# PART I

## *Musical Literacy*

# 1

## *Writing Music*

> Music is the practical knowledge of modulation and consists of sound
> and song . . . Their sound [the muses], because it is something per-
> ceived by the senses, vanishes as the moment passes and is imprinted on
> the memory . . . for unless sounds are held by the memory of man, they
> perish, because they cannot be written down.[1] (*Etymologiae* III.xv)

Composing a 'summa' of knowledge at the end of the first quarter of the seventh century,[2]
Isidore, Archbishop of Seville, organized his material around the idea of etymology, the form
and meaning of individual words. Using this tool to illuminate his subject matter, Isidore's
programme dealt first with the classical liberal arts (Book I: grammar, Book II: rhetoric and
dialectic, Book III: mathematics, music and astronomy), then with medicine, law, the
church, languages, the natural world (animals, the cosmos, the earth), material culture
(buildings, metals, ships) and war.[3] Seeking to uphold Christian faith and values in the
old Roman province of Hispania, Isidore was highly aware of the threat to antique Western
culture and its layers of knowledge posed by the heresy of Arianism, barbarian advances and
the emergence of Islam in North Africa. This response, the culmination of Isidore's life as
a Christian writer, provided a bulwark against intellectual error, so that Christians 'without
access to a rich store of books' – lay as well as clerical – could nevertheless master knowledge
and thus defend the Roman church.[4] Driven by a strong concern with the preservation in

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[1] 'Musica est peritia modulationis sono cantuque consistens . . . Quarum sonus, quia sensibilis res est, et
praeterfluit in praeteritum tempus inprimiturque memoriae . . . Nisi enim ab homine memoria teneantur soni,
pereunt, quia scribi non possunt.' Isidore, *Etymologiarum sive originum libri XX*, ed. Wallace M. Lindsay, 2
vols., Scriptorum classicorum bibliotheca Oxoniensis (Oxford: Clarendon Press, 1911), III.xv. This translation
from *The* Etymologies *of Isidore of Seville*, trans. Stephen A. Barney, W. J. Lewis, J. A. Beach and
Oliver Berghof (Cambridge University Press, 2006), 95.

[2] *The* Etymologies, trans. Barney *et al.*, 3.

[3] On the selection of topics to be treated in this encyclopedic work much has been written: Fontaine argues
for Augustine's *De doctrina christiana* as Isidore's most direct inspiration. See Jacques Fontaine, *Isidore de
Séville. Genèse et originalité de la culture hispanique au temps des Wisigoths* (Turnhout: Brepols, 2000), 176.

[4] *Ibid.*, 19. For a concise consideration of Isidore's motivations in writing the Etymologies see Fontaine,
*Isidore de Séville. Genèse*, 174–6.

written records of intellectual thought in its older and newer forms, Isidore's encyclopedic (but unfinished) work would thus attempt to include 'all the knowledge and activity of his times'.[5]

Isidore's evidently regretful description of the evanescence of musical sound, set at the beginning of nine paragraphs about music, should be heard in the context of what comes before. For the work opens with the declaration: 'letters are tokens of things, the signs of words, and they have so much force that the utterances of those who are absent speak to us without a voice. The use of letters was invented for the sake of remembering things, which are bound by letters lest they slip away into oblivion.'[6] Isidore was extremely aware of the extent to which letters could externalize knowledge: writing provided an intellectual reach beyond that of a single speaking and hearing individual. Indeed, the whole of Isidore's enterprise in compiling the *Etymologies* was very much about the preservation and transmission of knowledge,[7] since 'with so great a variety of information, not everything could be learned by hearing, nor retained in the memory'.[8]

Since the study of etymology is a science that depends on writing, using the ways in which words are written to obtain its results, at a fundamental level Isidore's work was composed through and about the medium of language in its written form. In this sense, his adoption of Varro's term *litteratio* (literally 'lettering', basic knowledge in reading and writing) is merely the first of many indications of his trust in writing as a means of communication.[9] Indeed, Parkes has argued that Isidore's *Etymologies* marks a period of change in the status of the written word.[10] Rather than Augustine's model whereby written letters are considered to be signs of sounds, '[so] that we might be able to converse even with the absent',[11] Isidore 'regarded letters of the alphabet as signs *without* sounds',[12] since they have the power to

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[5] 'tout le savoir et toute l'activité de son temps'. Jacques Fontaine, *Isidore de Séville et la culture classique dans l'Espagne wisigothique* (Paris: Études Augustiniennes, 1959), 11.

[6] 'Litterae autem sunt indices rerum, signa verborum, quibus tanta vis est, ut nobis dicta absentium sine voce loquantur. Vsus litterarum repertus propter memoriam rerum. Nam ne oblivione fugiant, litteris alligantur.' Isidore, *Etymologiarum*, ed. Lindsay, I.iii. *The* Etymologies, trans. Barney *et al.*, I.iii.

[7] See *The* Etymologies, trans. Barney *et al.*, 'Introduction', 10ff. There is no clear statement of purpose anywhere in the *Etymologies*, but Isidore's contemporary, Braulio, wrote in 636 that 'whoever thoughtfully and thoroughly reads through this work, which is suited to philosophy in every respect, will not be ignorant of the knowledge of human and divine matters . . . Overflowing with eloquence of various arts with regard to nearly every point of them that ought to be known, it collects them in summarized form': *The* Etymologies, trans. Barney *et al.*, 'Introduction', 8.

[8] 'In tanta enim rerum varietate nec disci audiendo poterant omnia, nec memoria contineri'. Isidore, *Etymologiarum*, ed. Lindsay, I.iii. *The* Etymologies, trans. Barney *et al.*, I.iii.

[9] See Fontaine, *Isidore de Séville et la culture classique*, 57ff.

[10] Malcolm Parkes, *Pause and Effect. An Introduction to the History of Punctuation in the West* (Aldershot: Scolar Press, 1992), 20ff.

[11] 'Inuentae sunt etiam litterae per quas possemus et cum absentibus conloqui, sed ista signa sunt uocum, cum ipsae uoces in sermone nostro earum quas cogitamus signa sint rerum.' Augustine, *De trinitate*, ed. William J. Mountain, CCSL 50-50A (Turnhout: Brepols, 1968), XV.x.19.

[12] Parkes, *Pause and Effect*, 21.

convey 'the utterances of those who are absent . . . without a voice'.[13] Thus, the reader moves from Augustine's single-level model of signs and meaning:

speech   → (can be heard through the signs of written language)   → meaning

to Isidore's dual model:

written language                                                      → meaning
+
speech   → (can be heard through the signs of written language)   → meaning

Indeed, in one group of early manuscripts of the *Etymologies* – eighth- and ninth-century copies from Visigothic Spain – Isidore's text is transmitted with the interpolation (following 'those who are absent speak to us without a voice') 'for they present words through the eyes, not through the ears'.[14] Even though the significance of sound, as the basis for the letters of which words are made, remains fundamental to Isidore's conception ('those who are absent *speak*'), he was nevertheless conscious that absent singers did not 'speak' (sing): they remained silent, unless the memory could re-create their sound.

Isidore's implication that musical art was poorly served through its lack of a written medium is underlined by his collection, again within this first book of the *Etymologies*, of the largest set of manifestations and uses of writing yet described in the context of a grammar:[15] among late antique grammars, this attention to all kinds of written marks is entirely original.[16] Besides several passages on letters (origins of the alphabet, the different qualities of letters, phonetic issues, orthography), he provides information about written marks (*notae*) associated with:

Accents (*de figuris accentuum*)
Punctuation (*de posituris*)
Critical signs (*de notis sententiarum*)
Shorthand signs (*de notis vulgaribus*)
Signs used in law (*de notis iuridicis*)
Military signs (*de notis militaribus*)
Epistolary signs (*de notis litterarum*)

And after all of that he includes a passage on finger signals (*de notis digitarum*) whereby 'those at a distance can silently communicate with each other'.[17] More signs without sound. Most manuscripts preserve records of the forms of these various signs: a page from a copy made in northern Italy in the second half of the eighth century is shown in Figure 1.

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[13] See n. 6 above.
[14] 'Verba enim per oculos non per aures introducunt'. Isidore, *Etymologiarum*, ed. Lindsay, I.iii.
[15] See Fontaine, *Isidore de Séville et la culture classique*, 57ff; and Parkes, *Pause and Effect*, 21–2.
[16] Fontaine, *Isidore de Séville et la culture classique*, 57.
[17] 'quibus secum taciti proculque distantes conloquuntur'. Isidore, *Etymologiarum*, ed. Lindsay, I.xxvi. *The* Etymologies, trans. Barney *et al.*, 52.

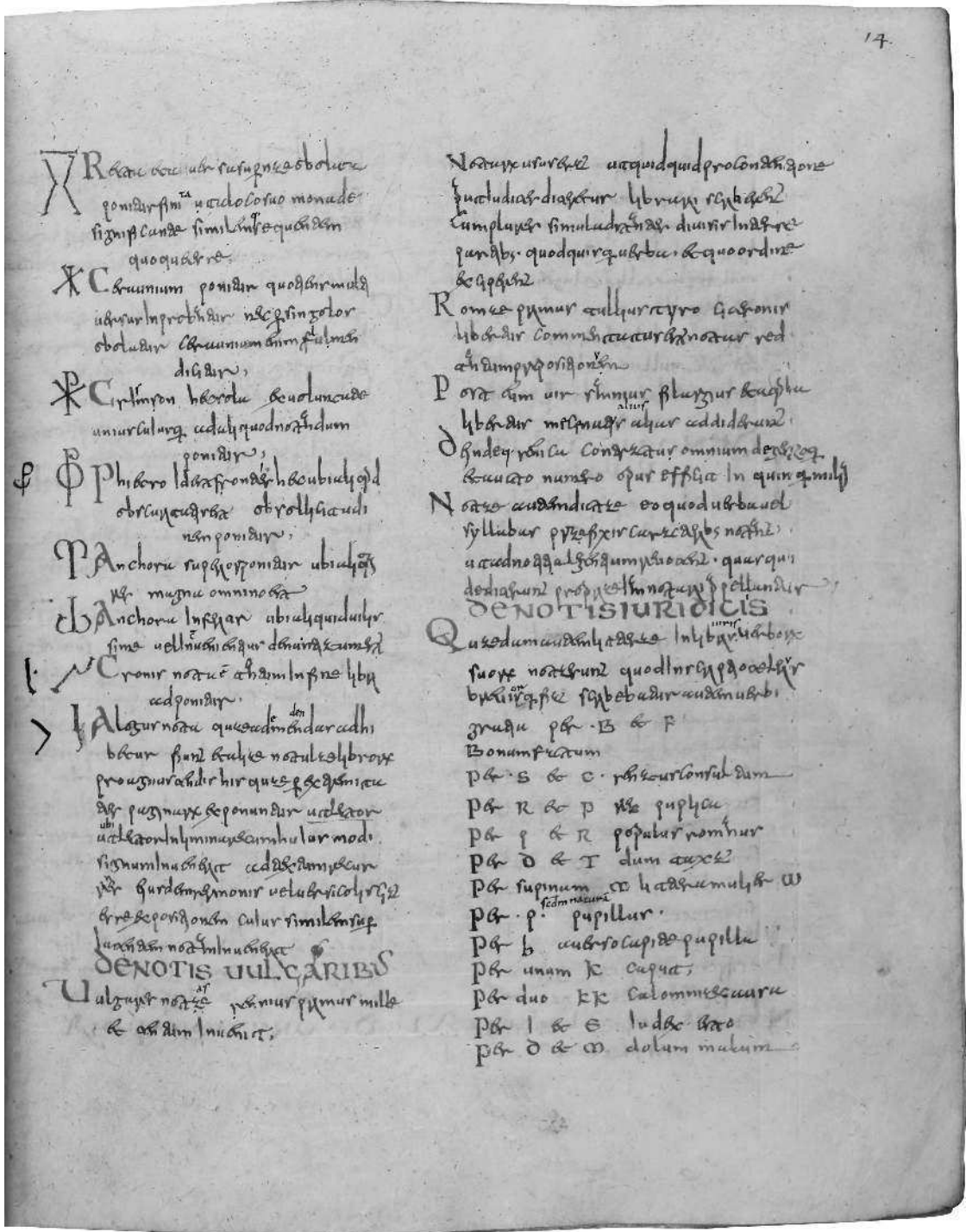**Figure 1** Wolfenbüttel, Herzog August Bibliothek Cod. Guelf 64 Weissenburg, fol. 14r.

In this strange and uneven assemblage of information about forms of writing used across a range of human activities,[18] the signs described can be separated into two classes. In one group, there are signs that act to enhance comprehension of a written text that they accompany: accents, which help to distinguish the sound of parts of words, punctuation, which helps to distinguish larger parts of a text (grammatical clauses), and critical signs, which can be used 'to show a particular judgment about a word or sentences or verses'.[19] These last were of especial value in carrying out textual criticism, in order to correct a received text; thus, an *asteriscus* would show that something had been omitted, an *obolus* (horizontal stroke) would indicate a word or sentence repeated unnecessarily, a *lemniscus* (horizontal stroke between two dots) a reference to a scriptural passage. In the other group can be classified all those written signs that act as substitutes for writing in words: shorthand, military signs and epistolary or secret ways of writing (cryptography). This second group of writing systems includes all those that would have been profession-ally learnt, and is limited to small groups of practitioners, as necessary. In contrast, the first group had belonged within the teaching of grammar since classical antiquity, and thus within the elementary levels of literacy. Isidore's unparalleled collecting of graphic signs may have been prompted by the belief that 'every graphic sign is a material manifestation of the Revelation recorded in scripture';[20] yet, on a more mundane level, his attempt to encompass every graphic sign was also driven by practical concerns, by his curiosity about human learning, pagan as well as Christian. He was genuinely inquisitive about those ways in which writing could be used, and evidently challenged by the lack of a system for writing musical sound.

Isidore of Seville provides a useful example of how, in late antiquity, an educated Christian might think about writing, about its value and about its use in relation to sound, spoken and sung. There is no evidence that systems for the notation of music used by the ancient Greeks until as late as the fourth century CE were ever in circulation in western Europe. The world of intellectual thought and religious practice in which Isidore moved in the early decades of the seventh century was not one in which anyone used graphic signs to write music on a surface: in this his words are surely definitive. Isidore's words might have stimulated others interested in resolving this graphic challenge, but it was not until a later period that that stimulus proved strong enough for the task to be carried through in such a way as to allow and encourage multiple uses and developments of new graphic techniques. Yet the value of invoking Isidore as authority in an account of the emergence of music writing is not so much to demonstrate the absence of knowledge of how to do this in the

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[18] Fontaine notes that some of these signs are in current use around Isidore, and others not: see his *Isidore de Séville et la culture classique*, 80–4.

[19] 'ad demonstrandum unamquamque verbi sententiarumque ac versuum rationem'. Isidore, *Etymologiarum*, ed. Lindsay, I.xxi. *The* Etymologies, trans. Barney *et al.*, 50.

[20] 'tout signe graphique est le support matériel de la Révélation consignée dans l'*Écriture*': Fontaine, *Isidore de Séville et la culture classique*, 57.

early seventh century, as to respond to the seeming paradox set by the appearance of graphic signs for music. In an otherwise highly literate world, in which music was set apart, sung according to oral/aural methods of communication, why should anything change? Indeed, leaving aside the obvious deduction that Isidore would have enjoyed recordings of music, his description of music as something that vanishes as the moment passes remains permanently true. It is only with recognition of that condition, of sound as a sensory experience that happens in real time, that any kind of graphic signs dealing with musical sounds *could* be invented. Returning to the paradox: it is within Isidore's delight in a multiplicity of graphic signs, many of which he has found out about, even though they have very limited usage, that we find detailed evidence of cultural mentality about writing in the late antique period. Where one musician might feel satisfied with the current state of affairs, another might not; and yet another might begin to experiment with graphic possibilities, encouraged and enlightened by the kind of information Isidore presents.

The value of writing as record, the discipline of writing well (taught through grammar),[21] the model of a host of rapidly written but distinct graphic signs, and finally, two subjects of very direct interest for the musician – marks that show the rise and fall of the voice within individual words (accents) and marks that show the articulation of the voice over groups of words (punctuation) – all of this can be found in Isidore's *Etymologies*. While there is no reason to consider Isidore's text as more critical to those who eventually thought about and devised graphic signs for music than any other late antique grammatical text, nonetheless, the breadth of matter dealt with by Isidore and the widespread dissemination of his text during the late eighth and ninth centuries renders it a useful starting point for considering those signs.

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If musical literacy is defined as elementary knowledge of how to represent music with written signs and how to read them, the transition to a culture in which musical literacy materialized was made before 900: if the extant manuscripts are considered a reasonable guide, musical literacy became widespread in Europe during the period between 800 and 900. Evidence for substantial notation of the repertory of Roman-Frankish (Gregorian) chant – in the form of extant notated books of chant – does not appear until the last two decades of the ninth century. Yet, at the point at which this sizeable melodic repertory surfaces in written form, it emerges in abundance: notations for mass and office chants in books and fragments that can be dated to the late ninth and early tenth centuries appear in six distinct systems of script, written in different parts of Europe.[22] That abundance suggests

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[21] That is, 'writing' encompassing the physical discipline of writing *and* the formation of letters, words and longer textual structures. Here I play with a *topos* common in late antique grammars: 'Grammatica est scientia recte loquendi' ('Grammar is the knowledge of speaking correctly'): Isidore, *Etymologiarum*, ed. Lindsay, I.v; *The* Etymologies, trans. Barney *et al.*, 42.

[22] In this book I use 'script' to signify 'a way of writing', thus systems for representing musical sound in writing, and 'notation' to signify 'the written thing', thus specific instances of written musical texts.

an earlier invention and considerable development before 900. These notations provide information about an extraordinary range of elements of musical sound: besides the direction of melodic movement, they communicate information about duration, intensity, articulation, tone-colour, even voice-production. Why this new way of writing was invented at that point in European history, rather than before or after, is a question of immense interest: the search for an explanation leads the questioner into a rich field of evidence about musical practice, writing and reading, orality and memory, and the developing material culture of liturgical books.

Although issues of function will be addressed in this study, it is not the why so much as the how that has determined its questions and its shape: at the most basic conceptual level, the way in which sound was analysed – abstracted into separate parameters, which could then be written as distinct graphic marks, and arranged within a particular spatial framework – has governed my enquiry: my focus is quite simply how the Carolingians made graphic signs in order to represent sound visually. In order to be able to investigate those ways in which musical signs were invented and then systematized into disciplined scripts and organized notations, my starting point had to be the surviving examples of music notation written in this first century of its use in western Europe. Although such material has formed a magnet for study for almost two centuries, it has been possible in the first years of a new millennium to make a completely new start in assembling the evidence for ninth-century music notations. This course of action was directly stimulated by the publication between 1998 and 2014 of a catalogue of ninth-century manuscripts made in continental Europe, excepting Visigothic.[23] Bernhard Bischoff did not live to see the publication of even the first of his epoch-making volumes; the second and third volumes have been assembled on the basis of his extensive notes, rather than from prepared typescripts; and it is not clear that, before his death in 1991, he had had a proper chance to review his earlier selection of manuscripts in libraries from Passau to Zwickau (excepting Turin and Trier).[24] Nevertheless, this catalogue, combined with his own manuscript notes (which often include much more detail than appears in the catalogue), has offered a wealth of information about manuscripts with music notation not otherwise known to the musicological community as well as reasoned datings for manuscripts already well-known to that community. Bischoff's catalogue can be used as the basis for an entirely new assessment of the number, nature and quality of early medieval music notations.[25] The first part of the present book is therefore dedicated to a palaeographical *tour d'horizon*, first dealing with the history of palaeographical study of

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[23] Bernhard Bischoff, *Katalog der festländischen Handschriften des neunten Jahrhunderts (mit Ausnahme der wisigotischen)* I: *Aachen–Lambach*; II: *Laon–Paderborn*; III: *Padua–Zwickau* (Wiesbaden: Harrassowitz, 1998–2014).

[24] See the reviews of Bischoff, *Katalog* III by David Ganz, *Francia* 42 (2015), 253–72, and Hartmut Hoffmann, 'Bernhard Bischoffs Katalog der karolingischen Handschriften', *Deutsches Archiv* 71 (2015), 1–56.

[25] On the opportunities offered by and qualifications of Bischoff's judgements see below, pp. 88–92.

early medieval music notations, and then presenting a new appraisal of the manuscript sources, variety of scripts and diversity of ways in which music writing was used in the period 800–900.

In the second part of the book, music scripts become the main object of review: passages of notation (rather than individual signs or 'neumes') provide the basis for an archaeological examination of the characteristics of ninth-century music scripts, and the differences and interrelationships between them. A key issue here is the agency of individual scribes. Ninth-century practitioners of music were surrounded by material objects that reflected literate modes of communication and thinking: in educated Carolingian society, literacy was elevated to a cultural ideal. Many aspects of musical practice were already affected by literate usage, without the idea of writing musical sound on parchment even being invoked: the standardization of texts sung in the liturgy, the codification of this material in particular book types, the formulation in the theory of modes of a musical grammar, an important part of which would normally be recorded in lists – a form specific to writing,[26] and finally, the transmission and dissemination of Greek speculative music theory, mainly through the books on music by Martianus Capella and Boethius. It was in this highly literate milieu that music writing was invented, taken up, shared and developed by scribes to such an extent that six distinct types of music script can be identified in manuscripts written by 900. But why was music writing changed, developed and refined by scribes? Why did it acquire such particular individual local and regional identities? In an initial stage, before the establishment of widely recognized and relatively fixed music script procedures, the graphic representation of music must have been undertaken by scribes of many kinds: some living in large, well-endowed communities, in contact with new and diverse literate behaviours, others in poorer situations, but keenly interested in books and writing, and still others who were musically gifted, able to pick up the bones of a new writing technology and exploit it to their own precise musical ends. Therefore the impact of practical innovations by individual scribes could vary considerably, and represent both graphic *and* procedural change. Those abundant channels of graphic proliferation are hardly reconstructable now. Yet the exercise of trying to dig backwards, the attempt to isolate successive moments of change whereby one type of graphic representation of musical sound was altered to generate another, and finally to uncover what came first, may throw light on the impulses that guided the invention and use of music writing before 900.

How transformational was the invention of a way of representing music in writing? To what extent could this be described as a paradigm shift? The task of the third part of the book is to set the new music scripts into a wider historical and cultural context, examining the attitudes revealed in early script designs and later refinements of them in terms of the new energies of the Carolingian era: the exploration of what writing could

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[26] On lists as a written form see Jack Goody, *The Domestication of the Savage Mind* (Cambridge University Press, 1977), 80ff.

achieve, the mentality of *correctio* and control of cultural practice, specifically a greater management of standards of Latinity, and finally eloquence in singing Roman liturgy, itself determined by rhetorical schemes reflected in Gregorian (i.e. Roman-Frankish) chant. It is abundantly clear that, in the ninth century, changes in musical practice using writing were neither simple nor dramatic: it was not a matter of moving from 'habitually remembering things' to 'writing them down and keeping records'.[27] Music notations written in the ninth century remain closely tied to orality, indeed there is little evidence that orality was supplanted to any great extent: far more, these notations acted to support and to control oral practice. There are other levels on which music writing may have acted to restructure consciousness, however,[28] since its emergence could encourage literate ways of thinking about music, and thus advance musical knowledge. Therefore, in the third part, fresh perspectives won in the first two parts on the design and development of musical signs in the early Carolingian period are integrated into a new narrative about music writing as an element of Carolingian intellectual and cultural practice. Previous studies of early notations have consistently read them in relation to modern systems for the notations of music, assuming pitch and rhythm as the most significant constituents; the lack of precision in relation to these parameters (as conceived in the modern age) has led many to consider early music notations as primitive, only slowly 'evolving' to become more like later notations. If examined with consciousness of this teleological confusion, an entirely different picture emerges. Changes in the way in which music was intellectually conceived provide the rationale for significant early modifications of the first system devised, while scribal innovations in an inherently highly adaptable system account for the extreme diversity encountered by the end of the ninth century – before music script systems became more fixed. While the invention of music scripts demands the broader context of widespread Carolingian interest in scripts for its explanation, it is with the more focused concern for correct expression of text in the liturgy that the most refined and detailed notations belong. Considered as an analogue to texts, music should be an integral part of the enterprise to sing 'with sense and understanding': by 900 the conceptual frameworks and systems of graphic signs available to the best scribes could support that enterprise.

Finally, an important aspect of methodology should be explained. As a medium of individual expression, writing was never fixed, its graphic shapes and their meaning unchanging across time. Rather writing has existed as a 'fluid set of practices, shifting in response to changing historical circumstances, conditions of learning, and arenas of patronage and use'.[29] This must be as true for music writing as for any other manifestation of script written

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[27] Michael Clanchy, *From Memory to Written Record. England 1066–1307* (2nd rev. edn, Oxford: Blackwell, 1993), 3, describing a shift that *did* move from a habitual dependence on memory to the use of written records.

[28] On this in general see Walter Ong, *Orality and Literacy. The Technologizing of the Word* (London and New York: Routledge, 1982), Ch. 4.

[29] Stephen D. Houston, 'Preface', in *idem* (ed.), *The Shape of Script. How and Why Writing Systems Change* (Santa Fe: SAR Press, 2012), xiii.

by a hand rather than printed. Therefore, if historical insight into music writing is to be gained, it is essential that writing systems not be dehistoricized, that synchronic assumptions not be applied. Moreover, the process of changing consciousness and developing knowledge of music could itself in turn generate new changes in the music scripts themselves. The dynamic process unleashed by the invention of music writing – along with other new kinds of knowledge such as Greek speculative theory – needs to be respected. Said very simply, it cannot be presumed that music notations written in the eleventh century rest on the same understandings of musical practice and theory, and therefore have the same meanings, as music notations written in the ninth century. These considerations underlie my rule in this study that no example of notation written after the early tenth century should become a part of the argument. The restriction of the material interrogated to examples of writing that could be dated before circa 925 allows for the unavoidable uncertainty of dating to a precise limit of 900; it also allows the most significant (since substantial) early manuscripts notated in Palaeofrankish and Breton scripts to be included in the study. This later limitation for the analytical investigation of scripts does not apply to the collection of examples of music notations written in the ninth century, which stands as 800–900. These are listed under script types in Chapter 3 and by library in the appendix.