

Towards a Classification of Western Chant Notations*

John Caldwell
Jesus College
The University of Oxford

Taking as accepted the usual modern use of the word 'neume' to denote the notational symbols of chant notation, a classification of chant notations must nevertheless embrace alphabetical notations as well, partly because of their intrinsic importance, but also because they are often found in conjunction with neumes, ultimately and decisively in the form of clefs at the beginning of the four-line staff.

Current systems of classification, if they can be called that, tend to ignore or minimize the significance of alphabetical systems, and in describing neumes use a terminology based largely on inconsistent and non-compatible geographical or liturgical descriptors (St Gall, Aquitanian, French, German, Beneventan, Ambrosian, Mozarabic, etc.). These may be used side by side with visually or conceptually descriptive terms, sometimes in mutually exclusive pairs: cheironomic (or oratorical) versus diastematic (or heightened) neumes; accent-neumes versus point-neumes; heightened versus unheighted neumes; 'Hufnagel' versus 'square' notation (typically on the four-line staff).

* Professor Caldwell presented this paper for the *NEUMES 2006* Oxford Conference on Computerised Transcription of Medieval Chant Manuscripts, held at St Anne's College, Oxford (U.K.), 27-28 June 2006 (information about the conference is online at <http://purl.oclc.org/SCRIBE/NEUMES/conference2006/>). In this, he summarizes the main points from the oral presentation that he delivered at the conference. In a shortened and revised form, he presented the same material at the meeting of the Cantus Planus study group of the International Musicological Society (IMS), held at Niederaltaich (Germany), 29 August–4 September 2006.

During the past several years, Prof. Caldwell and I have been working together on problems of classification, where he has served as the 'domain expert' and I as the 'knowledge engineer' (in the terminology of software engineering). Our collaboration in the NEUMES Project (involving data representation for digital transcription, and classification of knowledge for metadata) finds us repeatedly grappling with challenges in constraining loosely-defined knowledge in the humanities, such that it maps to well-defined data structures. Caldwell has adapted quite well to this.

Caldwell's carefully crafted paper needs no redaction. I have, however, added material from our private correspondence to flesh out a bit more the framework he has outlined here. Such additions appear in footnotes, and my comments appear in brackets, [...].
– *Louis W. G. Barton (ed.)*

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

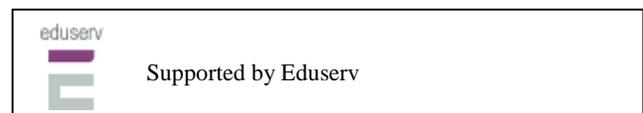
Copyright 2006, John Caldwell.

This hardly amounts to a classification at all, and it is also confusing in teaching, since the terminology does not adequately distinguish between essential and incidental features. My suggested classification does this by distinguishing first between alphabetical notations and neumatic notations: the latter (in the West) work by indicating, to a greater or lesser extent, the contour of the melody in visual terms. A third category lists a number of notational methods and uses that require separate mention.

The listing of methods in the first and third categories affords no particular difficulty, but the further classification of neumes (the second category) is more problematic. My approach is to make distinctions according to the semantic range envisaged by the notator, using the indication of pitch as the defining factor. An analogy may be made with linguistic alphabets. For example, ideograms may not indicate sounds at all, or they may be developed in ways that are partially phonetic. Some alphabets are syllabic. Others, especially the Phoenician alphabet used for example in Hebrew, indicate consonants only, while the Greek, Cyrillic, and Roman alphabets indicate both consonants and vowels.

Thus non-diastematic neumes indicate (to a greater or lesser extent) melodic contour, while diastematic neumes indicate actual intervals as well as melodic direction. All neumatic notations indicate melodic direction to a certain extent – with any one neume of more than one note indicating direction up or down or or a combination of these, and with some single signs indicating direction relative to another. However, 'directional' neumes are those in which melodic direction – but not the actual interval – is consistently shown from one end of a line of writing to the other. Since the early instances of this are nevertheless rather haphazard (while others show an approximation to full diastemata) I have distinguished between a primitive and a developed form of this principle.

Diastematic neumes indicate intervals by means of the relative height of the signs in the line of writing. The interpretation of horizontal equivalence may be supported by a drypoint line, or by one or more inked lines, while the relationship between one line and the next may be supported by a *custos*, a sign indicating the pitch of the first note on the next line. However, diastematic neumes do not, in principle, distinguish between tones (whole steps) and semitones (half-steps), except in some cases by means of a special 'semitonal' neume. The consistent and unambiguous identification of pitches on the heptatonic scale is due to the insertion of a clef (i.e. the letter-name of a pitch) at the beginning of the line to indicate not only the pitch represented by that vertical position but by implication the pitches of all the other positions. (An early theoretical device was to arrange all the letters of an alphabetical system vertically at the beginning of a line, and to place the syllables of the verbal text



during the line at a level corresponding to their pitch. This would count as a special usage of the alphabet concerned.)^{1,2}

A system of classification should be straightforward and easily learned, and this one is essentially very simple.³ Further detail on the character of a notation should be *descriptive* rather than *definitional*. Examples of this would include:

- description of particular neumatic features, such as special shapes for specific purposes, the presence of episemata, liquescence, etc., extending if required to a full repertory of every neume in the source being discussed.
- 'reinforcement' of one system by external elements such as (in the case of neumes) romanian letters, alphabetical letters to indicate pitch, indications of mode (which may come in a separate section known as a tonary if this is directly related to the body of the manuscript).
- graphical features that enable a notation to be identified in terms of place and date, extending, if the evidence permits, to the identification of a particular scriptorium or scribe.

¹ [Dasian: 9th-10th c. notation based on prosodic accents of Greek poetry (*prosodia daseia*) with glyphs for tone degrees, e.g. .]

² [I]t is possible for Heighted notations to have clefs, the alignment being indicated by the eye alone or by means of lines scratched in the parchment. ... In older MSS, any letter could (in principle) serve as a clef.

To me, the presence or absence of clefs is a more significant feature than the presence or absence of lines, because it is the clefs that enable one to identify the letter-names of the notes, and hence their pitches relative to each other. (A clef is simply the letter-name of a note that indicates its position on the grid, real or imaginary, on which the notes are placed.)

Classification and indexing by notational type is a good idea in principle. Musicologists usually use geographical names to describe chant notations, but this is unsatisfactory because it does not allow for distinctions of type within the same region (for example, neumes in Aquitania could be unheighted or heighted, depending on the date, and cleffed or uncleffed: the term is usually applied to uncleffed heighted neumes, but it is intrinsically ambiguous). [15 Nov. 2005]

³ [M]y view is that classification should be as simple as possible, with only a few key features that any reasonably informed musicologist could readily identify by means of a cursory inspection of the document. Most informed people could readily distinguish between diastematic and adiaastematic notation, but not all would be happy about distinguishing between 'St Gall' and 'German' neumes, for example. In any case the 'look' of neumes produced in St Gall changed over the course of time, even if their basic methodology did not. For this reason I believe that place, or region, of origin should be treated as metadata, like the date; and this metadata can then be just as precise as the evidence permits. I believe that your framework regarding the distributed digital library allows for this - it is simply a question of what definitions etc. go into which boxes, and my short paper indicates my position on that. [23 Nov. 2006]

Table 1. Proposed Classification System.⁴

A. Alphabetical systems:

- (1) Ancient (specifically the Lydian diatonic system)
- (2) Dasian
- (3) a – p disdiapason (including special signs)
- (4) A – P = C – cc (also A – G = C – a, reduplicated)
- (5) 'Guidonian' (A – G, a – g, aa – dd or above)

B. Neumatic systems:

- (1) Non-diaastematic
 - (a) non-directional
 - (b) directional
 - (i) primitive (e.g. Laon 239)
 - (ii) developed (e.g. Benevento 40); *custos* present?
- (2) Diastematic
 - (a) uncleffed: drypoint or inked lines? *custos* present?
 - (b) cleffed: type(s) of stave? repertory of clefs?

C. Special cases:

- (1) 'Intervallic' notation (H. Contractus)
- (2) Solmization
- (3) Combined notations (esp. A (3) with B (1))
- (4) Polyphonic use (of A or B or both)
- (5) Introduction of mensuration (B (2))

⁴ [For comparison, below is part of the classification scheme for Western notations out of the Indiana Univ. Variations2 Digital Music Library Project 'Controlled Vocabularies' (Mary Wallace Davidson, et al, 2002; <http://variations2.indiana.edu/pdf/DML-vocab-notes.pdf>). They say, "The first two levels could actually be used for classification purposes." Cf. *New Grove*, 'Notation'.

I. Plainchant

1. Early notations, 9th–11th centuries

- French and German notation including St Gallen and England
- The Spanish peninsula
- Italian notations
- Paleo-Frankish notation
- Breton notation
- Messine (Lorraine, Laon) notation
- Aquitanian notation

2. Pitch-specific notations, 11th–12th centuries

- Alphabetic notations and dasia signs
- The introduction of the staff
- Central and southern Italy, including Rome and Benevento
- North Italy, including Milan
- Normandy, Paris and other French centres, England and Sicily
- Messine (Metz, Lorraine, Laon) notation
- French-Messine mixed notation
- Cistercian notation
- The Rhineland, Liège, and the Low Countries
- South Germany, Klosterneuburg, Bamberg
- Hungary
- German-Messine mixed notations in Germany and central Europe
- The Messine notation of Prague
- Cistercian and Premonstratensian notations in central Europe

3. Pitch-specific notations, 13th–16th centuries

- Square notation
- Gothic notations
- Esztergom, Prague and Wroclaw]

There may also be independent evidence as to where and when a manuscript was written, either from within the manuscript itself or from some other quarter. Care must be taken to ensure that this evidence relates to the actual writing of the music, not merely to subsequent ownership of the manuscript. All of this may be embodied in a formal description indicating first region, secondly an actual place or scriptorium, thirdly a scribe if identifiable, and finally, with greater or lesser precision, a date. In the case of a printed source, the title-page and/or colophon will normally indicate the place of publication, the name of the printer (and of the publisher if different), and the date, sometimes even the day itself.

The description of a notation necessarily takes place within the wider framework of a description of the source (manuscript or printed or both) in which it occurs, a description that must embrace both its physical characteristics and its (in this case normally liturgical) content. Fortunately this is a well established discipline on which those working on notation per se can rely, with many authoritative descriptions of sources available in the literature: an increasing number of these also include sufficiently detailed descriptions of the notation itself.

Systems may be 'reinforced' by extraneous elements: e.g. A (3) with neumatic elements; but especially in the case of B (1) by means of Romanian letters, pitch-letters, and/or indications of mode.

Neumes in any category may be further distinguished by their use of special notational features.⁵

⁵ At the [2006 Cantus Planus] conference I asked for feedback and got some. One of the points was the importance of the 'semitonal' neume, found mainly in Aquitanian sources; I mentioned this briefly in the paper but did not emphasize it. Someone else pointed out that there are instances where a tonary (a list of chants indicating mode) included in a chant-MS is a specific indicator of the modes of the chants in the body of the MS. (It is, anyway, important ancillary information, like the title of a piece that is in an index but not given at the head of a piece.) A third point is that there are diastematic sources in which nevertheless a shift of position may occur during a line, rather as if a different clef were to be introduced. Mere directionality would not adequately convey the diastematic consistency of such notations.

It may be that the notational type currently called 'palaeofrankish' needs a separate heading in the classification, as its repertory of signs carries meanings different from those of other non-diastematic systems (e.g. the upward-slanting stroke, i.e. a virga, indicates two notes, not one). I am still thinking about this, and about a better name for it.

In musing about the issues since then I have come to realise the importance of distinguishing between classification and description. You already recognize this in the page set-up for the distribution of images, so it is really a question of what aspects of a notation go into which boxes. My proposed classification is very simple, with only a small number of essential distinctions. I introduce two concepts which I think are new but useful: 'directionality', as described in the paper and replacing such concepts as partial height and rough diastemata; and 'reinforcement', that is the addition of information that is extraneous to the notation per se (e.g. Notkerian letters). Aspects of the neumes themselves, including the presence of

Finally, neumes may be localized in relation to such features as ductus or other scribal habits; a scriptorium or even a scribe may be identifiable.^{6,7}

episemata, liquescence, and so on, are part of the descriptive element. [19 Sept. 2006]

⁶ Ideally one would have repertories of signs specific to every MS transcribed, and for every distinct hand within a MS. Facsimile editions are nowadays often supplied with just such a repertory, but there is a long way to go before every MS is described in this way. In many ways it is one of the most important tasks facing chant scholarship. [27 Jan. 2004]

⁷ [In the thrust toward making medieval chant musicology more 'scientific', there may be—on initial consideration—a desire to create a classification scheme for notation types that follows the branching-tree model for biological species. One should remark, however, that (although the mechanism of speciation remains an open question) this model works for biology because species evolved from earlier types strictly by inheritance and variation. In the case of styles of chant-notation, a direct line of descent is not necessarily involved: the cultural influences on a particular scribe or scriptorium may have come from more than one line of transmission. A hierarchical scheme of notation types is helpful for organising and searching of computer data, but it should not be imposed in a way that confuses—rather than clarifies—the probable relationships between notations. Caldwell proposes a simple classificatory system based on fundamentally different approaches to the scribal problem of notating chant. Although an individual artefact may exhibit more than one of Caldwell's types (viz., "reinforcement" or "combined notations"), each type has clearly-distinguishing indicia. The same cannot be said for the usual classifications based on geographical region, historical period, and/or religious congregation, or for Treitler's *iconic vs symbolic* distinction (cf., Leo Treitler, "Know Your Notator," of this same conference). Nevertheless, precedent of these prior classifications in the literature, computer data, and expectations of scholars is a *de facto* condition that must be accommodated somehow. One possible solution going forward is to permit classification of metadata by two or more parallel schemes, with the 'new' scheme being given primacy. Another strategy would be to classify artefacts by the 'new' scheme, but allow qualifiers in the metadata as "ancillary information"; this, however, would need to ensure that searching by an 'old' notation name would give consistent and complete results. A third solution (the one favoured by this editor) would be to design a different kind of classificational structure—one that is conceptually different to the hierarchical model from biology—such that multiple lines of influence are allowed. Rethinking the underlying *structure* by which information is organised may allow integration of 'old' and 'new' schemes plus Treitler's method of 'slicing the pie'.]