Consonance and Rhythm in the Organum of the 12th and 13th Centuries

By ERNEST H. SANDERS

MODERN OBSERVERS of medieval music usually make a sharp distinction between monophony and polyphony, between chant and its accretions, on the one hand, and organum, on the other. One must remember, however, that certainly in the first several centuries of Western *Mehrstimmigkeit* an "organized" melody, whether it was a chant or a paraliturgical versus, was not thought of as a musical opus of distinct stylistic specificity, but as an elaborated version of that melody. An Alleluia was an Alleluia, whether it was rendered simply as a plainchant, with tropes, or with a vox organalis. This is borne out by the fact that, at least to the mid thirteenth century, those writers who described polyphonic techniques dealt with them at the end of their treatises as an aspect of the main topic, which was chant, together with all its appropriate subtopics such as intervals, modes, and so on. Generally, the authors were interested not so much in composition as in modes of rendition.

Since I am concerned with certain aspects of musical thought in the twelfth and thirteenth centuries, I begin with a lengthy quotation from the treatise by the so-called De-La-Fage Anonymous of the twelfth century. Concluding his thirteenth chapter, "Since, therefore, we have at length, with God's help, fully expounded the proper manner of producing a chant, it behooves us to hasten to put together a guide for the properly constituted production of discant," he proceeds to the discussion of polyphony:

> Discant must be set against chant as a counterpart, because it should not sound in unison with the chant, but higher and lower. For when the chant ascends, the discant must descend, and when the chant descends, the discant, on the other hand, must ascend, so as to be true to its nature. Thus, whoever of you wishes to put together (*componere*) a discant well and fittingly, you should strive always to be aware and secure in your knowledge of the consonances—to wit, fourth, fifth, and octave—as absolutely indispensable; for all discant that is made properly is put together with these, and if it is truly supposed to be a discant, it can in no way be constructed without them.

. . . In fact, either a discant will concord with a chant by means of any of these, namely fourth, fifth or octave, or it will form a unison with it; otherwise it absolutely will not be a discant. And one must beware with all care and the greatest caution that the discant have no more notes than the chant, because both must proceed with an equal number of notes. But if by chance, in order to have a more beautiful and elegant discant as well as for the greater pleasure of the listeners, you should want to mix in some organal passages at the end of a period or section at the last or penultimate syllable of the text, that is permissible, even though the nature of the thing does not allow its inclusion; for it is beyond dispute that discant is one thing and organum another. Thus, when you wish to ornament the end of a period or section, make sure that you don't all too frequently give the discant excessive melismatic passages, lest in the mistaken belief that you are making a discant you actually construct an organum and destroy the discant. . . .

Now, to make an organum it is necessary to know three things, that is, how it should be begun, by what method it should proceed, and in what manner it effects a cadence. It is equally necessary for the *organizator* to have knowledge and awareness of the consonances, because without them organum can in no way be put together by anybody. Thus you have to know that organum begins with one of the consonances or with a unison, i.e., on the same pitch as the chant. . . .

Discant and organum, however, are considered to differ in this way: while a discant corresponds to its cantus with an equal number of notes, which form consonances or unisons with it, an organum is joined with its cantus not note against note, but with an unlimited multiplicity and a kind of wondrous flexibility; it must begin, as has been said, with one of the consonances or in unison with the chant, and from there, by singing with much esprit, according as might seem appropriate and at the *organizator*'s discretion, it must ascend above or descend below the chant, but at length it must place a division at an octave or unison. And indeed it may have a pause, which we call a *clausa* or *clausula*, only from the position of the octave or the unison, which, for the sake of clearer understanding, is demonstrated by the following organum: Be ne di ca mus Do mi no [the music is missing in the manuscripts]. See and recognize in this Benedicamus the way pauses are placed; also consider how it differs from discant and chant by its numerous notes and how, by ascending, descending and skittering about, it quickly gets away from the chant and quickly again glides back to the chant. Note, therefore, the pauses and the breathing spots, because in organum pauses and breathing spots have different effect. Now, pauses we call those halts which are made by the *organizator* at the unison or octave for the sake of resting or dividing the organum into segments. Breathing spots we call those interruptions that are made by the *organizator* when the organum [ascends or?] descends from the chant to the fourth, i.e., the diatesseron, or to the fifth, i.e., the diapente, and there, breathing a little bit, recovers his breath, that he might better proceed to the pause.[1]

[1] First published in Adrien de LaFage, *Essais de diphthérographie musicale* (Paris, 1864; reprinted Amsterdam, 1964), pp. 355 ff. The polyphonic part of the treatise was given by Jacques Handschin in "Zur Geschichte der Lehre vom Organum,"

Jerome of Moravia begins his short twenty-sixth chapter with the formulation, "Now, however, we must deal with plainchant, that is to say, according as it is subjoined to discant, and indeed with all species of said discant." This presently leads to his redaction of several treatises, of which the first and earliest is the premodal *Discantus positio vulgaris*. I quote the following passages from the older portion of the tract:

> Now, a discant is a consonant counterpart [to chant]. . . . One must know what is mensurable and what beyond measurement; . . . Mensurable is that which is measured with the measure of one or more [two?] time units. Beyond measurement is what is measured with less than one time unit or more than two. . . . It must be noted, moreover, that all notes of the plainchant are long and beyond measure, because they contain the quantity of three time units. All notes of the discant, however, are measurable by means of the proper breve and the proper long. Hence, it follows that against any given note of the cantus firmus at least two notes—it goes without saying, a long and a short or something equivalent to them, such as four shorts or three with a short plica—must be presented; and furthermore they [i.e., the notes of the plainchant and of the discant] must arrive together on any one of the said three consonances.[2]

Though a fundamental novelty, the precise mensuration of two notes, generally more and less consonant, respectively, as long and short is still understood by the author as an attribute of a special way of singing *cantus ecclesiasticus*. It seems reasonable to infer from his exclusive concern with measured discant, including its notation, and with consonance, that the stylistic conditions of organum had re-

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Zeitschrift für Musikwissenschaft, VIII (1926), pp. 333 ff., and again → "Aus der alten Musiktheorie," *Acta musicologica*, XIV (1942), pp. 24–5. The entire treatise was published by Albert Seay, "An Anonymous Treatise from St. Martial," *Annales musicologiques*, V (1957), pp. 7–42. (There is no evidence for provenance from St. Martial.) My reading corresponds most closely to that given by Handschin in 1942.

[2] Hieronymus de Moravia, *Tractatus de musica*, ed. Simon Cserba, Freiburger Studien zur Musikwissenschaft, II (Regensburg, 1935), pp. 189–91; Edmond de Coussemaker, ed., *Scriptorum de musica medii aevi nova series*, 4 vols. (Paris, 1864; rprt. Hildesheim, 1963), I, pp. 94–5. The entire treatise has been translated → Janet Knapp, "Two XIII-Century Treatises on Modal Rhythm and the Discant," *Journal of Music Theory*, VI (1962), pp. 200 ff. As to the chronological layers of the treatise, see → Fritz Reckow, "Proprietas und Perfectio," *Acta musicologica*, XXXIX (1967), p. 137, n. 81. The fact that parts of it must be recognized as inorganic later additions does not, however, justify the conclusion that its essential parts were written after Garlandia's treatise (Reckow, *Die Copula*, Akademie der Wissenschaften und der Literatur, Abhandlungen der geistes- und sozialwissenschaftlichen Klasse, XIII (Mainz, 1972), p. 7, n. 1). On the contrary, significant portions of it bear out Jerome of Moravia's remark that "antiquior est omnibus" (Cserba, p. 194; Coussemaker, p. 97).

mained unchanged and were therefore in no need of comment. The question whether a style later designated as copula already existed would with all due caution best be answered in the negative.

My third and final witness is Johannes de Garlandia, whose treatise begins with the following three sentences:

> Having dealt with plain music [i.e., monophony], which is described as unmeasurable, we now hasten to concern ourselves with measurable music, which is called organum in this treatise, since organum is the term generally used for all measurable music. Now, organum is both a species of all measurable music, and yet in a different way it is also a genus, as has been said above. It should be understood, therefore, that generally there are acknowledged to be three species of organum [i.e., polyphony], viz. discantus, copula, and organum, which will be dealt with in turn.[3]

Mensuration has by now become important enough that *mensurabilis musica*, equated with organum, is recognized as one of two genera, the other being *immensurabilis musica*, which is equated with plainchant. To our knowledge, both terms were first used by Garlandia.[4] Unlike the author of the *Discantus positio vulgaris*, he promises to deal with organum as a species, subsuming it under the genus organum (mensurable music). The first eleven chapters, constituting roughly ninety-six percent of the treatise, deal with discant (and consonance), while most of the thirteenth and final chapter is devoted to organum duplum.[5] Although the relevant sentences have been cited and translated before,[6] another such attempt seems justified by Erich Reimer's new edition, published eight years ago.

> The meaning of organum varies, according as it is used in a general or in a particular sense. Organum in general has been dealt with above; but now we must deal with it in its particular meaning. Organum in particular is practised in two ways: either by itself or with another part.
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> Organum by itself is said to be whatever is performed not in accordance with the regular, but in a sort of irregular way. "Regular way" is here taken to mean that in which discant is performed. The irregular way is so called to

[3] Erich Reimer, *Johannes de Garlandia: De mensurabili musica*, 2 vols., Beihefte zum Archiv für Musikwissenschaft, X–XI (Wiesbaden, 1972), vol. I, p. 35.

[4] Fritz Reckow, *Der Musiktraktat des Anonymus 4*, 2 vols., Beihefte zum Archiv für Musikwissenschaft, IV–V (Wiesbaden, 1967), vol. II, p. 48, n. 29; Reimer, I, p. viii.

[5] The twelfth describes the copula.

[6] Willi Apel, "From St. Martial to Notre Dame," this JOURNAL, II (1949), p. 149; William G. Waite, "Discantus, Copula, Organum," this JOURNAL, V (1952), p. 82. See also Apel's and Waite's Communications in the same volume, pp. 272–6; Waite, *The Rhythm of Twelfth-Century Polyphony* (New Haven and London, 1954), pp. 112 and 120.

differentiate it from the regular, because the longs and shorts of the latter are first and foremost taken in the proper way. In the irregular type, however, long and breve is [*sic*] not taken in that first manner [i.e., regular], but is understood from the context. . . . [The paragraph dealing with organum for three voices is omitted here.]

Longs and shorts in organum are distinguished as follows: through consonance; through a note symbol; by way of the penultimate. Hence the rule: everything that anywhere comes together by virtue of consonance is said to be long. Another rule: anything that is notated as long according to organal practice before a pause, that is to say, in lieu of a consonance, is said to be long. Another rule: whatever is recognized as preceding a long pause or a perfect consonance is said to be long.[7]

In 1949 Willi Apel, and three years later William Waite, addressed the problem of rhythm in organal passages in the *Magnus liber*.[8] As is well known, Waite also dealt with this subject in the last chapter of his book, which was anticipated by his article.[9] Both scholars based their interpretations on Coussemaker's flawed text, involving in one case the omission of the word *non*,[10] in another the crucially misleading insertion of a comma. Apel understood Garlandia, who was the first to describe the rhythmic modes, as reporting non-modal rhythm (*modus non rectus*) for organal style, with longs and breves to be determined by the rule of consonance. Finding it "cryptic," however, he buttressed it with the rule of consonance given by Anonymous IV, although the latter's formulation differs significantly from Garlandia's.[11] Waite, on the other hand, was firmly convinced of the applicability of first-mode rhythms to organal passages, regarding the rule of consonance as a supplementary tool to be used in cases of ambiguous notation.[12]

Most recently Fritz Reckow, who, as Sir Jack Westrup once so

[7] Reimer, I, pp. 88–9.

[8] To the dates I proposed in 1967 ("The Question of Perotin's Oeuvre and Dates," *Festschrift für Walter Wiora* (Kassel, 1967), pp. 244–8), I add here the suggestion that Leoninus "made" the *Magnus liber* around 1180, since the choir of the new cathedral of Paris was finished in 1177—except for the roofing—and the high altar was consecrated in 1182. It is difficult to imagine suitably stimulating conditions prior to that time.

[9] See n. 6 above.

[10] Manfred F. Bukofzer, Review of Waite, *The Rhythm of Twelfth-Century Polyphony* (see n. 6 above), *Notes*, XII (1955), p. 234.

[11] Apel, "From St. Martial," pp. 149–52.

[12] Waite, Communication, p. 275. (It should be added parenthetically that the *modi irregulares* of Anonymous IV are by no means identical with Garlandia's *modi non recti*, as Waite assumed in "Discantus," p. 83.) For a comprehensive synopsis of the history of modern scholarly approaches to the matter of rhythm and consonance in the organal passages of the *Magnus liber*, see Reckow, *Anonymus 4*, II, pp. 73 ff., and,

nicely put it, "has a mind like a needle,"[13] has come to grips with these problems. On the basis of his careful reading of Garlandia he rightly asserted that "the ligature combinations of the organal melismas [have] no modal significance whatever" and that *organum per se* continues to have its "original freedom from modal rhythm."[14] Like his two predecessors, he adduced the rule of consonance, following Apel in his interpretation "that the value of each duplum note derives its measurement from its consonance or dissonance [*Konsonanzgrad*] with the tenor."[15] He also followed Apel in essentially equating Garlandia's rule with that of Anonymous IV, repeatedly noting the contradiction between it and the irregular modes, which, according to the English author, were supposed to govern the rhythmic rendition of organal dupla. Despite several attempts he found himself unable to resolve the contradiction. And, in any case, he recognized that application of the rule produces musically indefensible results.[16] He therefore concluded in his essay on organum that Garlandia's "rule of consonance probably should not be taken too literally" and that the singer of the duplum was entitled to a certain discretionary latitude ("Ermessensspielraum") in the rhythmic shaping of his part.[17]

For what I hope is a more accurate and less problematic understanding of Garlandia's rule it will be useful not to interpret him in the light of the writings of a later author, but to revert briefly to the De-La-Fage Anonymous. His definition of discant constitutes what in effect since the sixteenth century has come to be known as first-species counterpoint. His wording suggests the impulse toward cadential ornamentation in discant as the origin of organum.[18] The performance

more comprehensively, Hans H. Eggebrecht, "Organum purum," *Musikalische Edition im Wandel des historischen Bewusstseins*, ed. Thrasybulos G. Georgiades (Basel, 1971), pp. 93–112.

[13] *Music & Letters*, LIV (1973), p. 239.

[14] Reckow, *Anonymus 4*, II, p. 45.

[15] P. 44.

[16] Pp. 34, 64, 68, 78–89.

[17] Reckow, "Organum," *Gattungen der Musik in Einzeldarstellungen: Gedenkschrift Leo Schrade*, I (Bern and Munich, 1973), pp. 457–8. The difference seems not very great between this conclusion and Waite's, which Reckow criticized as a devaluation of the rule of consonance to an aid for the use ad libitum by medieval and modern performers in their choice of rhythms (Reckow, *Anonymus 4*, II, p. 74). With characteristic caution Eggebrecht thought that even in 1971 the rule of consonance might still not have been properly understood (Eggebrecht, p. 107).

[18] For more direct evidence of the existence of this practice by c. 1100 see Hans H. Eggebrecht and Frieder Zaminer, *Ad organum faciendum. Lehrschriften der Mehrstimmigkeit in nachguidonischer Zeit*, Neue Studien zur Musikwissenschaft, III (Mainz, 1970), pp. 47–8, 79 ff.

of the latter, he points out, is marked by "unlimited multiplicity and a kind of wondrous flexibility." *Infinitus* means "not finite, boundless, innumerable, not measurable"; one is justified in wondering how many more than one constitute an infinite multiplicity. In any case, the consequence of *infinita multiplicitas* for performance is *flexibilitas;* the technique is characterized by the words *volvere*, *modulari*, *lascivire*. In a word, the performance is free and evidently quite fast, rather in the manner of cadenzas.

This unbridled "non-species" counterpoint is articulated by rests, which must be preceded by a unison or an octave, and by breathing spots at the fourth and fifth below—and presumably above—the cantus firmus. As regards articulation, Johannes de Garlandia, writing about a hundred years later, nonetheless turns out to be not a great deal more informative, except that he injects the terms "long" and "short," which, he says, are to be understood from the context. His first rule, the rule of consonance, has always been understood to mean that any pitch in the duplum of an organal passage forming a consonance with a held note in the tenor is considered long. And this is, indeed, the impression conveyed by the relevant passage in the treatise by Anonymous IV.[19] It seems, however, that both he and modern scholars have expanded or misunderstood Garlandia's rule, "everything that anywhere comes together by virtue of consonance (or: by force of the consonances) is said to be long." Taken together with the other two rules this is no more than a modernization of the earlier writer's comments on pauses and breathing spots. The twelfth-century author had pointed out that, depending on specified contrapuntal circumstances, phrases were articulated by either *pausationes* or *respirationes*. Garlandia says, in effect, that any note of an organal passage consonantly coinciding with a note in the tenor is long; in most cases this would be the last note of a phrase, followed by a rest. In addition, he designates as long the last note of an organal phrase over a continuing note in the tenor (at least of any phrase whose last note is separated from the preceding ligature), and the penultimate note before what the De-La-Fage Anonymous had called a *pausatio*. (This probably refers to sectional endings, since he calls the subsequent rest long and, like his predecessor, identifies the final consonance as perfect.) All those notes are long; he does not say how long, since he does not define "short." He cannot, since, as he puts it, organal passages are performed "in an irregular way"; only in regular or proper mensuration is there precise measurement of long and short.[20]

[19] Reckow, *Anonymus 4*, II, p. 31.
[20] See Reimer, II, pp. 37–8.

But the implication is surely that, while in specified circumstances certain notes must be performed rather as if they were marked with a fermata or at least designated as *tenuto*, all other notes are simply shorter and presumably still quite fast.

In support of this reading of Garlandia's rule I call attention to his formulation ("omne id quod accidit"), containing the significant word *accidit* with its cadential implications (reminiscent of Guido's term *occursus*). There is, furthermore, the wording of the final sentence in the passage from the *Discantus positio vulgaris* cited above: "que etiam convenire debent in aliqua dictarum trium consonantiarum."[21] Most important in this connection is Garlandia's own definition of consonance:

> Some of the vertical intervals are called consonances, some dissonances. A consonance is said to exist when two pitches are conjoined at the same time in such a way that one pitch can be aurally compatible with the other. Dissonance is defined conversely.[22]

Consonance, then, is the result of the simultaneous articulation of two compatible pitches (both in discant and in organum). For the remainder of the time that a pitch is sustained in an organal tenor, the condition of organ point (or pedal point) obtains—what both Anonymous IV and the St.-Emmeram Anonymous referred to as *burdo*.[23] It is an essential aspect of what medieval commentators might have called the "natura" of *burdo* that the rules of counterpoint are inapplicable (just as in pedal points of the seventeenth, eighteenth, and nineteenth centuries the strict rules of harmony are suspended). Therefore, the contrapuntal raison d'être for *recta mensura* does not exist in organum. Leoninian discant, on the other hand, demonstrates that species counterpoint and mensuration go together as much as do tonal harmony and meter.[24]

Thus, as regards organal rhythm, one cannot expect our Cartesian propensities to be satisfied by the "theorists."[25] Apparently it contin-

[21] See p. 266 above.

[22] Reimer, I, p. 67.

[23] Reckow, *Anonymus 4*, I, p. 80; Heinrich Sowa, ed., *Ein anonymer glossierter Mensuraltraktat 1279*, Königsberger Studien zur Musikwissenschaft, IX (Kassel, 1930), pp. 53, 129, 130. Regarding its performance, see the valuable remarks → Edward Roesner, "The Performance of Parisian Organum," *Early Music*, VII (1979), pp. 174–5.

[24] See Ingmar Bengtsson, "On Relationships between Tonal and Rhythmic Structures in Western Multipart Music," *Studier: Tillägnade Carl-Allan Moberg* (*Svensk Tidskrift för Musikforskning*, XLIII (1961)), pp. 49–76.

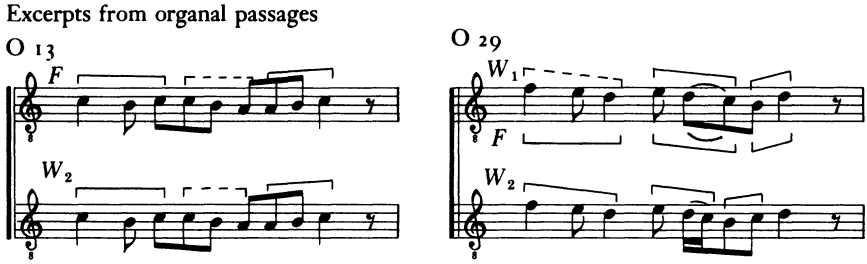
[25] A better term would be "teacher-reporters". Cf. also Reckow, *Anonymus 4*, II, p. 14, n. 54.

ued to be viewed as essentially free and flexible. These writers do, however, evince a concept of phrases, since they present information about phrase endings. That all such phrases should have been linked together with scant regard for any sort of balance, order or design seems too capricious an assumption to be compatible with the artistic attitudes of the later twelfth century. Even the examples in the Vatican organum treatise[26] already consist, often enough, of rather clearly defined components.[27]

Insights and conclusions concerning the music of the *Magnus liber* are inhibited by uncertainty as to the historical stages that our sources represent, not to mention our ignorance of Garlandia's copy or Leoninus's autograph.[28] But not only in copulae, but in organum, i.e., passages not notated in the preserved sources to indicate *rectus modus* precisely, certain ligature constellations as well as slight ornamental differences between concordances often enable us to read organal phrases with a fair degree of confidence as to their probable rhythm; frequently such readings produce a rational phrase design, with the phrases quite often containing the equivalent of four beats each (Ex. 1). It seems that the composer's (or the adapter's) intent must have included some latitude for the performer and his "agréments."[29] But

Example 1

Excerpts from organal passages



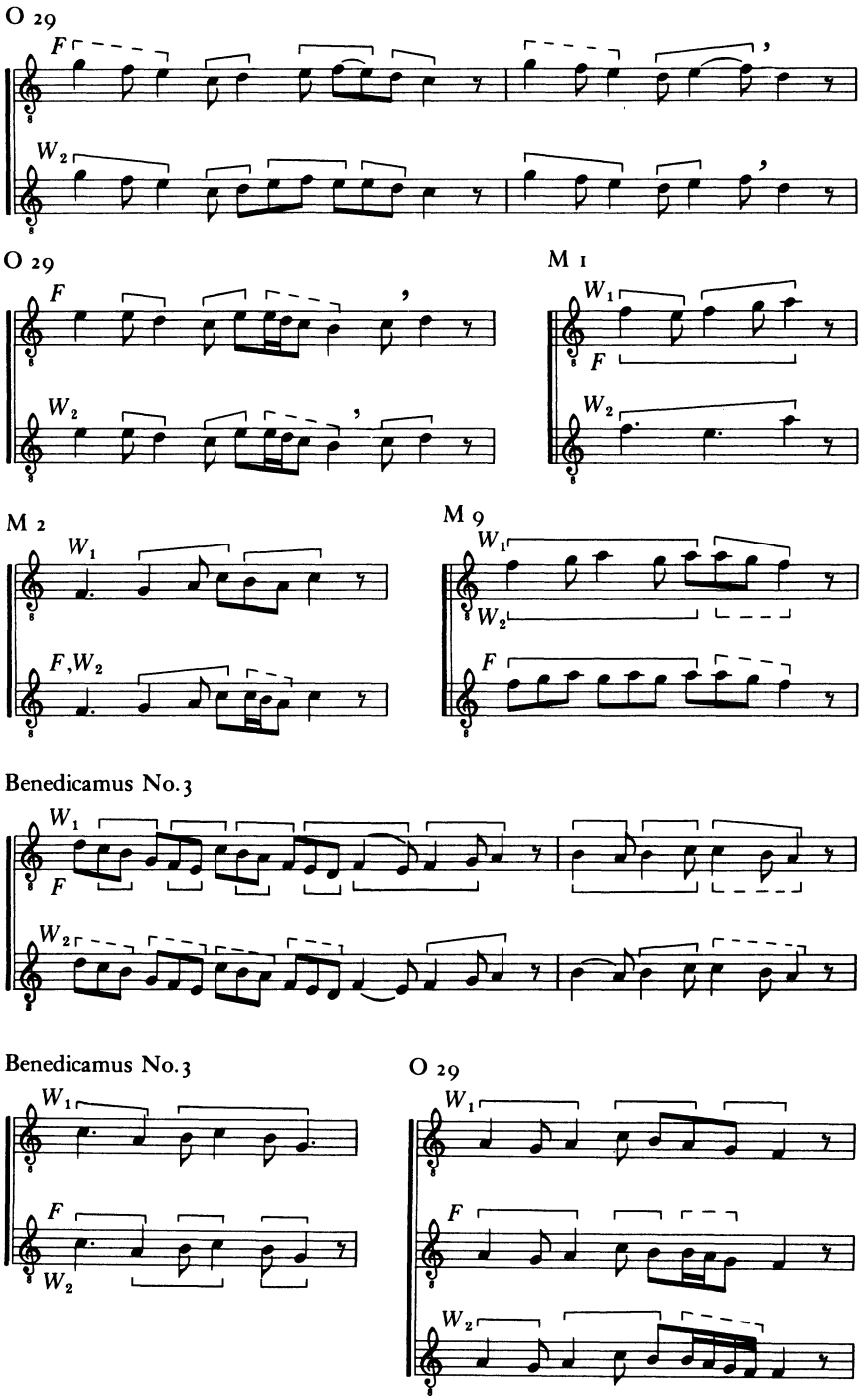
[26] Frieder Zaminer, ed., *Der Vatikanische Organum-Traktat (Ottob. lat. 3025)*, *Münchner Veröffentlichungen zur Musikgeschichte*, II (Tutzing, 1959).

[27] For an example see Frederick W. Sternfeld, ed., *Music from the Middle Ages to the Renaissance* (London and New York, 1973), p. 100.

[28] Perhaps we can assume that we are reasonably close to the Leoninian original in those cases where (1) all three manuscript versions agree except for minor ornamental variants (such passages are generally conservative in rhythmic style), (2) at least two versions agree in preserving an older style, (3) W_1, the manuscript reflecting an earlier stage of the Notre-Dame repertoire, presents an older version than the other two sources.

[29] Eggebrecht, pp. 95 and 107 ff.

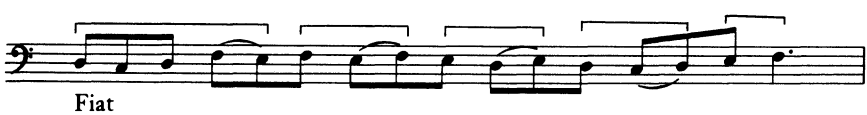
Example 1, continued



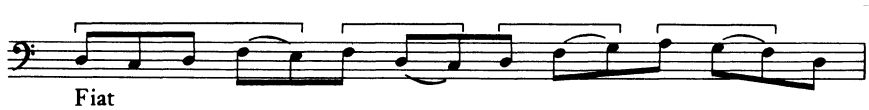
even the three sources of the *Magnus liber* available to us all still contain passages whose notation is so unpatterned, so truly organal, as to make it inadvisable—indeed, virtually impossible—to transcribe them with unequivocal indication of durational values or of any definite time frame for the constituent phrases. To a limited extent variant transcriptions could be equally legitimate. The transition from such a passage to a copula and, in turn, to a discant section might be likened to the change from recitative to cavata and, in turn, to aria.

If the *Magnus liber* contained more or less numerous passages that were intended to be performed with rhythmic freedom and flexibility and were still sung—probably to a lesser degree—in some such manner in Garlandia's time, why did he include *organum per se* in a work that concerns mensurable music? To arrive at an answer to this question it may be useful to discuss four other ambiguities, which occur in his treatment of the sixth mode, the third mode, rests, and the copula.

In his fourth chapter, dealing with the ligature notation of rhythmic modes, Garlandia reports that sixth mode is written "in this way: a quaternaria with propriety and plica and thereafter two ligated notes and two with plica etc., as follows:"[30]



The next chapter, which concerns the ligature notation of imperfect modes, presents practically identical specifications for imperfect sixth mode: "first a quaternaria with plica, thereafter with two and two with propriety and with plica, if it be reduced to first mode, as follows:"[31]

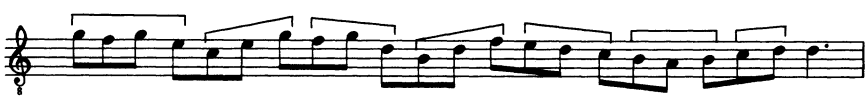


But, "if this mode is understood in the sense of reduction of [i.e., to] the second [mode], the rule is this: two ligated notes and two, two, etc., with propriety and perfect and with plica—all are called short, as is shown in this example:"[32]

[30] Reimer, I, p. 56.
[31] Reimer, I, p. 61.
[32] Reimer, I, p. 62.

Fiat

Since the affinity of sixth mode to second is not mentioned in the fourth chapter, which deals with the normal and traditional perfect modes, it may be fair to assume that early modal theory viewed sixth mode only as an elaborated or ornamented first mode (plicated quaternaria followed by plicated binariae, in lieu of ternaria followed by binariae).[33] There was, however, a third way of notating sixth mode, which Garlandia explains immediately after the example in chapter four (see above): "Another rule concerning the same, but not approved by this teaching, though thoroughly approved by the example found in the triplum of *Alleluia Posui adiutorium*, i.e., a quaternaria with propriety and thereafter three and three and three with propriety etc., and this is the example that appears in the above-mentioned Alleluia:"[34]



Even though he here describes this notation of sixth mode as irregular, he had used it without any apology to give examples of both the perfect and the imperfect sixth mode in his first chapter. More significantly, five of the seven examples of sixth mode given in the eleventh chapter are notated in the theoretically disapproved way.[35] Though frowned upon, it was apparently so conventional a way of notating sixth mode that Garlandia used it for more than half of his thirteen examples. A cursory glance at the W_1 version of the *Magnus liber* shows that fast (short-note) passages in premodal rhythmic polyphony were often written in this manner; several of them appear in the more modern (plicated first-mode) notation in one or both of the other sources. Only when these rhythms were integrated into the newly

[33] See the quote from Garlandia's eleventh chapter given below, p. 280.

[34] Reimer points out (II, p. 17 and n. 14) that the excerpt is actually taken from the duplum, which at that point, however, lies above the triplum. As to the translation of *ars* as "teaching," I quote from the *Tractatus quidam de philosophia et partibus eius* by an anonymous author (presumably of the later twelfth century): "ars est collectio preceptorum, quibus ad aliquid faciendum facilius quam per naturam informamur" (Martin Grabmann, *Die Geschichte der scholastischen Methode*, II (Freiburg, 1911; reprinted Berlin, 1957), p. 47). *Ars*, then, is a craft and its precepts.

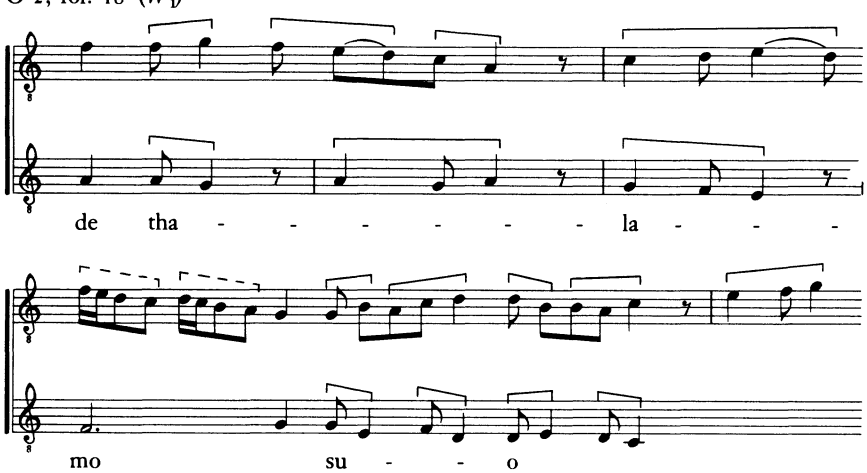
[35] Admittedly, in a few, but by no means all cases, repeated notes would have made plicated notation difficult or impossible; yet these examples were evidently invented by Garlandia.

codified modal system,[36] therefore, did they come to be understood as related to either first or second mode, and only then could the effort have been made to change their notation accordingly.

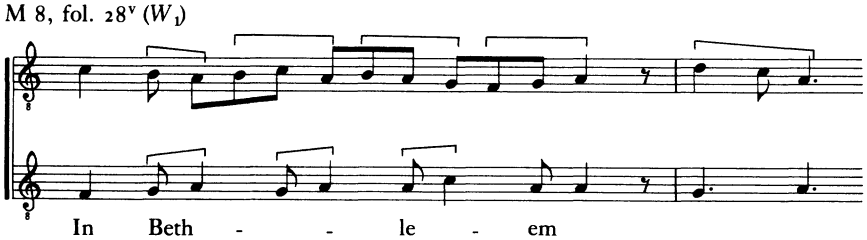
[36] That the modal system was fully developed by c. 1180 has been asserted repeatedly, most recently by Rudolf Flotzinger ("Zur Frage der Modalrhythmik als Antike-Rezeption," *Archiv für Musikwissenschaft*, XXIX (1972), p. 204). No evidence has ever been presented to support this view, which I have tried to demonstrate as untenable; → Ernest H. Sanders, "Duple Rhythm and Alternate Third Mode in the 13th Century," this JOURNAL, XV (1962), pp. 283–4, and Sanders, "Perotin's Oeuvre and Dates," pp. 243 ff. In the latter essay I suggested that it was in the years around 1210, when concentrating on the composition of clausulae, that Perotinus must have experimented with the increasing variety of rhythm that came to be codified into the modal system. In his review of *Music from the Middle Ages to the Renaissance*, ed. Frederick W. Sternfeld, in *The Musical Quarterly*, LX (1974), pp. 646–54, Alejandro Planchart claimed "that the *Magnus liber* already shows a rhythmic system . . . which includes what would later be known as the first, second, fifth, and sixth modes" (p. 648). The presence in the *Magnus liber* of rhythms later categorized as belonging to the first, fifth, and sixth modes is evident. It is important to stress, however, that, to my knowledge, the W_1 version of the *Magnus liber* contains no second-mode rhythms. The two instances that might be cited strike me as very doubtful: the settings of the first and of the last two syllables of the verse of O 2, and of *In Bethleem* in M 8, look like second mode at the beginning, but like first mode at the end, especially in the tenor. I suggest that they are premodal upbeat phrases (see Ex. 2).

Example 2

O 2, fol. 18^{r} (W_1)



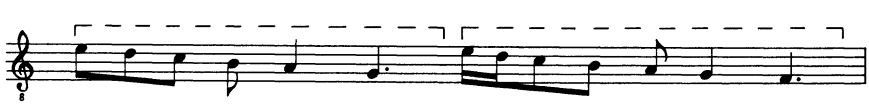
M 8, fol. 28^{v} (W_1)



In the case of the third mode Reimer has pointed out that Garlandia notated it in the traditional modal manner, even though he therefore used the perfect ternary ligature with propriety in conflict with the exclusive meaning—long-breve-long—it had in his notational system. In contrast to his treatment of the sixth mode, he nowhere acknowledged this inconsistency.[37] Apparently the pattern 1, 3, 3, etc., which had originally stood for LLBLLBL, etc.,[38] was simply carried along into the modal system, even though its rhythms became those known since that time as third mode.

The stray bits of evidence suggest how this may have come about. In describing discant, the author of the *Discantus positio vulgaris* has no rules for ligatures containing more than four notes: "Should there, however, be more than four notes, then they are not really subject to rules, but are performed at pleasure; these pertain particularly to organum and conductus."[39]

Garlandia's rules are considerably more complex: "[In] every ligature written perfect and with propriety the penultimate is said to be short and the last long. Should these be preceded by one or more notes [within the ligature], they are all taken for one long." In spite of the word "all" (*omnes*) this probably refers to ligatures of three, four or five notes, since he also gives the following rule: "The rule is that two or three or four breves never take the place of a breve where they can take the place of a long."[40] This presumably means that a ligature or coniunctura of six or more notes should, where possible, be spread over more than one beat. A sentence in that part of chapter 1 dealing with the term *ultra mensuram* (beyond measurement) seems to convey the same meaning: "Should there be a multitude of breves somewhere, we must always contrive to make them equivalent to long notes."[41] This is further explained by the subsequent rule: "Should there be a multitude of breves somewhere, the closer a breve is to the end, the longer it must be rendered in performance."[42] This may be exemplified as follows:



[37] Reimer, II, p. 58; in contrast also to his discussion of the fifth mode (I, p. 55).
[38] Waite, *The Rhythm of Twelfth-Century Polyphony*, p. 78; Sanders, "Duple Rhythm," especially pp. 278 ff.
[39] Cserba, p. 190; Coussemaker, I, p. 95.
[40] Reimer, I, p. 50.
[41] Reimer, I, p. 38.
[42] Reimer, I, p. 39.

Reimer has argued that Garlandia's expression *multitudo brevium* in chapter 1 must refer to the pair of breves in the third and fourth modes, since he gave his definitions of *ultra mensuram* right after he had set up the category of those modes he called *ultramensurabiles* (third, fourth, and fifth).[43] Yet, it seems quite possible to understand the latter as pegs on which he hung the subsequent rules and definitions, just as in the preceding paragraph of the chapter his mention of the other modal category may be seen as having given rise to explanations of such terms as *recta mensura*, *tempus*, and *vox amissa*, not all necessarily essential. Moreover, Dr. Reimer was forced to interpret Garlandia's use of *ultra* in a purely temporal sense (longer than), rather than in the actual terminological context, i.e., *ultra mensuram*, which the author of the *Discantus positio vulgaris* had already defined as less than one time unit or more than two. (Reimer therefore had to assume that this definition is later than Garlandia's.) In addition, we would have to disregard Garlandia's plural (*longis*), since two breves can only be equivalent to one long. (It is impossible that he should have thought of different multitudes in the two sentences.) Finally, one wonders why Garlandia would have written "si multitudo brevium fuerit in aliquo loco," the more so as a few sentences earlier he had defined the third mode as consisting of "una longa et duabus brevibus et altera longa" and in the sixth chapter used *multitudo brevium* for what Anonymous IV called *currentes* (*coniunctura* in modern terminology). Instead of designating two as a crowd, why not simply say "duarum brevium inter duas longas ultra mensuram positarum secunda debet longior esse" or, even more straightforwardly, ". . . prima est unius temporis, reliqua vero duorum," as Anonymous VII put it? Admittedly, the latter preceded that rule with this sentence: "In this third mode the following rule is given: when we have a multitude of short notes, that which comes closer to the end is said to be rendered longer in performance."[44]

This need not, however, be seen as proof of Reimer's assertion. It seems that a rule that Garlandia apparently formulated to apply to *currentes* was misunderstood and applied to the third and fourth modes, precisely because he had raised the concept of *ultra mensuram* which it concerns in the context of the *modi ultramensurabiles*. How did this misunderstanding come about? One may reasonably hypothesize that it arose in consequence of the invention of the rhythms of the second mode and the resultant setting up of the modal system. To

[43] Reimer, II, p. 47.

[44] Coussemaker, I, p. 379. Anonymous IV already reverses the order of those two sentences (see Reckow, *Anonymus 4*, I, p. 26).

identify two fundamental rhythmic patterns and their notation as first and second mode was an obvious procedure. On the other hand, the Perotinian pattern LLBLLBL (with the first long of each pair of longs being one third longer than the second) would certainly have seemed troublesome to accommodate within a rational system, especially in the context of *musica cum littera*, i.e., the motet.[45] But no objection of irrationality could be raised against the labeling of this pattern as LBBLBBL.[46] Except for the sentence in the eleventh chapter quoted below, Garlandia's treatise could be seen to reflect that stage in the evolution of the third mode. To be sure, there could be and there evidently were objections to the designation of a value as a breve that had been known as a *recta longa*.[47] If, however, the values of the two notes between the two ternary longs were reversed, they could be thought of as two breves, of which the second was twice as long as the first. In fact, they would have had to be considered as two breves, since a long before a long had always had a ternary value. That a rhythmic pattern of that sort had become attractive to composers is proved by the presumably prior emergence of the second mode; a purely theoretical fiat seems unthinkable. (Perhaps the situation demonstrated by the example on p. 277 produced awareness of the new rhythm.) The notation of the new third mode, however, must have been something of an embarrassment for Garlandia, since his system did not provide for a ternaria specifically shaped to designate two breves and a long.

These considerations, complicated though they may be, would help to explain the formulation in the Paris version of the first chapter of Garlandia's treatise.

The third mode consists of a long and two breves; and two breves are equivalent to a long, and a long before a long has the value of a long and a breve, and

[45] It is less certain than Reimer asserts (II, p. 51, n. 30) that Garlandia meant only the caudae of (polyphonic) conductus when he described caudae and conductus as *sine littera*.

[46] This hypothesis is strongly supported by the instant and lasting (for three centuries) fame of Alexander de Villa-Dei's *Doctrinale* (written in Paris, presumably in 1199), to which Rudolf Flotzinger recently drew attention (Flotzinger, pp. 203–8). The crucial verses (1561–4) of this hexametric Latin grammar inform the reader that "while ancient poetry distinguished many feet [i.e., meters], a division into six modes (*modi*) is enough for us, [since] dactyl, spondee, trochee, anapest, iamb and tribrach are able to lead the way in metric poetry." These are, of course, the analogues of—one is tempted to say, the models for—Garlandia's modal taxonomy, and Flotzinger's conclusion that there was doubtless a connection seems clearly justified. His persistence in the traditional dating of the rise of the rhythmic modes (see n. 36 above) is the more puzzling therefore.

[47] For evidence of this curious identification of a value of two time units (following

thus of three time units. Hence, a long before two breves has the value of three time units, and thus of a long and a breve or a breve and a long. Moreover, two breves are equivalent to a long; therefore, should they be placed before a long, they have the value of three time units, thus of a long and a breve or vice-versa. Now, there is the rule: should there be numerous breves in the oblique (divergent) modes [*modi obliqui*, i.e., the third, fourth and fifth modes], the one that is set closer to the end must be rendered longer; therefore those two amount to a breve and a long and not to a long and a breve. Wherefore the third and fourth modes are preferably reduced to the second, rather than to the first.[48]

They may also explain Garlandia's justification of the contrapuntal combination of the first and third modes in his endlessly elaborate eleventh chapter. This is possible, he says, "because the first mode is in its appropriate arrangement [of ligatures] equivalent to the sixth, and the sixth to the third by way of the second, and thus the first is taken against the third, but this is done (*dicitur*) not properly, but by means of [this] reduction."[49] The last clause is particularly significant as a reflection of the conversion of the older to the newer third mode, as is also the absence of any such construct to serve as apologia for his listing of the contrapuntal combination of the first and second modes,[50] which were traditionally incompatible.

The notational inconsistency of the third mode was recognized by Anonymous IV and the St.-Emmeram Anonymous.[51] Understandably, there seem to have been arguments about the proper rendition of its ligature pattern up to Franco's time. He eliminated all ambiguities by instituting a system of ligatures that no longer reflected modal tradition, while at the same time reordering the modal system so as to classify the older Perotinian rhythms as belonging to the first mode.[52] Only when the traditions of the modal system had begun to lose their conceptual force did it become possible to reassociate the older rhythms with the environment in which they had arisen in premodal times, and Franco's logical mind took the necessary consequences.

The first to treat rests extensively was Garlandia, dividing his discussion into two chapters, of which one (7) deals with the concept of *pausa*, the other (8) with the notation of various *pausae*. Actually, how-

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a *longa ultra mensuram* and preceding a *brevis recta*) as a breve—in England as well as on the Continent—see Sanders, "Duple Rhythm," pp. 263 ff.

[48] Reimer, I, p. 92.

[49] Reimer, I, p. 85.

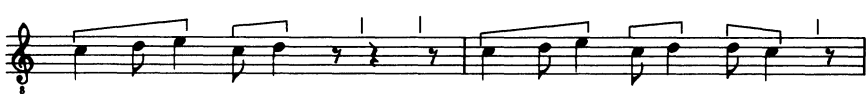
[50] Reimer, I, p. 79.

[51] Reimer, II, p. 58.

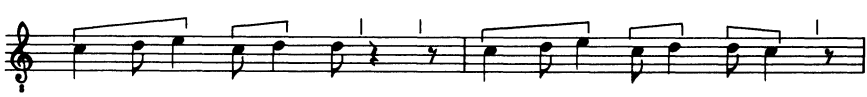
[52] Cf. Sanders, "Duple Rhythm," pp. 284–5.

ever, it turns out that the author found himself unable to exclude from chapter 7 certain notational features that cannot be reconciled with those he introduced in the next chapter. The significance of these factors is that Garlandia's methodological division of his explication of rests into two chapters implicitly seems also to reflect different historical stages, which may be associated with the terms *divisio* and *pausa*, respectively. Different durational valuations of rests are defined only in connection with the discussion of the different ways of writing such rests (chapter 8). The earlier chapter, however, deals with *pausae* in modal contexts, the salient point being the equivalence of a rest to the penultimate note preceding it, whether the mode be perfect or imperfect. In contrast to chapter 8, rests are here treated as undifferentiated graphically.

But even chapter 7 seems to reflect two evolutionary stages. In his discussion of composite or double rests in a perfect mode, Garlandia observes that not only the two *divisiones*, which he calls *tractus*, but also the space between them must be taken to represent the mensural values that compose the silence. His meaning may be illustrated as follows:



In the case of imperfect double rests, however, only the two *tractus* are to be counted as rests. This case can be represented similarly:

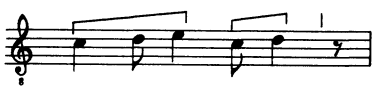


Two considerations compel the conclusion that Garlandia's cannot have been the original conception of this sort of rest. That nothing (empty space) should signify something seems as impossible a notion in this case as it surely was two hundred years earlier when clefs were invented to signify lines, not the spaces between them. The rationale for a composer's adoption of such a procedure would be unfathomable and unthinkable. Secondly, both the practical and the theoretical sources, as well as the terminology, make it clear that perfect modes and rests preceded imperfect modes and rests.[53] That the more artificial reading of rests should from the beginning have applied to the

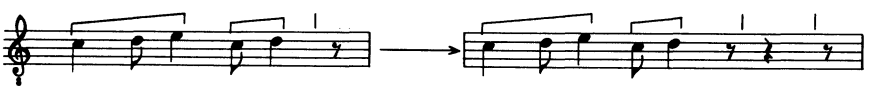
[53] Anonymous VII discusses only the former, without even applying "perfect" as a label; Coussemaker, I, pp. 378–9.

less complex and less advanced "perfect" situation seems improbable and irrational.

What Johannes de Garlandia called a rest was originally a line of demarcation separating two musical entities, mostly phrases (*ordines*).[54] By the time of Leoninus it ordinarily assumed the mensural value of the penultimate note.



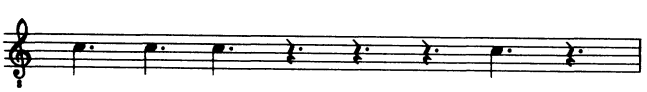
With the recognition of silence as an intrinsic component of polyphony, equivalent to sound as an element of counterpoint, an *ordo* might be extended by silence, say, from second to third:



In that case the second *tractus* would simply represent the withholding of the sound (*amissio soni*)—the binary ligature—normally necessary to raise the "ordinal number" from two to three. In other words, the constellation of a ternaria followed by a binaria and a *tractus* represents second *ordo*, while a constellation of a ternaria followed by a binaria and two *tractus* represents third *ordo*, with the ordinal increase effected not by sound, but by silence.

Garlandia's view seems to be an early instance of the change from thinking in modal configurations to thinking in discrete mensural units. In order to account for the circumstance that a perfect double rest in fact signifies the omission of the sound of a breve plus a long plus a breve, he posits that the middle one of those three values is graphically unstated, but implied by the empty space between the two *tractus*. This unique attribution of intrinsic significance to the inevitable space between two symbols can be explained as a reinterpretation of a vanishing conceptual tradition.

There is at least one case in the practical sources that reflects this change in thinking. The original double *divisiones* of fifth-mode *ordines* in the second part of the tenor of the Perotinian clausula *Mors:*



[54] (→ Rudolf von Ficker, "Probleme der modalen Notation," *Acta musicologica*, XVIII-XIX (1946-7), p. 12.

are written as triple *divisiones* in the "modal" manuscript *Ma* (like the triple rests in the later motet versions in such sources as *Mo* and *Ba*).[55] A mensural view of this pattern would be three longs plus three long rests plus one long plus one long rest. A modal view presumably would be: a first *ordo* of fifth mode, extended by *amissio soni* to second *ordo*, plus one single long plus rest; or a first *ordo* of fifth mode extended by a succession of *amissio soni* and one *sonus* to third *ordo*.

Garlandia's short twelfth chapter, dealing with the copula, would seem to contain another significant instance of his efforts to homogenize different teachings.

Having discussed discant we must now discuss copula, which is very useful for discant, because a discant is never known completely except through the intervention of a copula [*or:* because one does not have complete expertise in discant except by means of copula]. Hence, copula is said to be what is between discant and organum. Copula is defined in another way as follows: copula is what is performed in the regular way (*recto modo*, i.e., properly measured rhythm) over a coextensive single pitch. In another way it is described thus: copula is that wherever a multitude of note symbols occurs; as it is understood here, a note symbol is that wherever there occurs a multitude of lines [i.e., those connecting lines making groups of notes into ligatures]. And that particular section is divided into two equal parts. Hence, its first and second parts are called antecedent and consequent, and each contains a multitude of lines. Hence, a line [like that?] occurs wherever there occurs a multitude of intervals of one kind, such as unisons or whole tones, in accordance with the predetermined number of their incidences and with the proper arrangement [of ligatures]. This should do with respect to the copula.[56]

Fritz Reckow's insistence on periodicity as an essential characteristic of the copula[57] seems to be an unnecessarily rigid interpretation of the last several sentences of the chapter, which, in any case, are hardly models of clarity. Reimer hesitated to accept them as genuine because (1) unlike the rest of the short chapter they were not adopted or adapted by Garlandia's successors and (2) their content was irrelevant to and inconsistent with the musical thinking and methodological approach in the rest of the treatise.[58] Once again, however, it seems that Garlandia has forged together two disparate aspects of a particular musical technique, of which the first—*modus rectus* in the duplum

[55] For manuscript references see Friedrich Gennrich, *Bibliographie der Ältesten französischen und lateinischen Motetten*, Summa musicae medii aevi, II (Darmstadt, 1957), p. 24.

[56] Reimer, I, p. 88.

[57] Reckow, *Die Copula*, pp. 13 ff. and *passim*.

[58] Reimer, II, pp. 35–7.

over a sustained note in the tenor—is the most basic, while the second—periodicity—may have been added to account for another view, which might be regarded as less fundamental and perhaps later.

Dr. Reckow, in order to bolster his argument that periodicity is the essence of the copula, contends that what Garlandia terms *organum cum alio* (organum for three voices) would doubtless have been called "copula" if all that was involved was sustained notes in the tenor and rhythmic precision in the upper voices.[59] This argument seems untenable for three reasons: (1) For Garlandia the term *organum cum alio* denotes primarily a particular category of polyphony, and the name of the category as a whole is organum, regardless of the discant style of the upper voices that must account for his use of the phrase *organum quantum ad discantum;* (2) there is in these compositions nothing "(medium) inter discantum et organum," there being no *mensura non recta;* (3) even though periodicity and *Korrespondenzmelodik* are very common—one might nearly say, endemic—in *organum cum alio*, no one ever called it copula. On the other hand, passages in the W_1 version of the *Magnus liber* that simply have *modus rectus* over sustained tenor notes are more common than those that, in addition, consist of corresponding phrase components, quite apart from the fact, stated parenthetically by Reckow himself,[60] that in those cases that do exhibit periodicity there often are successions of more than two phrase components analogous in melodic content and equal in length. It seems inappropriate, therefore, to make phrase structure consisting of antecedent and consequent an essential (much less the essential) ingredient of the definition of copula, the more so as Garlandia appears to have treated it as something of an afterthought. It is particularly significant in this connection that the examples of copulae with periodicity cited by Reckow[61] are all relatively late.

Finally, Reckow's interpretation of the first two sentences of Garlandia's twelfth chapter[62] seems wrong. They are said to mean that discant polyphony is not really first-rate, unless it also displays the sort of periodicity Reckow considers essential for the copula. Garlandia's treatise, however, appears to be addressing singers and choirmasters more than composers; his frequent use of "profertur" in the explanations of discantus, copula, and *organum in speciali* may be cited in support of this statement. The first two sentences of the twelfth chapter presumably mean that for performers the shift from the

[59] Reckow, *Die Copula*, p. 27.
[60] *Ibid.*, p. 19.
[61] *Ibid.*, p. 19 and n. 2.
[62] *Ibid.*, pp. 22–3.

rhythmic freedom of organum to the modal strictness of discantus or vice versa is greatly facilitated by the intervention of a copula. More specifically, they could also be understood to imply that, in addition to strictly modal notation, discant exhibits remnants of rhythmically significant premodal configurations characteristic of copula passages, where, he says in the next sentence, there is *rectus modus*, quite possibly meaning that it consists of properly but not yet always modally differentiated longs and breves. Finally, they may be taken to mean that melodic thrust and phrase structure may often continue from discant into copula. These procedures are easily documented by reference to the various versions of the *Magnus liber*. Composers may have adopted periodicity in discantus from copula models, as Reckow suggests, though the necessity of such a process is debatable. But in any case, Garlandia's sentence describing the formal design of copulae is so far removed from his lead sentences as to make an effort to relate them to one another seem forced. His wording suggests the probability that he is reporting two interpretive and didactic strands.

Reimer has described Garlandia's treatise as "the final codification" of the thinking that had evolved in his predecessors, but also as "the immediate precursor of Franconian notation."[63] He based this generalization on the author's largely successful modernization of traditional thinking. But the Janus face of Garlandia is even more tellingly revealed by the few little ambiguities and inconsistencies lurking in the treatise. It is in this context that not only his treatment of sixth mode, third mode, rests, and copula must be understood, but also his inclusion of *organum per se* in a treatise on measured music, even though proper mensuration is inapplicable to it. In his explanation of the articulation of organum the De-La-Fage Anonymous had described pauses and breathing spots without trying to define the cadential retardation of the rapid melismatic flow of the *vox organalis*. His use of the word *mora* ("halt" or "lingering") is as indefinite as that of the term *flexibilitas*. Only a mensural consciousness would view that as a phenomenon requiring comment. Garlandia, in his effort to stamp all polyphony as *mensurabilis musica*, elevated such retardations in organal style to the level of mensurability, though he had to resort to such an oxymoron as *mensura non recta*.[64]

[63] Reimer, II, p. 43.

[64] Thus, the tendency to subsume all polyphony under the concept of mensurable music, which Reckow attributes to "the later 13th century" (*Die Copula*, p. 65), presumably originated before the middle of the century.

Unlike his successors, however, he left the organal tradition intact.[65] Anonymous IV attempted to strait-jacket organum with an elaborate system of irregular modes as well as a seventh mode. The growing hegemony of the clausula and especially of the motet with its declamatory individualization of nearly every note had caused the flow of music to be retarded and had engendered new perceptual habits. They prompted Anonymous IV's bewildering Procrustean operation, his elaborate reformulation of Garlandia's rule of consonance, as well as the sort of thinking reflected in Franco's recommendation that the performer of an organal tenor should either interrupt or feign consonance when his part, according to Franco's rules, would otherwise form a long dissonance with the duplum.

Thus, clausula and motet robbed chant and its elaborations of primacy in the thinking of French musicians and caused the increasing corrosion of organum as a living tradition. An inevitable last step in this evolution was the recognition of musical genres as principal categories, such as motet, cantilena, conductus—and organum or organum purum (Odington's "genus antiquissimum").[66] In this respect, too, Garlandia's novel classification of music into mensurable polyphony and immensurable monophony represents a significant turning point.

Columbia University

This paper is a somewhat expanded version of one delivered at the Minneapolis meeting of the American Musicological Society in October 1978. Several of its ideas were generated in a Ph.D. Seminar at Columbia University in the Spring of 1978; I am indebted to its members, especially Mr. James Bergin and Mr. Peter Lefferts.

[65] In relation to the time when the *Magnus liber* may be presumed to have been written, Garlandia's statements are "relatively late" (Eggebrecht, p. 105), but not so late as to be of questionable reliability and pertinence.

[66] Coussemaker, I, p. 245; *Corpus scriptorum musicae*, XIV, p. 139. Among other authors to describe the genres of polyphony are Jerome of Moravia (as presumable author of the additions to the *Discantus positio vulgaris*) and Jacobus of Liège; see Reckow, "Organum," pp. 436 ff.