

A Speculation in Theory and Practice I:

The Eclipse of Melodic Formulae as Determinants of Mode in Western Liturgical Music, 850-1050

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One of the principal factors that distinguish the music theorists of the Medieval period from those of the Greco-Roman tradition is the predominance, in the Middle Ages, of practical over speculative treatises. This shift of emphasis was decisively important for the nature and role of music theory, not only within music but also in the wider context of the liberal arts.

The speculative theorist is more of a specialist than their audience. They address themselves to persons of general scientific curiosity, and seek to draw connections between music and the other arts and sciences: mathematics, astronomy, architecture, or even politics.

The practical theorist is more of a generalist than their audience. They address themselves to practicing musicians – singers, choirmasters, and teachers – and seek to supplement their haphazardly-acquired, empirical knowledge of their craft with the insights that the theorists have gained by broadly systematic study.

This difference in emphasis runs in parallel with differences in the types of conclusions reached by the two types of theorists and in the manner in which their individual contributions are assimilated into a tradition of thought.

The goal of speculative theorists is to achieve a synthesis of previous thought. They are, of necessity, compilers; their credibility is proportional to their familiarity with the work of their predecessors. Their opportunities for originality lie in the direction of new syntheses, new conclusions based on evidence presented by their forebears. The development of speculative theory is therefore gradual and deliberative; thus, it is of speculative theory that we are speaking when we repeat the proverb that “theory follows practice”.

The goal of practical theorists is to advance the knowledge and understanding of working musicians. Practical theorists are necessarily teachers; their credibility is proportional to the usefulness of the concepts and techniques that they present. Their opportunities for originality lie in the invention of tools: analytical constructs or methods of classification that are concretely useful to musicians in actual performing or teaching situations. This kind of theory is capable of profoundly influencing practice. Its development proceeds by fits and starts, fads and fashions. It also bears with it a risk of trivialization or oversimplification, since an analytical concept that is sufficiently simple, plausible, and widely applicable to gain acceptance may not do justice to the variety and subtlety of the repertoire that it purports to describe.

This paper will attempt to show this process of oversimplification in action. The example chosen is the development of the theory of modes as it was applied to the liturgical music of the Western Church between approximately 850 and 1050. During this period, a concept of mode as typical melodic idioms was supplanted by a concept of mode as octave species. This shift was partly propelled by practical theorists searching for theoretical frameworks for teaching the nature of mode and the performance of the liturgical repertoire.

The earliest document of modal theory in the content of Western liturgical music is a paragraph embedded in the *Musica disciplina* of Aurelian of Reome. This paragraph is also found in other treatises, and is presented as an independent work by Gerbert<sup>1</sup>, under the title *De octo toni* and with an attribution to Alcuin. It appears to date from around 800. It is quite vague, but two points emerge clearly.

First, the system that it describes is a system of eight modes in four pairs. It is thus a distinctly different system from the system of seven co-equal modes inherited from the Greek tradition and described by Boethius.

Second, these pairs of modes are stated to have something in common and something that differentiates them. The description of the common properties is incomprehensible, but the difference is clearly a difference of range.

If this eight-mode system is not derived from Greek practice, then where does it come from? Sister Mary Protase Le Roux<sup>2</sup> makes a convincing case that it was adopted from the liturgy of the Byzantine Church. The Byzantine system is also of eight modes in four pairs, and those modes retained, throughout their useful life, the character of groups of melodic formulæ. Each of the eight Byzantine modes also has a distinctive introductory formula (*enechema*); these formulæ would appear to have been adopted by the Western Church along with the modes.

To elucidate this, we return to the *Musica disciplina* of Aurelian<sup>3</sup>. Having quoted pseudo-Alcuin, Aurelian goes on to explain the model system in detail. Before discussing each of the eight modes, he speaks briefly of the *enechemata*. He explains that the groups of syllables that are associated with them – *nonanoeane*, *noioeane*, *noeane*, etc. – have no verbal significance but are merely “[cries] of one rejoicing...expressing nothing else.”<sup>4</sup> Aurelian then writes a chapter on each of the eight modes. He breaks each mode down into “varieties”, describing – at length, but vaguely – the melodic behavior of chants that are typical of each variety. Each statement characterizing a mode is supported by reference to a typical chant. Aurelian evidently assumes that the reader is familiar with all the cited chants or has ready access to them, as he uses no form of pitch nomenclature and does not speak of intervals or ranges. This is at least a negative implication that the identity and character of the modes is largely a matter of melodic behavior.

These eight chapters are followed by another entitled “The second book of the modes”<sup>5</sup>, in which Aurelian speaks more concretely about the function of the *enechemata*: “This mode [*i.e.*, formula], at the beginning of the verses of the antiphons and of the introits, is perceived to have a connection [with what follows], however small, according to the hearing of the investigator and his understanding of the signs.” In other words, the better the singer, the more the *enechema* will tell him about the chant that it precedes (recall the infancy of neumatic notation at the time), implying that the *enechema* contains information above and beyond the simple fact of modal classification.

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<sup>1</sup> *Scriptores ecclesiastici de musica*, I, 26-27 (San Blas, 1784; reprinted, Milan, 1931)

<sup>2</sup> *The “De harmonica institutione” and “Tonaruis” of Regino of Prüm* (Ph.D. dissertation, Catholic University of America, Washington, DC, 1965), pp. 120-121

<sup>3</sup> trans. Joseph P. Ponte, *Colorado College Music Press Translations*, No. 3 (Colorado Springs, 1968)

<sup>4</sup> *ibid.*, p. 25

<sup>5</sup> *ibid.*, pp. 43-53

The rest of the chapter proceeds again through the eight modes in turn, giving more specific and detailed descriptions of melodic behavior typical of each one. For four of the modes, Aurelian uses the text *Gloria Patri, et Filio et Spiritui Sancto* as an example, and tells us what the melody may be expected to do, in some cases on each syllable; yet still without any pitch nomenclature, speaking only of melodic contours.

In one intriguing passage, Aurelian speaks of an additional set of four modes, making a total of twelve. He states that Charlemagne ordered the invention of these modes in order to cope with chants that could not be classified among the eight original modes, and that the Byzantines added four new modes of their own in response. Aurelian gives the *enechemata* for both sets of additional modes<sup>6</sup>. He casts doubt on the possibility of inventing new modes “unless someone makes a melody of a different kind”, but he does not say how different or in what manner.

These facts, taken together with Aurelian’s indifference to absolute pitch – he does not cite or imply the concept of a final – indicate that mode, at the time Aurelian was writing (c. 850), is almost entirely a matter of melodic behavior.

Aurelian’s listing of chants that typify the varieties of each mode partakes somewhat of the nature of a tonary – a catalog of chants (especially antiphons), arranged by mode, and giving alternate endings to link antiphons with psalm tones. Few extant tonaries predate Aurelian (possibly only two<sup>7</sup>), and the obvious didactic opportunity inherent in the tonary was not fully exploited until well after the scalar concept of mode had solidified, so that the early tonaries are not such fruitful sources for the present inquiry as might be expected. The remarkably exhaustive tonary of Regino of Prüm (late 9<sup>th</sup> century) actually sheds much less light on the state of modal theory than does the contemporaneous *De harmonica institutione* of Hucbald.

Hucbald reveals himself in this work<sup>8</sup> as a practical theorist *par excellence*. The criterion of practical usefulness is demonstrated by his habit of presenting two or three alternative explanations for important concepts. He displays an urgent desire to simplify and clarify, even if some peripheral subtleties are lost along the way. An example of this is his treatment of the *enechemata*: he speaks of them as tools for “investigating” melodies, then generalizes them into a set of solfege syllables<sup>9</sup>.

Unlike Aurelian, Hucbald invariably refers to absolute pitch, using both the Greek string names (*mese, paramese, nete hyperbolaion*, etc.) and a slightly corrupted version of Boethius’s letters (which, in their turn, are a slightly corrupted version of Alypius’s letters). He states definitely that each authentic/plagal pair of modes have the same final, but says nothing specific about the difference between authentic and plagal modes in general. His greatest concern seems to be to teach singers how to spot the mode of a chant by its beginning. He gives a table going through the four mode pairs, listing all the notes on which chants in that mode pair might begin and giving one or more examples of each, in the form of incipits notated with Boethian letters.<sup>10</sup> Hucbald’s apparent indifference to the authentic/plagal distinction is

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<sup>6</sup> *ibid.*, p. 24

<sup>7</sup> Le Roux, *op. cit.*, p. 106

<sup>8</sup> trans. Warren Babb, in *Hucbald, Guido and John on Music*, ed. Claude V. Palisca (New Haven: Yale University Press, 1978)

<sup>9</sup> *ibid.*, p. 7

<sup>10</sup> *ibid.*, pp. 40-44

the more curious in light of his statement that the notes a, B♯, c, and d, a fifth above each of the finals D, E, F, G, can serve as substitute finals; it is difficult to imagine a plagal melody ending at the top of its ambitus.

Hucbald's discussion of mode is kept strictly separate from his derivation of vocal and instrumental gamuts by means of the symmetrical tetrachord tone-semitone-tone, but he does refer to the four finals as forming a tetrachord of this type and to the fact that, in his view, the gamut that chant implicitly inhabits (no matter what its mode) is derived from replications of that tetrachord. This is the first hint of a scalar construct being applied to the modes.

(Incidentally, Hucbald regards B♭ as being generated by the *synnemenon* tetrachord and implies that that tetrachord is not part of the gamut for chant, and that therefore B♭ is essentially unavailable.)

During the approximately fifty years that elapsed between Hucbald's *De harmonica institutione* and the *Dialogus* formerly attributed to Odo of Cluny, the scalar construct hinted at by Hucbald seems to have taken root and flourished. The *Dialogus* is another pedagogical work; it is best known for the introduction of pitch-class letter names in the modern fashion, but its discussion of mode is also significant.<sup>11</sup>

Pseudo-Odo reduces Hucbald's table of possible beginnings to the statement that no melody may begin on a note more than a fifth above or below its final – with the sole exception that melodies ending on E may begin on c a sixth above. His discussion of transposition seems to be consistent with Hucbald's discussion of substitute finals – which is to say that he may not be talking about transposition, in the modern sense, at all.<sup>12</sup>

The heart of the discussion of mode in the *Dialogus* is in the section not translated by Strunk.<sup>13</sup> Here, Pseudo-Odo goes through the eight modes, presenting each one as an octave species of tones and semitones, and also as a collection of available pitches. These pitches may number nine, ten, or eleven; the ambitus is sometimes a ninth, more often a tenth, and all of the modes except authentic on E contain both B♯ and B♭.

For each mode, a list of chants is given covering all of the possible starting notes, as in Hucbald. For each pair of modes, an explanation is given as to how authentic may be distinguished from plagal. The criterion of ambitus is urged very strongly; if this fails, recourse must be had to the "*formularum varietates et differentias*".

The authentic/plagal distinction is clearly much more important to Pseudo-Odo than it was to Hucbald; so also is the question of B♯ versus B♭, to the extent that this is even adduced as potential evidence for deciding between authentic and plagal in the modes on E and G.

The pedagogical perspective of the *Dialogus* is clearly that the would-be singer of a chant should determine its mode by its final and its ambitus, in that order. If those criteria fail (and Pseudo-Odo implies that they will not often fail), then more advanced techniques of analysis must be brought into

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<sup>11</sup> Most of the *Dialogus* may be found in Oliver Strunk, ed. and trans., *Source Readings in Music History* (New York: Norton, 1950), pp. 103-116.

<sup>12</sup> *ibid.*, p. 113, p. 116

<sup>13</sup> Gerbert, *op. cit.*, I, 259-263

play – techniques so advanced that their full discussion is outside the scope of the *Dialogus*. These “advanced” techniques were the only ones considered by Aurelian, some hundred years earlier.

It is worth noting that Pseudo-Odo does not mention the *enechemata* at all.

The penultimate stage in the development of the scalar concept of mode is manifest in the *Musica* of Hermannus Contractus<sup>14</sup>, written around the middle of the 11<sup>th</sup> century. Hermannus gives this definition: “A mode is an inflection of many pitches within any one octave, as determined by fixed intervals and fitted into one whole.”<sup>15</sup> The new concept here is that of octave ambitus; he states subsequently that “...every mode has license to take one step beyond [*i.e.*, above] the octave”, which is still a narrower concept than that of Pseudo-Odo. Once octave species has been linked with octave ambitus, the scalar concept is very near at hand, and Hermannus comes even nearer to it when he presents a series of singing exercises exploring the different possible species of tetrachords, pentachords, and octaves, and stating that these are designed to cultivate aural recognition of the modes.<sup>16</sup>

Hermannus also introduces another new concept, one that bridges the vanishing concept of mode as melodic behavior and the emerging concept of mode as scale. This is what Hermannus calls the “middle pitch” (*media*), and later came to be called the dominant. He places this on the fifth above the final in all the authentic modes, except that on E, where it falls on c instead of b “on account of the imperfection of the semitone”.<sup>17</sup> Hermannus places the *mediæ* of the plagal modes on the finals. He also refers to the *media* as the *seculorum amen*, stating that it is the note on which the cadential formula set to those words should begin.

After emphasizing the scalar viewpoint by all of the above means, as well as by spending what seems to be an unnecessary amount of space demonstrating the difference between the eight-mode system and the Greek seven-mode system, and attacking Ptolemy for his supposed blunder over the Hypermixolydian, Hermannus concludes his treatise by speaking of purely melodic considerations, such as “tonal patterns” (*modi vocum*). These are incipits moving within the space of a symmetrical (Guidonian) hexachord, as follows:

|                 |            |                  |            |
|-----------------|------------|------------------|------------|
| <i>Protus</i>   | D C G etc. | <i>Tritus</i>    | F A E etc. |
| <i>Deuterus</i> | E C F etc. | <i>Tetrardus</i> | G A D etc. |

Typical chants are cited for each of these. Hermannus makes the point that by transferring the hexachord C D E F G A to G A B c d e, the modes may be transposed.

Finally, Hermannus states: “It helps greatly, moreover, in recognizing the nature of the modes if you think over carefully the customary endings, the concluding phrases, and many songs in each mode, particularly the long ones, ...because, since the voice lingers longer on an extended song, recognition of the modal characteristic is more fully formed in the mind. ...When I [name a mode], I am giving a name

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<sup>14</sup> trans. Leonard Ellinwood (Rochester: Eastman School of Music, 1936)

<sup>15</sup> *ibid.*, p. 31

<sup>16</sup> *ibid.*, pp. 47-56

<sup>17</sup> *ibid.*, p. 33

to their order...on the monochord, **not...according to the character of their melody.**"<sup>18</sup> (Emphasis mine.)

Hermannus's main didactic emphasis is on the tetrachord and pentachord species; he repeatedly stresses the importance of practice and drill on these to cultivate the faculties of singing and listening. At the end, and almost as an afterthought, he alludes to the concepts of melodically-expressed modal character, but the scalar viewpoint has gained the upper hand.

During the following (12<sup>th</sup>) century, such monastic orders as the Cistercians, Dominicans, Franciscans, and Carthusians began revising their tonaries. This process of revision represents the final consolidation of the scalar concept of mode. Among the kinds of revisions most frequently carried out were adjustments to the beginnings of chants to make them start on the final, regularization of ambitus, and reduction of the number and length of *differentiæ* (the links between psalm tones and the following antiphons).<sup>19</sup> This last is particularly significant as evidence of the eclipse of melodic formulæ; the opportunity to cut back on *differentiæ* arises when their function is no longer to orient the singer to the probable melodic behavior of the new mode, as did the *enechemata*. The result of the chant reform was that the use of mode-associated melodic formulæ was virtually confined to the Tracts (almost all of which are either Hypodorian or Hypomixolydian) and to Lydian Graduals.<sup>20</sup>

The advancement of scalar analytical constructs, with their alluring simplicity and ease of application, by Hucbald, Pseudo-Odo, and Hermannus, led successive generations of practicing church musicians to neglect the purely melodic aspect of modal identity. Perhaps similarly, the publication in the 18<sup>th</sup> century of the influential treatises on harmony by Rameau, Marpurg, and Kirnberger may have contributed to the dominance of homophonic style in the music of the Late Classical and Early Romantic periods. Such cases as these suggest that practical theorists may have an unsuspected responsibility to guard against the potential oversimplification of their ideas.

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<sup>18</sup> *ibid.*, pp. 63-65

<sup>19</sup> Le Roux, *op. cit.*, p. 110

<sup>20</sup> Kenneth Levi, "Music of the Byzantine Rite", *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie (London: Macmillan, 1980), III, p. 556