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Modality in western chant: an overview

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Translator's note

Dom Jean Claire of the Abbey of Saint-Pierre de Solesmes was for many years engaged in a study of modality in Gregorian chant and in other surviving repertories of liturgical chant of the Latin West. He had perhaps an unparalleled knowledge of the chant, derived from both practice and study. Dom Claire sang the chant at Solesmes from the time he entered the monastery in 1944, and from 1971 to 1996 he was the choirmaster of the abbey and editor of *Paléographie musicale*, directing the abbey's long tradition of scholarly and practical publications.

Dom Jean Claire's numerous publications in the area of modality appeared over the course of many years and in a variety of not readily accessible journals. It is thus not easy to gain a clear and comprehensive view of the results of his research or of his ideas and theories on modality.

In the course of many conversations, I had the privilege of discussing concepts of Gregorian modality with Dom Claire, and at my invitation he agreed to summarise the results of those discussions in written form. The text that follows is entirely that of Dom Claire, and I hope that it can serve as an introduction to the complexity of his work for those who do not know it, and as a summary of its central methods and concepts for those who have studied his work in detail. The reader should note that the text is now ten years old, and thus cannot take more recent scholarship into account. The translation here was approved by Dom Claire; what is not certain is whether the text is complete. The explication of Dom Claire's modal thinking is clear and comprehensive, but the ending is somewhat abrupt; I asked Dom Claire about this, but did not have a reply. Perhaps he preferred to end his text with reference to Henri Potiron rather than to himself.

Central to Dom Claire's study of modality is the concept of the 'cordes-mères', a term that is difficult to explain and impossible to translate. Essentially it is three notes that have three distinct qualities by reason of their position in a musical system: a note with a semitone above, a note with a semitone below, and a note with no neighbouring semitone. Though they may be written for convenience as C, D, and E, there is no note in the medieval system that embodies these three qualities. This 'semitone' is actually a space that may be void (as in the pentatonic scale), or that may be occupied by a relatively flexible note, represented by the presence in the medieval system of B flat and B natural in the same position.

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These 'cordes-mères' constitute the irreducible centre of a musical system that only later came to be classified according to the concepts of the octoechos. Each 'corde-mère' serves as the musical polarity of individual pieces. In the simplest melodies, it serves both as reciting tone and as final. But in the case of bipolar melodies – those that recite on or emphasise one note but end on another, the corde-mère serves one of these functions, but not both. When melodies are classified according to the octoechos, the same category may include music that operates in two spheres: on the one hand, music that concludes on a given corde-mère; and on the other, music that ends on the same note, but employs a different corde-mère as reciting note. The result is that the octoechos sometimes classifies together music whose origins and functions are very distinct.

Dom Claire's researches led him to the articulation of this system; although it serves to clarify many apparently historical developments, it is not intended in itself to be in all cases a means of measuring the historical position of melodies, nor is it intended to represent a pre-existent and deliberate theoretical system. Rather, it serves as a matrix in which to consider the enormous variety of medieval Latin chant, and as a tool for discovering the essential and basic unity of Western liturgical music.

Preliminary observations: the authority of oral and written transmission

A great deal of difficulty and misunderstanding arises from our failure to understand the extent to which oral tradition, the tradition of music before the ninth and tenth centuries, is fundamentally different from the written tradition of later musics and texts.

We were all born into the written tradition, we grew up in it, and some of us have grown old; and so it is difficult for us to think or to speak in mental categories different from those that for us are practically innate. A certain French historian at the end of the nineteenth century had a single *idée fixe*: 'Do you have a text?' For that historian, everything depended on the text, and without a text nothing could be affirmed. (A humorist even accused him of 'textual obsession'!) This mentality based on written tradition was expressed in a proverb long ago – 'Verba volant, scripta manent' – which has come to be taken by the majority of our contemporaries as a first principle, applicable to everything.

But the situation is far from being so clear-cut.

Obviously if I, living in a written tradition, lend ten thousand dollars to my neighbour, it is better to receive in exchange his duly signed IOU rather than simply his word, even his word of honour. But when it comes to the transmission of texts, the guarantee of writing is far from absolute.

Let us take an example. A scribe copies a manuscript. He knows how to write, and so in principle he can write anything he wishes. But suppose that, knowingly or unwittingly, he writes one word instead of another (a textual variant). He writes this variant in the same ink as the rest of the faithfully copied text; unless it is a gross error, his variant will later be recopied by other scribes and thus multiplied as many times as his manuscript is copied. The variant has a long career before it, which could continue

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up to modern critical editions – which might (perhaps) reveal the variant's origin and evaluate its worth. And so 'scripta manent', yes, but written things perpetuate and diffuse variants, that is to say, they contribute to the progressive deformation of the original text.

On the other hand, consider a traditional cantor who knows his repertory – the oral tradition. If he sings as a soloist, he could certainly give rein to his creative imagination and introduce into his singing an element of improvisation, freely ornamenting, perhaps, a pre-established framework. He will always be in agreement with himself, but his improvisations, made anew each time by original ideas, will not give rise to a tradition, even an oral tradition. But in the case of group singing, of a community or a choir, it may be that one or another of the singers sings a wrong note, or adds or subtracts a note of the traditional melody: immediately, his neighbours will make it their business to alert him, or if necessary to reduce him to silence. We could even imagine a choirmaster wishing to impose on his singers a modification of a traditional melody or rhythm: whether the singers adopt or refuse it will depend on his personal authority. But even if it should be adopted, who can guarantee that all the choirmasters who sing the same repertory will modify the same passage in the same way? What is more, we must not forget that, when music was not written, a variant could go no farther that the sound of the voice that sings it.

In short, 'verba volant', certainly; but the audible sounds serve to prevent, to forbid, to eradicate any effort to introduce a change in traditional song – a song that is traditional on purpose.

By its very nature, then, oral tradition is more conservative than written tradition: the written variant is caught up in a centrifugal motion, where it is increasingly multiplied and confirmed, while the oral variant is immediately captured in a centripetal force that compares it with the correct traditional version.

The study of modality

Modality is an austere subject, but it is possible today to treat it in a less forbidding fashion than was possible only forty years ago. In that time we have witnessed, perhaps without being fully aware of it, a reversal of points of view that, though it might be too grand to call Copernican, nevertheless is equally spectacular. This change of focus consists in this: forty years ago, the octoechos, or system of eight modes and four finals, taught without significant change since the ninth century, was considered a source – indeed, *the* source, unique and compulsory, of any sort of modal understanding. When Gregorian modality appeared in history, in the ninth century, it already wore its garment of octoechos – which it seemed to have worn for a long time, perhaps forever – with its eight colours clearly defined and ordered, and it was difficult to imagine that things could ever have been otherwise: the octoechos was taken as a sort of a priori form of modal understanding.

Today, as a result of researches that are far from being finished – will they ever be? – the octoechos appears not as a source but as an outcome, not as a starting point but as a goal. The famous 'ninth-century wall' of which Henri Potiron spoke (we can look

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back to the ninth century by means of texts and manuscripts, but there we come up against a barrier because the notated documents cease) – that wall has now been happily penetrated, and we now know how the octoechos came to be formed. It does not appear from the mists of antiquity fully formed, like Minerva from the brow of Zeus, in the fashion of a historical or musicological *deus ex machina*; we know its ancestry, we know the stages of its formation and, what is more, we know it better in itself, we can illuminate it from within, we can explain, understand, and even correct it; and if we cannot always justify it, at least we can exonerate it.

Modality

But since we speak of modality, perhaps it would be best at first to give a definition of it and to clarify it by means of a few examples.

For philosophers, modality is a category of existence: anything that exists does so according to a certain 'manner', a certain 'mode of being' either proper to itself or common with other things, which can either distinguish it from, or on the contrary relate it to, certain other things.

The melodic entity, to speak of what interests us directly here, possesses a certain structure, a certain manner of behaviour, of beginning, of continuation, of arrival, which is either proper to itself, or held in common with other melodies.

Rhythm and modality

If we compare rhythm and modality, we see that rhythm is the study of melody in time, of the ordered connection of its various parts considered successively, the study of the quality of each successive moment, and not just of its quantity, long or short. As for modality, it is the study of the same melody in the pseudo-space made up of musical scales, the study of the qualities of the various degrees, of their role in the architecture of the piece, and not simply of the size of the intervals. The notion of *quality* seems to me essential, both for rhythm and for modality.

The meaning of 'mode'

In French we have two current meanings for the word 'mode': the one masculine, the other feminine – the eternal feminine. The feminine side, that of fashion ('la mode'), is one above all of quantity, of mini or maxi, long hair or short, trousers wide or narrow, but these quantitative variations, subject to frequent change, have no effect on the deep quality of the individual; whereas on the masculine side ('le mode'), the mode of being for a boy has always been an ensemble of physical, intellectual and moral qualities, of having two legs, a head on one's shoulders (and if possible something inside it). These are the qualitative and functional aspects of modality, which deeply affect the individual, both in nature and in behaviour.

The functional aspects of musical modality are well known: the function of the final note, the dominant note, etc., and we will have many occasions to see that modality evolves in the direction of increasingly complex functions.

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Concrete and abstract modality

From another point of view, and one that is not unconnected to what concerns us here, we should make a further distinction between the modality that exists concretely in the Gregorian melodies, that is, in objective data, entirely independent of our opinion or our observations: any being, by its very existence, has its mode of being, every melody has its modality, and I cannot see why we must wait for a melody to sound four or five pitches before we find it a mode; if there are few pitches, the mode may be ambiguous, but it exists.

Nevertheless, since every being also has its *raison d'être*, and since these reasons for being, these connections of cause to effect, interest us enormously in order to know the origins and the connections of the modes. There is another aspect of modality that is *constructed*, subjective to a greater or lesser extent, that involves a certain abstraction with respect to the concrete object, and that is where the various modal theories evolve, diversify and sometimes come into opposition. The remedy for these divergent explanations, the solution to these conflicts of schools is, of course, reference to reality. There are theories made with admirable logic, which fully satisfy a certain need for order and symmetry, and which, when confronted with the real, with the concrete modality of musical pieces, sometimes show themselves, as we shall see, to be illusory.

Modality and genres of composition

Concrete modality is either proper to a single melody or common to several. It is clear that in these conditions we can only make a theory about modalities common to several melodies. Where there is pure originality, flashing invention, an often complex creativity, modal analysis serves little purpose; the music is what it is, and it will not be found anywhere else. On the other hand, where there are families of melodies with pronounced signs of resemblance, there we can make comparisons, we can study what is common and what is proper, the relationship between cause and effect, antecedent and consequent.

This distinction between original modality, *sui generis*, and shared modality confirms what we know of the various layers of composition in liturgical music. Everything began with *melody-types*, which in French we call *timbres*, that is, a melody valid in itself, with a simple but refined aesthetic, representing a sort of stabilised ideal, to which a great many texts have been adapted, but in fairly strict conditions. Not every text can be used for every *timbre*. For each *timbre* there are well-defined conditions of textual length, phraseology and accentuation. The famous melody-type of antiphons of mode 4 with a final of A, abbreviated as 4 A, has no fewer than 104 examples in the tenth-century antiphoner of Hartker.

At this level, modality is simple, elementary: we are near to 'mode as formula', that is, the mode is for practical purposes identified with the melody of the *timbre*, and there is often nothing else besides, no other compositions in the same mode: the *timbre* exhausts the mode.

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At another level we find *centonised* melodies, made of formulas most of which are derived from various pre-existent *timbres* and brought together according to the taste of the composer: a sort of patchwork tailor-made for each text, for in centonised melody any text can find a melody to fit. Modality thus becomes composite by the juxtaposition of heterogeneous, even incongruous, elements.

Finally there are *original* melodies – more or less original, for there are few that make no appeal to some known formula, to some centonisation. But to the extent that they are truly original, these melodies have an individual modality, of which modal science can say little, since there is no science of the particular.

The Latin octoechos of the ninth century

Let us examine for a moment our starting point, a simple reminder of what is generally understood nowadays when speaking of modality. The octoechos, or system of eight modes with four finals, is not a difficult thing to describe.

There are eight modes or tones, since they refer originally to an antiphon followed by psalmody, thus to a complex made up of a musical composition, the antiphon, in which the final is considered important, and of a reciting formula, or psalm tone, whose substance is a tenor. It is from the combination of these two elements – final of the antiphon and tenor of the psalmody – that the system of eight modes or tones arises (Table 1).

Table 1 *The Latin octoechos of the ninth century*

final of the antiphon	RE		MI		FA		SOL	
psalmodic tenor	la	fa	si	la	do	la	re	do
psalm-tone	1	2	3	4	5	6	7	8
modal genus and specific modal variety	Protus		Deuterus		Tritus		Tetrardus	
	authentic	plagal	authentic	plagal	authentic	plagal	authentic	plagal

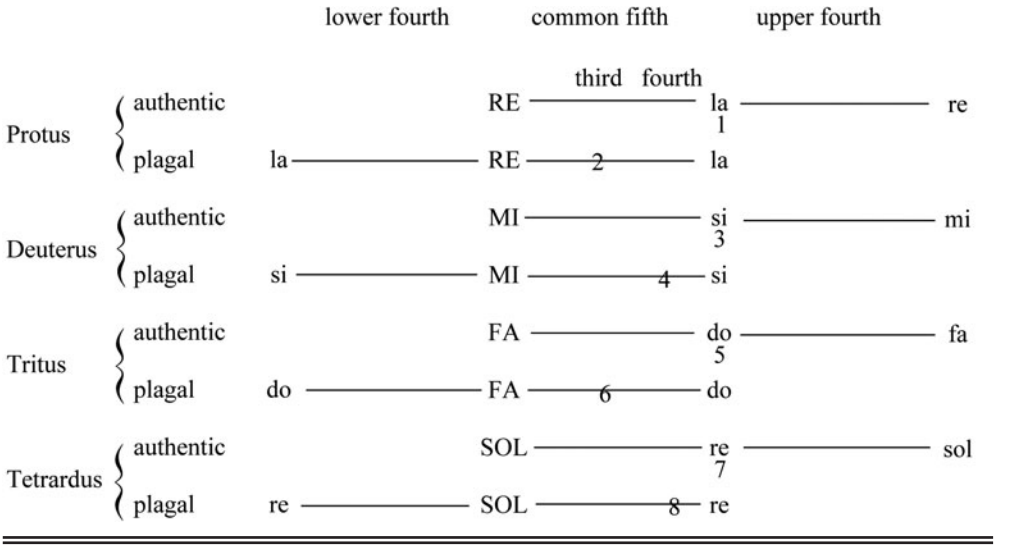
Thus, there are four finals for antiphons: D, E, F, G, defining four complex modes with Latinised Greek names: Protus, Deuterus, Tritus and Tetrardus. For each of them there are two psalmodic tenors, chosen theoretically according to the range of the antiphon. Those antiphons that use, in addition to the fifth above the final, the space above that fifth, received a psalmodic tenor at the fifth, thus approximately in the centre of their range. These are the odd-numbered modes, 1, 3, 5, 7, called authentic, that is, principal. Those that use, in addition to the fifth above the final, the space below the final, received a psalmodic tenor at the third or the fourth above the final. These are the even-numbered modes: 2, 4, 6, 8, called plagal, that is to say, derivative.

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But it happens fairly often that the tenor of the plagals lies high in the range, and thus the predominant range and pitch (*corde*) of the antiphon do not correspond to the pitch designated by the theory for the psalmodic tenor. It is clear that the predominant pitch of the antiphon, the centre of gravity of the composition, is essentially not taken into consideration by the theory of the octoechos, which is interested only in finals of antiphons and more or less theoretical psalm tones, which vary with the range of the antiphon. The whole history of modality since the ninth century makes clear that, in the conception of 'ecclesiastical modes', the basic principles never varied whereby only two important modal functions were recognised, modes being defined and classified according to the final of the antiphon and the psalmodic tenor.

What is more, the notion of ambitus was overly rationalised. Some have sought to find there the modal octaves of classical Greek theory, and in doing so they reduce the notion of ambitus to symmetrical scales of a fifth plus a fourth above it for the authentic modes, and a fifth plus a fourth below for the plagals (Table 2).

Table 2 *Rationalisation of the ambitus of the modes of the octoechoes*



But this symmetry does not exist in reality. My predecessor, Dom André Mocquereau, who claimed to know little about modality, nevertheless noticed this error, and thereby showed himself to know more than many others. In 1908 he wrote the following in the first volume of *Le nombre musical grégorien*: 'The study of the Gregorian modes has made so little progress, the results to date are so uncertain, that we may until further notice keep to the theory of the eight modes that has been taught for centuries. One must understand, however, that the facts themselves do not always correspond to this teaching.'

If there has been expansion and development in the theory of the octoechos, it has been within narrow limits, and in two directions:

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1 The theory has been applied more widely to pieces without psalmody (graduals and alleluias, for example), assigning a modal number to them purely on the basis of their ambitus and final.
2 Numbers or names have been applied to modes established on other notes than D, E, F, G; namely, A, B, C. But this has not led far, and we can disregard it.

This is the theory that had been taught, with more or less conviction, since the ninth century, when in the early decades of the twentieth century two musicians were able to make constructive critiques of it which opened an immense area for future studies of modality.

Dom Desrocquettes and modal equivalence

Dom Jean-Hébert Desrocquettes (1887–1973), working at Solesmes on the preparation of the antiphoner of 1934, was the first to notice certain equivalences of writing in the manuscripts he was transcribing. The same piece, including only one semitone, was sometimes written at three different but equivalent pitches – the three medieval hexachords. More frequently, characteristic formulas (intonations, cadences), often without a semitone, also received a variety of equivalent notations. He completed and published a catalogue of modal equivalencies. Modes with different numbers, for example 1 and 3, used the same formulas written on different degrees; the same held true for modes 2 and 8, 5 and 7, 7 and 8. One could conclude that eight modes were more than enough, and that in reality there were perhaps not so many, if identical passages classified under different numbers were reduced to one (Table 3).

Table 3 *The four modes in the three hexachords*

			½ tone			
natural hexachord	do	RE	MI	FA	sol	la
			½ tone			
hard hexachord	SOL	la	♮	do	re	mi
			½ tone			
soft hexachord	fa	sol	la	♭	do	re
	Tetrardus	Protus	Deuterus	Tritus		

Henri Potiron and modal types

Next came Henri Potiron, *maître de chapelle* of the Basilica of Sacré-Coeur de Montmartre and professor of modality at the Institut Grégorien of Paris, founded by Solesmes in 1923. Having acquired an astounding knowledge of the Gregorian repertory as it was found in printed books (especially the Vatican gradual and the monastic antiphoner of 1934), and having learned from Dom Desrocquettes of his

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earlier observations, Potiron showed that within a single mode of the octoechos, especially in the plagals, there are pieces of entirely different composition that have nothing in common but the final and the psalm tone. For the first time, a third element was added to modal analysis, disregarded since the ninth century: the predominant pitch of the piece, its 'compositional tenor'. Potiron concluded that eight modes were perhaps not enough, and that in fact there should be as many modes as there were types of antiphon, and he spoke of 'modal types' attached to one or another mode of the octoechos.

Both these studies are incontrovertible, but they are not at all contradictory. According to one's point of view, one can show that there are among our liturgical melodies fewer than eight modes or more! That was already a considerable result, but one that raised questions that could not be answered. In order to go further, new sources of information were needed, elsewhere than in the printed books. This was done by enlarging the context in three directions, by organising three explorations, whose directions had already been pointed out by Dom Mocquereau as early as 1888 in the general preface to the *Paléographie musicale*.

The first is a *historical* exploration that attempts to reach back to ancient, possibly original, liturgical forms. There are datable liturgical events with inevitable musical connotations, and in the patristic texts of the fourth and fifth centuries there are liturgical indications that have left musical traces. It is up to us to discover them!

The second exploration is *paleographical*, focusing on the manuscript tradition of Gregorian chant. Alongside the now classical formulas found in standard editions, there are others that can inform us about the stages through which our melodies passed before coming to be rationalised in the octoechos. Obviously if it were necessary at this stage to seek out all the libraries of Europe and one by one to leaf through all the Gregorian manuscripts they contain, we would still be at it, and the exploration would be lost in the vastness of the sands. Fortunately, the tables made at Solesmes in preparation for the monastic antiphoner already gather together the essentials of this tradition.

The third exploration is *geographical*, extending across the Latin liturgies of the Mediterranean basin. Comparison of the modal evidence of the surviving repertories can clarify the pre-history of the octoechos.

Historical exploration of liturgical origins

Our musical documents go only as far back as the ninth century. Even if one were to concede that the chant books of the twentieth century give us the melodies of the ninth, these melodies were not all created at that time. They come, at least for the most part, from a still earlier time. How can we know what happened earlier?

When the history of music enters the realm of pre-history, there are no written documents; but the history of liturgy, on the contrary, does in fact have them. We know a certain number of datable liturgical facts that are allied to musical facts.

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Psalmody with refrain (responsorial)

Let us take the example of psalmody. In the sermons of Saint Augustine, that take us some four or five centuries behind the famous 'wall' of the ninth century, there is often mention of liturgical song – not of the melodies themselves, of course, still less of their notes, but of musical forms which accompany liturgical forms. It often happens that Saint Augustine has occasion to cite the refrain, the *responsio*, which the people of Hippo sang in response to the psalm verse sung as a solo by the psalmist: 'this was sung, and we responded that'. That is the definition of responsorial psalmody, an eminently practical form, since it alternates a soloist (who knows the psalm – or if necessary reads it) with a congregation that responds with a short, memorised refrain, always the same, after each verse.

The soloist's verse, as we know from elsewhere, gave rise to melodic improvisations from which certain melismatic formulas of our graduals and tracts may have been derived. The people's refrain, however, was short, simple, memorable and memorisable. We have retained the name of responsorial psalmody in our liturgy, but not always the form: responsories of Matins or gradual-responsories of the Mass, but nothing in these elaborate compositions – or very little – recalls the soloist's verse and the simple refrain of the people.

But perhaps not everything has been lost. Does the responsorial musical form not survive somewhere, even if the liturgical form does not? Even though modern liturgical usages have confused matters somewhat, it is clear that the genre called 'short responsory' reveals the alternation of a solo verse – often reduced to its essentials, but sometimes including a melisma – with an invariable response of the people. In our current books, the short responsory is reduced to its minimum: two verses – psalm and Gloria; but clearly if two verses can be sung, all of them can. Here, then, we have a melody for the performance of responsorial psalmody. Surprisingly, this evidence has struck no one, for so far as I know nobody has observed a relationship between the melodies of the short responsories and the form of responsorial psalmody so abundantly described by Saint Augustine.

Having said that, astounding discoveries follow. Seeking the melodies for short responsories in twentieth-century books, and classifying them by families, it is clear that they are all related to three recitation-tones, which could be written as C, D, E. It matters little that they have been embroidered and decorated with improvised ornament: the basic essence is there, an essence necessary so that the *responsio* of the congregation can securely follow the psalmist's verse. This system of three tones bearing three psalmodies seems to owe nothing whatever to the eight modes of the octoechos. Archaic liturgy, archaic music.

Psalmody without refrain (in directum)

By means of the history of liturgy we have succeeded in breaching the wall and gaining a view of antique psalmody in one if its forms. But we know from the same history that before the responsorial form – psalmody with refrain – there was another: psalmody without refrain, of which Saint Augustine speaks only once, because it was

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then disappearing in favour of responsorial psalmody. We can also retrieve this still more archaic form, even without recourse to patristic witnesses: we have only to consider the parallelism of Mass and Office, the liturgy of the Word that opens the Mass and that which concludes an Office hour such as Vespers (Table 4).

Table 4 *Comparison of Mass and Vesper liturgies*

Mass		**Vespers** (Rule of St Benedict, ch. 17)
Repertory of the schola		Repertory of the psalmist and of the monastic choir
[introit antiphon with psalm]		[4 psalms in psalter order, alternated between two choirs, with antiphons]
	Liturgy of the Word	
First reading (Old Testament)		Capitulum
Gradual responsory	New style: psalmody with refrain (Responsorial)	Short responsory
Second reading (New Testament)		'Ambrosianum' (hymn)
Tract	Old style: psalmody without refrain (*in directum*)	Versus
Gospel		Gospel canticle (*Magnificat*)
Prayer of the people (*oratio fidelium*)	Litany-prayer (diaconal)	Kyrie, Pater, (prayer)

There is psalmody after the first two readings of the Mass. The older, according to the law of doublets, is the second: the tract. The less ancient is the first: the psalmody with refrain – the gradual responsory. In the Office, the equivalent of the first reading is the capitulum, the vestigial organ of a longer biblical reading, which is followed by psalmody with refrain: the short responsory. The equivalent of the second reading of the Mass is the hymn of the Office, the *ambrosianum* as Saint Benedict calls it, which cloaks itself with the authority of a Father of the Church to protect this new form not pleasing to Rome. It is followed by the psalmody without refrain, the *versus*, also a vestigial organ of a longer psalmody. It is precisely this archaic psalmody that interests us here.

Text and form of the versus of Vespers

The text of the *versus* is of a surprising fixity. We know that at the first stage of the Divine Office there were only two daily 'hours', a morning prayer and an evening

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prayer, and that the single psalm of the evening prayer was psalm 140, just as the single psalm of the morning prayer was psalm 62. This latter psalm remained in daily use, in the centre of Lauds, until the regrettable reform of the Psalter by Saint Pius X (1911). As for the evening psalm, it is still present, six days out of seven, in the *versus* of Vespers, whose most 'significant' verse, 'Dirigatur, Domine, oratio mea sicut incensum in conspectu tuo', alludes to the traditional offering of incense in the Temple of Jerusalem at the hour of the *vespertina oratio*. We can thus say that this *versus*, with its text closely linked to the Old Testament, has traversed unscathed the twenty centuries of Christian history, not to speak of its pre-history in Hebrew liturgy. Its musical form is thus of primary importance.

The *versus* is a unison recitation, concluded by a *jubilus*, a melisma; there is thus a separation of the intellectual material (reading, pronunciation of the text) and the lyrical element, a meditation on this text after having heard it. This musical form takes us back to one of the most archaic places in our Western liturgical repertories: the Ambrosian *Gloria*, which also combines almost unison recitations with an unchanging melisma that punctuates each phrase near the end.

The melody of the versus of Vespers

If we now consider the melody of the *versus*, which we know only from the ninth century (and not before), we still encounter surprising archaisms analogous to those already mentioned for the text and the liturgical form. In every repertory the melody for the *versus* of Vespers is absolutely unique: the Gregorian melody, which is the inheritor of the Roman and Gallican repertories, has preserved the Gallican (D) and Roman (C) tones. The Gallican tone is by far the more frequently used, and this modal poverty, which mirrors exactly that of the tracts (mode 2 [D], Gallican; mode 8 [C], Roman), is another unmistakable sign of archaism.

Alternating psalmody: two choirs with antiphon

After this impressive journey into the depths of the repertory, let us return to the less antique forms of psalmody, those still in use today. We sing an antiphon, a more or less developed musical composition, and we alternate, verse by verse, a psalm sung on a tenor that is in principle the dominant pitch of the antiphon. Here also, the history of the liturgy is enormously helpful in understanding the various forms of antiphon, of tenor, and above all the various sorts of agreement or disagreement between the antiphon and the psalm tone to which it is joined.

The ferial Office

Every day of the year has its saint, as we know from our calendars, but every saint is not celebrated everywhere. There are the great saints, those of the Gospel or of apostolic times, for example, who are celebrated by the church everywhere. There are national saints, celebrated in their countries, and regional or even local saints who are

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celebrated only where they lived. In short, there are days in the year when no saint's Office is celebrated. But there is an Office on those days, which we call the ferial Office, the Office of the day: Monday, Tuesday, etc. This ferial Office has not received the attention of liturgists or musicians, any more than the short responsory of Vespers has. Most attention has been given to the great festivals, especially those that have an original Office, and little attention has been paid to the little ferial Office, lacking in originality, which is only said when there is no saint's feast. But it takes only a moment's thought to realise that it is the oldest of all, that it preceded many feasts of the saints, before some of these saints were born!

We are going to attempt to explore the ferial Office, but we need to look elsewhere than in our practical modern books.

Critical exploration of the Gregorian manuscript tradition

Our current books are certainly the best editions that have ever existed since printed books replaced manuscripts. But they are practical books: they give only the final result of many discussions by editors, namely the comparisons they made and the choices they selected among many incompatible solutions. To proceed further into the science of modality it is necessary to know not only what was provided by the editors but also what they left aside. This also was part of the tradition and can sometimes enlighten us greatly on the direction of the evolution of that tradition.

The tables of antiphons of the ferial Office in the Scriptorium of Solesmes

The preparatory work for the publication of the monastic antiphoner of 1934 is of primary importance from this point of view. Undoubtedly, Dom Desrocquettes and Henri Potiron gleaned much information from it, but Dom Desrocquettes lost interest in the question before proceeding very far, and Henri Potiron, occupied in Paris by his heavy duties as *maître de chapelle* of Sacré-Coeur de Montmartre, was never able to find the time to become fully acquainted with it.

These documents take the form of large synoptic tables where twenty, thirty, forty or more versions of the same antiphon have been copied one below another – even more versions in cases that presented special problems of restoration. In these tables are examples of all schools of notation, from all the countries of Europe, from all the centuries of the chant, from the tenth to the fourteenth. The tables are gathered in folders that correspond to the modes of the octoechos: antiphons of mode 1, of mode 2, etc.

One exception to this classification by mode was made: the ferial antiphons, with their apparently confused modality, were gathered in a separate file. Why this anomaly? Because those who studied the tables, who discussed them, who were charged with identifying and resolving their problems, discovered very early, if indeed they did not already know it, that in this layer of composition – certainly very old since it precedes the feasts of many saints – there were special problems which needed to be studied separately and which would gain nothing by being mixed in with the other quite different questions which arise during the course of the liturgical year.

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It is of course not very interesting to assemble thirty or forty similar versions of an antiphon, all in the same mode; what is interesting is when there are more versions. Sometimes, in specific layers of the repertory, there are melodies in modes unknown to the octoechos. The same antiphon, clearly recognisable, is given in a few manuscripts in another mode with, for example, a different final; often there is a variety of finals, varying according to century and region.

Archaic and evolved modes

When all these curious and aberrant cases are brought together (our good monk-copyists of the twentieth century often placed an energetic '*sic!*' in the margins of the tables, to discharge their responsibility, or sometimes question marks to withhold their approval), it becomes clear that there are at least two new modes, without numbers. Having found two strange modes, it becomes possible to see how they have transformed themselves into one or another of the modes of the octoechos; one can also deduce the outlines of a third, which is not, like the other two, obvious as such in the tables of 1934, but can be inferred from its ancestry in the general evolution of modality.

The clearest case is certainly that of the mode on E, and we can begin with it, as we began with responsorial psalmody, because of the abundance of documentation. There are antiphons in the ferial Office with final E, compositional dominant E, which are paired with a psalm-tone with tenor E. This description matches none of the modes of the octoechos; it is a modality based on a single element, a pitch that is at the same time the compositional dominant of the antiphon, the final note of the antiphon, and the tenor of the associated psalmody. This mode was called 'irregular' in the antiphoner of 1934, in opposition to the supposed 'regularity' of the octoechos. Thus we identify in the tables of the ferial Office a new mode, or rather an old mode, for we know that modal history since the ninth century ('regular' modes with two elements, final and tenor) permits no turning back to a past with modes of a single element that serves both as tenor and as final. The modes of this sort that we find in the ferial Office are thus surely older than the modes of the octoechos.

But in the same tables of the monastic antiphoner we can watch this mode, which we can surely call 'archaic', begin to dissolve, to lose its highly original personality and transform itself into an octoechos mode, into a *developed* mode, trying to acquire a second constituent element, that is, it moves from a modality of a single element to a mode with two elements. The telling aspect of this evolution, the aspect that gives precedence to the single-element mode, is the fact that this second element is highly variable: it navigates across the whole diatonic scale, varying with time and place.

To be clear, let us say that the mode of E, when it seeks to separate the modal function of the final note from that of the psalmodic tenor, evolves in two different ways:

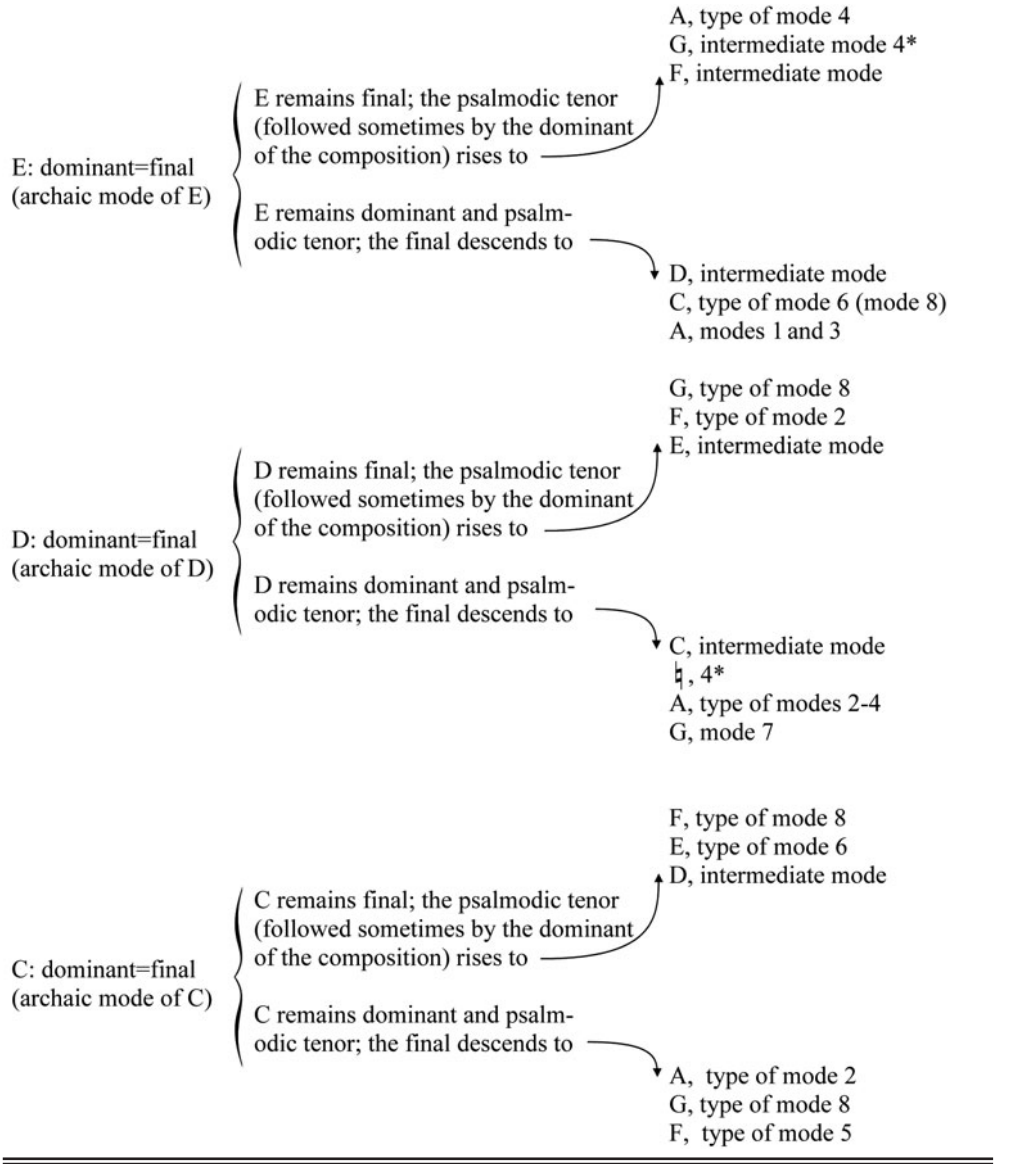
On the one hand, by varying the function of the psalmodic tenor, which was E in the archaic mode, and later rises to F, then to G, and finally to A: this last mode, which joins a final of E to a psalm-tone on A, is the fourth mode of the octoechos.

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On the other hand, by varying the function of the final, which was E in the original mode, and which descends to D, then to C, and finally to A: this last mode, which joins a tenor on E to a final of A, is also a mode of the octoechos, either the first or the third, depending on the quality of the B, flat or natural.

Thus our archaic modality vanishes in two different directions (mode 4, modes 1 or 3): by increasing complexity of the modal functions, by adding a second structural pitch that dialogues with the single such pitch of the original mode (Table 5).

Table 5 *Movement of the archaic modes to the various evolved modes*



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If we can observe these two motions in an antiphon with its psalmody – raising of the psalmodic tenor, and descent of the final of the antiphon – then we can also deduce their common point of origin: archaic modality, that is, the most distant state, in which the final and the tenor were the same note. Even where this stage has left no explicit traces, we can reconstruct it by extrapolating backwards from the two sorts of evolution just described. In a way, we are applying to modality the same techniques used in astronomy to retrace the distant lost origin of our universe: we observe the motions of galaxies, we deduce their trajectories and their speeds, and we see that all goes back to a point X, the origin of the entire system, whose place and date can be determined.

Thus in the tables of 1934 we can see the very clear existence and the transformations of the archaic mode of E; the existence (slightly less clearly attested) and the transformations of the archaic mode on D; but it is only by its transformations, seen in a group of antiphons that end on C with psalmody on E (mode 6), or which keep a psalmody on C and end on low F (mode 5), that we can with certainly deduce the existence of an archaic mode of C.

Archaic modes, 'cordes-mères' and the pentatonic scale

The whole system of the octoechos could in principle be reduced to three archaic modes of C, D and E, and these three pitches serve in a sense as the generating force, the 'cordes-mères' of all of occidental modality.

A further conclusion: by observing only the tables of the ferial Office, the oldest layer of our liturgical repertory, we go back to the pentatonic scale, for below the group of three 'cordes-mères' that form a major trichord is located that weak degree which is sometimes absent, and which when present is movable – the flat or the natural. In our current system of writing Gregorian chant, this pitch is identified as B, and below it are two pitches, A and G, which are the finals of those octoechos-modes that evolved by descent of the final. Similarly, above the major trichord CDE is the other weak note of the system (we write it as F), above which are the same two pitches, G and A, the notes which serve as tenors for modes evolved by raising the tenor. This system produces the pentatonic scale without semitones, GACDE, without B or F (Table 6).

Table 6 *The cordes-mères and the pentatonic scale*

low limits		cordes-mères			high limits	
sol	la	DO	RE	MI	sol	la

'Cordes-mères' and psalm-tones

The same 'cordes-mères' result from each of our separate analyses. Psalmody without refrain – D (Gallican versus) and C (Roman versus); psalmody with refrain – short

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responsories on C, D and E; the archaic modes of the ferial Office are likewise situated on C, D and E.

Are the psalm-tones of the octoechos also related to the cordes-mères? Certainly. One only needs to be able to transpose.

The corde-mère C is nothing else than the second tone (tenor C, final A – or, transposed, tenor F, final D), the eighth tone (tenor C, final G), and the fifth tone (tenor C, final F).

The corde-mère D corresponds to the fourth tone (tenor D, final A, using a flat B – or, transposed, tenor A, final E), and the seventh (tenor D, final G).

The corde-mère E corresponds to the sixth tone (tenor E, final C, or, transposed, tenor A, final F); the first tone (tenor E, final A, using B natural – or, transposed, tenor A, final D), and the third tone (tenor E, final A, using B flat – or, transposed, tenor B, final E).

The ornamentation of these psalm tones (formulas for intonation, mediation and especially termination with multiple *differentiae*) should not conceal the underlying reality: the psalm tone is essentially a tenor, and the ornamental formulas, largely interchangeable, are specific to each corde-mère, but not, as is often thought, to each psalm tone.

The solution to the problems of modal equivalences and modal types

Dom Desrocquettes and Henri Potiron had long ago raised problems that produced puzzles without satisfactory solutions. But the recognition of the cordes-mères provides the key.

There is modal equivalence when two identical formulas, arising from the same corde-mère, are inserted in varying modal contexts. The most extensive case, which even includes the equivalence of entire pieces, is that of the first and third modes, both coming from the corde-mère E, both with final A, the only difference being the use of B flat or B natural; but the semitone is syntactically weak in the descendants of the pentatonic scale; this degree appears rarely and prolongs the ambivalence. Likewise, the similar intonation formulas of the second and eighth modes both come from the corde-mère D.

There are different modal types within the same octoechos mode when two different cordes-mères are involved in the composition of the mode. All the plagals belong here, for all allow as compositional tenor one of the cordes-mères, and all are thus close to archaic modality, whence their archaising name of 'plagals'. In other pieces, the plagals later take a higher compositional tenor, which changes their colour and creates a contrast between two pieces with the same modal assignment.

It is also common to find two pieces with the same modal number but which descend from different species. One derives from a corde-mère that it retains as compositional tenor while adopting one or another lower final pitch, the other derives from a different corde-mère, which it retains as final while using a higher psalmodic tenor at the same distance between final and tenor used in the other piece in question. The composition of the two pieces is entirely different, even though they have the

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same final and the same psalmodic tenor – which is enough for modal classification in the relatively undemanding system of the octoechos.

The three cordes-mères thus provide a starting point for the whole history of Western modality (and perhaps more); it is difficult to see how it could be otherwise. Nevertheless, we do not yet know how this pentatonic scale came to us, and we might object to it in the same terms we use for the octoechos, that it is merely a *deus ex machina*, the one as mythical as the other!

To answer such objections we must attempt a third exploration, this one geographical, on a voyage that will lead us around the whole Mediterranean basin, in order to examine the various liturgical repertories found there, especially the Latin repertories.

Geographical exploration of the Latin liturgical repertories

The Latin liturgies of the Mediterranean are five in number:

In southern Italy, the Beneventan rite (BEN);
In the centre, the Roman rite (ROM);
In the north, the Milanese rite, called Ambrosian (MIL);
In the south of France, the vestiges of the Gallican rite (GAL);
On the borders of the western Pyrenees and in Spain, the Hispanic rite (HISP).

All these liturgies underwent one by one the assault of the Frankish-Roman liturgy of the eighth and ninth centuries, imposed by Charlemagne on his empire along with the chant called Gregorian (GREG), a cross-breed of the old Roman chant with the Gallican chant, and they all succumbed:

GAL beginning in the second half of the eighth century;
BEN at the beginning of the ninth century;
HISP in the second half of the eleventh;
ROM in the last quarter of the thirteenth;
MIL alone survived, despite a forced borrowing from GREG forms, although these can be detected and removed.

Let me say at once that there is little to learn from the date of the documents which preserve these exotic melodies; all are late, much later than the GREG manuscripts (ninth to eleventh century) with which we compare them according to internal criteria – the modal criterion being the most important.

Here are their dates:

HISP: tenth to eleventh centuries, but indecipherable;
ROM and BEN, eleventh century;
MIL, twelfth century.

Curiously it is the GAL music, which survived only when linked to GREG, in proportions sometimes difficult to estimate, which has the oldest sources of all these liturgies, as old as GREG itself (ninth to tenth century).

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The Roman (ROM) repertory

The first repertory to arouse the interest of Gregorianists was the Roman, whose existence and importance were vigorously pointed out by Bruno Stäblein in 1950. For me it provided an unexpected opportunity to come to some fascinating conclusions. I had begun a study of the aesthetics of the Gregorian antiphons of the third mode, and I had made a list of these – a list that seemed to go on without end. Since I had heard that the 'Old Roman', as it was then called, was the source of Gregorian chant, I wanted to know whether all these antiphons were also found in the Roman chant, and I intended to purify my interminable list by removing those pieces that were later additions to the Gregorian repertory.

To my great surprise, I did not find a single third-mode antiphon in the Roman repertory. To be sure, the texts of our Gregorian antiphons were in the Roman books (at least nineteen of them were), but instead of having a third-mode melody, they all had a melody in the first mode – a melody substantially the same as that of the Gregorian third-mode chants, but written in the scale DEFGA instead of EFGAB. But since the octoechos, and every theorist since the ninth century, make a clear distinction between the first and third modes, it seemed unthinkable that this phenomenon could be the result of a late corruption of the octoechos.

So it seems necessary to conclude that until its disappearance in the thirteenth century the Roman chant of the Office (I do not speak here of the learned repertory of the Mass, the realm of the schola) had no third mode! This was the 'modal equivalence' recognised by Dom Desrocquettes, but at the level of a whole mode, and of a whole repertory!

This observation plunged me into an abyss of reflections and deductions.

I noticed first that the most important antiphon melody of the third mode was simply a development, by addition of a coda at the lower fifth, of the antiphon melody of the archaic mode of E so frequently found in the ferial Office, and this led me to reverse the traditional point of view with which I had been raised. What I had been taught was what in essence had been taught since the theorists of the ninth century: that there were two distinct modes, protus and deuterus, and that these modes, written respectively with finals on D and E, occasionally came together, for a small number of pieces, on the final A; sometimes, owing to the flexibility of B flat and B natural, they seemed even to blend together: A with B natural – protus; A with B flat – deuterus. This never lasted long, and after such a parenthesis each mode returned home and remained fixed, either in the scale with final D or in that of E.

The truth of the situation now seemed to me quite different. The original mode, the source of both protus and deuterus, must be this mode of A, without B flat or natural, that is, pentatonic, which having existed for some time, later gave rise to two distinct forms, protus and deuterus.

The conclusions that arose from the discovery of the absence of third mode in ROM were already sensational. And they were not the only ones.

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As regards the ferial Office, a 'popular' repertory known from childhood by those who practised it daily, and thus a repertory resistant to change, here is the testimony of the great Roman basilicas in the eleventh century:

> The archaic modes are strongly and abundantly represented.
> The *versus* of Vespers is in C, but already evolved, by descent of the original final to A, as in the simple verset tone sung in the (Gregorian) Office.
> In one of the antiphoners there is a short responsory on E (the only one in the book).
> There are many antiphons and psalm tones in the archaic mode of E.
> There is an antiphon melody on C, but with a psalmody whose tenor has risen by a third (sixth mode in the octoechos), which is a direct descendant of the archaic mode on C.

A further significant observation is that the corde-mère D is completely absent from the oldest liturgical forms, and that no direct descendants are to be found in the later forms. It is only with the creation of the sanctoral, that is to say, the most modern layer of the repertory, that we find pieces coming from D, and many of these have an obscure history whose filiation from the corde-mère D is questionable.

The numerical situation in ROM of evolved modes descending from D is quite eloquent:

> Mode 2 – less that 1 per cent of the antiphons, all in the seasons of Advent, Christmas, and Passiontide.
> Mode 4 – one small melody-type of six examples and a few adaptations, which comprise less than 5 per cent of the repertory. On the other hand, the international family of antiphons in mode 4A is present with seventy-two examples. But of these, in the two antiphoners there are no fewer than three ways of writing the melody, indicating that the acclimation of this foreign music was not a simple matter.
> Mode 7 – there is an abundance of antiphons, especially in the sanctoral, though not all are descendants of D.

Such is the heritage of D. Let us now consider the other modes of the octoechos.

> Mode 1 – it is barely present in the ferial Office, but abundant in the temporal and the sanctoral.
> Mode 5 – completely absent, like the third mode.
> Mode 6 – this is the melody of the antiphons of the third nocturn of feasts, with an incorporated 'alleluia'. This melody has twenty-nine examples; in reality it is a responsorial psalmody by half-verses, with a tenor on C, and a congregational 'alleluia' as *responsio* with final C; it represents, that is, under a false name, the pure state of archaic modality of C. With a psalmody a third higher, on E (which clashes with the tenor on the corde-mère C built into the so-called antiphon), the result is a sixth mode.
> Mode 8 – abundance, even overabundance, of melodies and centonisation, in the temporal and the sanctoral.

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In sum: the great majority are finals of protus and tetrardus (A and G in the vocabulary of the cordes-mères). The derived modes are not present: third mode (derived from first), fifth mode (derived from seventh). And the two antiphoners never agree on a final of E (authentic mode) or F (authentic mode).

The BEN repertory

When we move from one repertory to another, we also change the nature and the sources of our information, since our documentation is often fragmentary and is not necessarily of the same kind in each. For the Beneventan rite it was long believed that we had lost a major portion of the repertory, since there remained only twenty Masses, preserved in Gregorian manuscripts as doublets of the corresponding Gregorian Mass. Today, however, this pessimistic view needs to be altered for several reasons. The first is the researches that led to the publication of volume 21 of *Paléographie musicale* in 1992. Although many new manuscripts have come to light, it must be admitted that our knowledge of the repertory itself was not much enlarged: the pieces in these new sources were for the most part already known in the others, as though there were little new to discover.

The second reason is recent work on the MIL repertory (to be discussed later), which consisted in setting aside everything that had been added since the ninth century to complete a liturgy that may have seemed too poor. This has revealed the primitive liturgy of Milan, which surprisingly turns out to have scarcely more pieces than the number we know from the Beneventan liturgy.

We can thus conclude without being too bold that we may already know the Beneventan repertory almost complete, and that, like the early MIL liturgy, it is limited when compared with the richness of the ROM and especially the GREG liturgies.

We may even venture a further observation. We have long regretted that we have no example of psalmody in directum, no Sunday tract from the Beneventan repertory (if indeed there were tracts for each Sunday, which is doubtful); instead, we have only three closely related forms of the *cantica* of the Paschal Vigil. The analysis of these *cantica* shows that they are comparable to the *versus* of Vespers in the ROM and especially the GREG (GAL) repertories. They were written down at the Paschal vigil, but it was easy enough to adapt these melodies to the Sunday psalms *in directum*. This situation helps explain the disappearance of the ROM melody of the *cantica* of the Paschal Vigil: they must have remained in a state similar to that of Benevento, close to the *versus* of Vespers, and they must have seemed drearily monotonous to the popes from Germany who had them replaced with the GREG versions.

Now let us examine the modal evidence of the Beneventan repertory.

Psalmody without refrain: we have only the three *cantica* of the Paschal Vigil, but we can suppose that all the psalmody in directum was on this model – tenor D with melismatic ornamentation near the end. We have in fact a confirmation of this hypothesis in the evolution of the last of these canticles, which indeed is no longer a

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canticle but a psalm, the only one in the Vigil (*Sicut cervus*). It changes its D tenor to E, just as the MIL Gloria does in its added verses.

Psalmody with refrain: we have no evidence of the psalmody of the psalmist with congregational refrain, and we must be satisfied with the *alternatim* choral psalmody of the Office, especially of the sanctoral. In the tenors employed we find the three cordes-mères; these, combined with the only finals used in this repertory – A and G – produce the following pre-octoechos modes:

First, a whole range of protus, more than is retained by the octoechos:
- mode with the fifth: tenor E and final A; the authentic, or first mode.
- mode with the fourth: tenor D and final A; the 'middle' mode, not part of the octoechos, which the later Roman antiphoner calls mode 2*.
- mode with the third: tenor C and final A; the plagal or second mode.

Next, a single specimen of the future tetrardus:
- mode with the fifth: tenor C and final G; the plagal or eighth mode.

We might wonder, given the fragmentary nature of our sources, whether there might not have been also a full range of tetrardus modes, or at least the authentic mode with the fifth, the future mode 7. We did not choose the psalmodies that survive, and though the sample is small, it may well be that they constitute a sort of cross-section in which the absence of further modes in itself provides evidence.

Another question arises here on the subject of the 'derived' modes, deuterus and tritus, given our experience of the ROM repertory. Might they not exist in this system that does not notate B flat? Think of the GREG repertory, where the question must have arisen at the beginning: special forms of cadence and of psalmodic ornamentation helped to distinguish the deuterus from the protus from the first stages of notation in pure neumes. However, this seems not to be the case in the BEN repertory: here the final A was not the basis of two different modes.

In the responsories of the Office we might find some evidence of mode 7, but this would be in another stratum of composition, the repertory of the schola and no longer that of the psalmist. The verse that accompanies responsories with final G, of which the best known is that of St John the Baptist, which has counterparts in ROM, GREG and MIL, does indeed seem to hover around D, but does not allow us to make conclusions about choral psalmody. The gradual responsories do not shed any light on this matter.

The alleluias give us further evidence that at first glance is disconcerting. In one of the two alleluia melodies, where the verse is essentially identical in all the versions, the final is variable: sometimes A, sometimes G! This raises important questions about the role of the final, which since Guido's time we have understood as the principal criterion of modality: 'in fine judicabis'. The Beneventan composers did not share this prejudice: essential for them was the melody of the verse itself, while the final was variable.

Finally, of the reciting tones that survive (in addition to the three melodies of the Holy Saturday canticles), the reciting tone D is sovereign.

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The HISP repertory

Changing sides of the Mediterranean involves changing problems. Here there is an abundance of manuscripts and a rich liturgy, but this was suppressed by Pope Saint Gregory VII some fifty years before this region began to write music on lines. The repertory is abundant, but mute. Nevertheless, we can gather some valuable evidence on modality in the context of our comparative study. Some twenty pieces, antiphons and responsories of the Office of the Dead, were salvaged from a shipwreck. The responsories, in Spain as elsewhere, have formulaic verse-melodies, one melody per mode. (It is only later that we find proper verse melodies for certain more recent responsories.) It has thus been possible to classify the HISP responsory according to the formulas revealed in the neumes of their verses; and since we know the melodies of modes 1 and 3 from the twenty transcribable pieces, it is possible to determine that an enormous proportion of responsories – more than half – is in mode 1, while less than 1 per cent of responsories are in mode 3. This corresponds exactly to the testimony of BEN and ROM.

In addition to this massive group of responsories in A-protus (52 per cent according to Don Randel), there is another important group (25 per cent) which, if 'comparative modality' is of any value, can only be tetrardus with final G, but we must await the discovery of a classic responsory in tetrardus notated on lines to confirm this likely hypothesis.

The HISP reciting tones continued to be used, after the reforms of Gregory VII, with texts of the Roman liturgy. We thus know melodies for the Pater, the Gloria, and the Credo, transmitted orally until the sixteenth century. They recite on the corde-mère D, and resemble both the MIL versions of these same chants and the GAL versions preserved in the GREG repertory. Certain pieces in later sources, such as the chant of Psalm 33 at the communion with a *responsio* of 'alleluia', have melodies different from those in the earlier manuscripts; there are evidently two melodies for the same text; but those of the sixteenth century have such an archaic modality that it is difficult to believe that they are not much older. They might reasonably be considered as authentically HISP.

The GAL repertory

No notated manuscript of the GAL liturgy survives. But since we know that the corde-mère D is absent from the earliest layers of the ROM repertory, we can conclude that the oldest pieces in the modality of D in the GREG chant, which is a hybrid of ROM and GAL chant, must be GAL survivals.

We can thus reconstruct a GAL cantatorium that consisted of three melodies for inter-lection chants:

The almost formulaic melody of tracts of mode 2: *Qui habitat* (Ps. 90), formerly for Good Friday; or *Deus, Deus meus* (Ps. 21) for Palm Sunday, etc.
The melody for graduals of mode 2 in A: *Haec dies* for Easter and Easter Week, etc.
The alleluia melody of mode 2: *Dies sanctificatus* for Christmas, etc.

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This group forms a homogenous whole, for from one genre to another there are quotations and borrowings that suggest a common origin. What is more, the GAL origin of these pieces has been demonstrated: in a doctoral thesis comparing the graduals of ROM and GREG, it has been shown that the musical architecture is common to the Roman and the Gregorian, but that the ornamentation differs notably, in all the modes *except* for the graduals of mode 2 on A, in which the ornamentation is very similar in the two repertories. This indicates that the melody for graduals in 2A was borrowed by Roman cantors, probably during the introduction of Advent into the Roman liturgy (sixth century), with a minimum of idiomatic remodelling, and that later, in the eighth century, at the arrival of the Roman chant in Frankish Gaul, the Gallican cantors remodelled to their taste the melodies of all the graduals except for those in mode 2A, where they recognised their own music.

Another domain which we can safely attribute to GAL chant is that of the recitation-tones of the Mass, which form a family centred on the corde-mère D and which consequently cannot be of Roman origin. Nothing, in fact, prevented the Frankish cantors, deprived of their national repertory in order to replace it with GREG, from continuing to sing the Roman text of prayers, prefaces, lections, etc. to their traditional tones for prayers, prefaces and lections. It was perhaps a means of taking revenge, and they seized it, with the result that there is today not a single document which gives us the Roman tone for the preface or for lections. With the return to Rome of the Frankish-Roman liturgy and the GREG chant, the properly Roman recitations disappeared. We can imagine that they were centred on the corde-mère C, of which we have a prayer tone; but we cannot say how, using this C, the dialogue before the preface, and the preface itself, might have sounded in Rome.

By contrast to the ROM, all three of the GAL, HISP and GREG repertories have related tones for Pater, Gloria, Credo, monitions, prayers, prefaces, etc., based on D, with variable but homogeneous melodic developments.

The MIL repertory

The modal evidence of the Milanese repertory, called Ambrosian, parallels in a certain sense that of the GREG: it is essentially the octoechos, with the very interesting difference that in GREG we seek to find traces of those modes which the octoechos suppressed, while in MIL those modes have survived alongside those of the octoechos. The MIL repertory was never systematised and rationalised like the Gregorian chant, and all the stages of development from archaic modality to octoechos are found more or less on every page of every book.

Thus, for antiphons ending on E we find successively psalmody with tenors on E (archaic modality), on F (the classic and universal rise to the semitone), on G (deuterus at the third or mode 4*), on A (mode 4), on B (mode 3, early tenor), on C (rise to the semitone); and for the tenor E, we similarly find finals E (archaic mode), D (unnumbered intermediate mode), C (melody of mode 6), B (melody of mode 4), A (mode 1 or mode 3 depending on the quality of the semitone).

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This richness was not revealed by Dom Suñol's attempt in the 1939 *Vesperale* (pp. 818–40) to classify the MIL psalmody according to the four finals of the octoechos; Suñol was unable to see beyond these categories, and his result is deceptive.

But a second element of modal evidence has recently been added to the first. All the Milanese pieces held in common with the Gregorian repertory (more than half) have textual variants, particularly in the psalms, which are Roman and not Ambrosian; they were thus imported into the Ambrosian liturgy from the Roman, and not the reverse as was long supposed. We can now identify the early Milanese liturgy, and reconsider the modal statistics, separating the early Milanese from the later. Here are some statistics from the earlier layer for the chants of the Mass:

The *cantus* are all in a single mode, D (=G with alteration of the third).
The *psalmelli*:
- final D: 5 (1 of them in the sanctoral)
- final E: 1 (in the sanctoral)
- final F: 5 (3 in the sanctoral)
- final G: 5 (3 in the sanctoral)
- final A (corresponding to our 2A): 10 (6 of them with the grand festal verse)

The *Alleluia* (10 melodies):
- final D: 7
- final E: 2, thought to be late (eleventh century), for the Vigils of Easter and Pentecost
- final G: 5

The *offerendae*:
- final D: 7
- final E: 2
- final F: 2
- final G: 12.

For the earliest layer of MIL, here are the percentages of pieces with final E in all the genres of the chants of the Mass:

Cantus: 0%
Psalmelli: 3%
Ingressae: 4%
Offerendae: 8%
Confractoria: 4%
Transitoria: 10%
By contrast, the antiphon *post Evangelium*: 30%.

It is clear that the deuterus has made major inroads between the *cantus* and the antiphon *post Evangelium*!

The GREG repertory

Charlemagne, like his father Pepin, imposed on his empire the Roman liturgy and its chant, the Roman chant, *ob unanimitatem apostolicae sedis*. But the cantors of Frankish

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Gaul, possessed of the GAL chant, did not take this literally, and the result was a hybrid: Roman texts, for the most part; melodies mostly Roman as to their form and modality – thus very little D mode – but Gallican in ornamentation. Where there is no ornamentation, in the syllabic antiphons of the ferial Office, there is hardly any difference between GREG and ROM antiphons, but in the semi-ornate or melismatic style the differences can be enormous.

What is the modal testimony of this hybrid repertory?

In its oldest layers (solo psalmody, with or without refrain) there is traditional (archaic) modality, and alongside it a more evolved modality (the appearance of certain octoechos modes, by raising the tenor or lowering the final). Sometimes we can discover the parallelism between liturgy and modality: when the liturgy takes a step, so does its music. Thus the invitatory of Matins, originally limited to the ferial Office, is sung to melodies on C or E (the Gallican D has not yet been introduced). In the case of a 'double Office', the ferial Office of the day being followed by the festal Office of a saint, there is no invitatory at this second Office. When the ferial Office was dropped in such situations and only the saint's Office retained, an appropriate invitatory was assigned, but it was composed in 'contemporary music', in the modes currently 'à la mode': thus D makes its entrance (mode 2, mode 7), but there is still today no festal invitatory antiphon in mode 1 (E evolved by descent of the final to A), nor in mode 8 (C evolved through descent of the final to G), a sign that one was no longer composing in the older modes of C and E.

It is remarkable how musicians in oral tradition fashion new music from older material; for it is difficult, if not impossible, to impose on a congregation an entirely new music. The *versus*, and all the psalmody without refrain which must have looked like it, has a melisma known to everyone. When the oriental practice of psalmody with a congregational refrain after each verse was introduced in the West in the second half of the fourth century, the refrain was given the melody of the melisma of the former psalmody; the tune was known, and it was simple to adapt the words; the syllabification of the melisma created the refrain of responsorial psalmody. Later, when antiphonal psalmody was adopted, the refrain became an antiphon without changing its melody. The 'thematic unity' favoured by oral tradition remained unbroken throughout the long history of psalmody!

At last we can find in the GREG manuscripts everything we need to restore all that disappeared in the eighth century (Table 7). First the three archaic modes, with their tenors at the unison with the final, which are found almost exclusively in the ferial Office; these can be given letters C, D and E. Then the modes that complete the scale but which are lacking in the octoechos: protus with tenor at the fourth, mode 2*; deuterus with tenor at the third, mode 4*; tetrardus with tenor at the third, mode 8*.

The mode with major third above the final and tenor at the fourth was always written in GREG manuscripts in G (rather than F), no doubt because of the difficulty of indicating the flat above F. The mode with major third and tenor at the third did not present the same problems, since we find it is as often on F (mode 6) as on G (where, however, it has a different character, rather like a mode 3 with a higher final).

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Table 7 *The complete octoechos*

Finals	Tenors			
	Fifth	Fourth	Third	Unison
RE	1	2*	2	D
MI	3	4	4*	E
FA	5	-	6	C
SOL	7	8	8*	-

2* = Protus fourth 4*= Deuterus third 8*= Tetrardus third

If we begin with the cordes-mères and with archaic modality, and proceed to modality evolved by raising the tenor (archaising modes) and by descent of the final (authenticising or authentic modes), we arrive at the 'modal types' of Henri Potiron (Table 8).

Table 8 *The 'modal types' of Henri Potiron (even modes)*

	archaising		authenticising	
Protus plagal (mode 2)	RE → fa		DO → la	
Deuterus plagal (mode 4)	MI → la		RE → la	
Tritus plagal (mode 6)	DO → mi		MI → do	(very rare)
Tetrardus plagal (mode 8)	DO → fa	RE → sol ♯	DO → sol	

Translator's note:

For the theories of Dom Desrocquettes and Henri Potiron on Gregorian modality see:

Desrocquettes, Jean-Hébert. *Liste des principales équivalences mélodiques.* Tournai, 1936.

Potiron, Henri. *La Théorie harmonique des trois groupes modaux et l'accord final des 3e et 4e modes.* Monographies grégoriennes 6. Tournai, 1925.

_____. *La Modalité grégorienne.* Monographies grégoriennes 9. Tournai, 1928.

_____. *L'Origine des modes grégoriennes.* Tournai, 1948.

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