{9}$ equals $\frac{32}{81}$ of the whole string) the $\frac{1}{4}$, at the sixth division point ($\frac{3}{9}$ times $\frac{8}{9}$ equals $\frac{24}{81}$ or $\frac{8}{27}$ of the whole string) e ; at the seventh division point ($\frac{2}{9}$ times $\frac{8}{9}$ equals $\frac{16}{81}$ of the whole string) $\frac{3}{4}$. The division into four also gives at the first division point ($\frac{3}{4}$ of the string length) the fourth C; at the second division point the octave G; at the third division point ($\frac{1}{4}$ of the whole string) g . The division into four gives from C ($\frac{3}{4}$ of the string length) at first division point ($\frac{3}{4}$ of $\frac{3}{4}$ equals $\frac{9}{16}$) the fourth F; at the second division point ($\frac{1}{2}$ of $\frac{3}{4}$

equals $3/8$) the octave c; the third division point ($1/4$ of $3/4$ equals $3/16$) c . From F ($9/16$ of the whole string) in the division of four, at the first division point ($3/4$ times $9/16$ is $27/64$ of the whole string) the fourth b ; at the second division point (half of $9/16$ is $9/32$) the octave f. From b ($27/64$ of the string), in the division into four, at the second division point ($2/4$ of $27/64$ equals $54/256$ or $27/128$) the octave b . From a ($2/9$ of the whole string) at the first division point ($3/4$ times $2/9$ equals $6/36$ or $1/6$) the fourth d . One places the relationships obtained into a series so:

| | | | | | |
|-------------------|------------------|-----------|----------------|------------------|-----------|
| $\Gamma=1$ | $A=8/9$ | $B=64/81$ | $C=3/4$ | $D=2/3$ | $E=16/27$ |
| $F=9/16$ | $G=1/2$ | $a=4/9$ | $V=27/64$ | $\text{f}=32/81$ | $c=3/8$ |
| $d=1/3$ | $e=8/27$ | $f=9/32$ | $g=1/4$ | $\text{a}=2/9$ | |
| $\text{b}=27/128$ | $\text{f}=16/81$ | $g=3/16$ | $\text{d}=1/6$ | | |

just as by the first method of division (compare note one, Chapter III.)

CHAPTER IV

CONCERNING THE SIX-FOLD SYSTEM IN WHICH THE TONES ARE TO BE ARRANGED

When one has placed the tones upon the monochord one sees that the distance from one tone to another is at times greater, for example from Γ to A, and from A to B, but that at other times it is smaller -- between B and C, etc.

The larger distance between is called a whole tone; and the smaller, a half tone, Semis, (the half) namely, not a complete whole tone. In similar manner, from one tone anywhere up three tones is figured as a ditonus, (large third) that is, two whole tones, as from C to E; while only a semi-ditonus (small third) is comprised of one whole tone and a half-tone, as from D to F, etc. It is called a quarter (fourth) when there are two tones between which lie two whole tones and a half-tone, as from A to D and from B to E, etc. A fifth is a whole tone larger, that is, when there are two tones, between which lie three whole tones and a half-tone, as from A to E, and from C to G, etc. So there are six tone combinations,¹ the whole step, the half step, the large third, the small third, the fourth, and the fifth.

To these combinations may be added three others, the fifth with a half tone (small sixth), as from E to c, and again the fifth with a

¹Consonantina; the sounding together, as the combination of several tones, the tonal combinations. In the "epistle de Ign. Cantu" Guido brings in, in the same way, intervals and notes that are not in this six-fold grouping; they may be added simultaneously or progressively.

whole tone (the large sixth), as from C to a. Also the octave may be counted. But these three combinations will rarely be found, so we did not count them under the six. However, the sources and the peculiar characteristics of the octaves, which we treat in the following chapter, are pursued with interest.¹ In no case may one tone be united with the same tone in any other way correctly, whether it be ascending or descending.² This makes the 7th combination, the octave.³ This octave, because it is found only rarely, will be classed as less important than the others. The whole tonal system has been constructed with so little form that, according to Boethius, it is necessary to impress deeply the importance, and to forbid the use of this octave until it is completely understood by the singers. With this form one could, in a certain measure and with the art of inference,⁴ make the practical accurate singing his own and in an exact and easy manner.

¹In the markings of Gerbert these words are enclosed in parentheses in the handwriting of Admont and Ottobeuren and do not seem to be from Guido; also in his other writing the large and small sixths are not mentioned, but only the named six combinations or concordia, or tone steps are worth the practice. In the code of Ottenbeuren the remaining treatise of the capitals is missing, from "In nullo enim cantu."

²"Correct use, rules, and customs: the application of the useless sixth and seventh is therefore forbidden in the chorale."

³The text here seems incorrect. But the meaning is given obviously in the foregoing translation. Also in the "epistle de ign cant." Guido mentions explicitly the octave (ea vero concordia, quae est inter gravem aliquam litteram et eandam acutam sicut a prima in primam vel a secunda in secundam diapason dicitur, id est de omnibus). But the relationship, which is found instead between a low tone and the same high tone, as for sample from the first to the first (A to a), or the second to the second (B to ~~7~~) is called diapason (octave), that is to say, literally, of all.

⁴The first expression refers to the inner intellectual conception of

the interval -- that is the thought -- comprehension before it is sung; the last expression, to the same authentic conception after it is sung. The singer must have both within him if he wishes to sing a song with peace and facility. He must, mentally, sing each note, know how to imagine it, and immediately recognize it as correct when he has sung it, then go on with confidence.

CHAPTER V

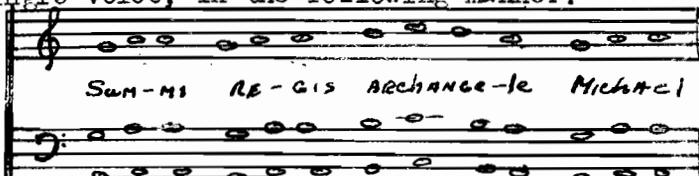
CONCERNING THE OCTAVE AND WHY THERE ARE ONLY SEVEN NOTES

An octave is that combination in which a fourth and a fifth have been added together; from A to D is a fourth and from this same D to the highest a is a fifth, so from A to another a is an octave, whose peculiar nature is that it has on each end the same letters, as from B to ~~F~~, from C to c, from D to d, etc. Each of the two tones will be indicated by the same letter, also both of them will be regarded and considered in every reference to be in the same condition and in most complete resemblance. We name the first and the eighth day always the same; thus after seven days we begin again. In the same way we figure and name the first and eighth tones always with the same letter,¹ because we feel that they sound together in natural harmony as one tone, as for example, D and d. From both tones one moves downward through one whole tone, a half step, and two whole steps and in the same way upward through one whole step, a half step and two whole steps.² Because of this, one

¹Cod. 9921 reads: "Ita octavas semper voces easdem figuramus." In the same way we designate the eighth tone always the same as the first.

²Here Guido brings forth proof for the harmonization of the tones standing in the octave, which is only highly superficial with the inner essence of the thing in no reference to the standing form. Both tones have the same place in the series of tones, as they occupy the same relationship to the tones standing around them. D and d have below them a tone which stands a whole step below; namely, C and c respectively; then follows a half step, B and ~~F~~ respectively; again here a whole step, A and a, respectively; and then a whole step, Γ and G respectively. The same tonal relationship one finds in ascending from D to d, as shown in this

finds to his astonishment that in practical singing, when two, three or more singers, sing tones in the same melody,¹ one hears the same tones but in different ranges; -- and that the same song in varying ranges sounds as a single voice, in the following manner:²



when one divides the same antiphony in lower, divides and sings in high tones, or cleverly alternates it in any fashion pleasing. For this

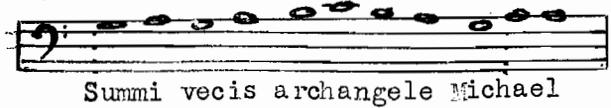
following group:

$\overset{1}{\square} \overset{1}{A} \overset{1}{B} \overset{1}{C} \overset{1}{D} \overset{1}{E} \overset{1}{F} \overset{1}{G} a$
 $G_1 a_1 \sharp \overset{1}{c} \overset{1}{d} \overset{1}{e} \overset{1}{f} \overset{1}{g} \overset{1}{a}$

But here follows in no way that essential resemblance and unity, which we observe in basic tone and octave, but only a certain resemblance with regard to the exact place which these tones occupy in the system, as Guido observes in this Epistle, as the "proprietas" of the tones. Guido seems to have conveyed this thought through his comparison of the seven tones to the seven days, though for the rest no real resemblance or unity can be found excepting a resemblance of the fixed position of each in the sequence, as for example each Wednesday has after it a Thursday and before it a Tuesday. A stronger proof of the exact resemblance and unity of the notes which stand an octave apart, is that one in which he shows that the same song can be done in different Höhenlagen -- octaves, without going through any alterations, from which it follows clearly that the similar tones must fall in the various ranges.

¹"Tune and sing" -- that is to say, to execute what has been heretofore observed. One may have melodies, without particular variation, transposed wholly into different tones; one could sing, for example, a melody in d-minor also in a-minor; but not at the same time. Here Guido also says, that between the tones D and a is found agreement, a complete agreement to be found only in the octave.

²Cod. Ottenburen Mon. 9921 reads: "Eadem vocum unitas apparebit hoc modo," and then gives examples in the enclosure, which examples we set down here in our notes:



Observe the notation, which is interesting.

CHAPTER VI

CONCERNING THE DIVISION OF THE TONES AND A CLOSE EXPLANATION

Now that the division of the monochord has been grasped, it must be remembered that the octave always extends over two equal divisions; the fifth over three divisions; the fourth over four; the second over nine;¹ as the divisions are shorter, they are always more numerous. Other divisions besides these four cannot be discovered: diapason (octave) was derived from "Alle," either because all tones are within it, or because the forerunners of the zither were strung with eight strings. In this art the tone combination comprises two parts, the first or lower, and the higher part,² as from A to a. Diapente (fifth) was named from five; for it contained in its range five tones, as from D to a. The low tone consists however of three parts, the high one of two. The fourth (Diatessaron) comes from four, for it consists of four tones divided; the lower tone has four divisions, but the higher three, as for

¹The octave extends over two equal divisions, that is, when one wishes to find from one tone its octave, one must divide the string length of this tone into two equal parts, so then this tone, the deeper, gets both divisions. Its octave (that is, the highest tone) gets only one division. As one must, to get the fifth of a tone, divide the string length of this tone into three equal parts, while this tone, the deeper, claims the whole length, its fifth, the higher, gets only two of these divisions. In the same way in the fourth, as has been expressed before, the deeper tone, from which the fourth is sought will be figured as the entire string length divided into four parts, while the fourth being sought, that is the higher tone, claims only three parts. In the large second (tonus) the lower tone has nine divisions; the higher tone only eight divisions.

²"Part" here, and in ensuing references in Chapter VI refers to the division of the string on the monochord.

example from D to G. These three things are called, as one may recollect,¹ symphonic harmonies, that is pleasant tone-combinations, because in the octave, both tones sound as a single tone.² But to fourths and fifths belong the privileges of diaphony, that is, the organum and the privilege of providing the most nearly possible similar tones.³ The major second (tonus) receives its name from Tönen, that is, "to sound;" in this interval the low tone has nine parts, but the highest has eight divisions. The minor second, and the major third have no division point upon the mono-⁴ chord, as they occur as equal tone combinations in singing.

¹It is not evident, where this should be observed in the former discussions.

²That is, two tones standing an octave apart sound as one tone, although they are two different and independent tones.

³"Providing the most possible similar tones," that is, through fourths and fifths one gets tones, which with regard to their proprietas, their peculiar place in the system have much resemblance, as C and G, D and a, D and G, E and a, etc. (cf. chapter IX and chapter V above).

⁴The large and small thirds, which could be found in their complete purity only through the fifth and sixth division, will be, as we have discerned before, forbidden entirely by the monochord division. This pure interval and its inversion, the large and small sixths, were entirely unknown by the ancients. But the large and small thirds and sixths, which appear occasionally in chapter III in the monochord-divisions, between the tones A-C, B-D, C-E, D-F, etc. are so altered in their singing relationship that not only in ancient times but even today each musical ear must explain such thirds and sixths as horrible disonances. Anyone can be convinced of this who has performed upon an instrument the directions of the tonal series as given in chapter III: AHCD, etc. with completely pure fourths and fifths.

CHAPTER VII

CONCERNING THE FOUR KEYS AND THE RELATIONSHIP OF THE TONES¹

There are seven tones for, the other, that is, the eighth tone, is virtually the same as the first, so it is enough to discuss seven tones which belong to the various keys and are all of different quality.²

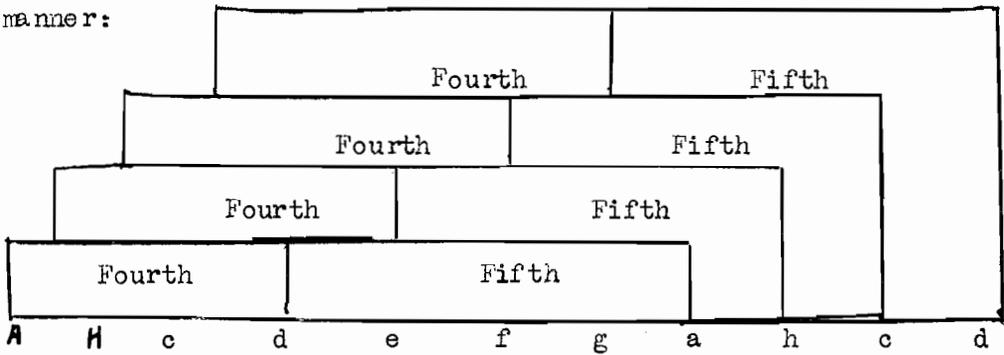
The first key is that one in which a tone may move down -- through one whole step -- and move successively up one whole step, one half step and two more whole steps, as A and D do.³ The second key is that one which

¹Cod. 9921 reads: "De affinatibus vocum et quatuor modis," and Cod. 14663: "De modis et qualitatibus diversis musicae artis." It is remarkable that the translation does not agree in any way with that set down in the added table of contents. There the translations of chapter VII, "De affinatibus vocum et quatuor modis," will be given a different meaning; "Concerning the relationship of the tones, in so far as they will be grouped into four keys."

²The meaning is: that tones standing in the octave relationship are always essentially the same. So to explain the keys and the different qualities of tone, one need not consider each time all of the tones of the whole system throughout the observation, but only seven, because the eighth is always the same as the first.

³The tone A has below it a whole step: Γ_1A so the tone D, C_1D ascending, A has above it a whole step A_1B , (our H) then a half step $B\frac{1}{2}C$ and two whole steps, namely C_1D and D_1E . So D has above it the whole step D_1E then the half step $E\frac{1}{2}F$ and above the two whole tones F_1G and G_1a . Guido says in his epistle, "All tones are related in some manner; and to build related tonal progressions and agreeable tone groups the related progressions are arranged, in the order of the ascending and descending whole and half steps; for example, the first tone A and the fourth tone D are similar and will be named as one key, because both have below them, ascending one whole tone, a half tone and two whole steps. This is the first similarity in the tones, that is, the first key."

goes down two whole steps, up one half and two whole steps, as B and E.¹
 The third key is that which descends through one half step and two whole steps; ascends through two whole steps and one half step, as C and F.²
 The fourth moves down through one whole step, climbs up through two whole steps and one half step as G.³ Note that these keys follow each in order, so the first is A, the second B, the third C. Similarly the first is D, the second is E, the third F, the fourth is G. Further notice that the relationship of the tones rests upon the fourth and fifth, for A with D, and B with E, and C with F, and D with G are figured from the lower tone a fourth, from the higher tone down a fifth, in the following manner:



1 $\Gamma^1 A^1 B^{\frac{1}{2}} C^1 D^1 E$

$C_1 D_1 E_1 F_1 G_1 a$

2 $\Gamma^1 A^1 B^1 C^1 D^1 E^1 F$
 $1^1 1^1 \frac{1}{2} 1^1 1^1 \frac{1}{2}$

$C_1 D_1 E_1 F_1 G_1 a_1 b$
 $1^1 1^1 \frac{1}{2} 1^1 1^1 \frac{1}{2}$

3 Gerbert remarked "as D and G conform to the following," but this is not correct for the given intervals are found only from G:

not from D:

$F_1 G_1 a_1 \frac{1}{2} c$
 $c_1 D_1 e_1 \frac{1}{2} F_1 G_1$

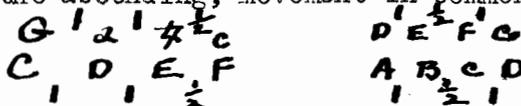
In the epistle Guido expresses it: "The seventh tone G alone builds the the fourth key, which in descending has one whole tone, a half tone and two whole tones, in ascending, two whole tones and a half tone."

CHAPTER VIII

CONCERNING OTHER RELATIONSHIPS OF THE TONES AND OF **b** AND **f**

There is another relationship which will be found through the fourth and fifth. The octave contains in itself a fourth and a fifth, and has the same letters at either end. One will always find a letter in the middle which stands in such a relationship to both extremities of the octave that, with this same letter with which one has built up a fourth from the lower tone, one may construct from the higher a fifth downward, still within the octave, as is given in the above figure. Then the same letter with which one has made a fifth from the lower, forms a fourth with the higher, as for example A, E, a. For A and E tune together; in the downward motion both of them carry out two whole and one half step. In similar manner take G which sounds in that same relationship to C and D, ¹ to the one, descending, to the other, the ascending motion. For C and G move upward through two whole steps and a half, and D and G both move downward one whole step and one half step. That

¹ Namely "fourth" and "fifth" -- the meaning up to here is as follows: "Each octave has on both ends the same letters, Aa, Cc, etc. Each octave consists also of a fifth and a fourth. In each octave is found one tone in the middle which, with the lower letter or tone, makes a fifth, with the higher a fourth, or inverted with the lower a fourth, with the higher a fifth. Each tone in the middle can be an octave, with which low tone it builds a fifth, with the high tones it builds a fourth or also to the middle of another octave, with the low tone it then represents a fourth and with the upper tone a fifth. So G is the middle of the octave Cc and the middle of the octave Dd. With the one tone is has the descending, with the other the ascending, movement in common.



round \flat which one has added stands in harmonic relationship to F and it is added for that reason. F, which is figured four tones below \sharp , from which it descends three whole steps, can find no harmonic relationship.¹ Both \flat 's, the round \flat and square \sharp may not be sounded in the same tone phrase; one uses preferably the \flat (minor) in those songs in which F and f are employed in the highest or the lowest parts. It then brings about an apparent transformation, so that G sounds as the first tone, a as the second tone, and \flat as the third tone. This transformation has not been recognized by many. In general one finds it well to have a second \sharp occur. Since one cannot use the \flat (molle) under all circumstances, then one must write out the neum in which it occurs; it becomes F, G, a, and the round \flat , G, a, \sharp , c. Or when the conditions are such that it demands two whole steps and a half step, after D, E, F, in descending, then \flat (molle) is used,² or after D, E, F, two

¹The tritone is therefore introduced because of the \flat rotundum. But it should not be used in the same tone phrase in the vicissitude with \sharp . And it can be used only in pieces: F comes frequently, and especially when it is the ground tone, when it is made clear in the cadences. A mixture of the keys can be confusing because the \flat rotundum, and confusion will be produced by many who know nothing of this. Also Guido speaks in his epistle against this, and will have us avoid the same as much as possible. Particularly all should write \sharp c, instead of D, E, F, with \flat rotundum.

² $D \overset{1}{\flat} E \overset{1}{\sharp} F \overset{1}{\flat} G \overset{1}{\sharp} a \overset{1}{\flat} b \overset{1}{\sharp} c \overset{1}{\flat} d$ is the same as:

$a \overset{1}{\sharp} b \overset{1}{\flat} c \overset{1}{\sharp} d \overset{1}{\flat} e \overset{1}{\sharp} f \overset{1}{\flat} g \overset{1}{\sharp} a$

therefore each tone progression from D, E, or F through \flat rotundum is the same as the natural tone progression from a, \sharp , c.

whole steps are still required in ascending, one uses the tones ~~a, c~~, c; then the same quality is correctly made ascending and descending. When one continues this division of the ascending and descending intervals of the tones D, E, F, and a, ~~f~~, c; one avoids the highly disadvantageous complications.

One thing more should be said here about the relationship of the tones, for the more the relationship of various things is investigated, the more the apparent contradiction is diminished. Otherwise one could exert oneself in the complication of knowledge; agreement is understood more easily than variation. All of the tonal knowledge and the differences in tonal art are united in these three tones: C, D, E.¹

But I found different, what has been named the most different, that is, "the secular ~~gen.~~" It has been named "different" for this reason, that it differentiates between the plagal tonal systems and the authentic.²

For the rest the notation is vague. [sic]. All other tones have something in an agreement with these, those either in descending or in ascending; but no tone is related to any other in both directions, except those standing in the octave. The relationships of all of these may be

¹All tones in their ascending and descending motions can agree with one of these three tones, C, D, E; also the nature of all the keys and their differences can be made clear by these three tones. Complete resemblance of all the relationships of the whole octave is to be found in these tones standing in the octave.

²This place is not clear, nor is the subordinate meaning. (Editor's Note: This departure from meaning is evident in the German as well as in the original Latin.)

CHAPTER IX¹

CONCERNING THE RELATIONSHIP OF THE TONES IN A SONG WHICH IS ONLY PERFECTED IN THE OCTAVE

Since the tones are related, some by descending, as C and G, D and a, others in ascending, as a and E, G and D, others in both as C and G, E and ♯, ² related tone groups may be built so that the recognition of one enables the recognition of the other. But there are tones, of which no relationship is known, which do not give the neum or the turn of the melody. When one wishes to emphasize one tone or another, one will transpose the entire song. ³ For example, one wishes to begin an antiphonal on F, beginning with D, with the tone E. One would instantly hear which of the different transformations must be used. In the tone D and a,

¹Cod. 9921 has not Chapter IX and X but jumps from the end of Chapter VIII to Chapter XI, which is indicated as Chapter IX.

²This is not correct, and recalls the statement at the close of Chapter VIII, where it is expressed, "that no tones on both sides, that is in ascending and descending, are similar, only those in the octave," C and g are only similar, ascending; descending below G is a whole tone, below C a half-step; E and ♯ have ascending two whole tones, descending the small second and third and pure fifth.

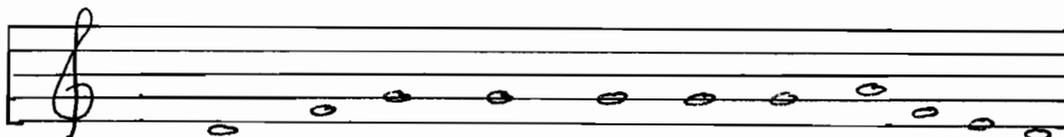
³Guido refers to this in his epistle. There he recommends as a good way to demonstrate the various characteristics of the keys that one begin a song first with D, then with E, F, and G. As an example, he cites there:

| | | | | | | | | |
|----------------|---|---|----|----|---|---|---|---|
| D | F | G | GG | GG | a | F | E | D |
| T ^u | P | a | t | r | i | s | s | e |
| E | G | a | aa | aa | ♯ | G | F | E |
| F | a | ♯ | ♯♯ | ♯♯ | a | a | G | F |
| G | ♯ | c | cc | cc | d | ♯ | a | G |

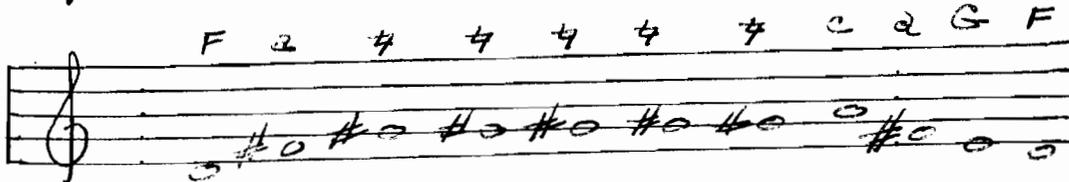
which belong to the same tone group, we can very often begin and end on the same note. I say "very often" and not "always," because here the relationship is not, as in the octave, complete. Here one finds a difference in the phrases. Also in the above named tones, as well as those of one tone-group, one will find dissimilarities. D proceeds downwards only through one whole step; a down through two whole steps;¹ the remaining tones are similar.

Therefore in our writing, one takes the first one always at the same pitch:

Tu Pa-tris aem-pi-ter-nus es Filius
 D F G G G G G a F E D



The great difference between the four sentences will be seen instantly. So when one begins with D, E, F, or G, one may transform each melody completely.



1 $\frac{1}{2}$
 B $\frac{1}{2}$ C $\frac{1}{2}$ D $\frac{1}{2}$
 F $\frac{1}{2}$ G $\frac{1}{2}$ a $\frac{1}{2}$

CHAPTER X

CONCERNING THE TONE AND THE KNOWLEDGE AND IMPROVEMENT OF AN INFERIOR MELODY

These are the four keys (groups) or tropes which are improperly named tones. These are separated through natural differences from one another, so that none shall be in the position of another, and so that a melody line either must be transformed or is not acceptable.¹ A disharmony creeps² in through the falsity of the singer when one takes

¹That is, through the natural "pattern" of the halves and whole tones, the various keys of the art may be distinguished. The tones, that is, the ground tone of one key can not be made into the ground (home) tone of another, without the melody line changing entirely, as proven in Chapter IX.

²One notices here the present -- "suprepiit" -- it creeps in" -- which indicates clearly that this is due to the inadequacy of the singers, who were badly-trained with poor voices, rather than to definite historical falsifying of certain songs. One does not need to think, by the "demunt gravantes" and "intendentes adjiciunt," of an intentional raising and lowering of the intervals from the pitch by the singers. In misgiving the pure harmony, the third of the monochord (64:81) was lowered to the clear relationship (4:5) and the small second (243:256) had been heightened to the relationship 15:10. Guido had expressed himself with the indefinite words "uber Gebühr" -- "immoderately," so that only the highly trained singers could have been allowed freedom or lack of rule. Also, no explanation is found here of "neumam eujus libet modi in alium modum pervertunt." In general, Chapter X does not accomplish what one would expect by reading the title; the definite rules for the recognition and improvement of bad melodies are not in the reading at all, as the title says. Only a single impropriety is referred to: a singer by giving an interval unclearly, or by the uncertain rendition of half tones, confusing the keys by bad singing, introducing disharmony into the song. Singers with bad voices do not give the intervals clearly; many tones are carried without moderation into the high ranges, or taken too low; often whole tones are made into half tones, and half tones into whole, so that the normal tonal line is lost. One key is changed into another; or the

away something from the well-measured¹ tone, or flats, or adds, by sharpening. The poor voices of the choir boys do this, when they force in the high range the tone relationships more than is necessary; or they allow it to drop, and so the melody line of each key is changed to that of another key; or they begin at a place that the key does not allow, or a key in which² the subductio³ is finished upon the third

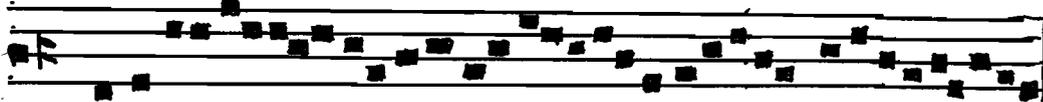
singers come to a place, where, according to the coherence of the systems, one tone can not be found. An example will be presented at the end of Chapter X, the "comminio; Diffusa est." Guido criticizes this impropriety in his epistle "de ignoto cantu," in so far as he suggests to his friend Michael a remedy for the avoidance of the same. He advises him to learn certain short melodies in which the characteristics of the key are sharply defined. With the help of these he could learn a comparison of the keys of each song. On the other hand, he could ascertain easily, whether he has sung through a melody with correct intonation and without mistake. If he finds, that at the close, or in the course of, the songs the little phrase does not conform to the related key, he would know, that he has fallen out of the key; the mistake has begun.

¹"Well--measured" -- namely measured exactly on the monochord, completely clear to his students, as Guido desires it.

²The place "vel quasdam subductiones" to "apponunt tonum" is not found in the manuscript of the 11th century -- either in Cod. 9921, which has not the chapters IX and X, or in Cod. 14663, also not in Cod. 14965 a and b, therefore seems not to have been attributed to Guido. It appears first in a codes of the honorable Benedictine Cloister S. Emmeram; now in Cod. 1 at 14523 of the Kgl. city and state library in Munich, in codex, 13021 in the 12th and 13th century, as we have written, in one code from Hartmann Schedel in Nürnberg in the year 1493 (cf Schlect, Story of Church Music, pp. 56; Monatshefte of Musical Stories, 1872 pp. 140) We then have only an interpolation from the time of measured polyphonic music, which began to exert its influence just now on the choral singing. So the same given explanation of the use of the Diesis is very interesting -- according to the text of the 11th century the coherence of the text is therefore: "aut in loco, qui vocem non recipit inchoant; quod ut exemplo pateat in Communione: Diffusa est gratia...."

³Subductio is the Latin expression for the Greek diesis. We see this plainly in the tract of Engelberti abb. Admont "De Musica," Chapter XVIII (Gerbert's script, pp 312) where it is taught that a whole tone can not be divided into two equal harmonic relationships, but only into two

tone,¹ (whose use can be allowed only at certain agreeable places). So that this will be easier to understand if we set down this example here.²



unequal ones. The greater division will be "Apotome," that is "more than the half of the division (superdivisa)" the large half tone; the smaller division becomes Diesis, that is, the "remaining part" -- (subductio, from subducere, called the small half-tone (semitonium minus). The whole reads: "Propter hoc dividitur in duas partes inaequales, scilicet in majorem, quae vocatur Apotome, id est, superdivisa, et haec est semitonium majus; et in minorem, quae vocatur diesis, id est, subductio a semitono majori; et haec est semitonium minus." The great relationship of subductio (dieses) (semitonium minus) will be defined in chapter XIV with the following words, "Diesis est spartium, quo sesquitertia proportio alicujus consonantiae major est duobus tonis; et haec diesis est subductio dictiur semitonium minus." This is that interval around which standing consonance (pure fourth) in the relationship of 4:3 is greater than two whole tones (large third in the relationship (ratio of 64:81); and this Diesis, that is, Subductio, will be called small halftone. According to this, the Diesis (Subductio) small halftone comes to the ratio $\frac{3}{4}$ divided $\frac{64}{81}$ equals $\frac{3}{4}$ times $\frac{81}{64}$ equals $\frac{243}{256}$ -- therefore 243:256. The ancients built the Diesis upon the smaller half of the small halftones, therefore 499:512. Today the Diesis is the difference between the great (large halftone) and the small halftone ($\frac{24}{25}$) therefore $\frac{15}{16}$ divided $\frac{24}{25}$ equals $\frac{15}{16}$ times $\frac{25}{24}$ equals $\frac{375}{384}$ equals $\frac{125}{128}$. This ratio (125:128) comes very near that of the ancients 499:512, for $\frac{125}{128}$ equals $\frac{500}{512}$, therefore it is only $\frac{1}{512}$ greater.

¹ Tritone, heretofore used only of the key (modus) stands plainly for tertio (sono) "on the third tone," that is, on C. (Compare Anmerk 4, pp 15-16). The same sentence following: "In nullo enim sono valet fieri, excepto tercio et sexto."

² Gerbert has not the C D at the beginning, but it is to be found in all old texts. The above-cited Munich code no. 13021 from the 12-13th century has the following example:



This use of the subductio can occur¹ only at the third and sixth; if it should be found at any other place it is entirely wrong; not only the subductio itself, but also the root on which it has sprung is to be eradicated entirely.² Note that from this the diesis has been used in place of the half tones....³

¹"Sonus" denotes in Guido, as is generally denoted in the words of the ancients, the tone as a high and low definite sound; the same meaning to (vox) Tonus. Against this, means first "degree of tone;" so then it stands also in the sense of "modus and tonus" for key or mode, but also for the eight tones through the division of the four main keys into the authentic and plagal form (Octo formulae; octo toni). Therefore, the term refers not to keys, but only to the third and sixth tones of the systems, namely C and F (cf Anmerk 4 pp 15-16).

²At this place it is seen that the Diesis stands not only at C and F, but also at other tones. The above critical "subductiones in trito" refers not only to the raising of the third tone (C); the "in trito" is not used simply for "in tritio" but will be chosen deliberately as denoting a whole category of tones. Such a category of tones occurs, when one considers that Guido and the theorists of the middle ages accepted only four keys (tonal keys), which embraced high (authentic) and low (plagal) melodies, and they could be analyzed only with attention to those in eight tones (formulae). The compass of these four keys is here following given:

- 1) Protus (Doric) A, B, C, D, (tonic) E, F, F, a, ♯, c, d.
- 2) Deutermus (Phyrgian) B, C, D, E, (tonic) F, G, a, ♯, c, d, e.
- 3) Tritus (Lydian) C, D, E, F, (tonic) G, a, ♯, c, d, e, f.
- 4) Tetrardus (Mixolydian) D, E, F, G (tonic) a, ♯, c, d, e, f, g.

Here the tonic appears always as the fourth and just under the tonic lies the leading tone as the third of the series. The tonic will be denoted in as the fourth tone (tetrardus, as different from quartus) as the fourth of the system in general (D) or also as the first (protus) when one considers only the authentic form. But third tones (tritus, as different from tertius, C) are all leading tones (guide tones) C, D, E, and F, and in transposition also G, a and ♯. With the "subductiones in trito" the elevation (raising) of all the leading tones is therefore intended. The interpolater notes first that they can occur only in definite cases, only at C and F and on no other tones.

³The omission follows: "...as when a song sounds like a heavily laden wagon gliding back and forth over a steep road. But for this reason the rules of music are not anymore incoherent than those of any other art, because many who nowhere could remain on the dictated road

So this Diesis¹, which takes the place of a halftone,² is nowhere

Here the perfect is noticed "potuerunt, accreuerunt, elegarunt,"-- which in old destroyedly improprieties meant, that even the regular music would appear as "dissolutae" -- loose, like a swollen river whose bed no longer suffices and which has overflowed its bank -- or every place when half tones have been established [Accreso, "to grow to that;" "increasingly to come to" also "growing increasingly" which could be translated "to every place when the half-tones have been increased," namely that one places instead of the "semitonium minus" 243:256, through the Diesis, the acquired halftone set in the relationships of 224:243 (note later.) But this change will force the acceptance of half tones already existent, which will be hereafter enlarged. This enlarging of the existing halftone H c and EF is clearly out of the question but through the Diesis of C and F are added halftones. According to this it is simpler and more natural when one reads "accreuerunt" in the first meaning. Then the plan says that where existing tones in the system of established halftones are added, they have been made permanent through usage in the course of time. Diesis on the passing tones, particularly on the third and sixth steps (C and F) on the first, second, and seventh and eighth tones (D C D; G F G) occur when singers who never could keep to the tradition of indicated rules, go their own way, as they fear to introduce their decorative figures in so small an interval. But where they could not pass by such halftones at all, there they scurry rapidly over it and sing instead of through the Diesis to the acquired halftones (224:243) -- only the Diesis itself, scarcely a quarter tone, resembling a chilled smelter before the glowing oven of the smelting oven, who scurries about rapidly and thrusts fuel into the glow, when he need only stir the fire. The figure is only an explanation of the notandum -- it tells why "a quibusdam," -- the Diesis will be used in place of the semi-tones. The interpolater will appear to be protected on two sides. While he on the one side stands for the application of the established, passing tones he will teach the misuse of them against the correct use; he turns in the Notandum against that which, based on the theoretical system, he rejects. Where they sometimes by singing in union could not pass by it, they could through a slight inflection of the voice ($\frac{1}{4}$ tone, diesis) let it rest that way, but with it they disfigure the song in another way (hamoniam in modum, etc.) another road has burst through into which they appear fearfully in the narrow excavation, with their large bodies, through which they are distinguished, that have not been confined by the all too confining width, or the too shallow depth of the hole. But where they absolutely could not avoid it they turned to the Diesis, in which they imitate in all things that example, that, as much as they fear the penetrating cold, they take upon themselves the power to strike only in the oven of the smelter."

¹With this "igitur" the interpolater is led back again to the place in which he looks over the "certain, proven places" in which the Diesis or subductio, can appear.

²"Quae locum semutonic sesnit" can not be translated "which is a

employed, except when the third tone¹ or the fourth tone is sung in the first key; and to go on,² the fourth tone or on the third or concluded on one of a lower tone. Here the third tone, which goes before the fourth or the third, should be sung in the highest range...³ This

half tone," but only "which takes the place of a half-tone," without being exactly a half-tone. The "sicut supra diximus" can refer only to the fore-mentioned, *A Quebusram semitonii loca admittitur.*" It has already been said indirectly the Diesis takes the place of a semitone, but one can criticize it for they used it singly, actually in the place of a half tone, and they applied it so while they regarded it only theoretically as a half-tone and in figuring, they used it as the greatest of the passing tones, as evidenced below.

¹ Tritus is, as shown in Ann. 4, p 55, as a tone, "not conceived as a key;" also tetrardus. In another meaning also will the following, "tunc tritus subducendus est modum" give no sense. "In proto" -- in the contrary, the key will be shown "Tetrardus in proto," is therefore "D in the first mode," first and second tone.

² "Iterumque" means here that the fourth tone (in D, resp. G) must always go before the third, it then follows, with itself or else with the third (C, resp. F) or in a still lower tone. From this are derived the following cadences: $D: D; D_{Cis} DC; D_{Cis} DCA, G G_{Fi} G GF_{Fi} G GFE; G GFD.$

³ This means that in the above case "the third tone (in C, resp. F) should be sung in the high range, and 'Modicum' (modified) a little" and that even this raising of the C (to nearly C_{is}) will be called Diesis. The amount of these elevations" may be derived from the adjoining table. Here he builds the Diesis C C_{is} -- an interval in the relationship of 27:28, therefore not a whole semitonium minus, that is, 27:28 equals 243:252, while the semitonium minus is built on the ratio 243:256. One deduces this ratio 243:256 of the Diesis as 27:28 from the whole tone CD equals 8:9, as the ratio for $C_{is} D$ remains always 224:243 (8/9 minus 27/28 equals 8/9 times 28/27 equals 224/243), which is somewhat larger than the Apotome -- or the semitonium majus 2048/2187 (for 224:243 equals 2016/2187). In the same way the ratio 224/243 ($C_{is} D$) as a half-tone will be observed as also the Diesis 27/28 appears in the place of a half-tone (locum semitonii sumit). In practice the Diesis can find no application in Chorale; the chromatic interval C C_{is} cannot be admitted in the Chorale. It may only be used when the half-tone is firmly established through the balancing presence of the C through the Diesis. The half-tone $C_{is} D$ is somewhat large, and in singing from D to C_{is} the voice must slide to more than C, which aroused all of the horrors of the Ancients regarding half-tones; also the V and Vi tones of the half-tone EF 243/256 which is given in the system, but they try to avoid it.

elevation is called Diesis, and amounts to half of the following half tones,¹ as half of the following whole tone is a half. But they are compared in the following manner: when one makes nine divisions from G to the end, and has found a, then one divides from a out into seven divisions, and then at the second point of the first division is found the diesis between \sharp and c.² Now the following second and third

¹"Et medietas sequentis semitonii," is supplied out of the following. The raising will be called Diesis and is the half of the following half-tones (namely Cis D 224:243) as in the movement of tones the semitonium (for example 243:256 E F) is half of the following whole tone F G. But the semitone 243:256 is in reality very near half of the whole tone 8:9; for one deducts from 8:9 the semitonium 243:256, so the apotome remains 2048:2187, so only a comma 80/81 is greater than the semitone itself 243:256, therefore is nearest the equivalent of our halftone 15:16. The halftone 15/16 times the semitonium 243:256 is 15 times 243/16 times 256 equals 3645/4096; the whole tone 8/9 is 8 x 455/9 x 455 equals 3640/4095 so that the difference is most insignificant. Even so now the diesis 27:28 is very near half of the halftone 224/243; one deducts from the halftone 224/243 the Diesis 27/28; there remains the relationship 6272/6561 which is (um circa) a half comma, greater than the Diesis 27/28 itself. One deducts again the ratio 6272/6561 the Diesis 27/28 so the small ratio 6504/6561 remains (circa, a half comma). The whole tone C D (equals 8/9) will be divided through the Diesis 27:28 (in ciria) into three parts; from which will come one part the Diesis C Cis and two parts in the half tone Cis D, resembling the small third E G 27:32 being divided into three parts through the semitonium minus 243/256, of which one part comes to the semitonium E F and two parts will come to the whole tone F G.

²Therefore the string length a (8/9) is divided into seven parts, in order to get the Diesis at the first division point. The string length therefore amounts to 6/7 of 8/9 equals 8/9 x 6/7 equals 48/63 equals 16/21. The string length from a equals 8/9, so from \sharp (as seen in chapter III) 64/81, and that c equals 3/4. Therefore the ratio of \sharp :Diesis equals 64/81:16/21 equals 8/61 x 16/21 equals 27/28, and Diesis:C equals 16/21:3/4 equals 21/16 x 3/4 equals 63/64. Therefore from \sharp :Diesis:C equals 243:252:262, 27/28, 63/64. From here the interpolater may explain that the Diesis 27/28 is in no way like the semitonium minus, as the former citation from Engelbert Admont taught; it is not like the Diesis of the ancients either, that is, the smaller half of the semitonium (499:512). This divided arithmetically by the semitonium 243/256 gives the ratio 486:499:512, while our semitonium

division points remain blank; but the fourth division point indicates the place of the third Diesis, which falls between \sharp and $\overset{c}{c} \overset{1}{1}$. In the same manner one makes equal divisions from d, and the place of the second Diesis is indicated in the above manner, which lies between e and f.² Then one goes back to the first Diesis and divides the space to the end in four divisions, so the first division point falls exactly between e and f, and the second between \sharp and $\overset{c}{c}$, and the remainder is blank. But we warn the reader not to consider us thoughtless, that we

\sharp C divided through the Diesis explained 243:256 will be in the ratio 486:504:512. The explanation given here of our interpolation is well worth noticing. He teaches next that the subductio or Diesis should be indicated from the low tones to the high in the ratio 27:28, through which he builds first in practice the ratio of 224:243, so the tonal ratio of the Diesis (27:28) could come only in practicing songs, never in actual use; in the Notandum he criticizes many who deepen the ratio to 63:64 (therefore about 1/6 tone); instead of using the Diesis which they should use in singing the high tones in the cadence Diesis D, they take Cis D in the greater ratio 27:28 (1/3 of tone). In both cases the song, through the use of these small ratios, will be similar to the sliding of the wheels of a heavily laden wagon upon a steep road. For the rest the Diesis will be taken only on C and F and in other definite cases.

¹Therefore $3/7$ of $8/9$ equals $8/9 \times 3/7$ equals $24/63$ equals $8/21$. Therefore \sharp :Diesis:C equals $32/81:8/21:3/8$ from which follows \sharp :Diesis equals $32/81:8/21$ equals $8/23 \times 8/21$ equals $27/28$, 27:28; and Diesis:C equals $8/21:3/8$ equals $21/8 \times 3/8$ equals $63/64$ equals 63:64.

²Then G equals 1 and a equals $8/9$ then d equals $2/3$, e is $16/27$; F equals $9/16$. Therefore $6/7$ of $2/3$ equals $2/3 \times 6/7$ equals $12/21$ or $4/7$. Then e:Diesis:f equals $16/26:4/7:9/16$ from which follows e:Diesis equals $16/27:4/7$ equals $27/16 \times 4/7$ equals $27/28$ equals 27:28, and Diesis f equals $4/7:9/16$ equals $7/4 \times 9/16$ equals $63/64$ equals 63:64.

did not write this at the beginning.¹ He will find us prepared to give him an answer at the close of the work;² now we wish to go back to the subject.

Also there is no situation in which one sings a whole tone, where to follow it would take only a half-tone.³ This⁴ would become clear though an example: Many set in the *communio diffusa est gratia -- das -- propterea --* which should begin about a whole tone lower than F.⁵

¹ He probably means in the monochord division.

² Refers to the close of the given explanation of tonal ratios on the importance of the Diesis.

³ Should be called "semitonium."

⁴ Here the text begins again in the old handwriting of the 11th century. But Cod. 14965 has over "Diffesa est" and "propterea" the melody given in notes. In our notation the following is the melody:

D. P. - P. u - sa est gra - ti - a in Ia - bi - is tu - is ;
 propte - re - a ben - dix - it - te De - us in
 ce - ter - num.

⁵ Really E stands under F, which forms with F a half-tone. A whole tone under F would have been our Es (E^b) today. This would therefore be criticized for example, in the beginning of the capitals -- "in chivant in loco, qui vocem non recipit...."

There is not a proper whole step under \bar{F} ; so it happens then, that every time a half step enters, they set it below F .¹ That could not happen, and that brings the close of the whole communio on a tone not proper in the system. Therefore the singers must know from practical knowledge on which step and in what manner each tone phrase is intoned, in order to transpose it in its correct key, or when a transposition is necessary, to set it over exactly in the correct tones.

These keys or tropes we name in the Greek expression: protus, deuterus, tritus, tetrardus.

¹That is, the halftone set under F now, because they have intoned the place at a tone too deep, has become Es (E^b)s, so that the halftone Mi - fa sounds in reality now as d - es ; but that should not be so since a half tone D - es is not at all existent in the chorale -- also in this way they come with the closing tone F (fa) on the tone Es (E^b) which did not exist in the choral system.

CHAPTER XI

WHICH TONE IN A SONG MAINTAINS PRECEDENCE AND WHY

Although every song is built¹ from the same tones and intervals, the tone in which the song closes asserts its superiority; this sounds longer² and more impressively. Also the tones preceding this are placed so that they seem to take, in some wonderful fashion, a certain color from it, which is discernible only through practice.³ The remaining tones which close a tone-group, must be followed by one of the above named six intervals. But the tone which closes the song, must also be added to its beginning,⁴ and at the close or at the beginning of all

¹There are only seven different tones; each song in a choral has only one octave compass, so in all things each song includes collective tones and those in the same confined intervals.

²"Longer" in that it may be repeated more often, as it may be noticed in the following -- a good song makes its cadenza in the single rest upon the final tone, "more impressively," because in the cadenza the more often repeated final tones will be impressive through the definite, meaning spirit.

³That is, all tones in songs from perfected music (and even from other, more unknown) is comprehended in relationship to the closing tone, that is, the tonic, in which relationship the tones are always exhibited in a proper light. So, for example, the tone a (la) the same tone appears in one light, when the closing tone (tonic) of the song is D, in another, when it is E or F. In the first case, (that is, in the doric) the singers always conceive of the tone a as the fifth; in the phrygian as the fourth, in the Lydian as the third; it has been given each time a different color, another physiognomy.

⁴"Principatus," the first place has the same meaning as "mit principium", the beginning -- therefore here means "the first tone." In the preceding it has been said that all tones of the songs will be conceived

Furthermore, in carefully composed songs more of the small sections end upon the final tone. It can not seem curious that music derives its rules from the final tone, for also in grammar the sense of case, number, person, and time is understood from the last letters and syllables. So we say with accuracy that all of the praise is sung at the end,¹ that each song belongs to a tonality and from that tonality takes its correct form from that which sounds at the end. Correctly, in each song, the descent is from the tonic to the fifth² and the ascent to the octave. Although one often, in contradiction to this rule, climbs up to the ninth, tenth, and eleventh. Here the tones D, E, F, G, are established in the first place, the place upon the monochord of the forementioned ascents and descents. These have at the bottom of the tetrachord the deep tones, at the top the two tetrachords of the high tones.



The related melody here is conceived to be the Doric, although the actual reading is only from the third tone (Phrygian), and an agreeable example with the antiphony, "tertia dies" given, is not conceivable.

¹That is, "in the customary work." The comparison is not a fit one at all: he should better have said that first, when one has heard the closing tone in the song, he can judge which key he has heard, and whether he could, in looking back, acknowledge and praise it as correct and well-constructed.

²That does not mean to the "Unter-Quinte" -- the under fifth, but to the tone which is seen to be the fifth in the key under consideration. So, for example, in Doric (D) the tone a is seen to be the fifth always: the melody therefore can climb down to A. Therefore one must take as the regular compass -- of the Dorian Γ -d, of the Phrygian A-e, the Lydian B-F, etc. By way of exception, the range in going down can be greatly increased, although in the following sentences only the extension of range in ascending is given.

CHAPTER XII

CONCERNING THE DIVISION OF THE FOUR KEYS INTO EIGHT

Songs of the same tonality, as for example, the first, are at the close sometimes low and symmetrical,¹ sometimes high and far-reaching. So it is not possible to add verses and psalms at the end, as said before, to add to the different songs in the same manner. For if the addition were low, it would not suit a high song, if it were high it would move in contradiction to the low. Therefore it was commendable, to divide each tonality into two, that is one division in the high range, and one in the low, and to harmonize with definite rules the high with the high, the low with the low. Each high tonality was to be known as authentic, the original and principal mode; the low was known as plagal, that is, side or secondary mode. For when one says he stands at my side, he is less important than I; on the other hand, when he is greater (of more importance), he would better say, I stood at his side. In this way one must say, first authentic mode and second authentic mode, the first plagal, and so on through the rest, so the tones will be increased in the four different modes to eight. But a misuse of terms allows the Latin to say, instead of the first authentic and first plagal modes, the

¹ That is, a part of the song, with its melody, goes down below (tief) the tonic (ground tone) and it deviates not far from the symmetrical; it moves about the same tones.

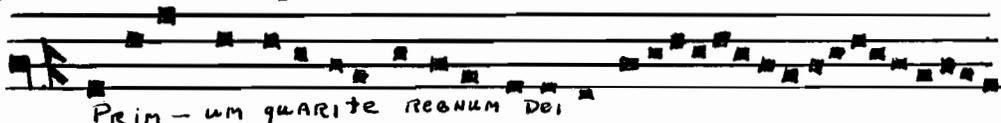
first and second modes; instead of the second authentic and second plagal, third and fourth, instead of the third authentic and third plagal, fifth and sixth, instead of fourth authentic and fourth plagal, seventh and eighth modes.¹

¹In his "Epist. de ign. cant." Guido indicates the subdivisions of the four keys (modes) as "formulae modorum," (ideo habes duas formulas in unoquoque modo), also the eight keys.

CHAPTER XIII

CONCERNING THE DISTINGUISHING CHARACTERISTICS OF THE EIGHT TONES AND THEIR REACH INTO THE TREBLE AND THE BASE

There are eight modes, as there are eight parts of speech and eight types of happiness. They will be discerned by means of the eight different tones and their peculiar characteristics.¹ In order to determine the mode of the songs, one has found² certain tone-phrases from whose characteristics one knows the mode of a song exactly. As one often learns from the characteristics of the body, the kind of dress which belongs on it, for example:



One sees that this phrase is united well with some antiphony. One knows at once without doubt, that this phrase belongs to the first authentic key;³ so can this be done for the remaining

¹The meaning is the following: "All songs are set down out of the eight different tones, (a ~~b~~ ~~c~~ d e f g) in their varying qualities (graves, acutae, superacutae), and each preserves its own gradation in its own song throughout, so that it moves in one of the eight keys. Conforming with the earlier sayings, each tone retains its individual relationship to the ground tone, its own coloring, which, therefore, is always changing whenever the ground tone, representing the tonality itself, is changed.

²"Inventae"-erfunden," or as it is in the "Epist. de Ign. cantu" re-pertae "forged." These short melodies, which one finds given in the "Tonarien," are really found in the above design and could not have come from the practiced, liturgical songs.

³Because the phrase "Primum quaerite" itself belongs to the first authentic key.

keys.¹ By these characteristics the verses are also suited to the responses of the nocturne and the psalms in the offices and all this is given above,² in the various forms of the modes. When one does not know one of these,³ it would be because he has understood only in part what has been said here. These forms will be understood at once in which modes the songs of a single key begin, and those in which they may never happen. In the plagal forms it is never permissible to allow

¹For the remaining keys one finds in the Tonale of the holy Bernhard in the "Tonar von Berno," such tone phrases as for the second key: Secundum autem simile en huic; for the third key: Tertia dies est quod haec falta sunt (see Chapter XI); for the fourth key: Quarta vigilia venit eos; for the fifth key: Quinque prudentes intraverunt ad nuptias; for the sixth key: Sexta hora sedit super puteum; for the seventh tone; Septem sunt spiritus ante thronum Dei; for the eighth tone: Octo sunt vertitudines.

²"Praescribo, vorschreiben," that is, all the rules for the various keys, the authentic and plagal forms, respectively, have been written before. The knowledge of the keys therefore serves, outside of this purpose, other tonal phrases. (1) the psalm melody, because here each melody belongs to a different key, so that from these added psalm-melodies the key of the foregoing antiphony (Introit) can be given without doubt. (2) The verse of the responses. These have, as one may be convinced by a careful viewing of the old manuscripts, the following arrangement; they generally open with the dominant, that is, with the closing tone of the foregoing principal part of the response of the *Repercussio*, a combination of the tonic and the dominant is formed, from which the key again may be quickly known. Already in the familiar response, "hibera, Antequam nascerer, Jerusalem luge, Ecce quomodo moritur;" this can be observed. (3) Ways to recognize the key from the wide view of the text, to the narrow structure of the songs and ways to be sure:

- a, each key has its own cadence structure by the little segments of melody.
- b, the range of the melody.
- c, each key's definite characteristic Trope (Wendung).

³These, that is, the authentic and plagal form, which will be executed in the same manner.

the beginning or the close of a phrase to go higher than to the fifth; they very rarely go beyond the fourth. In the authentic forms, with the exception of the Deuterus,¹ it is never permissible to allow the beginnings and ends of the phrases to extend beyond the sixth tone; the plagal form of the Protus (II tone) and the Tritus (VI tone) go as high as the third, and the plagal of the Deuterus (IV tone) and Tetrardus (VIII tone) to the fourth.²

One is advised that in the progress of ordinary songs, the authentic mode can rarely descend more than one tone below the closing note. From this appears the authentic Tritus (the V tone).

On the other hand³ the authentic modes ascend to the octave and the ninth and to the tenth. But the plagal modes ascend only to the fifth,⁴ both up and down. However, in the treble, it is permitted by important authorities to go to the sixth and the seventh, as the authentic goes to the ninth and the tenth. The plagal forms of the Protus,

¹"Deuterus" is the key on E, therefore Phrygian. Its authentic form is the third key, which is explained in the following statement.

²The authentic keys, with the exception of the III key could make no cadence on the sixth tone, but at the highest, on the fifth; and plagal keys make no cadence on the fifth tone alone, but the fourth tone was the highest. The reasons for this cannot be made clear in detail. The IV and VIII keys they build mostly upon the fourth; the II and VI mostly on the third.

³Cf. page 37, footnote 3.

⁴Cf. page 44, footnote 2.

Deuterus and Tritus (II, IV, VI tones) will at times necessarily finish on the high a, ~~7~~, c.

But the above-named rules should be carefully observed in the antiphony and responses, for the melodies must be based on the customary rules, to which Psalms and verses may be well-adapted. One finds many songs in which the treble and bass are so confused that one cannot tell which mode, that is, cannot classify it as authentic or plagal form. By searching unknown songs¹, through drawing lasting tone-sentences and meaningful illustrations, we will show each tone clearly by the characteristic range² of its given peculiarities. But "trope" is a particular detail of songs, which also will be denoted as modes of which we must now speak.

¹"By searching unknown songs," that is, when the singer will attempt to learn songs where melodies are unknown to him, from the writing (script), without the help of a teacher or the monochord. While the above-given rules should serve to find the place of tones of known melodies correctly they could also serve for these, for they can offer a certain guarantee for finding the correct notes of an unknown melody. Guido says similarly in his "Epistle de ign. cantu" in which he has given the above cited tone phrases for the recognition of the keys." So that you can know whether you have sung a melody-phrase correctly. You find that he allows something to be conveniently added to that melody of the key in which it has been written."

²"die wirkung" is "the reality" tropicus, pertaining to the trope (wendung -- turning) therefore from the peculiar tropes of the songs resulting from reality, the characteristic ranges of the songs.

CHAPTER XIV

CONCERNING THE TROPES AND THE INFLUENCES ON THE MUSIC

Many capable practiced musicians know these tropes as soon as they have heard them, through the recognition of their individual peculiarities -- so expressive of self. Thus they resemble an ethnologist who, upon seeing many people before him can say, "This one is a Greek, that one a Spaniard, this a Latin, there a German, there a Frenchman. Moreover, one may conclude the differences in the nature of the song from the differences of the tropes. A singer with a predilection for broken leaps finds favor in the authentic Deuterus (III tone); another shows delight in the plagal Tritus (VI tone); the one of loquacity prefers more the authentic Tetrardus (VII tone); another expresses loveliness in the plagal form (VIII tone), and so on for the remaining modes.

It is not so astonishing considering the enormous variation in tones poured out to the audience that the effect is similar to the pleasurable response to color, to the various fragrances that reach the sense of smell, and to the sensation derived from palatable spices on the tongue. Thus the charm of pleasant things wondrously is forced through the windows of the body into the interior of the heart. So it seems, that through certain delicacies, blending of colors, and fragrances, and even through the accurate observance of color that good-spirits are either decreased or increased, as one has seen in books. So should one who is mad, be cured from his madness through the song of the physician, Asclepiad. Similarly another would be so enflamed to a fleshly lust through the

sweetness of zither-playing that he wishes to break into the chamber of a maiden; but soon when the zither changes its sensual manner, then driven by contrition, he is slightly ashamed of himself. In similar manner David mitigated the evil spirit of Saul through the zither, and broke the demoniacal rage through the mighty power and the loveliness of this art. This power, however, is completely manifested only by divine wisdom. But we wish to use this strange and mystical addition to the tonal art in the praise of God. As yet, in studying the various influences of this art, we have omitted something that is necessary for the establishment of a good melody.

CHAPTER XV

CONCERNING THE CORRECT SYMMETRY OF A MELODY

As there are letters and syllables, feet and verse in meter, so also there are sounds in songs, that is, tones, where one, two or three, will be bound together. The syllables singly or doubly form a neum, that is, a part of a melody; one or several parts make a phrase, that is, a suitable place to breathe. Here it is to be noticed that a whole connected section is to be so written and executed that the syllables are still quicker. The stop¹, that is, the pause after the last tone, is most unimportant at the syllables, more important at the sections, but is longest at the phrases. This pause serves as a distinguishing characteristic of these divisions. So it is important to beat the melody as one does a metric foot², and to hold some tones twice as long as others, or others only half so long³, or to achieve a tremolo⁴ (vibrato), therefore differing

¹Tenor, usually "the interrupted line" is here, as "tenare" taken as the method of hindering movement in the sense of "pause, halt." This stop should be at a syllable of least possible significance. It is only an imperceptible pause of the voice without a breath. We have here therefore a three-fold instance of separation: somewhat resembling those in custom today; *suspiratio*, *respiratio* and *pausa*; the first should be made with an easy pause in the voice from one syllable to another without breathing, the second is more conspicuous -- greater break between one and the other, the third separates the largest pause between one syllable and another.

²*Plandare*, *klatschen*, to beat with the hands or feet, therefore to give here the time.

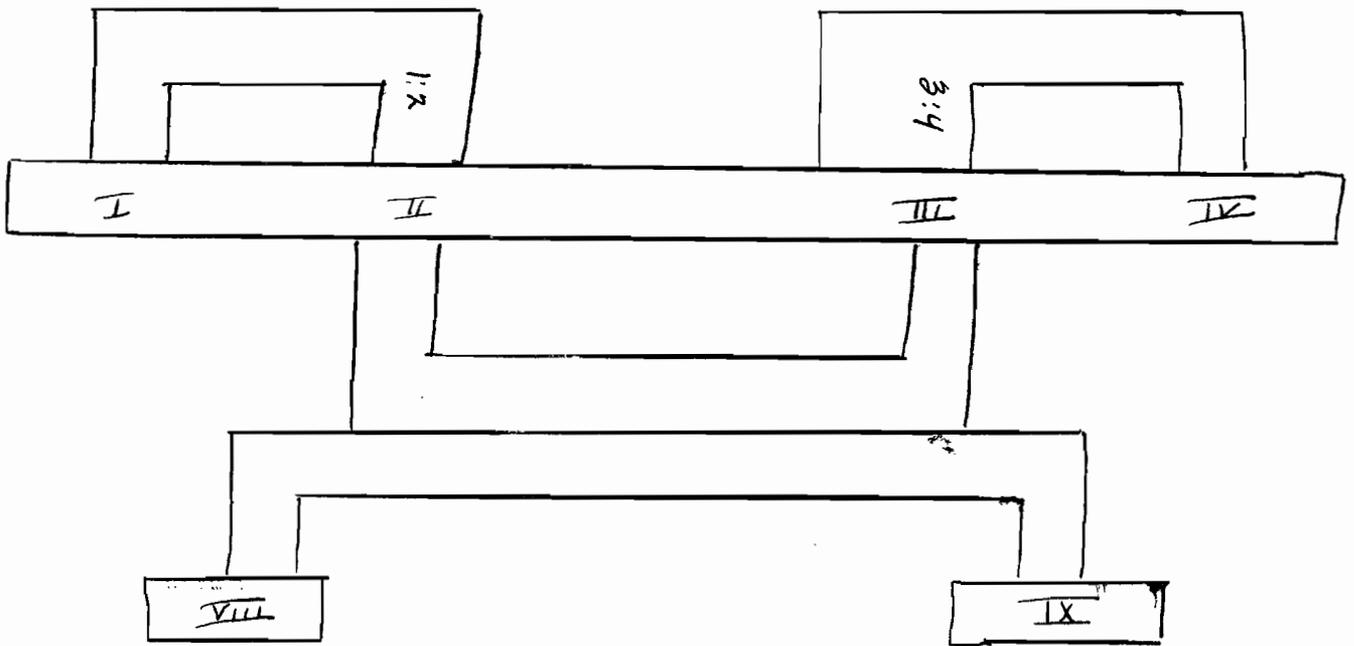
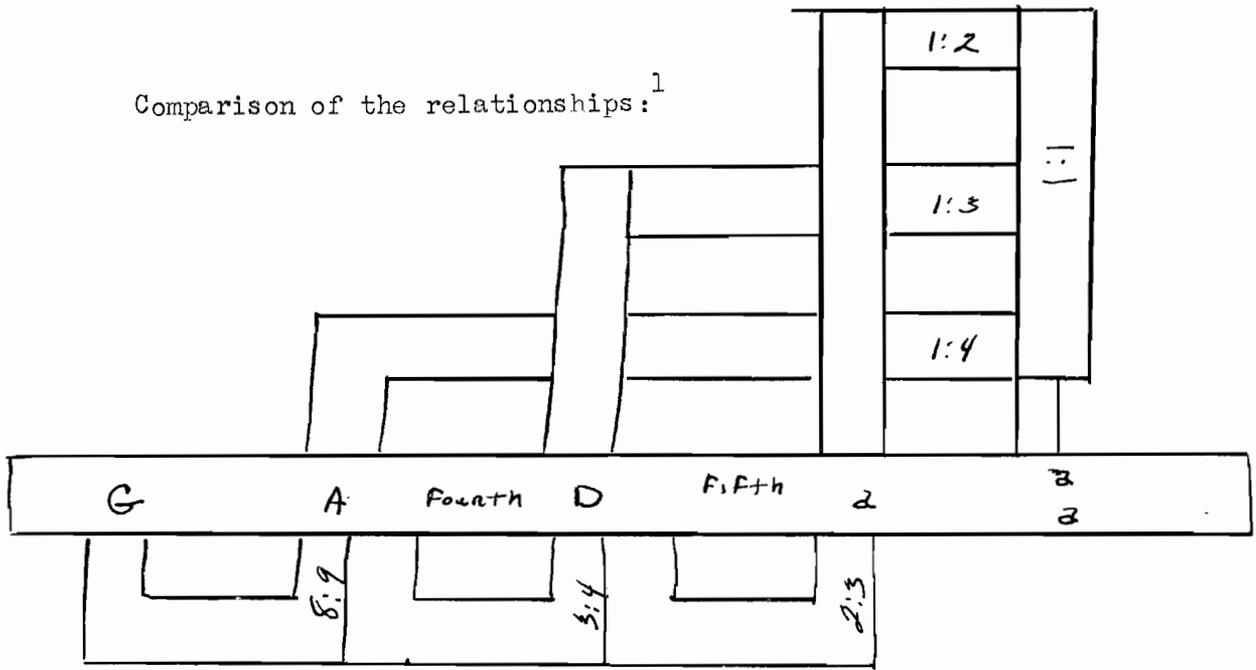
³*Morula*, as diminutive of *mora*, a slight delay -- means that as the unit of duration of time is short, therefore the temp should not drag.

⁴Tremulam refers to morulam -- therefore a stretching of the tone

time-values. The long time-values most often will be signified through a horizontally-placed little stroke over the letter. Such a distribution of neumes must be so carefully observed that the repetition of the same tones may be easily formed by uniting two or more tones; always either the number of tones or the relationship of the opposite and corresponding tones here stand like against like, there double or threefold, or elsewhere in the relationships of 2:3 or 3:4.

which is bound as with a quivering, trembling of the voice, through which the stretched tone is given a certain pressure, and seems to be an extension, because of this emphasis.

Comparison of the relationships:¹



¹The above "in ratione tonorum," according to which one should not only learn the number of tones but also the tonal relationships of opposite reference, prompts the author to put down again the relationships.

In advance the musician considers in which of these divisions he should let the song move along, resembling the poet deciding in which foot he will construct his verse. However, there is the difference that the musician is not bound with such great strength to the rigidity of form, because on the whole this art allows a reasonable variation in the ordering of the tones. This variation is permissible in music because the spirit is strong enough to impart the message without too artificial structure. However these rules and resemblances would be better explained in an oral conference than be referred to in writing.

It is important that the writing of music, as the art of verse, should be constructed symmetrically. The same thing should be repeated many times, or when there are unimportant changes they are to be varied and when there are many changes they shall be enlarged without having all of the various parts and only those which are repeated many times, after the tones are reformed, or were found to be related in ascending and descending.¹ It is also important that an inverted neum is moved through

¹The construction is very difficult and the thought unclear. The distinction, that is, at the cadences (place which is designated to breathe) should be constructed pauses which should be symmetrical; they should be repeated many times unchanged or they should only slightly be changed, when they are present in greater numbers they could be enlarged through new members. But these new notes should not differ very much from the main motive, and return most often with only the key unchanged, or at least the relation of the rise and fall of the main motive should be similar -- that is, that the move for example, d e f d should remain unaltered (first, second, third, first) in other tone-ranges (f g a f, or e f g e) -- or in the rising and falling its form should be preserved -- for example, g, a, c, g, or e, g, a, g, -- therefore two steps up, in ascending, and back to the low note.

the same written tones as the original.¹ Further, that in the same outline in which a neum jumped from the high to the low another must answer in the opposite direction from the low tone. Just as we observe our picture oppositely upon looking down a well.² Sometimes a syllable should have one or more neumes, sometimes a neum will be divided over several syllables. All neumes will be varied; they begin one time with the same tone; another time with different tones, but there is always a different quality in the bass and treble. Nearly all phrases begin with the same tone with which they end and sometimes the same tone also concludes all the neumes, as one can find in Ambrosius. There are also certain types of prosaic songs in which all of the above rules are observed; both large and small sections and phrases are found in some places without variation -- after the art of prose. There are metrical songs which we sing so often that we seem to be scanning as verse to the foot. In singing metrical texts we must not proceed immoderately without differentiation between two-syllabled sections and three and four syllabled. According to Ambrosius, lyric poet, there is another foot which understandingly places together reasonably chosen neumes. But the choice is reasonable only when one finds the art of moderate variation of the neumes and phrases; that is, that neum must correspond with neum, and

¹For example -- d, e, f, d -- backwards becomes d, f, e, d. Or f, g, a, d backwards, d, a, f, g.

²Therefore, for example, f, a, g, f returns as f, d, e, f. Or g, c, a g, returns as g, d, f, g.

phrase with phrase in a certain harmonic relationship. A dissimilar relationship is found in the art of the extremely pleasant Ambrosius. But an important relationship exists between metrical verse and song. At times neumes take the place of feet and phrases the place of verse. One neum moves in dactylic, another in spondaic, another in iambic meter, and the phrase in four feet, five feet, or in hexameter. As for others, one resembles itself, another almost resembling or not resembling, rising or falling, set before, set under, set on, or set between, here united, there divided, in another place moved up in a pleasant fashion. Moreover it is essential that the sections and phrases end with the neumes and the words together; there should not be a long held tone on a short syllable, or a short one upon a long syllable, because these sound badly. However, one has to be only rarely concerned with this. Further, the expression of the song should so correspond to the mood; for some subjects the neumes are serious; for peaceful, cheerful, happy moods they are jubilant, etc. Again, we often place hard or sharp accent over the tones since we desire to emphasize some tones more than others. An emphasis can often be produced by repetition. Further, in the manner of running horses, the tones should always approach the end of a phrase more slowly as if they were becoming tired, very slowly coming to a stop. An example for this thing could often or rarely have given notes set together.

Many times the tones blend with another, so that the beginning attack of the one tone runs easily into the other, without seeming to end.¹ To indicate this flowing together we place a point over the tones

¹The meaning here is that one should allow one tone to glide into

spotting it in the following manner:

| | | | | |
|----|----|--------|----|---|
| G | DE | Ga | aG | 1 |
| Ad | te | levavi | | |

But when one wishes to give the tone more fullness without slurring it one omits the notation. However slurring it often is more pleasing. But all that we have mentioned up to here happens either all too rarely or all too often.

the other without attack so delicately that one scarcely notices that the first tone has gone, that the sound goes on and does not seem to end. When one sings, for example Dc CF, one should slide on the syllable "ad" from the D to c so lightly that it seems one has only sung D CF, one notices that it could really be done.

¹Cod. 14663 gives the example, as it is shown in the autographic forward. The letters GDE on "ad te" seem to have been given incorrectly.

CHAPTER XVI

CONCERNING THE VARIATIONS OF THE TONES AND TONE GROUPS

One wonders how so many differing songs can be build from so few tones since, as has already been said, they may be united with each other only in six intervals both in descending and in ascending. The syllables with few letters were built, but not in exceedingly great number; the number of syllables, to be sure, can be figured but an unending number of the speaking divisions comes from these syllables. For example, in the art of verse, many types of verse can be formed from the limited number of different feet; the poet places the same thing differently with many alterations; as for example, the hexameter which the grammarians like to classify according to which metric form it belongs. When possible we wish to consider the manner in which the various neumes are allowed to be combined. As has been said the movement of the tones¹ can only occur in six different intervals through "arsis" and "thesis," that is, through ascending and descending.

Through this double movement, namely through arsis and thesis each neum will be built, except the repeating and the single

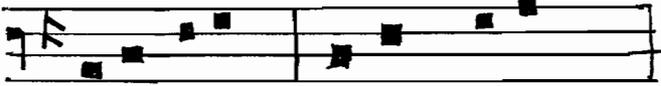
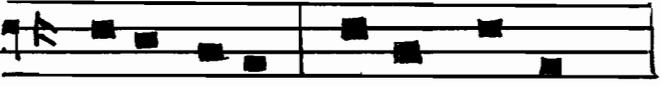
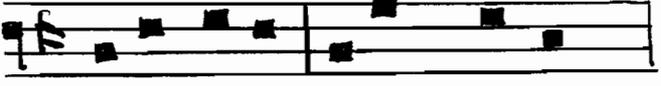
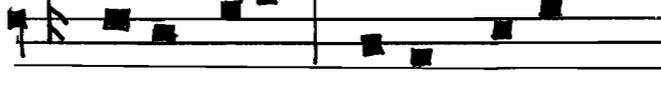
¹The following is of special interest as we obtain here an exact look at the nature of the neum, and can learn at the same time how the ancients tried to give an account in the smallest detail, of the construction of a melody, "Motus vocum," or "movement of the tones," or exactly, "movement of the voice," that is, that in the first place, only the voice must move in the construction of the neum of the tones being fashioned. In general the voice moves in pure performed choral singing only in six ways -- in the six different steps, namely in the interval-steps of the

neums.¹ So then one unites arsis (rising) and thesis (falling) with themselves, that is, rising with rising and falling with falling; then uniting one with the other, that is, rising with falling, and falling with rising;² the uniting number happens sometimes in similarity or sometimes in dissimilarity.³ But dissimilarity is present when one has

small and large second, small and large third, fourth and fifth, which, as was taught before, can occur in chorals. But aside from this, that is, from the greater of the tone-steps, the voice can move only in two ways, namely up or down (arsis and thesis), so that each neum, each tonal relationship appears as an arsis or thesis except in case of repetition which represents a single tone. The simplest form of an arsis is the Podatus *∪*, of the thesis, the clivis *∩*.

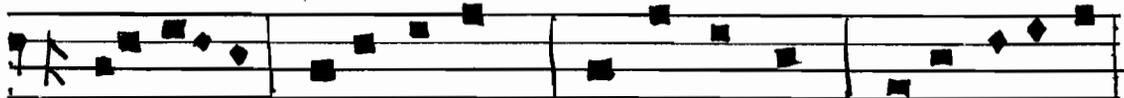
¹ For a single tone one observes the "Punctum" (.), the "Virga" (*∟*) and the "Apostrophus" (') so in the double or triple repetition in unison: Bipunctus (..); Bivirga (*∟∟*) Bistrophus (') or tripunctus (...), trivirga (*∟∟∟*) or tristropus ('''). By then the movement of the voice is neither down nor up.

² The combinations of the neum can therefore be seen as a fourfold one:

| | |
|---|--|
| (1) Arsis with arsis; rising with rising |  |
| (2) Falling with falling |  |
| (3) Rising with falling |  |
| (4) Falling with rising |  |

³ The above-mentioned four-fold relationship can be different, as it occurs in similar and dissimilar cases alike. It will be shown, as dissimilar, in the following, when one motion has several tones, as the other has either more connected or more separate tones, that is, making one small or large interval step, for example:

one more or less tones than the other,¹ or more united or moving tones, in the forementioned movement, that is, the large and small second steps, third steps, etc. Now the uniting of the dissimilar or the similar may be placed so that one movement can be: placed over the other² that is,



According to this similarity would be shown only: same number of tones and like number of intervals therefore; where each is a large second.

¹The interpunctuation in the text here is neglected. Clearly a new sentence begins here, in which in general, that is, the relation of the similarity and dissimilarity will be performed in more specific cases.

²*Praepositus*, "vorgesetzt, ubergesetzt," (as aufscher, vorsteher, etc.) in the range) is here to take up the topic that will be shown in adjoining explanation, "in superioribus positus." This is called also by Hothy (*calliopes legale* (52), "Praeposita secundo du intensione, cio é di sopra posita," that is, praeposita in ascending placed above it. Here it means the same, that the second group stands higher than the first, not the other way around, that also it agrees with the other, that by the progressive movement of the song only the last is allowed to agree with what has preceded it. This motion above (*motus praepositus*) can for the remaining, by each of the four methods of combination of the arsis and thesis, even by the combination of similar and dissimilar, and for the last one may deduce three discriminations: (a) according to high or low (*secundum laxationis et acuminis*). (b) according to number of the tones (*augmenti et detrimenti*). (c) according to the different kind of intervals, that is, large and small seconds, thirds, etc., that come in application (*modorum varias qualitates*).

I. Placing of similar groups:

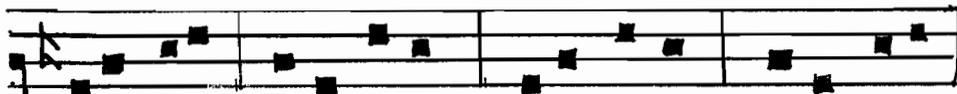


- | | | | |
|--------------------------|-------------------------------|------------------------------|------------------------------|
| A. Rising with rising | B. Falling with falling | C. Rising with falling | D. Falling with rising |
|--------------------------|-------------------------------|------------------------------|------------------------------|

standing in the high tones; placed under;¹ placed on the same tone, that is, so that the close of one movement and the beginning of another may fall upon the same tone;² placed between, that is, when one movement is

II Of dissimilar groups:

1. Higher above the low



E. Rising with rising
 F. Falling with falling
 G. Rising with falling
 H. Falling with rising

2. Number of tones:



I. K. L. M.

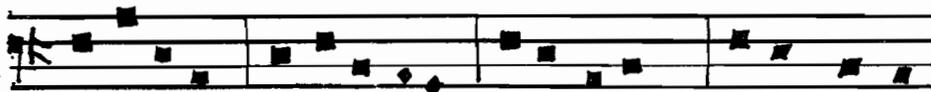
3. Kind of intervals



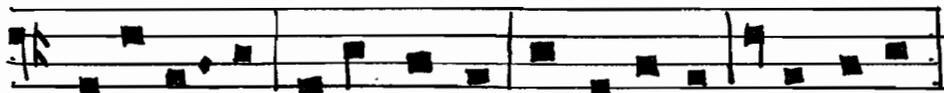
Small-large second
 small large second
 Large-small 3rd
 Small large 2nd

In this way one obtains 16 different ways of motion.

¹"Suppositus," "unterstellig," placed under, -- is the opposite of the previous. (Subposita secundo la remissione cio è di sotto posita) Hothy Calliop. (52): For example:



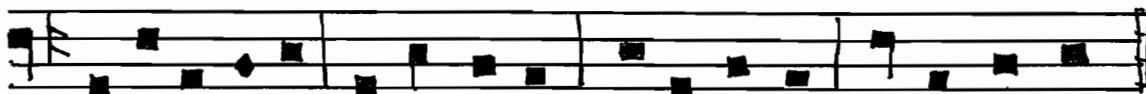
²For example:



Also here 16 combinations are referred to.

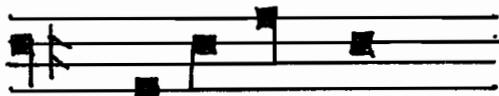
placed within the other interval and not as low and high;¹ mixed, that is, parts between, parts under or over, placed on the same tone. And again these divisions of the various qualities of the highness and lowness,² the increase and decrease,³ and also the kind of intervals⁴ could be analyzed.

¹
For example;



with 16 different combinations as before.

²
Unlike, concerning the high or low position, that is, compass of one movement is greater than the other. For example:



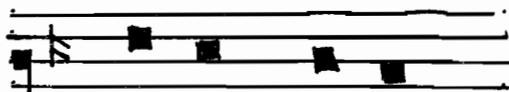
Here the first movement embraces a fifth, the second, a third. This would be, therefore, a motion above, of arising with falling in dissimilar movement relative to the "highness" and "lowness."

³
Unlike, in increase and decrease, that is, that one movement embraces more tones than the other, for example:



The first movement has two tones, the last three. This is therefore a relationship -- placed between, of rising and fall, in dissimilar motion of increase and decrease in number of tones.

⁴
Unlike in kinds of intervals, that is, that the two movements of the same compass, are executed with different kinds of intervals. For example:



Both movements are steps of seconds, but the first is a large second, the second a small.

The neumes are allowed to vary through all forms of the rising and falling; the phrases sometimes vary. On this subject we add the following summary which will be more easily remembered through contemplation of the relationship.¹

¹ One sees with what detailed accuracy the ancients tried to bring through the ways of tonal art in all directions. That by such exaggerated profundity a great number of systems has been built, more often resulting in confusion than in clarity. Also, over the various subjects the authors are not completely consistent, as one may see by a comparison of the competent discussions of Aribas Scholasticus (Gerbert, Script. II, p. 227), Johannes Cotto, (Gerbert, Script. II, p. 263.), Johannes de Muris (Caussemakar, Script. II, p. 296), the treatises from the manuscripts of Cassino and the library of Mailand (Caussemakar, L'histoire de l'harmonie, p. 175). Hothy's Calliopen legale (Caussemakar, p. 295, Cace. Thrg. 1874).

CHAPTER XVII

CONCERNING MATERIAL FOR SONGS

Since the foregoing material has been impressed upon you in brief, we wish to explain to you one other very easily understood subject which is very useful for practical use, since it has not been given recognition until here. Through the same methods, the foundation of all melodies will be easily understood, so you can turn them to your own use, that you may use what is fitting, and turn back what appears to you unsuitable. Consider therefore that since all which can be spoken can be written, so also all that is in songs will need to have had the power to have been written. According to this all can be sung, that can be spoken; but the writings will be presented through letters. Our instruction shows, though not complete, that we take from these letters only the five vowels without which no other letters, no syllables, would find any sound; a pleasant sounding-together at different places will appear by sounding together corresponding verses of metrical poetry, so one must marvel at a certain similar harmonic euphony of grammatical form. When we add the music in corresponding manner, one feels the euphony pouring forth even more through the doubled harmonic sound.

We wish to take these five vowels; perhaps because the words have so much euphony they will offer no less to the songs and the neumes. The rows of vowels will be set along the letters of the monochord, and because there are only five, they will be often repeated until by each tone is assigned its vowel, in the following manner:

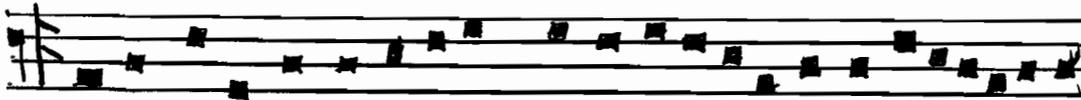
| | |
|----------------|-----------------------------|
| A B C D E F G | a z c d e f g |
| a e i ou a e i | o u a e i o u |
| | a b z c d |
| | a <u>b</u> z c d |
| | a e i o |

By this arrangement one reflects that all speech moves in these five letters, also undoubtedly the five tones under one another must change. Therefore we take a sentence and sing these syllables with the application of that tone to which the vowel points at each syllable in the following manner:

G u
 F o
 E l
 D u
 C a

e D e D D C D D D D

SANCTE IOANNES MERITORUM TAUURUM COPIAS NEQUEO DIANE CANERE



What has been accomplished¹ with this sentence can without doubt be accomplished with every other. With this no great strain will be imposed upon you, for in this manner one of these melodies uses scarcely five tones and these five, as one could wish, offer no possibility of violation, so I offer that you may have somewhat more free play. A second vowel series, which differs from the first in that the first vowels begin at the third place, in the following manner:

¹By this example the vowels are placed differently than those given above, where the vowel O fell on the tone C, where the vowel a is set on tone C. So that this arrangement is a completely arbitrary one and is followed by everyone, it is laid upon the Hand. But so that one may do it well, the vowel of the last syllable is placed on that tone which has

A B C D E F G
 a e i o u a e i
 o u a e i o u a

a ~~b~~ c d e f g
 o u a e i o u
 e i o u a e i

a ~~b~~ c d
 a ~~b~~ c d
 a e i o
 o u a e

Here sufficient free play is permitted, with the two tones placed under, in which the five vowels are contained, so that each tone is separated from one vowel by more than a second, so that in narrow tone-steps, one can progress and exchange at his inclination.

We will wish to see which melody the corresponding verses bring with its vowels in this way:¹

been chosen as ground tone, tonic, of the whole, as also here the choice seems to be the tone D at the closing, e in "canere" chosen as the vowel. The whole thing appears at first glance to be unworthy of playing, and one wonders with right that Guido, the first artist, after his detailed arrangements in Chapter XV and XVI should trouble himself with such foolishness. One must consider that Guido above all, whatever it cost, brought to his students in the most rapid possible manner no hindrance in practical grasping, here in this case with the aim to bring his students, in the shortest possible way, to independent composition of songs. The method given here should only serve to come to their aid in their first awkwardness and helplessness, and to be a beginning and an ending for the free flight of their musical fantasy, but in no way to be a serious intended rule for the art of composition. He has said above that such a melody should serve only as a certain basis, from which one could accept and transpose what seemed good to him; and he gives in the following more directions, whereby greater elbow-room has been achieved for the fantasy and through correction and revision in all artistic, finished songs could be procured. Cod. Mon. 14633 has this example written on the side in another manner.

¹Here the vowel stands correctly, as in the series before. The closing vowel i a (hauriat) falls on G, which tone will be therefore ground-tone of the melody.

e
d
c
u
l
o
u
G
i
a
F

vi
NET SUM VEN
so fo do-con va ta
li HOR IN
te ne tes
GAT, -RIAT

FREMANS TEMPERAT, NE LITIS HORROR INSONET, VISUM SOVENDO CONTEGAT, NE VANITATES HAURIAT

LINGUAM REPREHENS TEMPERAT, NE LITIS HORROR INSONET, VISUM SOVENDO

CONTEGAT, NE VANITATES HAURIAT

We have only abandoned our rule where the melody corresponds to more than its four keys. In each song in this way a more or less suitable melody is appropriated through the vowels so there is no doubt that the same one will be completely corresponding when one takes the preferred from the many attempts, chooses the most pleasing way, fills up the cracks, enlarges the group, has them all moving together, and divides those standing close so that one gets the most highly unified work possible.

You must know that each song achieves beauty by virtue of its clear syllables. The more it is employed, and that at the beginning each one pleases only a little. Later when it is polished through practice, as with a file, it will be praised like the differences in the people's

frame of mind. When one of them has a mishap, one covetously seizes something from the other and the one finds more misfortunes in rugged opposition. This shows the sensitive features of unity and softness: those of serious character comprehend simple songs; another turns naturally to complicated, strange, artificial songs. The one performs that song well, for he finds in it the inbred character of his spirit. This cannot all seem strange to you when you consider the subject in its practical use. Above all, it is necessary to help one's self to such instructions, so long as one first knows the divisions, to progress to the fullness of knowledge. Because this foreset brevity has been imposed on me these subjects follow in more detail, particularly with reference to the many people who are allowed to write. We wish now to put forth in brief the rules of diaphony.

CHAPTER XVIII

CONCERNING THE DIAPHONY, OF THE RULES OF ORGANUM

Diaphonie means that division of tones that we call organum, tones sung together but divided from one another, sounding as different tones, and differing in sound though sung together. In diaphony the singers always accompany at the fourth, as A to D. When one doubles the organum at the high a, so that it is D, a then sounds A to D as fourth, A to a octave, but D to both A and a as fourth (DA) and fifth (Da); but the high a to the low tones as fifth (aD) and octave (Aa). Now these three kinds of intervals blend the parts of the organum with such loveliness that, as the earlier songs will show, they create a similarity of the tone series which will be called the tone relationships, while the term "symphonie" will be applied to each song. From the afore mentioned diaphony an example follows:

Octave: c d e c d e d c c c ~~f~~ a g c d e d d c

Fifth: F G a F G a G F F F E D C F G a G G F

Misere mei Deus

Fourth: C D E C D E D C C C B A C D E D D C

This faultless figure has an important tonal line (cantus firmus) that of the antiphone "misere mei Deus," in which tones stand in accompaniment in the fourth, which is generally called "Organum beneath the voice," that is, under; the high tones standing above-accompaniment in the fifth, is what is called "Organum above the voice." But this antiphone belongs to the "tonus tritus," that is, the sixth key and the

organum descends to the low C, to which the organum sometimes returns; that is, the low tones climb downwards, the high tones upwards. One can also double the song at the octave with the organum, and the organum with the song, as much as one chooses, for this sounding together also shows the melodies will continually fit.

Having already explained sufficiently the duplication of the voices we may treat more particularly of our method of dealing with the low (or organal) voice. The above-mentioned aspect of diaphonie is difficult, the other easy. To it we do not allow the small second and the fifth; but we employ the large second and the small third and the fourth; the small third is the least important place; the fourth has precedence.

The songs will be accompanied with these four consonances in the lower voice. Some melody-turnings are well qualified, others more so, and others most qualified. Those qualified are those which build the organum through the fourth with tones which stand four tones from one another, as the deuterus in B and E. More qualified are those which accompany not only with the fourth but with the third and second tones, through the large second and small third, as the Protus in D and A. But those are most qualified which are done with more pleasing sounds, as the Tetrardus and Tritus in C F and G.¹ These² use particularly

¹But if the song moves from F down through E and D, then the organum must, according to the rule of the ancients go down in fourths from C to B (H) and A. But we do not subscribe to this; many times the C can stay, forming a fourth with F, a large third with the E and a large second with the D. This happens but in pieces in the 5, 6 (tritus) and 7, 8 (tet-rardus) keys.

²"These" refers to the preceding letters, C, F, G, therefore the

the large second and the large third and the fourth. In the third key,¹ on the closing of a phrase or next to the closing, the accompanying voice below never goes below the cantus firmus itself. If the third tone is C, the lowest or the next to lowest tone the organum never can go below it.² But when the cantus firmus is lower than the third F, the organum is held in suspense on the third tone; but it is then required that the important voice (the cantus firmus) does not make a cadence below, but come back in rapidly moving tones from below to the waiting third tone. Thus, one prevents the higher tones of the organum closing before the C f. In this same key if the returning is through a large second, the pause at the closing will be longer, whereby the lower voice repeats in part, is unison in part.³ The large third caused by the returning of the cantus firmus above the organum will be held even longer. Often the suspension of the tones will be so small that the returning of the C f tones will not be missed.⁴ When that happens one

keys, tetrardus and tritus.

¹Refers to forementioned key relationship: protus, deuterus, tritus, tetrardus. Tritus is referred to here, which has been previously explained (Chapter X), but the tones C and F will be indicated in the following chapters also as tritus.

²The last two sentences are only a repetition demonstrating the foregoing sentences. Only when the "Hauptstimme" (c f) makes a cadence on a low tone can the accompanying voice go below C...(see Chapter XIX, ex. 7).

³See example 9 at close of Chapter XIX, also example 4.

⁴This place is unclear; also the given example 5 (Chapter XIX) is not understandable.

ends the harmony in deuterus; and when it does not happen the song climbs down further than the third step, it will be good to maintain the (haupttone) basic tone of the organum in Protus, with the lower tones following, and returning through a wholetone¹ to the end. Further, it is not to best advantage to deviate more than one fourth. It is necessary that the accompanying voice climbs also the more the cantus firmus rises, that C to the F and D to G and E to f are joined, etc.² Finally, the fourth serves as accompaniment to all tones with the exception of ♯ (natural); in cadences in which that ♯ appears, the tone G takes its place in the organum.³ That occurs then, when either the song climbs down to F or further, moves down to, or makes a cadence on G; to G and a then, at the suitable place the tone F is used as accompaniment. But when the song does not end in G, F is used, as the haupttone (main tone) of the song of the organum. But when (b)moll comes before in the song, then F is the organum.⁴ According to this we see that the tritus which takes so very much precedence in the diaphony, maintains the first place. It has not been favored particularly by Gregory, which is unjust.

¹ See example 6, chapter XIX. The A in the organum is below the tritus C, the forbidden descent for this is in mode I.

² See example 2, chapter XIX.

³ See example 9, chapter XIX.

⁴ The V and VI mode; the Lydian authentic and plagal modes.

Many beginnings of melodies and most repercussions he arranged so that if one took away the tritus from his songs on E¹ and C, nearly half the song would be removed. The rules of diaphony are given up to here; if one examines the following example closely one will understand more fully.

¹Should read F, the pieces in the V and VI modes on F (Lydian) and in the transposition on c.

CHAPTER XIX

CLOSER EXAMINATION OF THE MENTIONED DIAPHONY, WITH EXAMPLES

We do not let the organum go under the tritus; it must close in this first. For example:

| | |
|------------------------------------|----------------------|
| | Cantus firmus |
| F F G G F F D E F E D C | |
| ip se so li | |
| C C D D C C C C C C C ¹ | |
| | Organum, Accompan |

One sees here a closing cadence on the tritus C, under which we will not let the organum go. It can not go below C because it would not form a large third in coming up to C, through which the Occursus² alone is allowed. But only a small third would result through which the Occursus is not allowed. For example:

| |
|---------------------|
| F G G a G G F (c f) |
| ser vo fi dem |
| C D D E D D C |
| Organum |

Here one sees another closing cadence on the tritus F, for we accompany with fourths in the interval of four tones, and here the accompaniment in fourths is better suited than the Occursus. For example:

| |
|---------------------|
| F F E D F G F (c f) |
| Ipsi me to fa |
| C C C C C D C |
| Organum |

¹This example in Mode I

²Coming together at the end.

Note another cadence of the same kind on the tritus F. For example:

| | | | | | | | | | | |
|----|----|----|---|----|-----|-----|----|---|---|--------|
| F | F | F | F | E | G | F | E | D | D | D(c f) |
| De | vo | ti | o | ne | com | mit | to | | | |
| C | C | C | C | C | D | C | C | C | C | D |

Note another cadence on the Protus D, which also shows an Occursus through a whole step at the close. For example:

| | | | | | | | | | |
|-----|----|----|------|----|------------|---|---|---|---------|
| (a) | C | D | C | F | F | F | F | D | E (c f) |
| | Ho | mo | erat | in | Jherusalem | | | | |
| | C | C | C | C | C | C | C | C | D E |
| | | | | | | | | | Organum |

| | | | | | |
|--------|----|----|----|-----|---|
| (b) or | F | F | E | D | E |
| | He | ru | sa | lem | |
| | D | D | D | D | E |

This would be therefore a cadence in deuterus E, by which an Occursus through the large third either singly or all the way through:¹ For example:

| | | | | | | | | | | | | | | |
|------|----|----------|-----|------------|---|---|---|---|---|---|---|---|---|---|
| C | F | F | D | F | C | D | D | C | D | F | E | C | E | D |
| Veni | ad | aviendum | nos | prudentiae | | | | | | | | | | |
| C | C | C | C | C | C | C | A | C | C | C | C | C | C | D |

Note here a cadence on the first one A. In this cadence the tone is in a lower range than the tritus C. The tone A at the closing (the cadence at A) has D placed underneath; after it the low range C is again taken up, when it is called: viain prudentiae, similar in the following cadences:

| | | | | | | | | | | | | | | | | | |
|---------|-------|------|-------|-------|--------|---|---|---|---|---|---|---|---|---|---|---|---|
| (c f) | F | G | a | a | F | G | F | F | G | a | G | F | D | F | E | D | C |
| | Sexta | hora | sedit | super | puteum | | | | | | | | | | | | |
| Organum | C | D | E | E | C | D | C | C | D | E | D | C | F | F | F | F | F |
| | | | | | | | | | | F | G | G | G | F | | | |
| | | | | | | | | | | F | F | F | F | F | | | |

Note the organum climbs up, in order that it may remain under the c f at the closing cadence: (Mode VI).

¹That is, if the c f in the first case (a) would have been changed

8th example:

(c f) F F G G F F D D C F G a G F G F F E D C
 Santa hora sedit super puteum
 F F F F F F F F F F F F F F F F F F F

Note how the organum held as the c f is permitted the deeper tones on the tritus to keep the balance.

9th example:

(c f) c c d d c a c¹ c a G F G G
 Victor ascendit coelis unde descendet
 Organum G G a a G G G G G F F F F G

One notes the accompanying voice builds to the closing F; thus disguising the unison ending.

10th example: Here one finds the plagal tritus, that the accompaniment is built to c, d, and even *b*, as to G and a, the tone F, in the following manner:

c c d d e d c d d c (c f)
 Ve ni te a do re mus
 c c c c c c c *b b* c accompaniment
 organum

as in b, to F E D E
 C C D E

a large third would have occurred.

¹ Gerbert writes *z*, but it should be *b*.

CHAPTER XX

CONCERNING THE INVENTION OF MUSIC FROM THE BLOWS OF A HAMMER

We have so far said nothing about the origin of music, and we found most readers very little instructed; but we wish to impart the proficiency and improvement in the knowledge of music. Before our age there were not completely understood instruments, and a mixture of singers, who only blindly practiced this art; for no men explained the difference between the tones, and no one set forth the difference in consonant intervals, in a demonstration of a system. Also, never had any man investigated anything definite about this art, until the godly Bishop had given a suggestion for the following occurrences.

Once a certain Pythagoras, a great philosopher, made a fortuitous trip, came to a work-city where five hammers beat upon an anvil. Astonished at the pleasant sounds the philosopher stepped up and there he first conjectured as to the cause of the tones and decided thir harmony lay in the difference in the hands, so he let the hammers change. After this happened, each hammer followed his action. He separated there the dissonances from the other and weighed the rest; and in a wonderful way through divine providence, the first one weighed twelve, the second nine, the third, eight, the fourth six, units of same weight. He knew from this that the knowledge of music rested on the relationship and the resemblance of numbers. He placed the same mutual relationship between the four hammers, as we now put between the four letters (tones) A D E a. Then the low A corresponds to the number twelve, and the high a to the

number six, the high a stands to the low A in a ratio, which in arithmetic is double -- but in music represents the consonance -- the octave.

The low D, which corresponds to the number nine, stands in ratio to the low E, eight in the ratio, which in arithmetic is represented as sesquivitava (8:9) that is, one and an eighth, but in music will be shown as consonance, the whole tone. The same way, the high a to the low E, the low D to the low A is in the ratio, which in arithmetic is sesquitertia (3:4), but in music will be represented as the fourth. In the same way, the high a to the low D, the low E to the low A is in the ratio, which is called in arithmetic sesquialtera (2:3), and in music consonance the fifth. Then A equals 12, and D equals nine is divided by three, so A contains in twelve, four times three, and D in 9, three times three.

Further, A equals twelve, and E equals eight is divided by four, so A contains three times four, E two times four and the fifth appears.

Then again A equals twelve and the other a equals six, so six is half of twelve, as the high a will be achieved through halving the other A.

The octave is therefore produced. So A makes with D a fourth, with E the fifth, with the other a the octave. D sounds to E as a whole tone; to the two Aa as fourth (DA) and fifth (Da). The E forms with Da whole step, with both Aa, a fifth (EA) and a fourth (Ea); the high a sounds to A as an octave, to D as fifth, to E as fourth. Then all will be found by the curious investigator in the figures given above. From this Boethius, extender of this art, has gone on, showing the many-sided wonderful and exact comparison of this art to the relationship of numbers. With the above-given number-ratios, Pythagorus first constructed the monochord, which not because of frivolous playing but because of its industry, is

given a clear place in art. This pleases all teachers usually, who have found the art, taken up little by little to the present day and invigorated under their guidance, who have lighted the darkness of human knowledge, whose highest wisdom endures through eternity. Amen.

So ends the *Micrologus*, that is, short handbook of music, written by Herr Guido, the learned musician and holy monk.

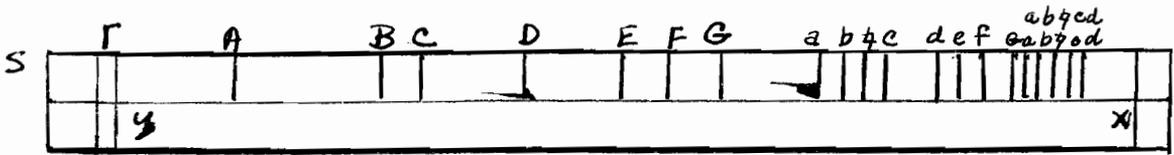
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APPENDIX A

| # | Exact chord | in | the Mutation | Theory | | Choral | Figural |
|-----------------------------------|----------------------------|---------------------------------------|-----------------------------------|--|---------------------------------------|---|---|
| 1A sol FA MI RE ut | 1A FA MI RE ut | 1A sol FA (b) MI RE ut | 1A sol FA MI RE ut | 1A sol FA (bb) MI RE ut | 1A sol FA MI (4) RE ut | — — — 1A sol FA MI RE ut si (SA) 1A sol FA MI RE ut si 1A sol | e d c h ^b a g F E d c h (b) a g F e d c H A G |

APPENDIX B



TYPED BY
AILEEN GUY