

Musica enchiriadis

The Handbook of Music

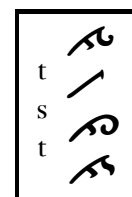
translation and commentary
Rob C. Wegman

<Caput I.> Incipit *Liber enchiriadis de musica*.

Sicut vocis articulatae **elementariae** atque **individuae** partes sunt litterae, ex quibus compositae syllabae rursus componunt verba et nomina eaque perfectae orationis textum,

sic canorae vocis **ptongi**, qui Latine dicuntur **soni**, origines sunt et totius musicae continentia in eorum ultimam resolutionem desinit. Ex sonorum copulatione **diastemata**, porro ex diastematibus concresecunt **systemata**; soni vero prima sunt fundamenta cantus.

Ptongi autem non quicumque dicuntur soni, sed qui legitimis ab invicem spaciis melo sunt apti. Eorum quidem sic et intendendo et remittendo **naturaliter** ordo continuatur, ut semper **quattuor** et quattuor eiusdem conditionis sese consequantur. At singuli horum quattuor sic sunt competenti inter se diversitate dissimiles, ut non solum acumine differant et gravitate, sed in ipso acumine et gravitate propriam **naturalitatis** suae habeant qualitatem, quam rursus his singulis ratur ab invicem acuminis et laxionis spacium format. Exempli gratia hae in ordine ipsorum **notae**:



Primus qui et gravissimus Grece protos dicitur, vel archoos; secundus deuterus, tono distans a proto; tertius tritos, semitonio distans a deutero; quartus tetrardus, tono distans a trito.

<Chapter 1.> Here begins *The Handbook of Music*.

Just as the **elementary** and **indivisible** parts of the articulated voice are letters, and syllables that are composed of these do in turn compose verbs and nouns, and the latter [in turn] the text of fully-formed speech,

so also are the **phthongi** [itches] of a tuneful voice, which in Latin are called **soni**, the origins and content of all music, to which [everything else] can ultimately be reduced. **Diastemata** [intervals] are created from the coupling of sounds, and **systemata** [ranges] from *diastemata*. But the primary foundations of song are sounds.

Not all *phthongi* are called *soni*, however, but only those that are suited for melody, being at the correct spaces from each other. Now, their order should proceed **in accordance with nature**, in such a way, through tension and remission, that **four** should always follow four of the same condition. But the single [sounds] of those four are dissimilar by an appropriate diversity, such that not only do they differ with regard to high pitch and low, but they also each have their own **natural** quality in terms of high pitch and low, which [quality] defines the fixed mutual spaces between them as regards sharpness and slackness. For example these **marks**, in their [proper] order:



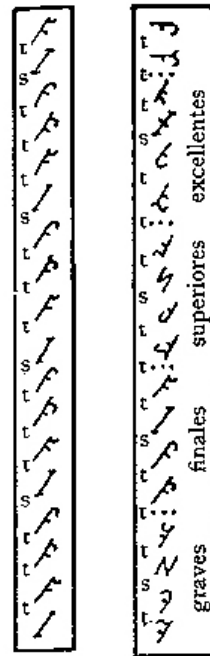
The first and lowest is called protus or archous in Greek. The second is deuterus, at the distance of a whole tone from the protus. The third is tritus, at the distance of a semitone from the deuterus. The fourth is tetrardus, at the distance of a whole tone from the tritus.



elementum	FIRST PRINCIPLE, the beginning of things
individua	INDIVISIBLE, not reducible to smaller things
	examples: letters, sounds of one pitch, numbers
sonus	originally ANY KIND OF SOUND, but in <i>Musica enchiriadis</i> synonymous with
phthongus	PITCHED SOUND, which is capable of forming
diastema	INTERVALS, which in turn can form
systema	LARGE INTERVALS
natura	the STATE OF HAVING BEEN BORN (cf. <i>natus, natio</i>), or created in general, and the natural laws one observes
naturaliter	BY NATURE
	nature determined that pitched sounds group themselves in
quattuor	FOURS, that is, tetrachords
naturalitas	the NATURE of a thing
	in the case of these tetrachords, it is <i>by nature</i> that they comprise the intervals TST; it is in any case inherent in any segment of the diatonic scale that the semitone be in the middle (as for example in Guido's hexachord: TTSTT)
nota	lit. something by which something becomes <i>notus</i> or known; it is uncertain at what point the word came to stand for musical notes in the modern sense
protus	} the four TETRACHORDS of these, the <i>deuterus</i> comprises the pitches called <i>finales</i> , because they are the final notes of any plainchant; the four names represent the four pairs of church modes in Carolingian tonaries
deuterus	
tritus	
tetrardus	

in the pitch-letter system developed by Guido, about two centuries later, the *finales* can be represented by the pitches D, E, F, and G; in the transcriptions that follow I will represent the *daseia* symbols accordingly, in stemless noteheads on modern staves

Horum continua multiplicatione sonorum **infinitas** textitur, et tamdiu quaternis quaterni eiusdem conditionis succedunt, donec vel ascendendo vel descendendo deficient. Ita: Ut enim haec descriptiuncula ostendit, sive sursum sive iusum sonos in ordine ducas usque in defectum **vocis**, huiusmodi velut **tetracordorum** successio non cessabit. Horum etiam quattuor sonorum **virtus** octo modorum **potestatem** creat, ut postea suo loco dicitur. Horum sociali diversitate tota adunatur **armonia**. Verum quia, ut dictum est, eorum multiplicatio in **immensum** procedit, ex hac immensitatis confusione certum sibi **numerus** elegit **ratio disciplinae** et in decem et octo sonis sibi **speculationem** posuit. In quibus primum et humillimum constat tetracordum gravium. Huic proximum tetracordum finalium. Post quos tetracordum superiorum. Deinde excellentium. Ultimi remanent duo. Quorum **descriptio** en ista est.



An infinity is woven from the continuous multiplication of these sounds, and groups of four follow groups of four of the same condition, ascending or descending, until they cannot continue, like so [middle column, left]. Now whether you lead the sounds up or down in [progressive] order, as this example shows, this kind of succession of **tetrachords** shall not cease until the [human] **voice** falls short. And from the **strength** of those four sounds comes the **power of the eight modes**, as shall be said later in the proper place.

All **harmony** is made one through their companiable variety. Since their [continuous] multiplication progresses **beyond measure**, as already said, the **ratio** of the **discipline** has selected a fixed number from that confusion of measurelessness, and has limited its **speculative reasoning** to eighteen sounds. Of these, the first and lowest tetrachord is that of the *graves*. The one next to it is the tetrachord of the *finales*. After these the tetrachord of the *superiores*. And thereafter that of the *excellentes*. There remain two *ultimi* at the end. Behold, this is their example [middle column, right].

infinitas	lit. what has no boundary, is BOUNDLESS;
vox	orig. the sound produced by any being with a soul, i.e. living creatures, including the HUMAN VOICE
tetrachordum	a SCALE SEGMENT of four notes that comprises a perfect FOURTH
virtus	STRENGTH; significant that the author attributes this quality to the four <i>finales</i> ; their strength accounts for the
potestas	POWER of the church modes (to do what?)
armonia	the degree to which created things approach that condition of oneness or unity which only God can truly be said to possess
immensum	not measured, therefore UNMEASURABLE — but you don't have to deal with immensity if you just stick to what can be measured in
numerus	NUMBERS
ratio	REASON, both the faculty of reason, and the reason for, the rationale of
disciplina	an organized body of TEACHINGS; in this case:
musica	the SCIENCE OF MUSIC (as mentioned in the title <i>Musica enchiridiadis</i>), meaning the sixth liberal art
speculatio	philosophical REFLECTION (reflection being literally the image produced by a mirror)
descriptio	by definition something written (<i>scriptum</i>); in Medieval music treatises EXAMPLE
figura	lit. shape, but generally any SYMBOL; for the author they are the only way by which the tetrachords can be distinguished
character	a SPECIFIC SYMBOL
daseia	orig. Greek symbol for aspiration; conveyed in Latin by the letter <i>h</i> .

<Caput II.> De ptingorum **figuris** et quare sint ogdecim. Igitur quia, ut dictum est, eiusdem conditionis quattuor et quattuor natura statuit, ita et notae pene sunt eadem. Solummodo tetracordorum differentia versis in varium **karacteribus** indicatur.

- Primus finalis seu terminalis **dasian** † inclinum S ad caput ita **ƒ**.
- Secundus finalis C versum ad caput ita: **ƒ**.
- Tertius finalis I iota simplex et inclinum ita **/**.
- Quartus finalis C dimidium ad caput ita: **ƒ**.
- Graves retro versi finales ita: **ʒ t ʒ s N t ʒ**.
- Superiores demissi capita finales ita: **ʒ t ʒ s N t ʒ**.
- Excellentes demissi capita graves ita: **h t h s t h**.

Excepto trito, qui in gravibus notam habet N inclinum **N**, in superioribus N versum et inclinum **N**, in excellentibus iota prefixum **ʒ**. Duo residui signa habent **ʒ ʒ** iacentis protus et deuteri. Sunt omnes duodeviginti, quo videlicet singuli extremam suam symphoniam attingant, id est quindecimum sonum, unde

<Chapter 2.> Concerning the figures of *phthongi*, and why there are eighteen. Since nature, then, as already said, has established [patterns] of four of the same condition, so also are the marks [arranged], [at least] to a degree. For the difference between various tetrachords is indicated by **characters** turned [this way or that].

- The first *finalis* or terminal **dasia** † [has] an inclined S at the head, like so: **ƒ**.
- The second *finalis* [has] a C turned [sideways] at the head, like so: **ƒ**.
- The third *finalis* is a simple leaning iota I, like so: **/**.
- The fourth *finalis* [has] a half C at the head, like so: **ƒ**.
- The *graves* are reversed *finales*, like so: **ʒ t ʒ s N t ʒ**.
- The *superiores* are *finales* turned around, like so: **ʒ t ʒ s N t ʒ**.
- The *excellentes* are *graves* turned around, like so: **h t h s t h**.

The exception is the tritus, which in the *graves* **N** has the mark [of] a leaning N, in the *superiores* **N** an upside-down and leaning N, and in the *excellentes* a crossed iota **ʒ**. The two remaining signs have [the marks] of a horizontal protus and deuterus **ʒ ʒ**. Altogether there are eighteen, by which the single [sounds] may reach their largest *symphonia*, that is, the fifteenth sound [double octave], as

post dicitur. Sunt et alia plura plurium sonorum **signa** inventa antiquitus, sed nobis a facilioribus ordiendum.

<Cap. III.> Unde dicatur tetracordum finalium et ceterorum.

Terminales sive finales dicuntur, quia in unum aliquem ex his quattuor **melos** omne finiri necesse est. Etenim primi toni melum et **subiugalis** sui sono archoo **F** regitur et finitur. Secundus tonus cum subiugali suo sono **F** deuterio regitur et finitur. Tertius eiusque subiugalis sono **/** trito regitur et finitur. Quartus cum suo subiugali sono tetrardo regitur et finitur **F**. Vocatur autem **autentus maior** quilibet tonus, **plagis minor**.

<Caput IV.> Quare unum solum tetracordum sub finalibus sit et duo supra.

Finales seu terminales soni sub se habent unum tetracordum, quod dicitur gravium, supra se autem duo, id est superiorum et excellentium cum residuis duobus sonis, videlicet quod simplex et legitimus **cantus** inferius non descendit quam usque ad sonum quintum a finali suo, in primo dumtaxat tono et secundo ab **F** archoo vel proto finali usque in eundem gravem **7**, in tertio et quarto a **F** deuterio finali usque in eundem gravem **7**, in quinto et sexto a **/** trito finali usque in eundem gravem **N**, in septimo et octavo a **F** tetrardo finali usque in eundem gravem **7**. At vero in acumine a quocumque finali sono usque in tertium eiusdem nominis sonum efferri valet, id est usque in excellentes.

<Caput V.> Quid distet inter autentos et minores **tonos**.

Praeterea cum eodem sono autentus quisque tonus et qui sub ipso est regantur et finiantur, unde et pro uno habentur tono, in hoc tamen differunt, quod minoribus tonis minora in elevando sunt spacia, et inferior quisque tonus non nisi ad quintum usque sonum a finali sono ascendit, sed et hoc raro.

shall be said hereafter. There are also many more **signs** of many sounds that have been invented in ancient times, yet we must begin with the easier ones.

<Chapter 3.> Why the tetrachords of the *finales* and of the others are so called.

The terminal ones or *finales* are so called because all **melody** must necessarily end on one of these four. For the *melus* of the first *tonus* and of its **subordinate** is ruled and concluded by the archous [protus] sound **F**. The second *tonus* with its subordinate is ruled and concluded by the deuterus sound **F**. The third and its subordinate is ruled and concluded by the tritus sound **/**. The fourth with its subordinate is ruled and concluded by the tetrardus sound **F**. Any **authentic tonus** is called **major**, and **plagal minor**.

<Chapter 4.> Why there is one tetrachord below the *finales* and two above them.

The *finales* or terminal ones have below them one tetrachord, which is that of the *graves*, but above them two, that is, of the *superiores* and the *excellentes*, plus two additional sounds, in order that a single and correct **song** shall descend no further than the fifth sound below its *finalis*, that is, in the first and second *toni* from the archous or protus *finalis* **F** [down] to the corresponding *gravis* **7**, in the third and fourth from the deuterus *finalis* **F** to the corresponding *gravis* **7**, in the fifth and sixth from the tritus *finalis* **/** to the corresponding *gravis* **N**, and in the seventh and eighth from the tetrardus *finalis* **F** to the corresponding *gravis* **7**. But in high range it is fine to go up from any *finalis* all the way to the third of the same name, that is, as far as the *excellentes*.

<Chapter 5.> The difference between authentic and minor **toni**.

Furthermore, any authentic *tonus* and the one beneath it are ruled and concluded by the same sound, for which reason they are taken as one *tonus*. Yet they differ in this respect that the minor *toni* have fewer [available] steps when ascending, and every nether *tonus* rises up only as far as the fifth sound from its *finalis* sound, and even that rarely.

signum evidently synonymous with *nota*; this is the first time that the author uses this synonym

melos of various possible meanings, the one intended here is MELODY

subiugalis lit. under a yoke (*iugum*) like oxen, but more broadly: subjugated or SUBORDINATE

autentus AUTHENTIC, in the specific sense that any mode so called has an octave range starting on the *finalis*,

plagis plagal, said about a mode with an octave range starting on the fourth below and going up to the fifth above, the *finalis*;

maior 'greater,' synonymous with AUTHENTIC
minor 'lesser,' synonymous with PLAGAL

cantus SONG, of course, but also music in general, of any kind

tonus here: CHURCH MODE (synonymous with *modus*, above); but it can also stand for: a sounding tone, the interval of the whole tone, a step in a scale, and sometimes a melody (whence modern English *tune*)

<Caput VI.> De proprietate sonorum et quotis locis ab invicem distent eiusdem qualitatis soni.

Igitur quem in his studere delectat, det operam, quatinus propriam cuiusque soni **vim** calleat dinoscere, dehinc in **miscendis** sonis quotumcumque ptongum sive in gravem seu in acutam partem celeriter capere, ut, et virtute et **karactere** quotus quisque sit sonus a sono, liquido contempletur. Omnis sonus musicus habet in utramque sui partem quinto loco suaemet qualitatis sonum, tertio loco in utrumque latus sonum eundem, et quem in hoc aut illo latere secundum habet, in altero habet quartum. Dandum quoque aliquid eis est, qui minus adhuc in his exercitati sunt, quo vel in noto quolibet melo sonorum proprias discant discernere qualitates, vel ignotum melum ex nota eorum qualitate et ordine per signa investigare.* Non parum enim ad investigationem hanc proficit, dum singulorum ipsorum per vicinos sonos Greca suo ordine modulantur vocabula hoc modo:

<i>111</i>	<i>F F F F</i>	<i>4 1 4</i>	<i>F J F</i>
tritos	deuteros	archoos	tetrardos
<i>F F F F</i>	<i>Y P Y</i>		
archoos	tetrardos		

<Caput VII.> Descriptiunculae de sonorum proprietatibus ad exercendum.

Sic itaque sonus quisque dum suo semetipsum nomine canit, facile in canendo sentitur, quis ille vel ille sit. Exemplo sit inferius descriptum carmen, quod superscriptae syllabis notae musicae modulantur ipsarum desuper notarum appellationibus adsignatis ad hunc modum.

<Chapter 6.> Concerning the property of sounds and how many steps there are between sounds of the same quality.

Let him, therefore, who takes delight in studying these things take particular care that he knows how to recognize the **potency** of any sound, and then, in **mingling** sounds, how swiftly to take any numerically ranked *phthongus*, whether in high range or low, [so] that he may easily contemplate the numerical rank of any sound relative to another from its force and **character**. Every musical sound has a sound of the same quality on the fifth step on either side, a sound [of the same quality] between the third steps on both sides, and [when a sound of the same quality] occupies the second [step] on one side, [the other sound of that quality] holds the fourth on the other. Those also who are as yet less practiced in these things should pay particular attention that they learn both to distinguish the proper qualities of the sounds in any known melody, and to analyze an unknown melody by means of the known quality and order by means of signs.* For the purposes of that examination it is of no small benefit when one sings the Greek names of the single sounds in [proper] order [when moving] through neighboring sounds:



<Chapter 7.> Small examples of the properties of sounds, for the purpose of practicing.

In this way, when every sound is sung to its own proper name, one can easily tell which is which while singing. Let the song illustrated below serve as an example, because the musical marks written above the syllables are sung to the designations of the marks added on top, in this way.

- vis** POTENCY; synonymous with, and etymologically related to, *virtus* (see above); this is a quality proper to each musical sound ('propria vis soni')
- miscere** to CREATE A MIXTURE of two or more things; term with a rich historical significance, not only in music, but also, for instance, in the arts of cookery and medicine
- qualitas** CHARACTERISTIC PROPERTY of a thing, by which it can be recognized and distinguished (in this passage) synonymous with *qualitas*
- character modulari** to sing a melody

* Significant statement: it is apparently possible, around 850, to investigate an unknown melody by means of signs. Those signs are not neumes but *daseia* symbols. Were the latter widely in use for the dissemination of chant melodies? Or for the understanding and analysis of melodies?

Each of the six examples begins and ends on the pitch designated below the *daseia* symbols:: tritus F, deuterus E, archous A (of the *superiores*), tetrardus G, archous D, and tetrardus C (of the *graves*). It is unclear to me why the appropriate Greek names are not to be sung to every note in an example, however cumbersome that may be. It seems to be what he calls for.

tetrardos	archoos	deuterus	tritos	tetrardos	tetrardos			archoos	archoos	tetrardos	tritos	archoos	deuterus		
✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		
Rex	cae	li	do	mi	ne			squa	li	di	que	so	li		
tetrardos	archoos	deuterus	tritos	tetrardos	tetrardos			archoos	archoos	tetrardos	tritos	archoos	deuterus		
✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		
Ty	ta	nis	ni	ti	di			ma	ris	un	di	so	ni		
tetrardos	tetrardos	archoos	deuterus	tritos	tritos	deuterus	tetrardos	deuterus	archoos	tetrardos	archoos	tetrardos	tritos	archoos	deuterus
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Te	hu	mi	les	fa	mu	li	mo	du	lis	ve	ne	ran	do	pi	is
tetrardos	tetrardos	archoos	deuterus	tritos	tritos	deuterus	tetrardos	deuterus	archoos	tetrardos	archoos	tetrardos	tritos	archoos	deuterus
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Se	iu	be	as	fla	gi	tant	va	ri	is	li	be	ra	re	ma	lis

Sed dum forte in sono aliquo dubitatur, quotus sit, tum a semitoniis, quibus constat semper deuterum tritumque disiungi, toni in ordine rimentur et mox, quis ille fuerit, agnosceretur, donec sonos posse notare vel canere non minus quam litteras scribere vel legere ipse usus efficiat.* Et haec utcumque dicta sint ad studia incipientium adiuvanda.

<Caput VIII.> Quomodo ex quattuor sonorum vi omnes toni producantur.

Demonstrandum nunc, quomodo haec quattuor ptingorum vis modos, quos abusive tonos dicimus,** moderetur, et fiat dispositio talis: Sternantur in ordine veluti quaedam cordae e sonorum notis singulis e regione positae procedentes. Sint autem cordae vocum vice, quas eae significant notae. Inter quas cordas exprimat neuma quaelibet, utputa huiusmodi:

But if doubt were perhaps to arise as to the numerical rank of a given sound, then the *toni* must be scrutinized in order for the semitones, by which the deuterus is always separated from the tritus, and soon it shall be known which it is, until one is experienced enough to notate and sing [all] sounds as easily as one may write or read letters.* And let these things be said as an aid to study for beginners.

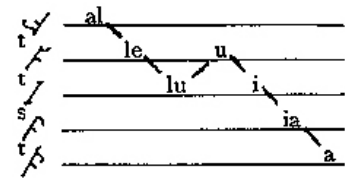
<Chapter 8.> How all the *toni* are produced through the agency of the four sounds.

Now we must show how the modes (which we have erroneously called *toni****) are regulated through the agency of the four *phthongi*, and let the arrangement be as follows. Let certain strings be laid out in order, proceeding from the single [dasia] marks of sounds written on the [left] side. Let these strings take the place of the voices that are signified by those marks. Let any **neuma** be presented in [the spaces] between those strings, as for example in this way:

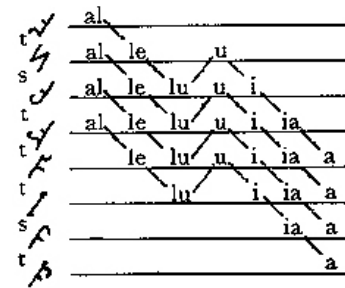
* Once again the clear implication is that the *daseia* system was not designed purely for theory, but had general application. A singer fully trained in this system would be able to read and sing notes as quickly as one would read and write letters. That should include sight-singing. This means that the usefulness of unambiguous pitch notation was recognized, even if neumes were completely useless in that regard.

** A puzzling statement: if it was indeed erroneous to call a church mode *tonus* rather than *modus*, why not go back and correct the error, instead of owning up to it here? Then there is the question why a *modus* should not be called *tonus*. Just about every Medieval theorist used the latter term.

neuma in this context it means MELODY, not neume

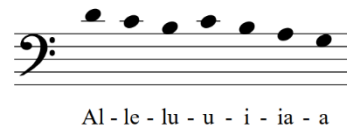


Ergo ut, quod dicitur, et audiendo et videndo comprobetur, alia rursus descriptiuncula per neumam eandem fiat. Similiter enim cordis a parte in partem ductis quaterna inter cordas series continuatim describatur, ita ut unaquaeque series suo proprio sit insignita colore. Primae quidem neumae series a sono *♩* incipiat et in sonum *♯* finiat. Secunda a sono *♩* inchoet et sono *♯* compleatur. Tertia incipiat a sono *♮* et in sonum *♭* desinat. Quarta a sono *♩* ordiatur et in sono *♯* consistat, ita:



Hae quattuor descriptiunculae, dum solo ab invicem semitonio vel tono id est armonico spacio distant, eo solo a genere in genus singulae transponuntur. Primam dispositionem cum cecineris, poteris dinoscere, quia vis* primi soni *♯* primi toni virtutem* creet, qui protus autentus dicitur. Secundam cum cecineris, senties tonum deuterum a sono deuterio *♯* gubernari. Tertiam assumens videbis similiter in sono *♭* trito triti toni consistere potestatem.* Quartam cum fueris modulatus, intelleges toni tetrardi genus a sono tetrardo *♯* procedere.

Igitur primae modulationi quaecumque primi toni mela aptari poterunt et subiugalis sui. Sua similiter secundae. Sua similiter tertiae. Sua similiter quartae, ad subiecta singulorum exempla. Quae dupliciter ad evidentiore intellectionem describere conatus



Now, in order to demonstrate the statement aurally as well as visually, let us take another example using the same *neuma*. Having similarly laid out the strings from one side to the other, let four series [of marks] be shown [in the spaces] between the strings, without interruption, in such a way that each series is designated by its own distinctive color. Let the series of the first *neuma* depart from the sound *♩* and end in the sound *♯*, the second start from the sound *♩* and be completed in the sound *♯*, the third have its inception in the sound *♮* and leave off at the sound *♭*, and the fourth spring from the sound *♩* and come to a stop in the sound *♯*, like so:



Since these four little examples are only a semitone or tone apart, that is, a harmonic space, the single [sounds] are merely transposed from one scale to another. When you shall have sung the first disposition, you will be able to recognize the [mode] called authentic protus, since the potency* of the first sound *♯* creates the force* of the first *tonus*. When you shall have sung the second, you will perceive that the deuterus *tonus* is governed by the deuterus sound *♯*. Taking up the third, you shall likewise see that the power* of the tritus *tonus* is based in the tritus sound *♭*. When you shall have sung the fourth, you will understand that the scale of the *tonus* tetrardus proceeds from the tetrardus sound *♯*.

Therefore, the melodies of the first *tonus* and of its subordinate can be adapted to any first melody. Likewise to the second. Likewise to the third. Likewise to the fourth, as in the examples of single ones below. I have attempted to illustrate [each of] them twice for a more ready

color a word with multiple meanings, but here standing for the differing musical qualities that strings of steps have when sung on different *finales*

* The same metaphoric language that seems to suggest inherent powers of some sort: *vis, virtus, potestas*.

sum, et linealiter quidem veluti cordarum usu et singillatim notarum adpositione per syllabas. Modulatio ad principalem protum modum et subiugalem eius:

Al-le-lu-ia. Lau-da-te Do-mi-num de cae-lis.

A musical score for the antiphon 'Al-le-lu-ia. Lau-da-te Do-mi-num de cae-lis.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The second system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Cae-li cae-lo-rum lau-da-te De-um.

Sequitur modulatio ad principalem deuterum modum et subiugalem eius.

Al-le-lu-ia. Con-fi-te-bor Do-mi-no ni-mis in o-re me-o.

A musical score for the antiphon 'Al-le-lu-ia. Con-fi-te-bor Do-mi-no ni-mis in o-re me-o.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The second system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Lau-da-bo De-um me-um in vi-ta me-a.

Sequitur modulatio ad principalem tritum modum et subiugalem eius.

Al-le-lu-ia. In-tel-le-ge cla-mo-rem me-um Do-mi-ne.

A musical score for the antiphon 'Al-le-lu-ia. In-tel-le-ge cla-mo-rem me-um Do-mi-ne.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The second system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Mi-se-re-re me i De-us.

Sequitur modulatio ad principalem tetrardum modum et subiugalem eius.

understanding, using strings in linear fashion and notating, one by one, the marks by means of syllables. [Here is] a melody in the principal and subordinate protus modes:

A musical score for the antiphon 'Al-le-lu-ia. Lau-da-te Do-mi-num de cae-lis.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Al-le-lu-ia. Lau-da-te Do-mi-num de cae-lis.

A musical score for the antiphon 'Cae-li cae-lo-rum lau-da-te De-um.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Cae-li cae-lo-rum lau-da-te De-um.

Here follows a tune in the principal and subordinate deuterus modes.

A musical score for the antiphon 'Al-le-lu-ia. Con-fi-te-bor Do-mi-no ni-mis in o-re me-o.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Al-le-lu-ia. Con-fi-te-bor Do-mi-no ni-mis in o-re me-o.

A musical score for the antiphon 'Lau-da-bo De-um me-um in vi-ta me-a.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Lau-da-bo De-um me-um in vi-ta me-a.

Here follows a tune in the principal and subordinate tritus modes.

A musical score for the antiphon 'Al-le-lu-ia. In-tel-le-ge cla-mo-rem me-um Do-mi-ne.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Al-le-lu-ia. In-tel-le-ge cla-mo-rem me-um Do-mi-ne.

A musical score for the antiphon 'Mi-se-re-re me i De-us.' It consists of two systems of staves. The first system shows the principal mode (top) and the subordinate mode (bottom). The lyrics are written below the notes.

Mi-se-re-re me i De-us.

Here follows a tune in the principal and subordinate tetrardus modes.

The overall range of the antiphon *Laudate Dominum* is a fifth, reckoned from from the *finalis* D. The author says that this is an example of the authentic mode, on D.

Caeli caelorum, likewise an antiphon, but it has an overall compass of a fourth, between the whole-tone step below the *finalis* D to the third above it.

Al le lu lu lu lu ia. Sit no men Do mi ni be ne di ctum in sae cu la.

Ad hunc modum consuetis utuntur modulis ad investigandam toni cuiusque vim eadem ratione compositis. Quorum principales quique a suis sonis superioribus ordientes desinunt in finales, minores vero in finalibus et inchoant et consistunt nec superiorum attingunt locum, utpote NOANNOEANE, NOEAGIS, et cetera, quae putamus non tam significativa esse verba quam syllabas modulationi attributas.

<Caput IX.> Quid sit inter ptongos et sonos, inter tonos et epogdoos, quid etiam toni et modi sive tropi, particulae quoque, quid diastema et sistema.

Sed his veluti praeexercitamentis quibusdam ac vilioribus licet incipiis ante cognitio de hinc faciliore via armonicas prosequimur rationes. Armonia est diversarum vocum apta **coadunatio**. In quibus vocibus quia plerumque sonos et ptongos indifferenter accipimus, sonos et ptongos, tonos et epogdoos, quae singulorum sit proprietas, intimandum.

Sonus quarumque vocum generale est nomen, sed ptongos dicimus vocis canorae sonos. Tonus est spacia legitima magnitudo a sono in sonum. Hocque spacia musicorum sonorum, quia in **sesquioctava** proportione est, Greco nomine dicitur epogdous. Namque ut sescupla sive **sesquialtera** vel emiola proportio dicitur, quando maius minoris medietate superat, **sesquitertia**, ubi maius tertia minoris parte precellit, sesquiquarta, dum minus quarta sui portione a maiore transcenditur, sesquiquinta, dum quinta parte alterum altero maius est, sesquisexta, dum sexta, sesquiseptima, dum

In this way one applies the customary intervals, put together according to the same principle, in order to investigate the effect of any mode. The principal [authentic modes] all begin in the *superiores* sounds and end in the *finales*, but the minors begin as well as end on *finales* and do not reach any step among the *superiores*, as for example NOANNOEANE, NOEAGIS,* and so on, which words we do not consider to be as meaningful as the syllables [we have] assigned to the tune.

<Chapter 9.> The difference between *phthongi* and *soni*, between the *tonus* and the *epogdous*, [and] what [are] *toni* and *modi* or *tropi*, also *particulae*, [and] what [is] *diastema* and *sistema*.

But now, having mastered these preliminary exercises and perhaps rather basic beginnings, we will go on to pursue the harmonic principles by an easier road. Harmony is the appropriate **rendering into one** of different voices. Now since, with respect to these voices, we often take *soni* and *phthongi* in the same sense, it is necessary to define *soni* and *phthongi*, *toni* and *epogdoi*, and [to establish] what is the property of each.

The general name for any kind of voice is *sonus*, but sounds [that are sung] by a tuneful voice we call *phthongi*. The *tonus* is the correct extension of space between one sound and another [neighboring] one. And since this space between musical sounds corresponds to the **sesquioctave** proportion, it is called *epogdous* by its Greek name. For just as we speak of the proportion of sescupla or **sesquialtera** or *emiola* when the greater [number] exceeds the lesser by one half, of **sesquitertia** when the greater surpasses the lesser by the third part, of sesquiquarta when the greater exceeds the lesser by the fourth portion, of sesquiquinta when one is greater than the other by the fifth part, and of sesquisexta, then

Al le lu lu lu lu ia. Sit no men Do mi ni be ne di ctum in sae cu la.

The notation of the Alleluia at the top of these examples is marvelously economic, and far less greedy for space than neume notation. One could easily imagine this having served as directly singable notation, just like the author says, capable of transmitting the entire Authentic Antiphonal with pitch-specificity. (Excepting the alternative ways of singing the note now known as B – flat or natural.) In the face of this practical solution, available by about 850, the persistent use of neumes must reflect some practical purpose that had nothing to do with pitch.

* Greek-derived nonsense syllables used as intonation formulas. They were used in music theory to convey the essentials of a mode.

coadunatio UNIFICATION, turning two or more different things into one; not literally one, for the mixture will always bear the imprint of the differences between the ingredients

sesquioctava the proportion 9:8 of the WHOLE TONE
sesquialtera the proportion 3:2 of the FIFTH
sesquitertia the proportion 4:3 of the FOURTH

septima, ita sesquioctava comparatione sonus ad sonum sese habet, dum gravioris altior in se quantitatem teneat et octavam insuper eius partem. Semitonium non plenum toni intervallum. Idem interdum limma vel diesis dicitur.

Modi vel **tropi** sunt species modulationum, de quibus supra dictum est, ut protos autentus vel plagis, deuterus autentus vel plagis, sive modus Dorius, Frigius, Lidius, et ceteri, qui ex gentium vocabulis sortiti sunt nomina. **Particulae** sunt sua cantionis **cola** vel **commata**, quae suis finibus cantum distingunt. Sed cola fiunt coeuntibus apte commatibus duobus pluribusve, quamvis interdum est, ubi indiscrete comma sive colon dici potest. At ipsa commata per arsin et thesin fiunt, id est levationem et positionem. Sed alias simplici arsi et thesi vox in commate semel erigitur ac deponitur, alias sepius. Discrimen autem inter summam et infimam vocem commatis appellatur **diastema**. Quae diastemata nunc quidem minora sunt, ut est illud, quod vocamus tonum, nunc maiora, ut duum triumve ac deinceps aliquot tonorum habentia intervallum. Porro autem sicut cola commatibus constant, sic commatum spacia dicimus diastemata. Quae in colis vero spacia fuerint vel integro quolibet melo, sistemata nominamus.

<Caput X.> De symphoniis.

Praemissae voces non omnes aequae suaviter sibi miscentur nec quoquo modo iunctae concordabiles in cantu reddunt effectus. Ut litterae si inter se passim iungantur sepe nec verbis nec syllabis concordabunt copulandis sic in musica quaedam certa sunt intervalla quae symphonias possint efficere. Est autem **symphonia** vocum disparium inter se iunctarum dulcis **concentus**. Symphoniae **simplices** ac primae sunt tres, quibus reliquae componuntur. Ex quibus una est, quam **diatessaron** vocant, altera **diapente**, tertia **diapason**.

Diatessaron interpretatur ex quattuor, quod vel quartanas ad invicem resonat voces vel in ordine quattuor sit sonorum compo-

sexta, sesquiseptima, then septima, so does a given sound relate to another in a sesquioctava relationship when the higher contains within itself the quantity of the lower plus its eighth part. The semitone is less than the full interval of the whole tone. It is sometimes called *limma* or *diesis*.

Modi or **tropi** are the species of melody of which we have spoken above, such as authentic or plagal protus, authentic or plagal deuterus, or Dorian mode, Phrygian, Lydian and others, which names were borrowed from the designations of peoples. **Particulae** [sections] are **colons** [periods] or **commas** [phrases] of a song which divide song by their boundaries. But colons are made from two or more commas going properly together, although sometimes one may speak of comma or colon without distinction. Now commas are made through *arsis* and *thesis*, that is, by rising and falling. But in a comma the voice sometimes goes up and down only once, in a single arsis and thesis, and sometimes more often. The difference between the highest and lowest voices of the comma is called **diastema**. And these *diastemata* are sometimes smaller, like the one which we call *tonus*, and sometimes larger, like those that have the interval of two or three or more whole tones. Moreover, just as colons consist of commas, so also do we call the [intervallic] spaces of commas *diastemata*. And the spaces that shall be in the colons or in a whole melody we name *sistemata*.

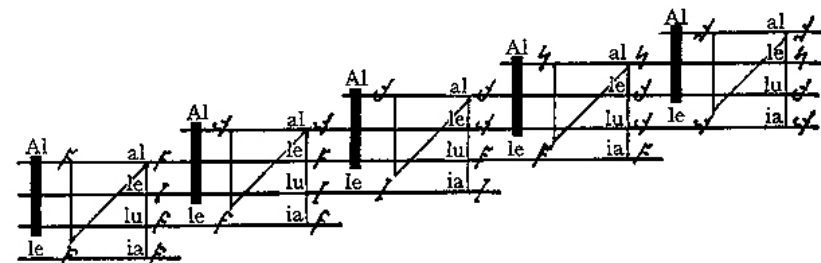
<Chapter 10.> Concerning *symphoniae*.

The aforesaid voices do not all mingle with equal smoothness, nor do those that are joined in any which way [necessarily] produce concordable results in song. Just as letters joined together at random often do not rhyme with the words or syllables to which they are coupled, so also in music are there [only] certain particular intervals that can produce *symphoniae*. A **symphonia** is the sweet song of different voices that are joined together. There are three **simple** or primary *symphoniae* from which the others are put together. One of these is called diatessaron, the second diapente, and the third diapason.

Diatessaron [the fourth] means “from four,” since either it resounds *voces* that relate to each other at the fourth [step] or there is a succession of four

tropus	a term with multiple meanings, but here evidently synonymous with <i>modus</i>
particula colon comma	} grammatical units ordered in a hierarchy, which set boundaries to melodic units of various sized
diastema	the pitch-range of a comma
symphonia concentus	CONSONANCE the sound of different songs that are sung together; there is no single noun for this in English, except possibly POLYPHONY
simplex	INCOMPOSITE, more specifically, not composed of smaller consonances

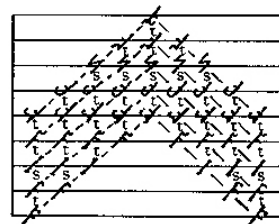
sitio, utputa si ad subiectam descriptionem aut remittas usque in quartum quemlibet sonum aut quattuor in ordine recenseas ita.



Descriptio diatessaron symphoniae.

Ita in utramvis partem quaterna varietate procedunt ac rursus nova processione redeunt.

Diapente interpretatur ex quinque, quod vel quinque sonorum conexione constet vel a quinto loco concordet sibi voces respondeant ad subiectas descriptiones has:



Descriptio diapente symphoniae.

Ad hanc descriptionem a quocumque sonorum quattuor usque ad quintum, qui eiusdem est nominis, per arsin et thesin vel per solam utramlibet singulos ducas in ordine, diapente potest vocari simphonia. Porro secundum quaternas et quaternas sequentes descriptiunculas si quid cecineris, idem **consonanter** quinta regione respondet, quod magis proprium est diapente.

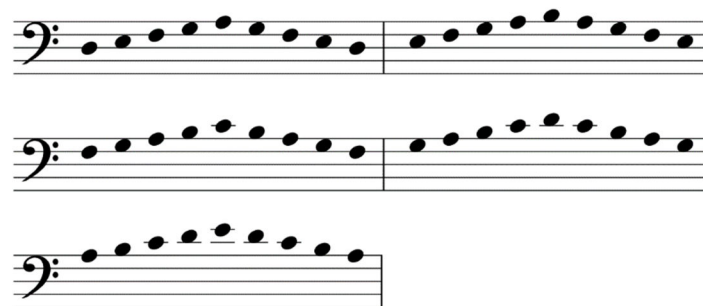
sounds, as in the example below, where either you leap to the fourth sound, or add up four in succession, like so:



Example of the *symphonia* of the fourth.

In this way [the voices] proceed in either direction through a fourfold variety and return again in a new [melodic movement].

Diapente [the fifth] means “from five.” Either it consists of five sounds tied together, or the concurring voices answer one another from the fifth step, as in the examples below:

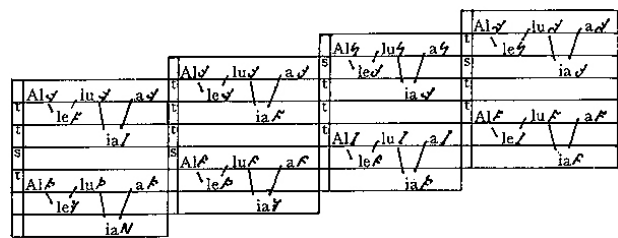


Example of the *symphonia* of the fifth.

In this example, we can speak of the *symphonia* of the fifth when you lead the single [sounds], in order, through arsis and thesis or through either alone, from any of the four sounds [of the tetrachord] to the fifth [above or below it], which has the same name. Moreover, if you shall sing some [melody] according to the four and four little examples that follow, the same [melody] responds **consonantly** on the fifth step, which is more properly [called] the diapente.

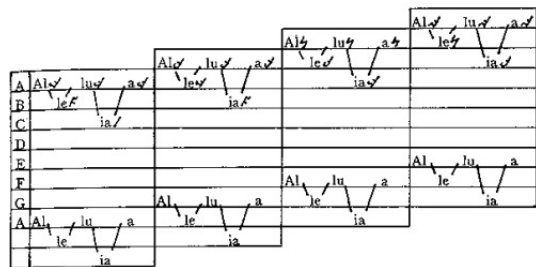
consonanter

in consonant fashion, harmoniously,
SOUNDING TOGETHER WELL



Item alia descriptio diapente.

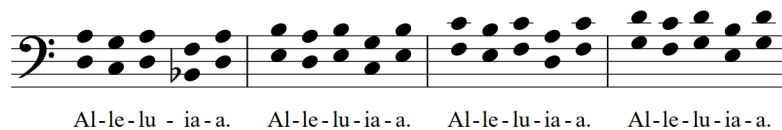
Sic et **diapason**, quod ex omnibus interpretatur, octavi ad octavum fit consonantia duas superiores in suo sistemate continens. Quae simphonia ideo ex omnibus dicitur, quod antiqui non plus quam octo cordis utebantur. In hac ergo non tam consonae voces quam **aequisonae** dici possunt et in ea vox denuo innovatur. Quod dum promptius in instrumentis musicis appareret, si non tamen adfuerint, teneat alius vocem in sono quolibet aliusque sive sursum sive iusum quattuor et quattuor in ordine rimetur. Dum novissimus sonuerit, senties eum ad primum, id est octavum ad octavum, perfectam consonantiam reddere. Igitur quod his aequisonis vocibus modulatur, huiusmodi fit conlatione hoc modo:



Descriptio diapason.

<Caput XI.> Quomodo ex simplicibus symphoniis aliae componantur.

Ex his quidem simplicibus aliae simphoniae componuntur, ut diapason et diatessaron, diapason et diapente, disdiapason, quae et disdiplasion; utpote si duabus virilibus vocibus per diapason consonantibus tertia puerilis aequisona adiungatur, sic denique acutissima et gravissima disdiapason ad se invicem reddunt, quam

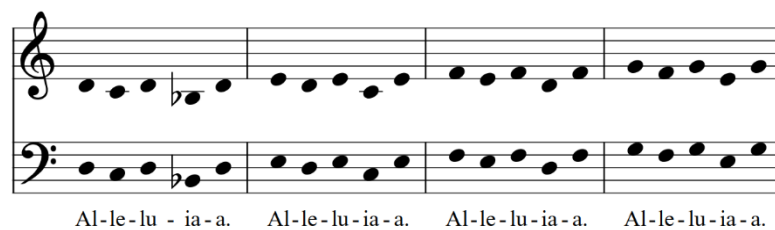


Also, another example of the fifth.

In the same way the **diapason** [the octave], which translates “from all,” makes the consonant sound of eighth relative to eighth, containing two *superiores* in its *sistema*. This *symphonia* is called “from all,” because the ancients used no more than eight strings. In this regard, then, the [eighth steps] cannot be called consonous so much as **equisonous**, for the voice is renewed again in them. This is more readily apparent on musical instruments, but if these are not available, let one person hold the voice on some sound, and let another make four and four steps in order, either upwards or downwards. When the last shall have sounded, you shall perceive that it renders a perfect consonant sound with the first, that is, eighth to eighth. So so if you sing with these equisonous voices, the relationship is as follows:

equisonus

EQUAL-SOUNDING; whereas consonance requires some sort of audible difference between the constituent pitches, in octaves the pitches sound as though they were equal

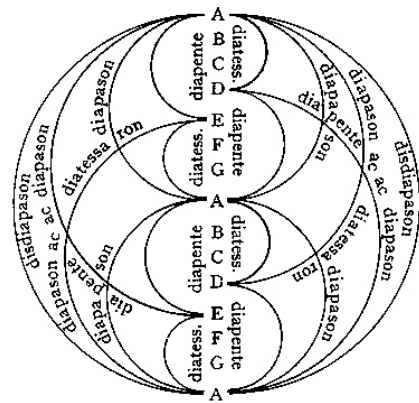


Example of the octave.

<Chapter 11.> How other *symphoniae* are put together from simple ones.

From these simple ones other *symphoniae* are put together, such as the octave with fourth, octave with fifth, and disdiapason [double octave] which is the same as disdiplasion—as when two men’s voices sounding together at the octave are joined by a third equisonous boy’s [voice], and then the highest and lowest [pitches] produce a double octave relative to another, resounding that *symphonia*

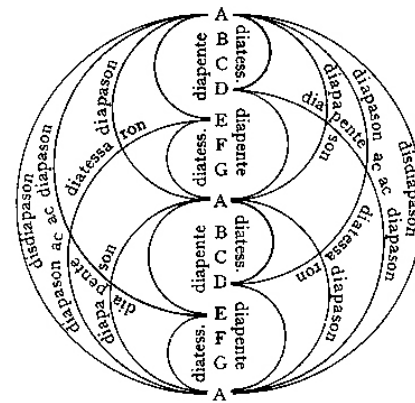
simphoniam quindecima conlatae regione consonant, media autem diapason ad utrasque respondet, ut haec descriptio designat:



Descriptio eorum quae dicuntur

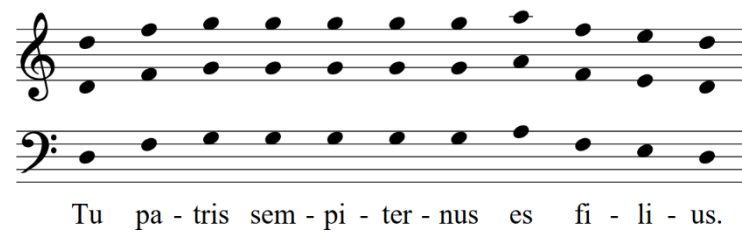
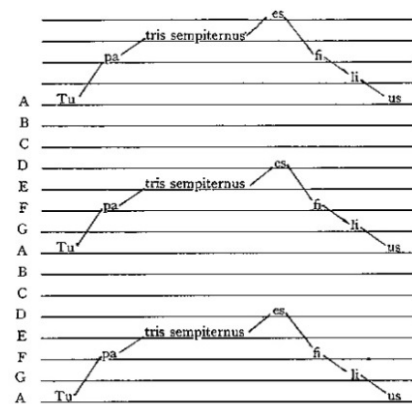
Sane non ab uno tantum quolibet sono ad quartum vel quintum aut octavum consonantia fit, sed soni pene singuli et ad gravem et ad acutam partem quartis a se sonis diatessaron et singuli quintis respondent diapente, et sonus quisque in utramque partem ad octavum a se sonum diapason resonat. Quique rursus, id est in utramque partem octavi, sicut ad medium diapason, ita, ut dictum est, ad se invicem quinto decimo loco resonant disdiapason. Fitque, ut semper diapason spacium diatessaron ac diapente compleatur. Medii namque duo soni in hoc spacio dum ad utrumque latus diatessaron ac diapente respondeant, evenit, ut uter eorum ad hoc latus diapente fuerit, ad illud diatessaron fiat, et qui huic diatessaron, illi sit lateri diapente. Sic namque maxima simphonia duabus completur minoribus. Porro maxima simphonia diapason dicitur, quod in ea perfectior ceteris consonantia fiat, ut sive ab acutiore sive a graviore incipias, vox, quam octavo ordine in celsiorem vel humiliorem mutaveris, ad primam vocem unisona habeatur, ita canendo:

on the fifteenth comparative step, and the middle [voice] answers both with the octave, as this example shows:



Example of what has been said.

Now it is not just one particular sound that has this consonant sound on the fourth or fifth or eighth [steps from it], but [all] single sounds, for the most part, make a fourth with the fourth sounds above and below them, and a fifth with the fifths, and any sound may resound the octave on the eighth sound both above and below. And again, on either side of the eighth [step], they may resound the double octave on the fifteenth step, as already said, just as the octave [does] to the middle. And the octave should always complete the space of fourth plus fifth. For when the two middle sounds in this space answer with a fourth or fifth on either side, it turns out that either they shall be fifth on one side and fourth on the other, or the other way round. And in this way the greatest *symphonia* is composed of two lesser ones. Moreover, the octave is called the greatest *symphonia* because it has a more perfect consonant sound than the others. For whether you begin on the higher or the lower [side], when you have moved the voice to the eighth order, either above or below, it may be taken as unisonous to the first voice, singing like so:



Sic enim in infinitum sonorum consequentia progreditur, ut ab unoquoque sono locis octavis renata, ut ita dicam, voce ordo novus emergat et dierum more octava sit quae prima, prima quae octava. Unde et in Virgilio apud Elisium Orpheus “obloquitur numeris septem discrimina vocum”, quod scilicet sonorum ordo disparibus septem continetur vocibus, at in octavis in novum mutetur.

Etenim sicut denario numero qui fuerit additus, intra eum positus integer inviolatusque servatur, cum in ceteris id ita minime eveniat, ita etiam in hac continentia. Nam si duos tribus adicias, quinque continuo reddis et numeri species immutata est. Si vero eosdem denario addas, duodecim feceris et binarius iunctus denario conservatus est, item ternarius et ceteri eodem modo. Ita igitur simphonia diapason aliam, quam susceperit consonantiam, servat nec immutat nec ex consona dissonam reddit. [quoted from Boethius]

Hinc fit, ut sicut quindecimi, quod sunt bis octavi, consonanter sibi miscentur, ita et ptongus quisque per diapason ad duodecimum sicut ad quintum diapente resonat. Et quemadmodum ad quartum, sic ad undecimum resonat diatessaron. Attendenda quoque in hoc mira ratio, ut, quamvis absolute canendo vel in ordine sonos rimando idem inveniuntur noni ad nonos, non octavi ad octavos,* in simphonia tamen non modo diapason, quae octava incedit regione, sed et in bis diapason mutatione mirabili octavi et octavi idem fiunt.

In this way the succession of sounds progresses into infinity, since a new order emerges as reborn (if I may put it like that) on the eighth step from any sound, and, in the manner of days, the eighth is the first and the first the eighth. This is why Orpheus, being in Elisium according to Vergil, “sings the seven distinctions of voices in numbers,” for although the order of sounds may go through seven different voices, it is renewed on the eighth.

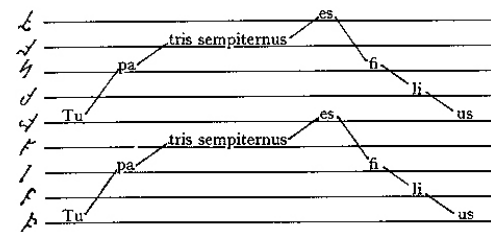
For just as something is preserved whole and unchanged when it is added to the number ten, that is, placed within it, when this would not be the case [with other numbers], so also in that <consonance>. For if you add two to three, you immediately have five, and the species of the number has changed. But if you add the same to ten, then you shall have made twelve, and the number two, joined to ten, is preserved, also the number three and others in the same way. So the symphonia of the octave preserves any other consonance which it shall received, and neither changes it nor turns it from consonous to dissonous. [quoted from Boethius]

This is why any *phthongus* resounds the fifth on the twelfth as much as on the fifth, through octave [transposition], just like fifteenths (which are doubled eighths) mingle consonantly. And a fourth resounds on the eleventh as much as it does on the fourth. In this regard we should also note the wondrous fact that, when singing straightforwardly or investigating sounds in order, ninths are found to be the same as ninths but not octaves to octaves.* Yet in a *symphonia* it is not just on the octave, which appears on the eighth step, but also, through a marvelous mutation, on the bisdiapason, that eighths and eighths are the same.

* Since two successive tetrachords combine to make an octave, the third tetrachord will necessarily begin on the ninth. Therefore, a pitch that is, say, the deuterus in tetrachord 1 will be a protus at the octave, and a deuterus only at the ninth. Despite this, marvels the author, the equisonous octave is found on the eighth step, not the ninth.

<Caput XII.> Item de eisdem symphoniis.

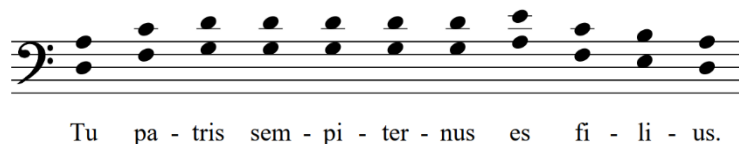
Quattuor moduli, in quibus prima symphonia invenitur, quae diatessaron dicitur, dum singuli ab invicem concordi proprietatis diversitate differant eorumque, ut dictum est, tetracordo veluti elemento armonia contexatur, utique quaternis et quaternis continuatim sese consequentibus necesse est quintos semper sonos eiusdem conditionis emergere et quintorum collatione eiusdem, ut monstratum est, conditionis vel qualitatis sibi symphoniam respondere, quae dicitur diapente. De cuius vi quamvis aliquid iam prolatum est sicut et de aliis, ut tamen, quae deinceps sunt dicenda, lucidius explanari possint, subiecta iterum cordarum descriptione eius ratio contemplanda tradatur. Sit ut prius ex sonorum signis e regione positis cordarum progressio, et inter cordas diapente symphonia disponatur. Ita:



Igitur cum ad rationem huius descriptionis quinta regione aliud post aliud modulatur, senties per diapente symphoniam id ad se invicem eiusdem qualitatis genere consonare. Verum quod in illis quattuor sonitibus, quos singulos ab invicem naturalis ratio per quadrifariam tonorum semitoniorumque positionem propria qualitate discrevit, hoc evenire nequeat, ut melos ullum eiusdem conditionis vel modi manere possit, si ab aliis ad sonos alios transponatur, hoc et in superioribus aliquantulum tetigimus et nunc iteratis exemplis plenius repetendum. Sternatur ut prius veluti disposita cordarum series et idem melos, quod nunc in diapente symphonia designatum est, quaternis vel quinis colorum* descriptionibus exprimat, videbisque eandem melodiae formam in transpositione sua manere non posse, sed per epogdoi vel semitonii distantiam modum unumquemque in alium transmutari ita:

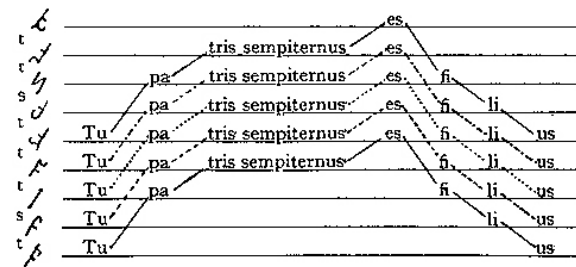
<Chapter 12.> Also concerning the same *symphoniae*.

As already said, the four modules in which we find the first *symphonia* called fourth, taken singly, differ in a concordant diversity of properties, and harmony is woven together in their tetrachord as if in an element; indeed fifth sounds of the same condition must needs appear when fourths and fourths continually succeed one another, and when fifths of the same condition or quality are brought together, they respond to each other with the *symphonia* called fifth. Although we have already said something about their potency and also about other things, let us once again present their underlying principle for contemplation in the example of strings below, so that the things we will say later on may be explained more lucidly. As before, then, let there be a series of strings extending from the signs of sounds placed on the [left] side, and let the *symphonia* of the fifth be laid out in between the strings. Like so:



Now if, according to the principle of this example, something is sung on the fifth step above something else, you shall perceive that it sounds consonantly with itself, on the *symphonia* of the fifth, by a tune of the same quality. It is not possible for any melody to retain the same condition or modus when it is transposed from one step to another among those four sounds, which natural reason has distinguished from each other according to their proper quality in a fourfold arrangement of tones and semitones. We have already said something about this above, but let us now restate it more fully and with more examples. Let there be laid out, as before, an orderly series of strings, and let the same melody which we only just presented in the *symphonia* of the fifth be shown in four or five colors,* and you shall see that the melody cannot retain the same form when it is transposed, but that [on the contrary] every mode is changed into another with regard to the interval of the *epogdous* or semitone, like so:

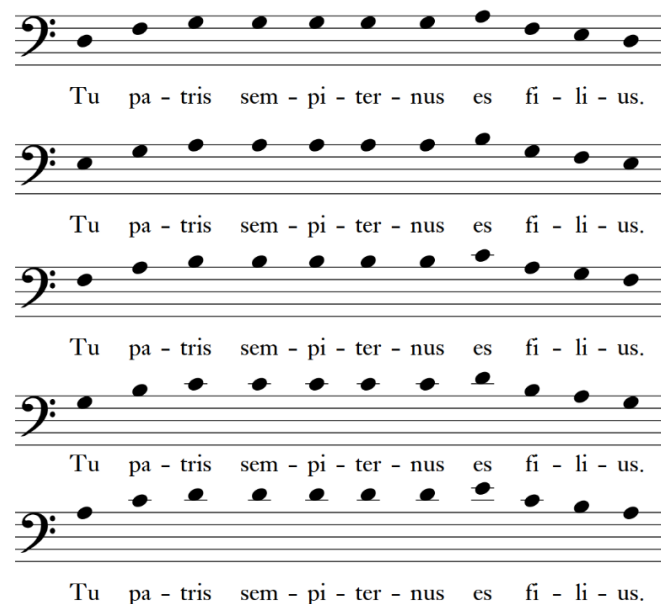
* A string of melodic steps has a different *color* depending in what mode it is sung. This is due to the position of the semitone in the scale.



Primam namque descriptionem, quae a sono f inchoat et finitur primoque deputatur modo, si toto ductu spacio uno feceris altiolem, ut inter cordam et cordam paginula interiecta designat, mox in modum mutatur deuterum, qui a sono f incipit ac desinit in eundem. Fac duobus acutiorem a sono f incipiens, et tritus modus erit. Si tribus, modus nascitur quartus. Si adhuc uno altius spacio efferatur, erit quinta denuo regione primus. Similiter et in ceteris semper a quinto prior ordo redit.

<Caput XIII.> De proprietate symphoniaram.

Monstratum nunc, qualiter unusquisque sonus in tetracordo propria sit conditione dispar ab altero ex eorumque concordii diversitate diversae prodeant modorum seu troporum species, dictum quoque, quotis locis voces ab invicem distantes singulas consequenter simphonias reddant, nunc id, quod proprie simphoniae dicuntur et sunt, id est qualiter eadem voces sese in unum canendo habeant, prosequamur. Haec namque est, quam diaphoniam cantilenam vel assuete organum nuncupamus. Dicta autem **diaphonia**, quod non uniformi canore constet, sed concentu



Now if you shall turn the first line, which begins and ends on the sound f and is in the first mode, into one that is higher by one whole space, indicated by the space between strings, it changes right away into the deuterus mode, which begins with the sound f and ends on the same. Now you must make one that is higher by two [spaces], beginning on the sound f , and it shall be the tritus mode. If by three, then the fourth mode is born. And if it is carried up now by one more space, then the first shall be on the fifth step. In the same way the preceding order always returns on the fifth [step].

<Chapter 13.> Concerning the property of *symphoniae*.

We have now demonstrated how any sound has its own condition in the tetrachord, different from another, and that different species of *modus* or *tropus* are born from their concordant diversity, and it has also been stated by how many steps the voices are separated when they produce the single *symphoniae*. Now let us pursue [the question] what *symphoniae* are properly called, and what they are, that is, how the same voices relate to one another when they are singing together. For that is what we call diaphonic song or, more usually, organum. However, it is called **diaphony** because it does not consist of a uniform tune but rather of blended song that is dissonous in

diaphonia originally a term for DISSONANCE, later applied to two-part polyphony that does not consist of the same interval throughout, and must therefore necessarily include dissonances

concorditer dissono. Quod licet omnium simphoniarum est commune, in diatessaron tamen ac diapente hoc nomen optinuit. Ac inprimis per diatessaron organici meli ponatur exemplum, utpote si ad subiectam descriptionem duobus sonis interpositis quarto loco in unum canendo vox voci respondeat. Ita:

Sic enim duobus aut pluribus in unum canendo modesta dumtaxat et concordi morositate,* quod suum est huius meli, videbis suavem nasci ex hac sonorum commixtione concentum.

<Caput XIV.> De auctiore diaphonia per diatessaron eiusque descriptio.

Nec solum hac collatione vox simplex si simplici conferatur, sed et si simplex organum respondeat duplae aut dupla simplici, vel si ambas per diplasion duplicaveris,** senties huiusmodi proportionum voces suaviter ad invicem resonare ad subiectam descriptionem:

concordant fashion. And although that is common to all *symphoniae*, the name has prevailed in the fourth and fifth. And first of all let us give an example of organal melody on the fourth, as when, in the example below, one voice answers another on the fourth step, with two steps in between, when singing together with it. Like so:

In this way, with two or more singing at the same time, you shall see—at least [when it is done] with measured and concordant slowness,* as is proper to this melody—that smooth blended song is born from this commingling of sounds.

<Chapter 14.> Concerning expanded diaphony at the fourth and an example of it.

Now if we bring together not just one single voice with another in this kind of arrangement, but if the single organum responds to a double, or the double to a single, or if you shall have duplicated** both at the diplasion, you shall perceive that the voices smoothly resound with each other at these proportions, as in the example below:

* In Latin there are two words *morosus* that have different etymological roots. One goes back to *mos* (custom), and conveys all the characteristic traits of what you would call a difficult person. This is the word that lives on as ‘morose’ in modern English. The other is derived from *mora* (a delay, or an interval of time), and means slow, or delayed. The author states that *morositas*, slowness, is what two-part organum calls for, and that it is essential for the sweetness of this way of singing.

** The author speaks of duplication, which is not the same as organum. Organum involves the choice to have the two parts of diaphony start or end in unison, even if they proceed by fourths in between. A duplicate simply copies that choice. Such duplication is better regarded as a kind of performance practice. The interesting thing is that the example involves at least four singers. Diaphony was evidently not the province of professional cantors alone

Ratio descriptionis eiusdem.

Sive namque simplici cantui duplex adiungas organum, quod potest significare primus versus ac tertius, qui ad secundum versum vicem tenent organi, sive ad duplicem cantum simplex organum referatur, quod versus secundus designat et quartus organum in sui medio continentes, seu et organum gemines et cantum, sive etiam triplum utrumque facias, descripta ad invicem consonat ratione. Possunt enim et humanae voces et in aliquibus instrumentis musicis non modo binae et binae, sed et ternae ac ternae hac sibi collatione misceri, dum utique uno impulsu vel tribus in unum vocibus actitatis totidem voces respondent organum.

Ubi attendendum, ut vox media inter duas non aequo spacio se ad utrasque habeat, quippe cum in octonario numero unitatis medietas non sit, verum ab inferiori latere ad cantum diatessaron spacio respondeatur, a superiore vero spacio diapente. Et ut hoc clarius insinuetur nescientibus sine fastidio scientium: Si voce virili organizetur simul cum voce puerili, sunt quidem hae duae voces sibi per diapason consonae; ad eam autem vocem, quam inter se mediam continent, ad quam scilicet utraeque organum respondent, acutior, quae est puerilis, quinto extat loco superior, ea, quae virilis, quarto loco gravior. Sic enim cognato nexu sese mutuo simphoniae ligant, ut quicumque sonus ex hac parte quartana conlatione se habet ad alium, ex illa parte per diplasion quinta regione ad eundem respiciat.

<Caput XV.> Diaphoniae auctioris descriptio per diapente.

Rursus ubi per diapente diaphoniam tribus seu quattuor vocibus modulatur, vox quae ab inferiori latere quinto loco est, hanc a superiore latere per diplasion necesse est quarto loco ad mediam respondere hoc modo:

Explanation of the same example.

Now, whether you join a double organum (in the first and third rows, which assume the role of organum to the second row) to a single chant, or whether a single organum is related to a double chant (in the second row and fourth [rows], which contain the organum in the middle), or if you double both the organum and the chant, or even triple either of them, they will be consonant with one another according to the principle illustrated. Both human voices and [those] on certain musical instruments may be mingled in this kind of combination, not only two and two, but also three and three, provided that three voices produced at once, [singing] at the same time, are answered by as many voices in organum.

One should however pay attention that the middle voice between the [outer] two is not at the same distance from both, as of course there is no middle of unity in the number eight. Rather let it be answered from below by the space of a fourth from the chant, and from above by the space of a fifth. And in order to clarify this to those who are new to this, without annoying those who already are knowledgeable: if organum is being sung between a man's voice and a boy's voice, then those two voices are indeed consonous at the octave; but relative to the voice in the middle, to which they both respond in organum, the higher one, that is, the boy's, is on the fifth step above, and the man's [voice] on in the fourth step below. Thus they are tied together in *symphonia* by a bond of familiarity, so that whichever sound relates to the other by the relationship of the fourth on one side, relates to it on the other side, by virtue of diplasion [transposition], on the fifth step.

<Chapter 15.> Example of expanded diaphony on the fifth.

Again when diaphony at the fifth is sung in three or four voices, the voice which is on the fifth step below must answer the one in the middle from above, by means of diplasion [transposition], on the fourth step, in this way:

Ratio descriptionis eiusdem. Quadripartita huius descriptionis series eodem digesta ordine, quo superior: In primo quoque ac tertio versu organum respondet ad medium, in secundo et quarto tertius, qui est in medio, sese cum simplici organo diapason miscet consonantiae, vel certe geminum portendit organum cum cantu duplici. Ubi etiam aspicias ab inferiore parte tertium versum quinta regione conferri ad secundum ac rursus tertium quarto primumque secundo quartana consonare distantia. Hisque rationibus eae duae symphoniae varias miscet dulcesque cantilenas.

<Caput XVI.> Quid de his Ptolomeum sensisse Boetius narrat.

Hic advertere possumus verioremi videri Ptolomei assertionem, quam Boetius contra Pythagoricos sensisse memorat, qui dicunt diapason ac diatessaron non esse consonantiam. Certe utramvis harum descriptionum duplo et cantu et organo cecineris, ita duplae voci dupla vox sociatur, tamquam si simplex addatur simplici. Necnon si canentes in unum secundum et quartum prioris descriptionis versus iungamus et quintum quarto dumtaxat loco ad gravem partem, et sic rite ad diapason simpliciter consonat diatessaron. Canamus ad sequentem descriptionem quartum et secundum adiungentes et primum, et similiter cum diapason eadem consonantia concordat. Prosequitur idipsum ex Ptolomei sententia praefatus doctor magnificus in quinto musicae rationis volumine

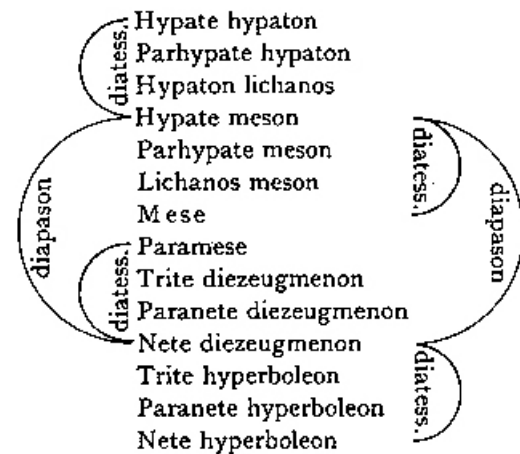
Explanation of the same example. The four-part series in this example is arranged in the same order as above: In the first and third rows the organum responds to the middle one, and in the second and fourth [rows], the third, which is the one in the middle, commingles itself with the single organum at the octave of the consonance, or at least it presents a double organum with the double chant. You can see also that the third row relates to the second at the fifth step below, and likewise the third [row] is consonant with the fourth, and the first to the second, at the distance of [the fourth]. It is because of this that the two *symphoniae* can blend together different and sweet tunes.

<Chapter 16.> What Boethius says Pythagoras perceived about these things.

We can observe here the truth of Ptolemy's assertion (recalled by Boethius) against the Pythagoreans who [said] that the octave and fourth are not consonant sound. Certainly [if] you have sung either of [the previous] examples at the double, in chant and as well as organum, then double voice joins double voice just as if a single one were added to a single one. And if, while jointly singing the second and fourth rows in the previous example, we were to add a fifth row, on the fourth step below, then the fourth is properly consonant with the octave. Let us join the fourth and second and first in singing the following example, and the same consonant sound shall similarly concord with the octave. This also follows from the opinion of Ptolemy, the aforesaid eminent teacher, in the fifth volume of [Boethius's]

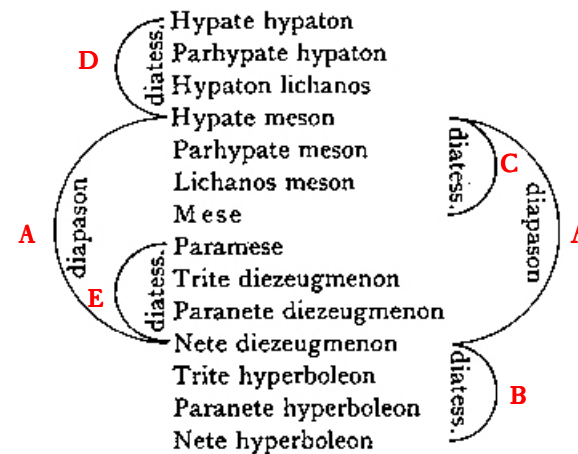
A detour involving a lengthy quote from Boethius.

hoc modo, acutos quidem sonos in ulteriore parte ponens, citeriore graves, hoc modo.



Quoniam, inquit, diapason consonantia talem vocis efficit coniunctionem, ut unus atque idem nervus esse videatur, idque Pythagorici quoque consentiunt, quocirca si qua ei consonantia fuerit addita, integra inviolataque servatur. Ita enim diapason consonantiae additur diatessaron tamquam uni nervo. Sit igitur diapason consonantia, quae contineatur inter hypaten meson et neten diezeugmenon. Utraque haec ita sibi consentit atque coniungitur sono, ut una vox quasi unius nervi, non quasi duorum mixta pellat auditum. Quamcumque igitur huic diapason consonantiae consonantiam iunxerimus, servatur integra, quia ita iungitur tamquam uni vocalae ac nervo. Si igitur hypate meson et nete diezeugmenon duae in acutum diatessaron fuerint iunctae, sicut iungitur nete quidem diezeugmenon ea, quae est nete hyperboleon, hypate autem meson ea, quae est mese, utraque ad utramque consonabit, et mese ad neten diezeugmenon et eadem mese ad hypaten meson, item nete hyperboleon ad neten diezeugmenon et ad hypaten meson. Item, si ad graviorem partem utrisque diatessaron consonantiae relaxentur, erit ad meson quidem hypaten diatessaron retinens consonantiam hypate hypaton, ad neten autem diezeugmenon paramese. Consonabitque et hypate hypaton et hypate meson ad neten diezeugmenon, ad paramesen autem nete diezeugmenon et hypate meson, sed eo modo, ut gravior quae est, ad sibi quidem proximam diatessaron retineat consonantiam, ad ulteriorem vero

Theory of Music, placing the high sounds on the further side, and the low ones on the nearer side, in this way.



“Because,” he says, “the octave *consonantia* produces such a conjunction of voices that it seems to be one and the same string (on which the Pythagoreans were also agreed), it remains whole and undiminished if a *consonantia* is added to it. This is how the fourth is added to the octave *consonantia* as if to one string. Let there be a octave *consonantia* contained between *hypate meson* and *nete diezeugmenon* [A in diagram]. Each of them agrees with the other and is joined with it in sound, so that one voice, as if of one string, strikes the hearing, not a mingled [voice] as if of two [strings]. No matter what *consonantia* we would have joined to this octave *consonantia*, it remains whole, because it is joined as if to one voice or string. If two high fourths should be joined with the *hypate meson* and *nete diezeugmenon*— as for example the *nete diezeugmenon* is joined to the *nete hyperboleon* [B], and the *hypate meson* with the *mese* [C]—then each shall be consonant with the other, both the *mese* with the *nete diezeugmenon* and the same *mese* with the *hypate meson* [C], also the *nete hyperboleon* with the *nete diezeugmenon* [B] and to the *hypate meson* [A + B]. Also, if the consonances in either fourth were put in a lower range, the *hypate hypaton* shall make a fourth with the *mese hypaton* [D], retaining the consonance, but the *diezeugmenon paramese* to the *nete* [E]. Both the *hypate hypaton* and the *hypate meson* shall be consonant with the *nete diezeugmenon* [A + D], but the *nete diezeugmenon* and *hypate meson* with the *paramese* [E], but in this way, that the one which is lower would retain the consonance of the fourth with the one nearest to it, and of the fourth and octave with the one furthest from it, as *hypate hypaton* makes a fourth

diatessaron ac diapason, ut hypate hypaton ad hypaten meson diatessaron, ad neten diezeugmenon diatessaron ac diapason. Item nete hyperboleon, quae est acutior, ad sibi proximam neten diezeugmenon diatessaron consonantiam, ad hypaten meson diatessaron ac diapason, et cetera. Haec quidem Boetius.

<Caput XVII.> <De ordine consonantiarum, consonantia et inconsonantia.>

Praeterea de diapason vel disdiapason non est opus amplius descriptione, quae ita naturaliter omni aetati in canendo occurrunt, ut arte tradi non egeant, constatque satis dictum in symphonia disdiapason mediam ad utrasque octava regione conferri, extremas sibi loco quinto decimo respondere. Dicendum tamen, quae sit mensura in singulis symphoniis propria. Constat namque diatessaron symphonia ex duobus tonis ac semitonio, diapente vero ex tribus tonis ac semitonio, ex quibus duobus constat symphonia diapason. Igitur absolutissime in diapason symphonia maiore prae ceteris perfectione diversae ad invicem voces resonant. Secunda ab hac est symphonia diapente. At in diatessaron quoniam non per omnem sonorum seriem quartis locis suaviter sibi ptongi concordant, ideo nec absolute ut in ceteris symphoniaca editur cantilena.* Ergo in hoc genere cantionis sua quadam lege voces vocibus divinitus accomodantur. Per omnem enim sonorum seriem tritus subquartus deuterio solus a symphonia deficit et inconsonus ei efficitur, eo quod solus diatessaron symphoniae mensuram excedens tribus integris tonis a praefato sono elongatur, cui extat subquartus. Quapropter et vox, quae organalis dicitur, vocem alteram, quae vocatur principalis, eo modo comitari solet, ut in quolibet tetracordo in qualibet particula nec infra tetrardum sonum descendat positione nec inchoatione levetur obstante triti soni inconsonantia, qui tetrardo est subsecundus. Quae ut lucidiora fiant, exempli descriptione statuatur, prout possit fieri sub aspectum.

with the *hypate meson* [D], and a fourth plus octave with the *nete diezeugmenon* [A + D]. Also *nete hyperboleon*, which is higher, [makes] the consonance of the fourth with the *nete diezeugmenon* which is nearest to it [B], and fourth and octave with the *hypate meson* [A + B], and so forth.” Thus speaketh Boethius.

<Chapter 17.> Concerning the order of *consonantiae*, *consonantia* and *inconsonantia*.

There is no need of further examples of octave or double octave, for they occur so naturally to every age in singing that there is no reason for them to be explained by the art. Suffice it to say that the middle [voice] in the *symphonia* of the double octave must relate to the others on the eighth step, and that the outer ones should answer each other on the fifteenth step. However, we do need to point out what is the proper measure in single *symphoniae*. For the *symphonia* of the fourth consists of two tones and a semitone, but the fifth of three tones and a semitone, and the *symphonia* of the octave consists of these two. Consequently it is in the *symphonia* of the octave that different voices resound in the most absolute sense, with a perfection exceeding the others. The second after this is the *symphonia* of the fifth. But since the *phthongi* of the fourth do not concord smoothly at a distance of four steps throughout the entire series of sounds, one cannot make symphonious song in as absolute a sense as with the others.* In this genus of song, therefore, voices are accommodated to voices by some sort of law of their own, as if divinely ordained.* For throughout the whole series of sounds, it is only the fourth below the deuterus, on the tritus, that fails to make a *symphonia*, and that is effectively inconsonous, because it alone is three whole tones away from the sound of which it is the underfourth, being in excess of the measure of the fourth *symphonia*. Therefore it is customary for the voice called organal to accompany the other voice, which is called principal, in such a way that it never descends to a position below the tetrardus sound, nor is raised at the beginning when the inconsonance of the tritus sound, which is the under-second of the tetrardus, presents an obstacle to this. Let us illustrate this with an example so that it may be clearer visually.

* Here the author makes an observation that is critical to what follows. The fourth, he says, is not a consonance on every step of the scale. Occasionally it is a tritonus, an augmented fourth. In his tetrachord scale there is nothing that can be done about this, so there is no option but to avoid this interval altogether. (The author has no name for the interval, because the term *tritonus* seems to have gained currency only in the 11th century.)

This problem does not exist with the fifth, which in the scale of *Musica enchiridis* is always perfect (see the example on p. 1, above).

So it is organum at the fourth that requires a special accommodation between the principal and organal parts. The author evidently sees this accommodation as a marvel of nature: he speaks of ‘a law of its own’ that is peculiar to polyphony in parallel fourths. And not just any law, but one that seems ordained by the Supreme Being himself.

That law is the principles of boundary tone and occursus. The organal part cannot step below the boundary set by the plainchant, since that would immediately produce a tritone. The boundary is there for protection.

Rex caeli do mi ne ma ris un di so ni que Ty ta nis ni ti di squa li di que so li.

Ad hanc descriptionem canendo facile sentitur, quomodo in descriptis duobus membris sicut subtus tetrardum sonum organalis vox responsum incipere non potest, ita subtus eundem non valet positione progredi et ob hoc in finalitate positionum a voce principali occupetur, ut ambae in unum conveniant.

<Caput XVIII.> Quod modo altiora modo summissiora loca organum petat.

Ergo quoniam praedicti limitis oppositione brevi diastemate coartatur et non nisi in tribus vel quattuor sonis organalis vox spacium habet, idcirco secundum particularum positionem et loca mutat. Vagantibus enim particulis, dum modo cantilena in sursum prodeat, modo in ima deponatur et nunc quaelibet particula positionem habeat circa superiores sonos, nunc circa terminales, aliquando circa graves, semper vox organalis positionum finalitatem eo iure* subsequitur, ut subtus tetrardum sonum, in quem vel finalitas particulae devenerit vel qui proximus ipsi finalitati suberit, nec ordiri levationem valeat nec rite finalitatem deponere. Ceptum carmen, exempli gratia:

Te hu-mi-les fa-mu-li mo-du-lis ve-ne-ran-do pi-is.

Rex caeli Do-mi-ne ma-ris un-di-so-ni.
Ty-ta-nis ni-ti-di squa-li-di-que so-li.

In this example one can easily perceive, while singing, that in the two members shown, the organal voice cannot begin its response below the tetrardus sound, and cannot proceed to a position beneath it, and because of this, at the end of the positions, it must be seized* by the principal voice so that they come together in one.

<Chapter 18.> How organum seeks the higher step at one point and the lower at another.

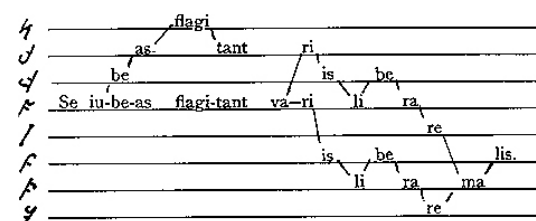
Therefore, since the organal voice is delimited because of the resistance of the aforesaid boundary, and consequently has room only in three or four sounds, it changes steps according to the endings of the sections. In wandering sections—when the cantilena now goes up, now goes down, and some section has a position among the *superiores* sounds at one point, among the terminal ones at another, and sometimes among the *graves*—the organal voice always follows by law* the finality of the endings, because it can neither begin an ascent, nor properly descend to a final note, below the tetrardus sound, on which the finality of the section may [however] arrive, or which may be the nearest [sound] under that same finality. For instance, in the song [we have] taken [as an example]:

Te hu-mi-les fa-mu-li mo-du-lis ve-ne-ran-do pi-is.

* Metaphors almost always provide significant clues to underlying modes of thought. Apparently the organal part is like a puppy, allowed to wander around—provided it stays on a leash of exactly one fourth. But being helpless as one expects an organal part would be, it must be ‘seized’ by the principal part before it wanders off into the Forbidden Regions below the *gravis tetrardus*. So not only is the beginning boundary set by the plainchant, but the latter is the part that secures the final *occursus*. The musical example shows the three stylistic principles of Winchester organum: boundary tone, parallel motion, and *occursus*.

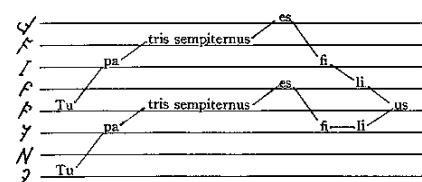
* *ius*: a synonym for law

Example: One and the same boundary tone from ‘te’ all the way to ‘-du-’. Then parallel fourths, and finally the *occursus*. In *Musica enchiriadis* the boundary tones are by definition the third step (*tritus*) of every tetrachord.



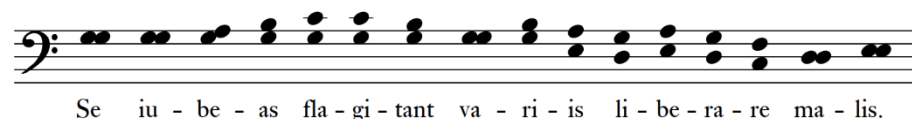
Quemadmodum in binis prioribus membris *Rex caeli domine maris undisoni* et *Tytanis nitidi squalidique soli* primae tres syllabae, quae sonant tetrardum $\mathfrak{7}$ archoum \mathfrak{F} deuterum \mathfrak{F} , responsum organale sub tetrardo non habent videlicet propter deuteri soni inconsonantiam ad sonum tritum, qui tetrardo est subsecundus, sic et in sequentibus his commatibus *Te humiles famuli* et *Se iubeas flagitant*, dum celsioris extent levationis ac positionis, celsiori quoque loco et eadem lege organum coartatur. Similiter enim in tribus principalibus sonis tetrardo \mathfrak{F} archou \mathfrak{A} deuterio \mathfrak{J} vox organalis rite sub tetrardo respondere nequit, sed moram in eodem agit, dum in subsecundo eius ratum responsum non invenit.

Et ut ad liquidum dinosci valeat, quantum in diatessaron simphonia praefatorum duorum sonorum inconsonantia dominetur, statuamus aliquid quadrifaria transpositione canere, ut appareat, quo modo in diversis transpositionibus diverso quidem modo, sed non diversa lege vox vocem comitetur. Sit ergo haec prima descri-ptione, quae et supra digesta est a sono \mathfrak{F} incipiens et in eundem finiens, ubi simul cum voce principali organalis vox consequatur:



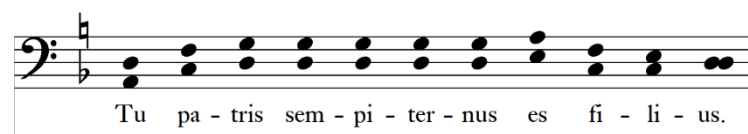
Sic canendo senties, quomodo non obstante deuteri \mathfrak{F} tritique \mathfrak{N} soni absonia consonanter regione subquarta imponatur vocis organalis levatio, sed rursum eadem absonia impediende tetrardum sonum non transit positio.

Sumamus et secundam transpositionem, quae a \mathfrak{F} incipit et in eundem finit:



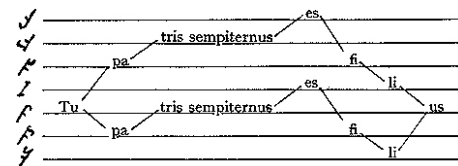
Just as the first three syllables in the two previous phrases *Rex caeli domine maris undisoni* and *Tytanis nitidi squalidique soli*, which sound the tetrardus $\mathfrak{7}$ – archous \mathfrak{F} – deuterus \mathfrak{F} , do not receive an organal response below the tetrardus because of the inconsonant sound between the deuterus and the tritus (which is the undersecond of the tetrardus), thus also, according to the same rule, is the organum restricted to a higher step in the subsequent phrases *Te humiles famuli* and *Se iubeas flagitant* when they move to higher elevations or positions. For the organal voice is rightly unable to respond below the tetrardus against the first three sounds, tetrardus \mathfrak{F} – archous \mathfrak{A} – deuterus \mathfrak{J} , but rather it lingers on one and the same [sound] so long as it finds no correct response in its undersecond.

And in order that one should understand clearly how much the inconsonant sound of the aforesaid two [steps] should be suppressed in the *simphonia* of the fourth, let us sing something in four different transpositions so that it may be apparent how one voice would accompany [another] in different ways in different transpositions, yet not according to different laws. Therefore let this be the first example, which was already presented above, beginning on the sound \mathfrak{F} and ending on the same, with the organal voice following simultaneously along with the principal voice.



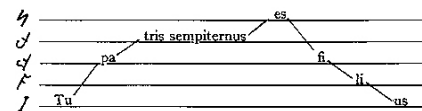
In singing this you shall perceive that the ascent of the organal voice up from the underfourth proceeds consonantly, without hindrance from the harsh sound between the deuterus \mathfrak{F} and tritus \mathfrak{N} , but that [its] conclusion does not go past the tetrardus, being impeded by that same harsh sound.

Let us take up also the second transposition, which departs from \mathfrak{F} and ends on the same:



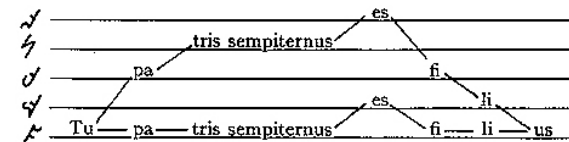
Sic canendo senties, quomodo et in levatione et positione sono \mathcal{F} deuterio responsum organale deficiat ideoque ultra $\mathcal{7}$ tetrardum non descendat.

Sumamus et tertiam transpositionem, quae sono \mathcal{I} trito incipit et finitur:



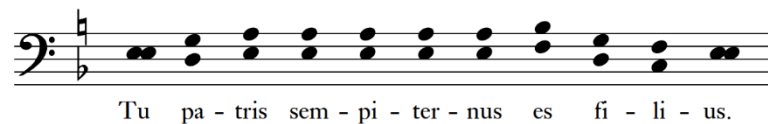
Haec transpositio dum potissimum sono vadat \mathcal{J} deuterio, responsum organale apte non recipit.

Sumamus et quartam transpositionem, quae a tetrardo inchoat et in eodem finitur:



Sic canendo senties, quomodo a \mathcal{F} tetrardo sono vox organalis incipiat et in eo finiatur nec infra ipsum possit progredi trito \mathcal{I} videlicet obstante sono, qui, ut iam saepe dictum est, ad deuterum extat inconsonus.

Superficies quaedam artis musicae pro ornatu ecclesiasticorum carminum utcumque in his designata sit; quae certe venerabilem non minus et interius sui speculationem gerit. Cur namque aliqui tam dulci ad invicem commixtione consentiant, alii vero soni sibi misceri nolentes insuaviter discrepent, profundioris divinaeque est rationis et in aliquibus inter abditissima naturae latentis.* Constant plurima super hac ratione scripta veterum, in quorum labores et in hac parte nos Dominus intrare concessit, ubi probatissimis



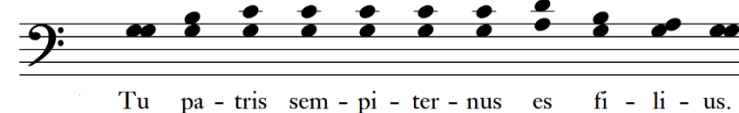
In singing this you shall perceive that the organal response would fail on the deuterus sound \mathcal{F} , both in rising and in falling, and that therefore it should not descend below the tetrardus $\mathcal{7}$.

Let us take up also the third transposition, which begins and ends on the tritus sound \mathcal{I} :



This transposition does not allow any organal response because it mostly proceeds on the deuterus sound \mathcal{J} .

Let us take up also the fourth transposition, which departs from the tetrardus \mathcal{F} and ends on the same:



In singing this you shall perceive that the organal voice departs from the tetrardus sound \mathcal{F} and also ends on it, and cannot go under it because it is prevented by the tritus sound \mathcal{I} , which, as often said already, is inconsonus with the deuterus \mathcal{F} .

Let some kind of surface of the art of music thus be set forth, for the sake of the decoration of ecclesiastical chants; which [art] certainly brings venerable speculation also [beneath the surface]. For why it is that some [sounds] agree with such sweet mutual commingling, but other sounds, refusing to blend, disagree with decided unsmoothness, is [a matter] of more profound and divine principles, [residing] in some things that are hidden among the greatest secrets of nature.* There are still many writings on those principles by the ancients, in whose labors God has allowed us to enter also in that part, where

* 'More profound and divine principles,' 'hidden amongst the greatest secrets of nature.' Worth drawing attention to.

argumentis adstruitur, quod eiusdem moderationis ratio, quae concinentias temperat vocum, mortalium naturas modificet, quodque isdem numerorum partibus, quibus sibi collati inaequales soni concordant, et vitae cum corporibus et compugnantiae elementorum totiusque mundi concordia aeterna coerit.

<Caput XIX.> Quod in aliquibus rationis huius profunditas minus sit penetrabilis.

Fictum est ab antiquis Aristeum Euridicem nympham Orphei coniugem adamasse. Quemque dum illa se sequentem fugeret, a serpente extincta sit. Orpheum, cuius nomen oreo phone, id est optima vox sonat, in cantore perito seu dulcisono cantu intellegimus. Cuius Euridicem, id est profundam diiudicationem, si quis vir bonus, quod Aristeus interpretatur, amando sequitur, ne penitus teneri possit, quasi per serpentem divina intercipitur prudentia. Sed dum rursus per Orpheum, id est per optimum cantilenae sonum, a secretis suis acsi ab inferis evocatur, imaginariae perducitur usque in auras huius vitae dumque videri videtur, amittitur, scilicet quia inter cetera, quae adhuc ex parte et in enigmate cernimus, haec etiam disciplina haud ad plenum habet rationem in hac vita penetrabilem.*

Siquidem diiudicare possumus, sitne rata factura meli, dinoscere qualitates sonorum atque modorum et reliqua huius artis; item possumus musicorum sonorum spatia vel vocum simphonias ad numerorum rationem adducere, consonantiae atque discrepantiae quasdam rationes reddere.

Quomodo vero tantam cum animis nostris musica commutationem et societatem habeat, etsi scimus quadam nos similitudine cum illa compactos, edicere ad liquidum non valemus. Nec solum diiudicare melos possumus ex propria naturalitate sonorum, sed etiam rerum. Nam affectus rerum, quae canuntur, oportet, ut imitetur cantionis effectus: ut in tranquillis rebus tranquillae sint neumae, laetisonae in iocundis, merentes in tristibus; quae dura sint dicta vel facta, duris neumis exprimi; subitis, clamoris, incitatis et ad ceteras qualitates affectuum et eventuum deformatis; item ut in unum terminentur particulae neumarum atque verborum.

it is established with the most solid arguments that the same principles of measure which temper the blended song of voices also moderates the nature of mortals, and that, through the same parts of numbers that allow unequal sounds to be brought together in concord, there shall be an eternal concord of life with the bodies and the struggles of the elements of the whole world.

<Chapter 19.> That in some regards the profundity of this theory is less penetrable.

The ancients told the story that Aristeus had fallen in love with the nymph Euridice, wife of Orpheus. She was killed by a serpent while fleeing from his advances. We take Orpheus, whose name is *oreo phone* (that is, best voice) to signify an experienced singer or sweet-sounding song. And lest his Euridice, that is, profound judgement, should be completely captured when a good man, meaning Aristeus, follows her in amorous pursuit, she is intercepted by divine prudence as though through a serpent. But when she is summoned again from the hidden realms and depths by Orpheus, that is, by the best sound of song, [and] she is led almost to the breaths of this life in our imagination, and then when it appears that she is gazed at, she is lost, for like all the other things which now we perceive as through a glass darkly, the discipline [of music] lacks full penetrative insight in this life.*

Indeed if we can judge at all, it may be about the correct making of a melody, to distinguish the qualities of sounds and of modes, and other things of this art; also, we can add up the spaces of musical sounds, or the *symphoniae* of voices, in a numerical reckoning, and propound certain explanations of consonance or discrepancy.

But we are not able to explain clearly how it is that music can have such a mind-altering power and fellowship with our souls, even though we know that we are connected with [music] through some sort of likeness. And it is not just melodies that we can distinguish through the proper nature of sounds, but even things. For the effect of a song should imitate the affect of the things that are sung: so that *neumata* are tranquil in tranquil things, are happy sounding in pleasant things, lamenting in sad things; [that] harsh words or deeds are expressed by *neumata* [that are] harsh, sudden, clamorous, agitated, and shaped according to other qualities of affect and event; also that sections of *neumata* and words should end in one.

All this is about the hidden affinity between musical harmony and the human soul, which was itself defined as harmony. The most influential texts on this affinity were Aristotle's *Politics* and St Augustine's *Confessions*.

* The moral of the tale appears to be that it is not for us mortals to fully grasp the secrets of music, which we perceive only 'through a glass darkly' as Saint Paul said, but that these will eventually be revealed to us, along with other truths that we can barely fathom in this life.

In talibus cum iudicatio nostra esse possit, plura sunt tamen, quae nos sub causis occultioribus lateant. Sunt interdum res, quae et hoc tono et illo tono aequae congruenter recipiuntur, ut cantari possint. Sunt interdum res, quae minime suum sensum aequae huic et illi tono attribuant, ita ut, si transponantur, aut priorem dulcedinem non servent aut ad sensum indecentes fiant. Dicuntur ferae atque aves modis quibusdam delectari magis quam aliis, sed quare et quomodo haec aliave sint, non facile investigatur.

Igitur quae in hac arte Deo donante sapimus, utamur eis tantum in laudibus Dei, et ea, quae laboriosa veterum indagazione nobis inventa sunt, assumamus in iubilando, celebrando, canendo, quae in prioribus generationibus non sunt agnita filiis hominum, sed nunc revelata sunt sanctis eius.* Pandit multa musicae rationis miracula praestantissimus auctor Boetius magisterio numerorum enucleatim cuncta comprobans. Cuius, si Deus annuerit, sequens opusculum** aliquod continebit excerptum.

Huiusce oratiunculae ponamus hic finem.

EXPLICIT.

And yet, although [we can exercise] our judgement in such matters, there are still many other things that lie concealed from us under hidden causes. Sometimes there are things that are accommodated equally well by this *tonus* or that *tonus* so that they can be sung. But sometimes there are things whose sense can scarcely be attributed equally well to this or that *tonus*, so that they don't retain their former sweetness when transposed, or are disagreeable to the sense. It is said that wild beasts and birds take greater delight in some modes than in others, but it is not easy to investigate why and how these and other things are so.

Those things, therefore, that we understand in this art through the gift of God, and also those things that we have discovered through laborious inquiry of the ancients, let us use them only for the praises of God; and let us accept them in jubilating, celebrating, singing, the things that were not known to the sons of men in previous generations, but that have now been revealed to his saints.* That most distinguished author Boethius spreads many marvels of musical reason, demonstrating all things, by way of explanation, through the mastery of numbers. And the following little work,** if God approves, shall contain some selection of this.

Let us make an end to this little discourse here.

THE END.

* Allusion to St Paul's *Ephesians*, 3: 4–5: 'in the mystery of Christ, which in other ages was not made known unto the sons of men, as it is now revealed unto his holy apostles and prophets by the Spirit' ('in mysterio Christi quod aliis generationibus non est agnitum filiis hominum sicuti nunc revelatum est sanctis apostolis eius et prophetis in Spiritu').

** This is usually assumed to be the *Scolica enchiridis*, the treatise that almost always follows *Musica enchiridis* in manuscript sources. The author indicates that 'the following little work' will divulge some of the marvels of musical reason written by Boethius. Will this indeed prove true of *Scolica enchiridis*?