

From Mistress to Master: The Origins of Polyphonic Music as a Visible Language

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Music is affected by the notation in which it is recorded. The system of notation devised between 900 and 1200 A.D. in the West allowed composers to be analytical about simultaneous sounds; subsequent development of vocal and instrumental art music is a direct outgrowth of that medieval interest in harmony and the notation that allowed its studious investigation. That notation employs principles familiar today. A system for specifying rhythmic values was introduced in the twelfth century, with the result that separate voice parts could be distributed on an expensive parchment page more economically. Score arrangement returned with the mass production of paper. A vast increase in the number of rhythmic signs around 1325 led composers to explore the limits of their notation, with the result that much of the late fourteenth-century repertory was written in an extremely complex manner; composers became interested in the visual appearance of a composition and designed staff lines in the shape of a harp, a heart, a circle, etc.

Prior to the year A.D. 1000 musicians in the monastic orders of the Christian Church had begun experimenting with part singing. The monophonic chant (one melodic line only), codified by Pope Gregory early in the seventh century, provided a ready source of melody on which to impose additional parts. As a necessary adjunct to singing the new polyphony (two or more melodies performed simultaneously), the monks devised a system of written signs to indicate pitch and simultaneity. In the twelfth century a reasonably specific rhythmic notation was added. Musicians were now able to "compose." They could record their ideas and analyze them independent of a live performance. Western music was thereby set on a course of development that continued until the fifth decade of the twentieth century when composers of electronic music found the traditional notation unsuitable for their purposes. The fact that Christian monks in the eighth century cultivated an interest in simultaneously sounding melodies and were sufficiently scholastic by nature to want to record their musical experiences in a visible language is of the utmost

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importance to art music in the West. Musical practice in the Orient was in no sense inferior to that in Europe at this time, but the interest of Eastern musicians focused on the refinement of one melody rather than combining several. The resulting notation includes signs for quarter-tone intervals, for example, but shows little concern for harmonic structures. Thus, the art music of the Western world legitimately claims the chant of the Christian Church as its mother; the inventors of the system of notation were the mid-wives and nurses without whom the refined polyphony that characterizes that art would never have matured. It is the purpose of this study to identify the main problems that were encountered in devising a notational system, to observe the various solutions that were tried, and to assess the influence of these solutions on the development of Western music in the Medieval period. Before addressing these points directly, let us compare music notation with the words of a literary text.

As visible symbols, a musical score and a printed book are fundamentally different. In music the notes give instructions to performers, essentially, whereas the words of a verbal text symbolize concepts that are conveyed by the eye to the brain. An able score reader may "hear" a musical composition mentally by imagining what the sound will be in performance, but this is not at all like reading a novel, or even a play. The ideas expressed in a play can be gleaned, at least in skeletal form, by reading the printed page; the actors add flesh to the bones. A musical score cannot be read in any comparable way, the notes being not symbols for concepts but merely signs which are to produce actions, i.e., the expulsion of air from the lungs, the movement of fingers on keys or strings at specific times and in particular ways. The score is primarily a communication between the composer and the performer, the end result of which is the audible, ordered sound we call music. The most able score readers will often argue that no live performance can fully reproduce everything that is found in a score, that the imagined sound is superior to the one that is heard, and therefore, the musical composition is more accurately revealed by reading the notation. Those who argue this way see a parallel between the notes of music and the words of language, the one being symbols of musical ideas, the other of discursive ideas. If this were the case, music schools would have abandoned performance in favor of score-reading long ago, and composers would not play their new works on

the piano for fellow musicians as Wagner did for Liszt and Debussy did for Stravinsky. For our present purpose it is important to view early notation as a tool that records a pre-existent musical practice in the same sense that written language evolved from speech, but with the essential difference that words symbolize mental concepts whereas music notation directs the performer.

Notation of Pitch and Simultaneity

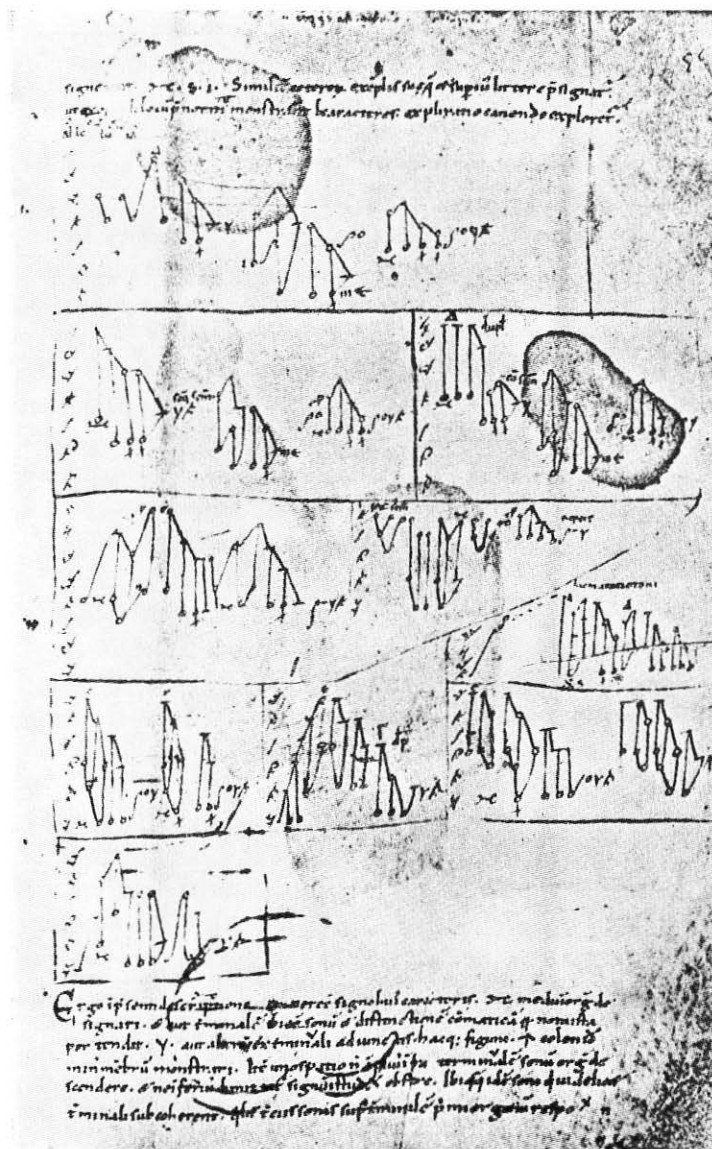
The earliest extant music manuscript, *Musica Enchiriadis*, dates from about A.D. 900. Two voice parts are involved in the compositions in Figure 1, the lower part being a borrowed melody from Gregorian chant called the *vox principalis*. The upper part or *vox organalis* was composed according to rather strict rules.

Since there are three units in Aristotle's concept of perfection—beginning, middle, and end—and, since the Holy Trinity exemplified perfection of the highest order to the Medieval mind, it was natural for music theorists to view the three perfect intervals identified by Pythagoras as another manifestation of a natural law. The intervals of the octave, fifth, and fourth—those musical combinations whose frequencies have the most simple ratios, i.e., 1 : 2, 2 : 3, and 3 : 4—are employed almost exclusively in these compositions from *Musica Enchiriadis*. Where intervals of the second and third are found, they are justified on the grounds that they are necessary in order to progress from the unison to the fourth or fifth. Much of the time, the two parts in Figure 1 are moving in parallel fourths or fifths. Pitches can be determined with reasonable accuracy by referring to the symbols of Dasian notation which run vertically up the left-hand side of the page. No staff lines are employed, but the small dots—representing notes to be sung—are positioned on imaginary staff lines running parallel across the page. The Dasian notation, which pre-dates the experiments with part singing by several centuries, consists of signs for specific pitches. This system proved to be too cumbersome to notate music sung in more than one part.

Though note shapes are not employed in this source, the familiar concept of high and low pitches moving up and down on the page is apparent. Text underlay has not been attempted, but we may assume that the text at the bottom of the page was to be sung. Lines connecting the various small circles indicate those pitches that are to be sung

together, and, though no rhythmic values are yet evident, it is conceivable that the well-known borrowed melody provided the metric flow of the composition. The so-called "score arrangement" seen here, in which parts to be performed together lie in close vertical proximity to one another, was abandoned in the twelfth century for five hundred years. It was discarded in favor of an arrangement that

Figure 1. A page from the earliest manuscript of polyphonic music, *Musica Enchiridiadis*, Paris, Bibl. Nat. 7202, folio 56r.



did not occupy so much space on an expensive parchment page, and then was employed again only after paper became readily available.

The normal notational system used to remind singers of the melody of particular chants is apparent in Figure 1a. No effort is made in this early eleventh-century Austrian Gradual to write a second part, and specific pitch indication has not been attempted. The neumes are

Figure 1a. Neumatic notation of a Gregorian melody in an early eleventh-century Gradual. Cleveland Museum of Art, No. 33.447 (folio 5 of Trier Codex 151).



written with care and the variety of their shapes is profuse, but the notation serves as little more than an uncertain guide. If singers had not developed an interest in part-singing, this neumatic notation would probably have been in use for a much longer period. Efforts to notate pitch and rhythm with sufficient exactness to allow unequivocal singing in parts made the notation seen in Figure 1a obsolete by the twelfth century.

The appearance of horizontal staff lines coincides with an ingenious pedagogical scheme for teaching students to sing. Guido d'Arezzo (c. 990–1050) assigned the vocal syllables *ut, re, mi, fa, soh*, etc., to the five fingers of his extended hand and taught his pupils to sing intervals as he pointed to positions on one finger and then another. His extended fingers seem to have found their way to the page as staff lines. A small *c* was placed on one of the lines to identify the pitch middle *c*. In Figure 2 an excerpt of the traditional Christmas gradual, “*Viderunt emmanuel*,” is seen in a two-part version. The staff lines are divided by a heavy line which separates the two parts. The two lower lines are sufficient to notate the traditional melody, while four lines are required to accommodate the more active added part. The *c* and *g* clef signs can be seen at the beginning of the upper staff. Only *c* appears on the second line from the bottom after the decorative initial letter *V*. An obvious attempt has been made to group the notes in the upper part with those in the less-active lower voice. Note shapes certainly indicate time values of some kind, though their exact relationships to one another cannot be spelled out definitively. The text is presumably employed for both parts. The uneconomical use of space begins to be apparent in this example of score arrangement. The notes of the lower part could be written more closely together if vertical alignment with the text and the upper voice were not necessary.

Rhythmic Notation

In Figure 3, the liturgical chant “*Benedicamus domino*” has been embellished with a very active, wide-ranging upper part in which notes appear to have specific shapes and meaningful groupings. A profusion of square and diamond-shaped notes has been employed in the upper part to indicate rhythmic relationships. All these notes are easily produced with a quill pen. In some cases several notes have

V domine homo natus est in

I n ruinas tel

 et saluta

 rum. poe rum

H ommem in corpore uerbum in principio V rbi quam

 fundavit ut natum ut palati

Figure 2. Vertical alignment of text and music in a two-part composition from the manuscript, Paris, Bibl. Nat. lat. 3549, folio 151^v-152.

been written without removing the pen from the page. This “duplum notation” of the early twelfth century, so-called because it was used only for upper or duplum parts, forms a transition to a more precise rhythmic notation which was developed within two or three decades. The traditional melody for “Benedicamus domino” has been spaced out over $5\frac{1}{2}$ lines in order that vertical concordance will indicate how much of the duplum is to go with each note of the tenor. Text underlay, which follows the traditional Gregorian chant usage, demonstrates dramatically the space that is wasted in this notation when the tenor notes are sustained while many notes in the added part are sung. This economic factor undoubtedly spurred the development of a more precise rhythmic notation.

One particular feature of this “Benedicamus domino” requires special attention because of the influence it had on future composition. At the end of the fourth pair of staff lines beginning with the text “domino” and continuing to the end of the piece, we notice that many notes in the tenor part are sung to the syllable “do.” In the original chant this long melodic passage, called a “melisma,” is associated with the same syllable, though its rhythm is not known from any liturgical source. (Incidentally, an f clef is used in the tenor part.) The composer of this piece has assigned rhythmic values to the chant melisma on “do,” and has divided it into units by using short vertical lines on the staff indicating rests. The rhythmic flow of texted sections remained untouchable at this time because of the respect that had to be accorded the liturgical text. A long melodic melisma like the one found on the syllable “do” could be set to a rhythm, apparently without incurring the displeasure of the protectors of the liturgy. It was these untexted melismatic passages that were lifted out of their liturgical context to become the first examples of genuine polyphonic composition in Western music.

Score arrangement is still employed in Figure 4. This page from a late twelfth-century source has the end of a two-part piece, a complete work on the tenor syllable “go,” and the beginning of another composition on the tenor “Flos filius.” The piece that is complete uses the melismatic passage on the syllable “go” in the psalm verse “Vir-go Dei.” The illuminated letter “G” partially obscures the opening three-note group (ligature) in the tenor, but if we compare these beginning notes with the second ligature in the

The image displays a page of musical notation from a manuscript. At the top, a large, ornate initial letter 'B' is prominently featured, with decorative flourishes extending into the staves above and below it. The music is written on multiple staves, with lyrics 'ne', 'at', 'mul', and 'mino' interspersed between the staves. The notation includes various rhythmic values and melodic lines.

Figure 3. "Benedicamus domino" from Florence, Bibl. Laurenziana *plut.* 29.1, folio 87v.

A musical score for the first system, consisting of five staves. The top staff is a vocal line with a treble clef and a key signature of one flat. The second staff is a piano accompaniment with a treble clef. The third staff is a piano accompaniment with a bass clef. The fourth and fifth staves are piano accompaniment with a treble clef. A large, ornate initial 'O' is placed at the beginning of the second staff.

A musical score for the second system, consisting of three staves. The top staff is a vocal line with a treble clef and a key signature of one flat. The second and third staves are piano accompaniment with a treble and bass clef respectively. A large, ornate initial 'I' is placed at the beginning of the second staff, with the text "loculus e" written below it.

A musical score for the third system, consisting of three staves. The top staff is a vocal line with a treble clef and a key signature of one flat. The second and third staves are piano accompaniment with a treble and bass clef respectively. The text "Go" is written below the third staff.

sixth line, we notice that the tenor melody is repeated in this piece. There would be no liturgical justification for a repeat. Musical composition has therefore freed itself of liturgical servitude by the middle of the twelfth century.

There is much more involved in the tidier form of writing in Figure 4 than merely a careful copyist's hand. The system for notating rhythms has been perfected to the point that specific time values are written in a clearly readable fashion. Only two rhythmic units are involved: a longa and a brevis. The diamond-shaped notes that played a prominent role in the duplum notation of Figure 3 have been abandoned (except for two or three very short passages in the upper parts) in favor of a more limited but precise system. By restricting rhythmic values to the longa and brevis, and by altering the order of these, six "rhythmic modes" were codified which agree with the poetic feet of ancient Greek poetry: 1. trochaic (long, short/long, short); 2. iambic (short, long/short, long); 3. dactylic (long, short, long/long, short, long); 4. anapestic (short, long, long/short, long, long); 5. spondaic (long, long, long); and 6. tribrachic (short, short, short). The top and middle parts (triplum and duplum) in Figure 4 are in trochaic meter or first mode, while the tenor is in spondaic or fifth mode. The musicians who were identified with Notre Dame in Paris around 1160 were thus able to specify rhythms with sufficient exactness that vertical concordance of parts was no longer necessary even though it is maintained with reasonable accuracy in this example. A transcription of the opening portion of the facsimile above will allow the reader to see how the notation of the School of Notre Dame is deciphered (Fig. 5).

The musical form known as the motet evolved naturally from compositions like the one in Figure 4. By adding a non-liturgical poetic text to the duplum or triplum or both, vocal performance was made easier. "Motet" was derived from the French "mot" meaning

Figure 4 (top). A complete three-part piece on the syllable "Go" and the beginning of another on "Flos filius e-" from Florence, Bibl. Laurenziana *plut.* 29.1, folio 11.

Figure 5. Transcription of the opening section of the composition in Figure 4. The first notes in the facsimile (about 1 inch) are the end of a previous two-part piece.

Incedit in circuitu riuusque ad aspicit ad riuum
 in uerbo una est uocare de cordibus fidelium
 anellas liliam liliam in se re uole ut alia
 per hoc accipere ignote ualeat uerum
 saluum omnium dicitur regna delicias

Et reberit ega confidentem que si non fecerit
 dampnabitur hac in uia militum gnae
 op prima cogit pater et sic curam cor
 imperium gaudebit. Et gaude

br.

Figure 6. Two facing pages of a three-part piece from Wolfenbüttel, Herzog August Bibl. 1206, folio 127^v-128. The tenor part, at the bottom of the right-hand page, is separated from the two texted upper parts.

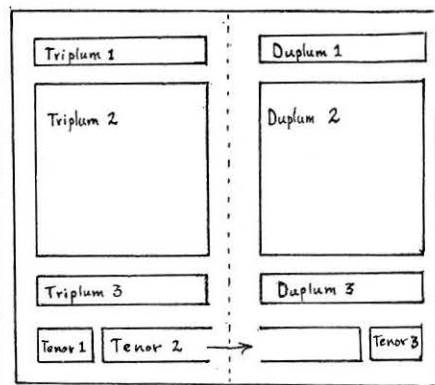
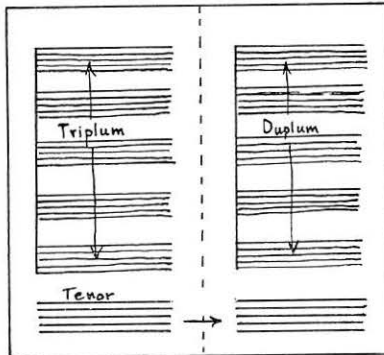
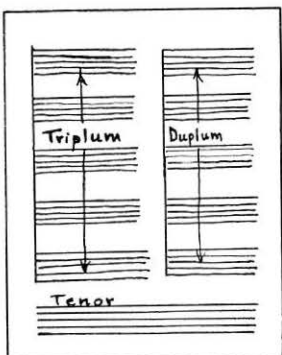
word or text. In Figure 6, a significant step away from score arrangement has been taken. Two upper parts are aligned above non-liturgical words, and the untexted tenor has been written in a confined space at the bottom of the right-hand page. We say the tenor is untexted even though the words “Et gaudebit” appear at the beginning and end of the part. This *incipit* was appended merely to identify the source of the borrowed tenor as in Figure 4.

The tenor part begins in the middle of the seventh staff on the recto page, continues in line eight, and concludes in the ninth staff line.

The tenth is vacant, though the last syllable of “gaudebit” appears below the tenth line. The text was obviously added to the manuscript before the music, and the copyist expected that the tenor would occupy the last line on the page. When more evidence of this kind has been observed, questions concerning text underlay and the sequence of events in the preparation of a manuscript will be discussed. The complete composition in Figure 6 occupies the two facing pages shown, plus a portion of the page before. No thought seems to have been given to the problem of performing the opening section from page 127 recto with the tenor which is recorded on page 128 recto. The space that is saved in writing the tenor closely together at the bottom of the page is considerable, but visual problems remain to be solved. The solution to these problems was the next step in the preparation of music manuscripts.

Part Arrangement

As we turn to the thirteenth century, the normal number of voices increases from two to three, and the parts show an increased rhythmic as well as textual independence. This independence, as well as an increase in the length of all parts, led to new methods of allocating them on the page. Score arrangement was abandoned in favor of “part arrangement” in which each melodic voice appears on successive staff lines. The diagrams in Figure 7 show the typical arrangements on one page, and on two facing pages. In most thirteenth-century compositions in three parts, the triplum and duplum have separate texts, and the tenor remains untexted except for the *incipit* syllable which still identifies the liturgical source from which it is borrowed. The accuracy with which the rhythms could be read is demonstrated dramatically in this scattering of parts on the page. A tactus or beat was established and each performer read his own part without referring to the others. If a page turn was required, all parts were co-ordinated so that performers arrived simultaneously at the end of their parts on each page. By careful planning, part arrangement allowed compositions to run consecutively through a manuscript without leaving blank staff lines (see Fig. 7c). In Figure 8—from the famous Montpellier Codex, one of the most important sources of thirteenth century motets—we find one complete composition on two facing pages, and the beginning of another. Illuminated



Ave beatissima civitas divinitus circum
 feur gaudio. habitaculum uelutime. karissi
 mum lilium maris nobilis oblecta palmarum
 rum quatenus redemptos sanguine tuatur ut
 uenire ad hunc mundum rina.

Ave uirgo rubens uia sola xpisti pa
 tens gloriosa fulgida stella lux uocata aue
 rna.

Ave maria gratia plena dominus tecum
 benedicta tu in mulieribus et benedictus
 fructus uentris tui iesu. nam dulcissimi
 pro nobis peccatoribus coram uera
 maria.

Ave lux luminum. aue splendor et lux coram
 specie superans omnia cantorum ieta pe
 cauma.

Figure 7 (top). Distribution of voices in part arrangement: (a) three parts on one page, (b) three parts on two facing pages, (c) two facing pages containing the end of piece No. 1, all of No. 2 and the beginning of No. 3.

Figure 8. Two facing pages of a three-part work and the beginning of another. Triplum parts are on the left-hand page, duplum on the right-hand and the tenor occupies the lowest line on each page; Montpellier, Faculté des Médecins H 196, folio 93^v–94.

letters show clearly where parts begin. The tenor *incipits* “Johanne” and “Neuma” at the bottom of the page identify the lower voice of each motet; the triplum voices are on the left-hand page, the duplum on the right. Incidentally, the pagination appearing at the top of the recto page provides conclusive evidence that the manuscript is of French origin. Only in France would page 94 be written

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·IIII + XIII, or $20 \times 4 + 14$.

Part arrangement had a subtle but profound effect on compositional practice at this time and throughout the fourteenth century. The rules for combining voices were established earlier when one ornamental or complementary part was written against a liturgical tenor. If score arrangement had been employed for three-part pieces, composers would have given much more consideration to vertical sonorities. With the parts distributed on the page it was plausible to use the proven rules of two-part writing and to compose the duplum and the triplum independently against the tenor. This process of composition is called “successive counterpoint,” and it accounts for the harsh intervals of seconds and sevenths that often occur between the two upper parts. In every case the sonorities between the duplum and the tenor or the triplum and the tenor are logical, explainable. Not until the late fourteenth century do we find composers giving careful consideration to the contrapuntal relationship between the duplum and triplum. Part arrangement undoubtedly deterred composers and performers from hearing clashes in harmony because these clashes were not visible to the eye.

During the latter part of the thirteenth century, at a time when composers were finding the rhythmic modes too confining, a new concept of rhythmic values and metric relationships was developed by Franco of Cologne while he worked in Paris. Though he added only

one additional note value (the semibrevis) to the existing longa and brevis, the concept of perfection and imperfection which he proposed greatly expanded rhythmic possibilities. A longa could be perfect, in which case it was equal to three breves, or it could be imperfect and equal to only two breves. The same holds for the brevis in its relationship to the semibrevis. Within a few years a smaller value, the minima, was devised and again the semibrevis was either perfect or imperfect and therefore equal to three or two minims respectively. Signs indicating these metric relationships came more or less into general use around 1350. Table I shows the circles or semi-circles and dots that acted as time signatures, and their present-day equivalents.

Table I. Metric Relationships.

\odot = perfect brevis and perfect semibrevis = $\frac{9}{8}$	
\blacksquare = $\blacklozenge\blacklozenge\blacklozenge$	\blacklozenge = $\downarrow\downarrow\downarrow$
\mathcal{D} = $\mathcal{B}\mathcal{B}\mathcal{B}$	\mathcal{B} = $\mathcal{M}\mathcal{M}\mathcal{M}$ $\left \frac{9}{8} \mathcal{M}\mathcal{M}\mathcal{M} \mathcal{M}\mathcal{M}\mathcal{M} \mathcal{M}\mathcal{M}\mathcal{M} \right $
\circ = perfect brevis and imperfect semibrevis = $\frac{3}{4}$	
\blacksquare = $\blacklozenge\blacklozenge$	\blacklozenge = $\downarrow\downarrow$
\mathcal{D} = $\mathcal{B}\mathcal{B}$	\mathcal{B} = $\mathcal{M}\mathcal{M}$ $\left \frac{3}{4} \mathcal{M}\mathcal{M}\mathcal{M}\mathcal{M}\mathcal{M} \mathcal{M}\mathcal{M}\mathcal{M} \right $
\odot = imperfect brevis and perfect semibrevis = $\frac{6}{8}$	
\blacksquare = $\blacklozenge\blacklozenge$	\blacklozenge = $\downarrow\downarrow\downarrow$
\mathcal{D} = $\mathcal{B}\mathcal{B}$	\mathcal{B} = $\mathcal{M}\mathcal{M}\mathcal{M}$ $\left \frac{6}{8} \mathcal{M}\mathcal{M}\mathcal{M}\mathcal{M}\mathcal{M} \mathcal{M}\mathcal{M}\mathcal{M} \right $
\circ = imperfect brevis and imperfect semibrevis = $\frac{2}{4}$	
\blacksquare = $\blacklozenge\blacklozenge$	\blacklozenge = $\downarrow\downarrow$
\mathcal{D} = $\mathcal{B}\mathcal{B}$	\mathcal{B} = $\mathcal{M}\mathcal{M}$ $\left \frac{2}{4} \mathcal{M}\mathcal{M}\mathcal{M}\mathcal{M} \mathcal{M}\mathcal{M}\mathcal{M} \right $

A new secular role for polyphonic music was proclaimed in a treatise, *Ars Nova*, by Phillippe de Vitry about 1325. He argued that imperfect meters were as respectable as the traditional perfect meters even though Aristotelean logicians and Church theologians could not agree; he asserted the independence of tenor parts from liturgical melodies and championed the use of vernacular texts and the poetic forms of the troubadours in scholarly polyphonic music. The growing humanistic impulse is evident in fourteenth-century manuscripts in discreet ways: composers' names begin to appear, whereas before it was thought to be arrogant and sacrilegious to try to bring glory to oneself by signing a composition. It must be remembered that the twelfth- and thirteenth-century troubadour repertory was confined to one melodic line. The scholarly, analytical attitude that produced the polyphonic music seen in the facsimiles above was cultivated only among the servants of the Church who were reminded in their daily prayers of their nothingness before God.

The secular ballades, virelais, and rondeaux of the fourteenth-century *Ars Nova* period have a very different appearance from the motets. The poetic text was assigned to an active upper voice called the "cantus." A tenor part was composed rather than borrowed from some portion of chant, and the third voice—written as a kind of foil to the tenor—was called "contratenor." In Figure 9 the three-part ballade "Biaute qui toutes autres" displays in the tenor part one of the earliest uses of the circle and semicircle rhythmic signs. The words "Tenor" and "Contratenor" are now provided to indicate the beginning of these parts. An interesting feature of this source is the extension of the final syllable "or" in the tenor and contratenor. Iconographic sources show instruments participating in nearly every musical ensemble, but many scholars argue that even untexted parts were vocalized. Their case is strengthened by this continuance of the syllable "or."

A detailed explanation of the new notational signs need not occupy us here. A profusion of them may be seen in Figure 10. The Chantilly manuscript, from which this virelai "Je ne puis avoir plaisir" is taken, contains a hundred similar secular works with rhythmic intricacies that are more complex than at any other time in the history of music. In many instances the visual signs are more complicated than they need to be, indicating that musicians treated the notation as an

soit en huis de maines ge... de li p... . Et est cour ma pour cur...
 Lay moien loie ne cour ne nes un puet nulour naidier aull. Lors li t...

Doux qui cou tes autres jre enuers moy diuers et chian
 Doucour sine amon goul. par cays digne de cour lo an

Simple pla a cuer d'aiment regait pour cuer un amang semblant de toue de respoie del'au...
 a ce mis que pour auer mouroy.

01 02 01 02 01 02 01 02

end in itself, as an extra-musical dimension that in some way catered to a climate of intellectual sophistry. In this folio manuscript, which is large enough to allow several performers to read from it, compositions are complete on one page except for two pairs of very short rondeaux that share a page. In most cases the tenor and contratenor parts are clearly identified. In this particular composition the contratenor, occupying the last three lines, has not been named. An extra verse of text has been inserted in spaces of the staff at the end of line four. Performers would have understood the form of a virelai in which the first half, with one line of text underlaid, becomes a refrain that begins and ends a poetic verse and a musical performance. The last portion

Figure 9 (opposite). A texted cantus part and identified tenor and contratenor parts from the manuscript, Paris, Bibl. Nat. fr. 9221, folio 152^v.

Figure 10. A three-part virelai from Chantilly, Musée Condé 564 (*olim.* 1047), folio 24.

The image displays a musical score for a three-part virelai. It consists of several staves of music with French lyrics written below the notes. The lyrics are:

Je ne puis avoir plaisir ne se po ser a loi ne ser rime aucun qui ma
 gre el se contraire t'entend e quant
 me com ment s'en ar font quant me n'est le temps ne part arde telle beaulte a arc
 re n'est le bon regard temps Dame que d'atgard
 tout qu'on n'est que ne n'est que plus est tout
 le temps que n'est jour n'est. Il n'est n'est que copier
 de puis sur l'un a ment. Je ne puis r-e-
 mon cuer qui en l'air se ne e s
 en moy est moue ton se sep e z

At the beginning of the score, there is a clef and the instruction "not 3".

of music is always repeated but with separate words for the repeat. If the two sections of music are symbolized as *ab*, and if capital letters are used to indicate repeated text lines, the form of a virelai may be stated, *AbbA*. We see two lines of text corresponding to *bb* in Figure 10, beginning in line 3 and continuing to the end of the cantus. The extra verse at the end of line 4 is meant to serve only this last section of music and therefore the complete form of this virelai is *AbbAbbA*. The final repeat of *A* is signified at the end of the extra verse by the words “Je ne puis, etc.”

The first and second endings of *b* may be seen at the conclusion of the cantus in line 4. One vertical stroke through the entire staff signifies the first ending; the short passage, with its own text “joye” serves as a second ending and the text is underlaid to correspond with this short concluding phrase. Similar first and second endings may be found at the conclusion of the tenor and contratenor parts. A major difficulty for performers is often evident in second endings. No sign was devised to tell the performer when his eye should jump to the final phrase. The notation is explicit in most details; it seems incongruous that a small matter such as this should have been neglected.

The steps in the preparation of a manuscript of the kind seen in Figure 10 become abundantly clear when a few minor details are observed. In the middle of the third line the downward stems of some notes overlap the text. Notice also that a space has been reserved at the beginning of the first and fifth lines for ornate initial letters that were never added. In the original manuscript a very lightly pencilled “j” and “t” (not visible in the facsimile), signify that the opening words on these two lines are “Je” and “Tenor.” The pencilled letters were to act as a guide to the artist-illuminator. It has already been pointed out that in Figure 6 the final syllable of the tenor *incipit* “gaudebit” lies below the bottom staff line but the music ends one line above. Obviously the text copyist performed his duties first and assumed that the music would occupy the complete bottom line. The steps that were undertaken after a manuscript was bound may therefore be reconstructed as follows:

1. the staff lines were drawn throughout the manuscript according to a pre-determined plan—in the case of Figure 10, six-line staves run completely across the page; 2. the text, including extra stanzas, was added one page at a time according to a mock-up that showed

roughly the space required for each part and the correlation between text and music; 3. using the mock-up, the music was copied; 4. when the entire repertory had been inserted, the manuscript was handed to an artist-illuminator for the final decorative touches on the initial letters. Only two of the one hundred secular works in the Chantilly manuscript (Fig. 10) received this final illumination, suggesting either that the text or music copyist undertook to decorate the initial letter, or that an artist was close at hand at the time these two pieces were copied. The compositions involved are No. 27 and No. 53. If an artist had been assigned to decorate the entire manuscript, he would hardly have dipped inside to these widely separated pieces to begin his work.

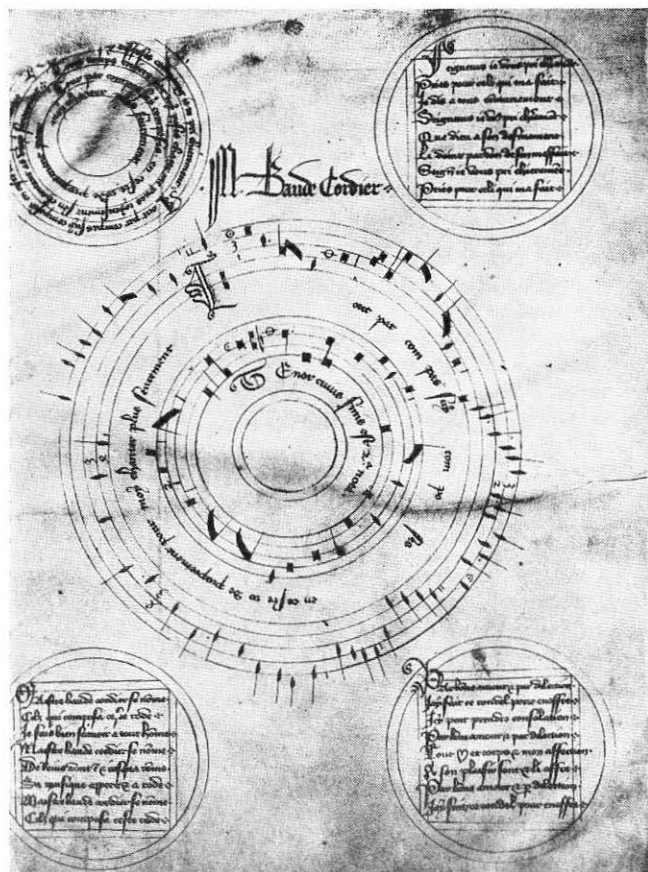
Not all of the clues to manuscript preparation can be observed on one page. By comparing problems of layout throughout the Chantilly manuscript, it would seem, for example, that all recto pages were copied first. In one instance, a very long composition overflows from the left-hand page to the bottom line of the facing recto page. That space would hardly have been claimed in advance of the recto page being copied. Several other manuscripts of this period are less sumptuous, more crowded, and have two or more compositions crammed on a single page. Since a composition in these sources often begins on the verso side and continues at the top of the facing recto page or has parts distributed on both facing pages, it is obvious that the copyist filled each sheet successively through these manuscripts.

French compositions of the late fourteenth century are often described as belonging to a mannerist school. The mannerisms referred to are in the complex notation in which the writing is sometimes more complicated than it need be. Some pieces cannot be read without referring to a "canon" or instruction that appears either at the bottom of the page or in the text itself. In other instances the work is given a visual shape that relates to the text. "La harpe de mellodie," for example, is notated in the shape of a harp in one source; a famous love song (Fig. 11) has staff lines curved in the shape of a heart; the chanson on the text "Tout par compas" (Fig. 12) employs concentric circles for the staff lines, and additional text is given in four circles at the corners of the page. Only two parts are notated in this rondeaux, the outer circle being the cantus and the center one the tenor. We learn, however, in lines 8 and 9 of the text that a third part can be

shaped piece (Fig. 11), after the first 12 pages of the original book were lost. It stands at the high point in notational mannerism. The next generation of composers turned their attention to the development of a suave harmonic vocabulary and never again until the present century do we find composers or copyists as concerned for the visual effect of the notation. Initial letters continued to be illuminated, and those manuscripts that were prepared with the most care became models for the early music printers, but after Baude Cordier the notation returns to the role of servant, its only purpose being to direct performers in the presentation of the music.

The interest that late fourteenth-century composers took in the visual appearance of a page and in exploring the limits of their notational system was a natural outgrowth of the six hundred years of experimentation with visual symbols that we have observed. The profusion of musical signs and the high level of intellectual activity that

Figure 12. "Tout par compas" from the Chantilly manuscript (see Fig. 10).



characterizes the musical climate of the late fourteenth century encouraged composers to attempt remarkable feats of notational sophistry. Though the music of this period contains much that is listenable and interesting to perform, there is no doubt that the harmonic vocabulary—the sound itself—received less attention than it would have if the notation had been simpler. In trying to devise a precise notation, composers were drawn to the notes themselves; in solving problems of layout they were captivated by the visual appearance of their works. It is little wonder that fifteenth-century composers reacted by writing music in which sonorities are of prime importance.

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