
CHAPTER ONE

The Phonology and Orthography of the Attested Celtic Languages

1. INTRODUCTION. Documentation of the Celtic languages extends more or less continuously from about the middle of the first millennium B.C. right down to the present. The first part of this long period is primarily represented by the meagre but growing corpus of Continental Celtic epigraphic material down to the third or fourth century A.D. and then by short fifth- and sixth-century Irish Ogam inscriptions. The emergence of the manuscript record in the seventh and eighth centuries A.D. marks the beginning of the by and large adequate attestation of Irish and British Celtic thereafter.

These chronologically and geographically diverse sources naturally mirror the different circumstances in which various Celtic peoples acquired writing. Lepontic/Cisalpine Gaulish inscriptions were written between about the sixth and the second century B.C. in the so-called 'Lugano' alphabet derived from that of the neighbouring Etruscans. Beyond the Alps in the Narbonese the proximity of the Greek colony of Massilia (Marseille) provided the impetus for the production of short Gaulish texts in the Greek alphabet during the first three centuries B.C. Thereafter a number of stone inscriptions in the monumental Latin alphabet and more numerous texts of a humbler nature in Roman cursive script dotted over a larger area of Gaul reflect the intensification of Roman influence in the imperial period. In Spain the Celtiberians have left us inscriptions written in their language on bronze etc. during the second and first centuries B.C. in the northeastern version of the Iberian alphabet adopted from the non-Indo-European neighbours on their eastern flank. There are also a few rock inscriptions in the Latin alphabet in the wake of increasing Romanisation from the second century B.C. onwards.

In Ireland and Britain Latin literacy associated with the Church provided the obvious model for the development of vernacular writing systems. Whatever the precise details of its genesis, the Ogam system of letters represented by one to five notches or strokes over or adjoining a central line was almost certainly based upon the Roman alphabet and 'there is nothing inherently improbable in the hypothesis that the Ogam and Latin alphabets could have coexisted side by side in complementary capacities, the one serving like Roman capitals as a monument script, the other essentially a book script used exclusively for Latin writing in the early period but gradually extending to Irish with the development of literacy in the vernacular' (McManus, 1991, 59). Due allowance being made

for discrepancies resulting from significant differences between their respective sound systems, the basic spelling conventions of Irish and British vernacular manuscript sources from the seventh or eighth to the twelfth centuries had much in common. Essentially these reflected Latin as pronounced in Britain - *lingua latina in bocca britannica*, so to speak. This, of course, is hardly surprising in view of the decisive role played by British missionaries such as Saint Patrick in the establishment of Christianity and Latin learning in fifth- and sixth-century Ireland. The period from the twelfth century onwards was one of experiment-ation, transition and increasing divergence as far as the orthographies of Irish and the ever more clearly differentiated Welsh, Cornish and Breton were concerned.

Since the present phonological study deals with languages or phases thereof only accessible in written form, it is important to be clear from the outset about the orthographical conventions underlying the diverse material under consideration. Where, as is often the case, a writing system passes from one language to another with a somewhat different system of sounds, a perfect fit can hardly be expected. Shortcomings in the representation of the sounds of the borrowing language may then either be tolerated or else at least partially overcome by modifications liable to be introduced on a gradual and piecemeal basis. Since such factors conspire to make the spelling rules of most attested Celtic languages peculiar to a greater or lesser extent, the remainder of this chapter will be devoted to the relationship between the phonological and orthographical systems of Gaulish, Celtiberian, Old and Middle Welsh, and Old and Middle Irish.

2.1. GAULISH. On the whole, Gaulish was probably the most phone-tically conservative of the attested Celtic languages and appears to have had the following basic phonemic inventory.

voiceless stops:	p	t	k		
voiced stops:	b	d	g		
sibilant:	s				
affricate:	ts				
nasals:	m	n			
liquids:	r	l			
semivowels:	w	y			
short vowels:	i	e	a	o	u
long vowels:	ī	ē	ā	(ō)	ū
diphthongs:			ai	oi	ui
			au	ou	

A more detailed treatment of aspects of this system as well as of certain

developments within the recorded history of Gaulish will be found in chapter three, the possibility of very limited occurrence of /ō/ (whence the brackets above) being discussed in II.5.4. It is worth noting here that there was a tendency for vowels to have raised and/or fronted allophones such as [ɪ] for /e/ or [æ] for /a/ before a nasal in certain environments (II.5.1), notably when it was followed by an obstruent, and that the difference between the voiceless and voiced guttural stop phonemes /k/ and /g/ was neutralised as a voiceless velar fricative allophone [x] of both before /t/ or /s/.

2.2. Although they had probably been preceded by expansion westwards and northwards into Transalpine Gaul, it was the migrations into the Cisalpine province that first thrust the Gauls into the light of history. According to Polybius (II 17) and Diodorus (XIV 113) the invasions that drove the Etruscans out of the Po Valley took place around the beginning of the fourth century B.C. However, de Simone (1980) has adduced onomastic evidence from Etruscan inscriptions for a Gaulish presence south of the Alps in the early fifth or even the sixth century B.C. that would tie in with Livy's (V 33-5) claim that the earliest penetration of Gauls into the area occurred some two centuries earlier. In similar vein Prosdocimi (1986, 232-3) would date the Prestino inscription on palaeographic grounds to the first half of the fifth century at latest.

Lejeune (*Lej.*) distinguished the 'para-Gaulish' Lepontic of the earlier inscriptions in the immediate vicinity of the North Italian lakes from the Cisalpine Gaulish proper of the later Todi bilingual (*RIG* E-5, *Lam.* 74) found rather mysteriously in Umbria and a handful of other inscriptions, notably that of (San Bernardino de) Briona (E-1, *Lam.* 72) and the subsequently discovered Vercelli bilingual (E-2, *Lam.* 76), both hailing from just south of the Lepontic area. Hence the exclusion of Lepontic material from *RIG* and the main part of Lambert's (*Lam.*) recent book on the Gaulish language, whereas it will be argued in chapter two below that Lepontic is best viewed as a variety of Gaulish rather than a separate branch of the Celtic family. However, the matter is of no consequence here since the same 'Lugano' alphabet is used in all of this Cisalpine epigraphic material, due allowance being made for the shift from an original leftwards orientation inherited from Etruscan to a later rightwards one in conformity with by then current Roman practice. In what follows a standard transcription is used (see *Lam.* 79 for the letter shapes as they actually occur in the Lugano script).

The most striking effect of its Etruscan derivation upon the Lugano alphabet is the absence of a distinction between voiced and voiceless stops, with the result that P = /p/ or /b/, T = /t/ or /d/ and K = /k/ or /g/, and failure to write /n/ before another consonant. Both features are indisputably present in the rendering of the Roman name and title *Quintus legatus* as KUITOS LEKATOS on the Briona inscription and probably also occur in LOKAN = /longan/ at Todi (McCone, 1993, 245-8). Whereas the Etruscans' lack of use for the signs B, D

and (at least in its original voiced value /g/) C adopted from the Greek alphabet was doubtless due to the absence of a straightforward phonemic opposition between voiced and voiceless stops in their language, a comparison of TRUTIKNOS and ARKATO- in the Lugano alphabet with their equivalents DRUTEI F(ilius) and ARGANTO- in the Roman alphabet on the Todi and Vercelli bilinguals leaves no doubt about the purely graphic status of the non-observance of this distinction in Cisalpine Gaulish. On the other hand, although O, like B and D, was a 'dead' letter confined to early versions of the Etruscan alphabet and not in practical use, it was taken over into the Lugano alphabet with the value /o/ alongside A, E representing /a/, /e/ or /ā/, /ē/ and I, U representing /i/, /u/, /ī/, /ū/ or /y/, /w/. Of the remaining six signs in regular use in the Lugano alphabet L, M, N and R have the same values as in its Roman counterpart but it is not clear precisely what difference, if any, there was between the two separate signs for the sibilant(s) inherited from an early Greek alphabet via Etruscan and normally transcribed ś and s (but here both as s). Of the remaining Etruscan derivatives used sporadically in the Lugano alphabet z (= /ts/?), v (= /w/) and θ (probably = /t/) are found on the orthographically eccentric and probably early (see above) Prestino inscription, while x at Vercelli and Gropello (E-3) apparently has the value /g/.

2.3. The East Greek alphabet adopted in the later third century B.C. by the Narbonese Gauls, presumably from the nearby colony of Massilia, would seem to have had typical *koinē* values of the time. Thus π, τ, κ represented voiceless /p/, /t/, /k/ and β, δ, γ voiced /b/, /d/, /g/ in the usual way and similarly ρ, λ, μ, ν, σ = /r/, /l/, /m/, /n/, /s/. Although the change of the sounds represented by φ, θ, χ from voiceless aspirate stop /p^h/, /t^h/, /k^h/ to voiceless fricative /f/, /θ/, /x/ had not yet taken place in Greek (Lejeune, 1972, 59-61), the latter two letters were pressed into service to denote a dental and a velar sound respectively occurring in Gaulish but not (yet) in Greek. Hence θ = /ts/, optionally at least (see II.2.2), and χ = [x] before /t/.

The Gaulish short vowels /a/, /e/, /i/, /o/ and *i*-diphthongs could be represented quite straightforwardly by Greek α, ε, ι, ο and αι, οι. However, the *koinē* value of υ was /ü/ rather than /u/ as a result of an early fronting in the Attic-Ionic dialects upon which it was based (Lejeune, 1972, 237) and the sound denoted by the digraph ου had progressed from an original diphthong /ou/ to mid-high back /ō/ by the fourth century B.C. in Attic Greek and then to high back /ū/ in the third-century B.C. *koinē* (Lejeune, 1972, 230). Accordingly this was the spelling chosen to represent both short and long high back /u/, /ū/ as well as consonantal /w/ and /u/ as the second element of a diphthong in Gaulish (cf. Hellenistic Greek transcriptions of Roman names such as Λούκουλλος = *Lūcūllus*, Ουαλέριος = *Valerius*): e.g., μεδου- /medu/ (G-71), βρατου /bratū/ (G-64 etc., *Lam.* 86-8), ουενιτουτα /wenitoutā/ (G-106), ταουνικν[ος] /tauniknos/. Not surprisingly α could stand for short /a/ or long /ā/ in Gaulish

as in Greek, e.g. λιτουμαρεος /litumāreos/, and unambiguously diphthongal ω was an alternative to ου as in βαλαυδου /balaudui/ (G-121).

Although the spellings κορνηλια (G-65) and πραιτωρ (G-108) suggest η, ω = ē, ō in Roman names or words on these Gaulish inscriptions, their general status there as infrequent variants of ε and ο is clear from spellings such as νεμητον /nemeton/ (G-153), ουεβρο[υ-..] (G-61) or ουηβρου- (G-27) /webru/, and τουουτι- (G-153) or τωουτι- (G-257) /touti/ (ω locally = /ou/ as opposed to ου = /u/ or /ū/). This interchangeability might be connected with the incipient loss of phonemic distinctions of length in Greek from the later 3rd. century B.C. onwards (Browning, 1969, 33) but the virtual lack of a long /ō/ phoneme in the Gaulish of this period would anyway have left ω free for other uses, ου was the only spelling corresponding to back /u/, long or short, and the basic mid-low value /ē/ of Greek η may have militated against a regular connection with mid-high Gaulish /ē/, which happens not to be attested so far on inscriptions in the Greek alphabet.

The sound underlying ει had developed in tandem with that of ου above from an original diphthong /ei/ through mid-high /ē/ in fourth-century Attic to high front /i/ in the third-century *koinē* (Lejeune, 1972, 229-30) and it is worth noting that there is evidence for an /i/ pronunciation about a century earlier than this in the East Ionic area (Stüber, 1996, 31) from which the Phocaeen colonists of Massilia hailed. Consequently ι and ει tend to denote Gaulish /i/ or /y/ and /i/ respectively as in ιουγιλιακος /yugilliākos/ (G-28), ουριττακος /writtākos/ (G-68) and μεδουρειξ /medurīxs/ (G-71). Nevertheless, here as elsewhere there is some graphic confusion of the long with the short vowel, e.g. -ουι (G-120 etc.) or, probably, -ουει (G-151) for dat. sg. /ui/ and dat. sg. μαγουρειγι /magurīgi/ (G-121) or, probably, ουριθουριγου[ι] /writsurīgu[i]/ (G-217). Being roughly equidistant between /e/ and /i/, the allophone [ɪ] of /e/ before nasal plus obstruent could be spelled ε or ι as in εσκιγγαι or εσκεγγαι [eskɪŋgai] (G-135 and G-146; note γγ = [ŋg] here and elsewhere in accordance with standard Greek usage).

2.4. By and large the letters of the Roman alphabet, both monumental and cursive, used to write Transalpine Gaulish during the first three or four centuries A.D. seem to have had their conventional Latin values, although spelling fluctuations between *c* and *g* especially may have been due to a discrepancy between Latin fortis and Gaulish lenis single voiceless stops (Watkins, 1955; cf. Ellis Evans, 1967, 400-3). However, the Greek signs θ and χ used to represent a dental and a fricative sound peculiar to Gaulish (2.3) were adapted into this new writing system, the former as monumental Ð or cursive ð(ð), (*d*)s(s) and the latter as X (alongside C) or x (alongside x = /xs/, *c* or *g*). Thus ΕΡΑÐΑΤΕΧΤΟΡΙΓΙ /epaḏatextorīgi/ (L-6), *neðḏamon* /neḏsamon/ (Vendryes, 1955), *lidssatim* (*Lar.* 1a5) or *lis(s)atim* (2a6, 2a9 etc.) /litṣatim/, *liḏatias* /litṣatias/ (2b2-3), *suexos* /swexsos/ (La Graufesenque, *Lam.* 131), *ni-*

tixsintor /nītxsintor/ (*Lar.* 1a7), *adsagsona* (1a4), *adsax[Jna* (2b8) /adsaxsona/, *brictom* /brixtom/ (1a3), *duxtir* /duxtīr/ (1a11), VECTIT[] /vextit/ (L-1), CONTEXTOS /kontextos/ (L-10). It is unclear to what extent considerable variations in the spelling of probable /ts/ were purely orthographical or represented different chronological or local developments of this sound such as assimilation to /ss/, /tt/ or metathesis to /st/. The whole question has been subjected to a thorough and balanced evaluation by Ellis Evans (1967, 410-20).

The diphthong appearing regularly as OU and oov or ov /ou/ on the older Cisalpine (Briona TOUTAS) and Narbonese (2.3 above) inscriptions respectively is written EV or OV in the Roman alphabet, e.g. 3sg. IEVRV (L-3, *Lam.* 92-104) or 3pl. IOVRVS (L-12, *Lam.* 97-8), ANEVNO (also ανευνοϋς in Greek letters beneath; L-4, *Lam.* 94), TOVTISSICNOS (L-11, *Lam.* 97) but *Teutates* in Lucan. The chronology of the attestations makes it most unlikely that these *eu* spellings preserve an older pronunciation unaffected by /eu/ > /ou/. If they have any phonetic basis, one might envisage a rough and sporadic Gaulish parallel to alleged OW /oü/ > MW /eü/ but a purely orthographical explanation seems far more likely since Classical Latin did not possess a diphthong /ou/ but did have a diphthong /eu/ in words such as *seu*, *neu*, *neutrum*. That being so, there were two obvious approaches to representing Gaulish /ou/ in the Roman alphabet: either Greek oov could be transcribed OV or Latin's one *u*-diphthong *eu* could be pressed into service as a rough equivalent of /ou/. Both strategies are attested.

3.1 CELTIBERIAN. Lusitanian is known from a couple of rather late inscriptions in the standard Roman alphabet. Obscure though these are, it is clearly Indo-European. However, there has been some disagreement as to whether it is Celtic or not. Thus Untermann (*MLHI* 1, 77-8) contrasts Tovar's opinion that Lusitanian is an Indo-European language quite separate from Celtiberian with his own contention that these are merely two clearly distinguished dialects and can both be regarded as languages that probably stand close to Ancient Celtic.

Given that Armenian is the only other IE language with a comparable loss of PIE *p*, this circumstantial and systematically unmotivated change seems unlikely to have happened independently at two or more sub-Celtic nodes. Consequently it and the changes that preceded it (II.1.5) should, in the absence of compelling counter-evidence, be projected back to a single shared phase that can only reasonably be designated Proto-Celtic. From this it follows that a language like Lusitanian, which on the inscription of Cabeço das Fráguas preserves PIE *p* unchanged in PORCOM 'pig' alongside TAVROM 'bull' lacking the presumably Proto-Celtic metathesis to **tarwos* seen in OIr. *tarb*, MW *tarw*, Gaul. TARVOS, cannot properly be considered a Celtic language. There is, of course, a logical possibility of separation from the rest prior to a

late change like $p > \emptyset$ but after sharing some earlier peculiarly Celtic developments. In that case it might be considered a para-Celtic rather than a non-Celtic IE language but, in the present state of knowledge at least, sound methodology demands that only languages characterised by the more significant changes down to and including $p > \emptyset$ discussed in the following chapter be considered Celtic. So far Lusitanian simply does not qualify for the label Celtic or even para-Celtic and will be left out of account in what follows.

3.2 That being so and despite good onomastic evidence for Celtic settlement in an extensive western and central area, the only securely Celtic language so far known from the Iberian peninsula is the northwestern central Celtiberian, to which the following phonemic inventory may be provisionally ascribed in anticipation of the discussion below and in chapter three. Bracketing of \bar{e} below is in accordance with the argument in 3.6 that this became \bar{i} in the course of the period from which texts are attested, if not before. As yet there seems to be no firm evidence on the presence or otherwise of a /ʂ/ phoneme similar to that in Gaulish but **r-o-bi-s-e-ti** in 3.5 below might be taken as an indication of assimilation of ts to $(s)s$ unless it is a purely graphic device for avoiding a cumbersome ***ro-bi-te-s-e-ti** or the like to represent /robitseti/ (cf. 3.4 on /xs/).

voiceless stops:			t	k	k ^w		
voiced stops:	b	d	g	g ^w			
sibilants:		s	z				
nasals:	m	n					
liquids:		r	l				
semivowels:	w	y					
short vowels:		i	e	a	o	u	
long vowels:		\bar{i}	[\bar{e}]	\bar{a}		\bar{u}	
diphthongs:					ai	oi	ui
					au	ou	

There can be no doubt that the Celtiberians first acquired writing from their neighbours to the immediate east, namely the non-Indo-European Iberians who inhabited the whole eastern coast of Spain and had devised a peculiar system of orthography, part syllabic and part alphabetic, on the basis of Greek and/or Phoenician models. Only after the second-century B.C. Roman conquest of the Iberian peninsula was limited use made of the monumental Latin alphabet to write Celtiberian and Iberian.

The Iberian alphabet had five vowel signs with no distinction of length transcribed **a**, **e**, **i**, **o** and **u**. These were capable of various combinations with each other and of directly preceding or following the 'pure' consonantal signs for continuants transcribed **m**, **n**, **l**, **r**, **r'**, **s** and **ś**. This alphabetic system did not, however, apply to the stops, for which the Iberian script distinguished one

labial, one dental and one guttural only but had no signs for a stop alone and instead employed five separate signs for each in combination with a different following vowel. Hence the signs usually transcribed **ba, be, bi, bo, bu, ka, ke, ki, ko, ku** and **ta, te, ti, to, tu**.

3.3 Controversy about the origins of this script, which was used to write Iberian from about the fourth to the first century B.C., is due to two main factors. Firstly, either a Greek or a Phoenician model is *a priori* plausible in view of early Phoenician colonisation and subsequent Carthaginian dominance centring round Gades (Cadiz) in the southern Iberian peninsula on the one hand and of somewhat later sixth-century Phocaeen Greek colonisation of the north-eastern coast in tandem with the establishment of Massilia (Marseille) on the other. Secondly, the peculiar way of representing consonant plus vowel might be put down to a Phoenician model without separate vowel signs whereas the use, albeit somewhat restricted, of five distinct vowel signs would point rather to a Greek original. Both of the main regional variants of the Iberian alphabet, termed Northeastern and Southern respectively, have the same basic system but differ in the forms of a number of letters and in their orientation. Southern inscriptions follow the Phoenician mode both in the shapes of some letters and in a leftwards (but occasionally rightwards) direction of writing, whereas those of the northeast bear more affinity to the Greek both in shape and rightwards orientation of the letters (apart from a solitary example of boustrophedon). That being so, a Greek-based original secondarily influenced by Phoenician in the South or a Phoenician-based original later subjected to Greek influence in the Northeast would appear to be more or less equally economical postulates. Moreover, a number of letters in the Phoenician alphabet and early Greek derivatives thereof are quite similar, as one might expect, and quite a few Iberian signs, particularly some of those for stop plus vowel, display no obvious relationship with either a Greek or a Phoenician letter.

Paul Russell puts matters as follows. 'It is generally agreed that the script used for both Iberian and Celtiberian derived from a script used in the southern part of the peninsula for writing an early form of Iberian and another unknown language between the 7th and 1st centuries BC (de Hoz...). In origin the script was a modified version of the Phoenician script of the Phoenician and Carthaginian settlers of Tartessus and the southern coast of the peninsula (Cunliffe...). Given the identity of most of the signs, this explanation is essentially correct, but the modifications have been considerable... First, being originally a script for a Semitic language like Phoenician, it has no vowel signs, and these have been developed. Secondly, Phoenician is an alphabetic script, but it has been turned into a syllabary in a rather haphazard way. For example, there does not seem to be any correlation of voice..... A shift from alphabet to syllabary is itself curious; the usual line of development tends to be from a syllabary to an alphabet. It has been suggested that Greek influence may explain

the vowel signs and the shape of certain letters..., but if the dating of the earliest Iberian material to the 7th century BC is correct, it is rather early to expect Greek influence of that type' (1995, 204).

Jürgen Untermann is more circumspect. 'The *communis opinio* of present-day research in Spain and Portugal seeks the origin of the Iberian script in southern Andalusia, thus seeing its oldest form in the Tartessian or Southern Iberian alphabet and then reckoning with a spread northeastwards. I am not convinced that all objections to this hypothesis have been disposed of. The Tartessian script gives the distinct impression of being recent both as regards system and form. The dating of the documents too permits no decision as yet: the practice of writing begins in Ullastret in the extreme northwest scarcely later than in the south. One of the oldest inscriptions in the Southern Iberian alphabet... was found on the northeastern edge of its domain and the chronology of the Tartessian inscriptions does not seem to me to be established beyond all doubt. Finally, it must still be considered difficult to deny all Greek influence on the creation of the Iberian alphabet, including the Southern: for instance, the monophonemic (and unambiguous) signs for continuant consonants and vowels...' (*MLH III/1*, 135-6).

In this context it is worth noting that in an area just north of Alicante, close to the boundary between the two main regions where the Northeastern and the Southern alphabets respectively held sway, a slight adaptation of a late archaic Ionic Greek alphabet (presumably that of Phocaea) was used to write Iberian and that one such inscription at least can be dated as early as the first half of the fourth century B.C. (*MLH III/1*, 133). Moreover, this is the very area from which the early (fourth-century) inscription in the Southern alphabet referred to above by Untermann hails.

These inscriptions in the Greek alphabet provide vital evidence concerning the phonological reality that lies behind various ambiguities in the Iberian script. To begin with, use of a diacritic to distinguish a second *r* and of two signs for sibilants (*MLH III/1*, 153-4) shows that the deployment of two signs by the Iberian alphabet in both cases was based upon a genuine opposition between two *r*- and two *s*-phonemes (cf. Basque). As far as the stops are concerned, they indicate the existence of one labial (*b*) plus two dentals (*t* and *d*) and gutturals (*k* and *g*), the possibility of a word-final dental or guttural but, crucially, the inadmissibility of groups of stop plus further consonant such as **br*, **kt*, **dn* etc. (*MLH III/1*, 155). The development of special signs for stop plus vowel can thus be regarded as a well motivated response to the non-occurrence of preconsantal stops in Iberian. No more than five composite signs were required in the case of the sole labial stop and this system may well have been extended to the dentals and gutturals in order to obviate the further ten signs needed to represent a probable voiced/voiceless opposition. Viewed in this light, these syllabic signs had all the labour-saving convenience of

ligatures and could well have been developed on practical grounds from a Greek original with separate vowel signs. That said, 'the question of how final stops are written in the Iberian alphabet is not yet resolved: on the evidence of the texts in Greek script both gutturals and dentals occur in this position. The fact that **ke** and **te** are about twice as common as **ka**, **ta**, **ki** and **ti** suggests that the syllabic signs with **e** also served to represent final *g*, *k*, *d* and *t*... Since, however, words ending with *-ge*, *-ke* and *-de* are found on inscriptions in the Greek alphabet as well..., it is not possible to determine the correct reading of a syllabic sign containing **e** at the end of a word in any given instance' (*MLH* III/1, 135).

3.4 Whatever the advantages of the above features for the representation of the non-Indo-European Iberian tongue, they were unquestionably ill suited to the phonotactics of a Celtic and Indo-European language like Celtiberian, which readily tolerated clusters of stop plus another consonant (but may not have had word-final stops), had a phonemic voiced/voiceless opposition in the dental and guttural stops (but no /p/; cf. Iberian) and would have inherited only a single /r/ and /s/ phoneme. Obviously adaptation of the Northeastern Iberian alphabet of their neighbours to Celtiberian was bound to pose some tricky problems and it will emerge below that these were no more than partially solved.

The ambiguity of **ti**, **ka** etc. with regard to voiceless/voiced (*t/d*, *k/g*) was tolerated in Celtiberian as in Iberian and it seems clear that sequences of the type CRV (where C = stop, R = continuant, V = vowel) were normally represented by means of the stop sign comprising the same vowel as that following the continuant (i.e. CV_xRV_x, the value (x) of the second vowel being replicated by the 'dead' first vowel): e.g., **ti-r-i-s** /trīs/ 'three' (*Bot.* A6), **a-bu-l-u** /ablū/ (*Bot.* B8) = *Ablo* on a Latin inscription, **s-e-ko-bi-r-i-ke-a** /segobrigeā/ (*Celtib.* 57), **ba-r-a-z-i-o-ka** /brazikā/ (*ibid.*, cf. Lat. *Brasaca*), **ko-l-o-u-n-i-o-ku** /klounioku(m)/ (*ibid.*, = *clounioq(um)* in Latin alphabet), **l-e-to-n-tu** /letondū/ (*Bot.* B1 etc.; cf. gen. *Letondonis* on a Latin inscription). Sometimes, however, use of a dead vowel was avoided by metathesis or omission of a liquid as in forms or derivatives of Latin *Contrebia* such as **ko-n-te-r-bi-a**, **ko-n-te-bi-a-z**, **ko-n-te-ba-ko-m** (*Celtib.*, 58-9). In the case of a final consonant cluster the preceding vowel was the only one available to determine selection of the dead vowel, a probable example being the name **te-i-u-o-r-e-i-ki-s** /dīworīxs/ (*Luzaga* 8; *Celtib.* 98 and 100). All examples of conceivable relevance to the question of 'dead' vowels in Celtiberian orthography have now been collected and discussed at length by de Bernardo Stempel (1996).

Omission seems to have been the more usual method of dealing with the fricative allophone /x/ of a guttural stop before *s* or *t*. Untermann (*MLH* II, 47) notes a number of likely examples in Iberian renderings of arguably Gaulish personal names such as **a-u-e-ti-ř-i-ś** (= *Advectirix* /adwextirīxs/?) and **a-n-e-ti-l-i-k-e** (= *Anextlikos*?) on inscriptions from the vicinity of Narbonne

in southern France and *Bot.* A5 **a-m-bi-ti-s-e-ti** presumably represents /ambi-tixseti/ or the like by virtue of its obvious association with 'infinitive' **a-m-bi-ti-n-ko-u-n-ei** on the following line. The 'Ibero-Gaulish' examples, the one on the Luzaga bronze and the representation of the placename **u-s-a-m-a** as *Uxama* and Οὔξαμα in Latin and Greek letters (Villar, 1995, 181) indicate a purely graphic simplification, *pace* Lejeune's (*Celtib.* 56, n. 134) suggestion that **r-e-tu-ke-n-o** might contain *rētu-* < *reitu-* < *rectu-* rather than the straightforward /*rextu-*/ seen in the Gaulish cognate *Rextugenos* (Ellis Evans, 1967, 109). However, Villar (1995, 188) has argued for a late tendency to simplify /*xs/* to /*s/* in final position at least on the strength of SEGOBRIS (< /-brixs/) and the like in the Roman alphabet. Finally, although a nasal was normally written before a stop as in **ko-n-te(-r)-bi-a(-)** above, there are occasional instances of its omission as in the coin legend **s-e-ko-ti-a-z l-a-ka-z** (*MLH* I/1, 299) corresponding to the placename Σεγόντια Λάγκα in Ptolemy (2, 6, 55).

Obviously none of the above approaches to the problem of writing consonant clusters in the Iberian alphabet was devoid of ambiguity but a more satisfactory alternative of writing a 'plene' vowel after a stop + vowel sign as an indication that the vowel really was to be pronounced (as in Tartessan; *MLH* III/1, 135, n. 17) was a sporadic late development only found so far on a hand-ful of short inscriptions such as the tessera B4 **ku-i-r-o-r-e-ki-i-o-s ḿ-o-ń-i-tu-u-ko-o-s ḿ-e-ḿ-a-i-o-s a-l-e-tu-u-r-e-s** (*Celtib.* 102). Untermann's tentative inference above that **-ke**, **-te** were used to represent final *-k/g*, *-t/d* in Iberian might lead us to expect the same usage in Celtiberian inscriptions written in the Iberian alphabet, the conventions of which the Celtiberians would seem to have followed rather slavishly. However, there is as yet no reliable evidence on this point, quite possibly for the good reason that Celtiberian did not have stops in postvocalic auslaut (see 3.5 below).

Retention of the voiceless labiovelar *k^w* in Celtiberian is indisputable on account of **-ku-e** 'and' (< PIE **-k^we* 'and' underlying Lat. *-que*, Skt. *-ca*, OIr. *-ch* etc.). This combines with the argument in II.1.2 to make parallel survival of its voiced counterpart *g^w* (PC *g^w* < PIE *g^{wh}*) likely but proof is hard to come by on account of the ambiguity of the Iberian alphabet regarding the dichotomy voiceless/voiced. The sept name (gen. pl.) **ku-e-z-o-n-ti-ku-m** (Villar, 1995, 140) might be read /*g^wezontikum/* and taken to contain the PC root **g^wed* 'pray, beseech' < PIE **g^{wh}ed^h*, while *Bot.* A8 **ku-a-ti** might conceivably represent /*g^wanti/* 'strikes' (with zero grade generalised from the pl. PC **g^wan-* < PIE **g^{wh}ṅ-C-*; McCone, 1986, 228). Schrijver (forthcoming) offers an attractive interpretation of Celtiberian **ko-r-ti-ka** as /*gortikā/* 'object of counter-value' cognate with MW *gwarthec* 'cattle' < PC **g^wortikā* (< **g^{wh}-*). In the words of his final paragraph, 'this etymology presupposes a new phonological development for Celtiberian, viz. the loss of the labial element of the labiovelar

*g^w before the rounded vowel *o' (cf. 5.1).

3.5 Regarding the continuants, there is nothing much to remark about **l**, **n** and **m** except a local western usage whereby the sign designating /n/ else-where was employed for /m/ (and then transcribed **m̄** where necessary as in B4 above) and a sign conventionally transcribed **m̄** in later Iberian inscriptions (*MLH* III/1, 137-8) was used for /n/ (transcribed **n̄** as in B4). The Iberian dichotomy of two *r*-phonemes and two matching *r*-signs, transcribed **r** and **r̄**, was superfluous in Celtiberian with its solitary *r*-phoneme. Consequently only one sign (corresponding to Iberian **r̄**) was adopted. Since this lacks competition in the relevant documents, it is usually transcribed as **r** without diacritic in the case of Celtiberian.

On the other hand, both of the Iberian sibilant signs **s** and **ś** were adopted by the Celtiberians and the contrast with their readiness to jettison an un-necessary extra *r*-sign suggests that there was a good phonological reason for this. Since both *s*-signs are well attested, often on one and the same inscription, there has been considerable discussion (e.g. *Celtib.* 46-9) concerning their distribution and likely phonetic value in Celtiberian, which can safely be taken to have inherited a single sibilant phoneme from Proto-Celtic and Proto-Indo-European (II.2.1). Building upon his own pioneering work (1993) and a couple of suggestions by others (Eichner, 1989, 44; Meid, 1993, 117-8), Villar (1995, 17-82, and 1995b) has recently produced a compellingly argued account with considerable, not to say exciting, further ramifications. His basic conclusion is that the Iberian letter **ś** represented the voiceless sibilant /s/ more or less directly inherited from PIE and so should be transcribed **s** in Celtiberian (a practice followed here), whereas Iberian **s** had a voiced pronunciation as /z/ and/or /ð/ and so might best be rendered as Celtiberian **z** (as here). The crucial point was that this **z** not only arose through the voicing of *s* intervocally and after a sonorant but was also the regular outcome of *d* in the same environments as well as in postvocalic final position. The following examples from *Bot.* will serve by way of illustration: **i-a-s** (*yās*), **bi-n-ti-s** (*-is*), **ka-bi-z-e-ti** (< **gab-i-se-ti*), **a-m-bi-ti-s-e-ti** (*-tix-se-ti*), **a-r-z-n-a-s** (< **arsnās*), **u-e-r-z-o-n-i-ti** (< **wer-sonī-ti*), **e-s-a-n-ki-o-s** (*exs-ankios*), **i-s-te** (*iste*), **ti-z-a-u-n-e-i** (< **dī-da-unei*; simplex **ta-u-n-e-i** in preceding sentence), **ta-tu-z** (< **da-tūd*, 3sg. fut. ipv. < PIE **-tōd*), **bi-z-e-tu-z** (< **bid-e-tūd*), **r-o-bi-s-e-ti** (< **ro-bit-se-ti*), **s-o-z** (< **sod*).

Given that a dental was the only stop normally permitted in absolute auslaut in PIE and that the comparative evidence points to neutralisation of the voiced/voiceless opposition in such cases, probably in favour of voiced *-d* after a vowel at least (see Szemerényi, 1973), the change *-d* > *-ð/z* may well have deprived Celtiberian of postvocalic final stops. Villar (1995b, 17-9) has suggested that a handful of Celtiberian forms in **-e-z** may actually be 3sg. verb

forms continuing a secondary ending *-t [-d]. It would follow from this that, *pace* Meid (1994, 36, where it is taken as an imperfect), SĪSTAT in the Latin alphabet at Peñalba de Villastar continues primary *-ti rather than secondary *-t, as is anyway *a priori* probable in the case of what is obviously a present stem (cf. OIr. *-sissedar*, Gk. ἵσταται 'stands' etc. < pres. *sisth₂-). Hence Villar's (1995b, 30) suggestion that Celtiberian might have developed a third person primary/secondary opposition -t/-z (< *-ti/*-d) comparable to Italic -t/-d, in which case 3sg. verbal forms in **-ti** such as those in the previous paragraph from texts in the Iberian alphabet should be read /-t/. If so, it is difficult to avoid the conclusion that this Celtiberian apocope of *-ti to *-t (or even of -i in general) occurred after adoption of the Iberian alphabet with the result that the **-ti** originally employed to represent /-ti/ continued in use after this had become /-t/. Otherwise one would have to envisage the remarkable coincidence that **-ti** was more or less randomly preferred to one of the other four equally viable signs **-ta**, **-te**, **-to**, **-tu** as a rendering of /-t/, which seems (*pace* de Bernardo Stempel, 1996, 240-4) particularly implausible in view of the likelihood that the Iberians themselves would have used **-te** in such a case (3.3-4 above).

3.6 The letters **a**, **e**, **i**, **o**, **u** correspond straightforwardly enough to the five short vowel phonemes that Celtiberian can be presumed to have inherited directly from Proto-Celtic. In the absence of an orthographical indication of length, it cannot be proved that Celtiberian had long vowels but there seems to be no reason to doubt that /ā/, /ī/ and /ū/ had come down more or less unchanged from Proto-Celtic along with the diphthongs /ai/, /oi/, /ui/ (most likely [ūi] in Celtiberian and Gaulish), /au/ and /ou/ seen in examples (*Bot.*) like **s-a-i-l-o**, **to-ko-i-to-s**, **s-o-m-u-i** (dat. sg.), **a-u-z-e-ti**, **bo-u-s-to-m**. Villar (1995, 82-107; 1995b, 24-8) has now shown quite conclusively that Celtiberian participated fully in the Proto-Celtic change $\bar{o} > \bar{u}$ in final syllables and consequently had no /ō/ phoneme (see II.5.4). The only major difficulty relates to the issue of what sound or sounds were represented by the digraph **ei**. It is hardly surprising that the existence of *ei* spellings in both the Iberian and the Latin alphabet such as **u-e-i-z-o-s** 'witness' *vel sim.* (OIr. *fiad* 'in the sight/presence of', MW *gwyd* 'sight, presence' < *wēdos < *weidos; Villar, 1995, 41-2) or *u*-stem dat. sg. LUGUEI 'to Lug' should have been taken either as direct evidence for survival of the /ei/ diphthong from Proto-Celtic in Celtiberian texts (e.g. Schmidt, 1977, 15) or at least as indirect testimony that the Celtiberians still had a preconsonantal diphthong *ei* when they adopted the Iberian alphabet (Schmoll, 1959, 106). Neither inference is by any means inevitable.

As far as the latter is concerned, it is uncertain that *ei* represented a diphthong rather than a monophthong in the still quite obscure Iberian language

for which this script was devised. Moreover, in the likely event that the vowel signs of the Iberian alphabet at least were due to Phocaean Greek models in the wake of sixth-century colonisation (3.3), it is worth bearing in mind that Phocaea lay in an East Ionic dialect area where monophthongisation of *ei* to mid-high \bar{e} seems to have occurred rather earlier than in Attic Greek, probably as early as the 6th. century in some localities (Schmitt, 1977, 101) including Phocaea itself on the evidence of $\epsilon\kappa\omicron\sigma\iota$ 'twenty' for $\epsilon\check{\kappa}\omicron\sigma\iota$ on a late sixth-century inscription from its colony Ampurias (*SEG* 37, 1990, 838.4), a form kindly brought to my attention by Karin Stüber. Consequently the digraph $\epsilon\iota$ very likely had the value $/\bar{e}/$ in the Greek alphabet at least partially adopted by the Iberians. Secondly, endings like the consonant-stem dat. sg. or *o*-stem loc. sg. *-ei* might once have had sandhi variants $[-ey]$ and $[-\bar{e}]$ before vowels and consonants respectively, the former suggesting a spelling *-ei* then transferred to the latter as a convenient way of distinguishing long from short *e* (cf. III.1.3).

As to the actual value of *ei* in Celtiberian texts, Lejeune (*Celtib.* 137-8) was surely right to see evidence for monophthongal pronunciation in spelling fluctuations like **a-r-e-i-ko-r-a-ti-ko-s** vs. **a-r-e-ko-r-a-ti-ka** (Villar, 1995, 127) or **te-i-ti-a-ko-s** vs. **ti-ti-a-ko-s** (Villar, 1995, 84) and in the Luzaga bronze's **te-i-u-o-r-e-i-ki-s** with a second element that was never a diphthong (Gaul. *-rix*, OIr. *rí*, Lat. *rex* 'king' < PIE **rēk-s*), to which may be added the dat. sg. (of a cons. and an *i*-stem respectively) STENIONTE and GENTE on an inscription in the Roman alphabet (Villar, 1995, 91; contrast LUGUEI above). Cumulative-ly this creates a clear presumption that *ei* before a consonant and in auslaut was normally pronounced as a monophthong, probably $/\bar{e}/$ in the first instance, and that Celtiberian shared in the otherwise general Celtic change *ei* > \bar{e} . It is then possible to read **te-i-u-o-r-e-i-ki-s** as $/d\bar{e}wor\bar{e}ks/$ ('a compound with second element $/r\bar{e}ks/$ ' according to Villar, 1995, 161), the corollary being that Celtiberian did not share in the otherwise general Celtic change \bar{e} > \bar{i} . If, however, Celtiberian regularly reflects Proto-Celtic \bar{o} > \bar{u} in final syllables, as conclusively shown by Villar (see the beginning of this section), it is difficult to see how it failed to be affected by the almost certainly earlier change \bar{e} > \bar{i} (II.5.4). That being so, **r-e-i-ki-s** must surely be taken as $/r\bar{i}ks/$ and it becomes very probable, particularly in view of the *ei/i* spelling fluctuation just noted, that the whole word is to be read $/d\bar{i}wor\bar{i}ks/$ < PC **dēwo-rīxs* < **deiwo-rēks*. Probably, then, Celtiberian inherited no diphthong $/ei/$ but only the monophthong $/\bar{e}/$ into which this had apparently been transformed in Proto-Celtic. This doubtless mid-high $/\bar{e}/$ would seem to have undergone further raising to $/\bar{i}/$ not long before or even during the period of our Celtiberian texts with the result that any $/\bar{i}/$, whether from PC \bar{i} (< \bar{i} or \bar{e}) or \bar{e} (< *ei*), could be spelt *ei*, *i* or even *e*. In this respect it is worth noting that in Iberian too 'orthographic fluctuations between *e*, *ei* and *i*... are relatively frequent' (*MLH* III/1, 153). The

phonetic development posited here is, of course, virtually identical to those found independently in Greek and Latin, which gave rise to comparable spelling fluctuations in inscriptions.

4.1. OLD AND MIDDLE WELSH. Old Welsh as rather sparsely documented from the seventh or eighth to the twelfth century A.D. seems to have had the following basic phonemic inventory, from which the systems of Old Cornish and Breton diverge but slightly. Phonemes in square brackets below had ceased to exist in Middle Welsh as a result of loss or merger, while the set in round brackets is of very restricted occurrence and unique to Welsh, where it arose in the course of the Old Welsh period (*LHEB* 505-6). See Jackson (1967) for a full treatment of Middle Breton and Lewis (1990, 5-10) for a sketch of Middle Cornish, both of which will be left out of account here (*r^h* has been used instead of *r̥* to represent voiceless *r* below, since the latter sign is used in accordance with the standard practice of Indo-Europeanists to represent syllabic *r* later in this book).

voiceless stops:	p	t	k				
voiced stops:	b	d	g				
voiceless fricatives:	f	θ	x				
voiced fricatives:	v	ð	[ɣ]				
sibilant:	s						
aspirate:	h						
nasals:	m	[ṽ]	n	ŋ			
(aspirated nasals:	m ^h		n ^h	ŋ ^h)			
voiceless liquids:	r ^h	ɸ					
voiced liquids:	r	l					
semivowels:	w	y					
vowels:	i	ɪ/ĭ	e	a	o	u	ü
diphthongs:			ei	ai	oi	ui	
	iu	ɪ/ĭu	eu	au			oü

4.2 The lenition processes responsible for the two series of fricative phonemes above are described in chapter three. As a result of the basic lenition (III.4.1) the stops /b/, /d/, /g/ and /m/ developed fricative allophones [v], [ð], [ɣ] and [ṽ] between a vowel and a resonant (V, *r*, *l*, *n*, *m*, *y*, *w*), and probably in postvocalic auslaut too (except for *-m*, which became *-n*). The first British lenition (III.4.3) then produced the voiced allophones [b], [d], [g] of the voiceless stops /p/, /t/, /k/ in the same environments. It is eminently reasonable to suppose that this allophonic variation also affected British Latin, whether as a vernacular in use during and probably for some time after the Roman occupation or subsequently as a learned clerical language pronounced in the native

manner, with the result that Latin words such as *locus* 'place', *capistrum* 'halter', *scribendum* 'writing', *baculus* 'staff', *calamus* 'reed, stalk', *gradus* 'step, grade' would be pronounced /ʰoguh/, /kabistrun/, /skrīvendun/, /bag(u)luh/, /kalaŷuh/, /graðuh/ or the like. Since there could be no question of altering standard Latin orthography to indicate these regional traits, even when they had been phonemicised by the loss of final consonants and/or syllables, an orthographic convention will have arisen whereby the letters *b*, *d*, *g*, *m*, *p*, *t* and *c* represented the sounds most readily associated with them in some environments but *v*, *ð*, *ɣ*, *ŷ*, *b*, *d* and *g* respectively in others. This practice continued in use when the British vernaculars came to be written from the seventh or eighth century onwards, as can be seen from the form of the above as Latin loanwords in Old Welsh (Modern Welsh equivalents in brackets to demonstrate the actual pronunciation), namely *loc* (*llog*), *cepister* (*cebystr*), *scribenn* (*(y)sgrifenn*), *bacl* (*bagl*), *calam* (*calaf*), *grad* (*gradd*).

The Old Welsh, Breton and Cornish spelling system, then, did not recognise the effects of lenition upon stops, whether as an initial mutation or as a word-internal development, with the following consequences:

(i) voiceless /p/, /t/, /k/ were regularly written *p*, *t*, *c*: e.g., *cepister*, *scribenn*, *calam* or MW *twrch* /turx/ 'boar', *pallu* /paʰü/ 'cease'.

(ii) /b/, /d/, /g/ were generally written *b*-, *d*-, *g*- in unmutated initial position (e.g. *bacl*, *grad*) but (occasionally doubled) *p*, *t*, *c* after a vowel (e.g. *loc*, *cepister*, *bacl* or OW *catteiraul* = Mod. *cadeiriol* 'pertaining to a chair') as well as in lenited initial position, where they arose through voicing of /p-/ , /t-/ , /k-/ : e.g., OW *ha'i cenetl* /ai genedl/ 'and his kin' (leniting *i* 'his' plus *cenetl* /kenedl/).

(iii) /v/, /ð/, /ɣ/ are written *b*, *d*, *g* in all positions: e.g., *scribenn*, *grad* or OW *o diued* /o ðiweð/ 'in the (lit. from) end' comprising the leniting preposition *o* plus *diued* /diweð/.

(iv) /m/ and /ŷ/ were both written *m*, the former sometimes being doubled internally: e.g., OW *cam* /kam/ 'step', pl. *cemmein* vs. *calam* /kalaŷ/, *nimer* /niŷer/ 'number' (< Lat. *numerus*).

4.3 By the beginning of the Middle Welsh period this system had undergone two significant modifications. The first was general loss of /ɣ/ (> *y* after a liquid): e.g., MW *a oruc* 'which he did' (*goruc* lenited after relative *a*), MW *gwedy* /gwedi/ 'after' vs. OW *guetig*, MW *lle(e)n* 'literature, learning' < Lat. *legenda* /leɣenda/, MW *ariant* 'silver' vs. OW *argant* /arɣant/. The second was denasalisation of /ŷ/ with the result that it fell together with /v/ < /b/ by lenition.

Orthographical experimentation seems to have been encouraged by the shift from an Insular to a Continental style of writing around the end of the eleventh century (see Lindsay, 1912, 32-9) in the wake of Norman penetration

into Wales. For instance, Middle Welsh spelling was characterised by various new ways of representing the voiced fricatives. In the case of /v/ this entailed abandonment of the OW *b* (or *m*) spelling in favour of *u/v*, *w*, *f* (the modern standard) or even *ff* on occasion: e.g., MW *calaw* or *calaf* /kalav/ 'reeds' and singularive *keleuyn* /kelevɪn/ 'reed', *niuer* /niver/ 'number', *aval* or *aual* 'apple, knob' (OW *abal*), *rywedawt* or *ryuedawt* 'wonder' (Mod. *rhyfeddod*), *diulann-*, *divlann-*, *diflann-* or *difflann-* 'disappear' (Mod. *diflannu*), *ulwyd* /vluid/ (lenited form of *blwyd* 'year'), *uawr* or *vawr* /vaur/ (lenited form of *mawr* 'great'). The Old Welsh practice of spelling /ð/ *d* was mostly continued but *t* and sometimes *th* are found in certain manuscripts and occasional instances of *dd* (the modern solution) also occur: e.g., *cletyw*, *cledyf* or *cleddyf* /kleðɪv/ 'sword', pl. *cledyueu* 'swords', *ford*, *fort* or *forth* 'way' (Mod. *ffordd*), *oed*, *oet* or *oeth* /oið/ 'was' (OW *oid*, Mod. *oedd*), *argluit*, *argluid*, *argluyd* or *arglwyd* 'lord' (Mod. *arglwydd*), *dy divet* /də ðiweð/ 'thy end' (lenited form of *diwed* /diweð/ 'end').

The voiceless stops continued to be spelt as in Old Welsh except that *k* was used alongside *c*, especially at the beginning of words before *e*, *i* or *y*: e.g., *kyflym* or *cyflym* 'swift', *kebystr* or *cebystr* 'halter'. There was a marked tendency to spell the voiced stops *b*, *d*, *g* in internal as well as initial position but in final position the spellings *t* and *c* remained common: e.g., *oet* or *oed* /oid/ 'time' (Mod. *oed*), *mab* /mab/ 'son' (OW *map*, Mod. *mab*), pl. *meib(ion)*, *dreic* /dreig/ 'dragon', pl. *dreigyev*, *modryb(ed)* /modrɪb/ 'aunt(s)' (OW pl. *modreped* with an early example of *d* for *t*), masc. *pedwar* /pedwar/ 'four' (OW *petguar*), fem. *pedeir* /pedeir/, *magwyt* or *magwyd* /maguid/ 'was nurtured'. There was a concomitant tendency, resisted somewhat by the labial, to use *b-*, *d-*, *g-* to spell initial /b-/, /d-/, /g-/ resulting from lenition of /p-/, /t-/, /k-/: e.g., *o'r genedyl* 'of the race' (lenition after fem. article; base *kenetyl* or *kenedyl*) vs. OW *ha'i cenetl* in 4.2(ii), *y wreic deccaf* /dekav/ 'the fairest woman' (adj. lenited after fem. noun; base *tec* /teg/ 'fair') but *y pedestyr* 'to a pedestrian' and *o pedestric* 'on (lit. from) foot' vs. *y bedestric* 'to walking pace' (*Pwyll* 215, 212, 222; leniting prepositions *y/i* and *o* and bases *pedestyr*, *pedestric*).

4.4 The second British lenition (III.4.5) more commonly known as spirantisation made the corresponding voiceless fricatives of voiceless stops unaffected by the first British lenition after a vowel (because they were then either geminate or preceded by a *x* that subsequently became the second element of an *i*-diphthong) or a liquid, whence /p/, /t/, /k/ > /f/, /θ/, /x/. An /f/ that arose by other means, including the adoption of Latin loanwords, is generally written *f* as in OW *finn* 'sticks', *fionou* 'roses'. However, the products of spirantisation are often not distinguished from the corresponding stops in the early orthography, particularly after *r* or *l*, although double spellings and *f* or

ph for the labial, *d(t)* or *th* (and sporadically *ht* or Anglo-Saxon *þ*) for the dental and, most commonly of all, *ch* for the guttural are found: e.g. OW *Grip(p)iud* or *Griphiud* (Mod. *Gruffudd*), OC *gueid*, OW *gueith* or *gueit* (*gueiht* once) /gweiθ/ 'work' (MW *gueith*), OW *gurt* vs. MW *(g)wrth*, OW *paped* or *papeþ* = MW *pa beth*, OW *Tutbulc* /tūd vulx/ vs. *erchim* 'claiming' (MW *erchi*) or *bichan* 'little' (MW *bychan*). In Middle Welsh the spellings *f* (rarely *ff* as in modern orthography) or *ph*, *th* and *ch* are markedly preponderant.

4.5 The sibilant /s/ is regularly written *s* and is sometimes doubled after a vowel, particularly in Old Welsh: e.g., OW *iss* = MW *ys* 'is' or OW *drissi* = MW *dry(s)i* 'thorns'. Since *h* was no longer pronounced in Vulgar Latin, it is not surprising that it could be prefixed to vowels as a silent letter in Old Welsh in addition to representing the phoneme /h/, which is almost invariably its function in Middle Welsh orthography: e.g. OW *ha(c)* = MW *a(c)* /a(g)/ 'and', OW *hep* = MW *heb* /heb/ 'said'.

The labial nasals /m/ and /ṽ/ (> /v/) have been discussed in 4.2-3. Dental /n/ is regularly written *n*, geminate /nn/ being frequently so spelt intervocalically or in postvocalic auslaut: e.g., OW *finn* (MW sg. *f(f)on(n)*) and *fionou* (MW sg. *f(f)ion*) in 4.4, MW *nant* 'valley', OW names *Cinhilinn* and *Numin*. Guttural /ŋ/ may be written *n* before a guttural stop but otherwise *ng* or *g* are used: e.g., MW *kyfranc*, *kyfrang* or *kyfrang* /kəvraŋk/ 'meeting, adventure', *llog* or *llong* /ʎoŋ/ 'ship'. The aspirated nasals /m^h/, /n^h/, /ŋ^h/, which are the peculiarly Welsh outcome of non-final /mp/, /nt/, /ŋk/ including the 'nasal' mutation of initial /p-/ , /t-/ , /k-/ , may be written *mp*, *nt*, (*n*)*gc/k* (especially initially) or *mh*, *nh*, (*n*)*gh*: e.g., MW *pymhet* /pəm^hed/ 'fifth' (OW *pimphet*; base *pymp* 'five'), *vym penn* /və m^hen/ 'my head', *breenhined* /breen^hineð/ 'kings', *yn ty /ə n^hɪ/* 'in (the) house', *agheneu* /aŋ^heneü/ 'necessities'. In internal position this aspiration is only retained in Modern Welsh directly before the stress, which was regularly penultimate in words of more than one syllable and is here indicated by bold italics. Hence such alter-nations as *brenin* 'king' vs. *brenhinoedd* 'kings' or *brenhines* 'queen', *angen* 'need' vs. *anghenion* 'needs', or *dant* 'tooth' and *dannedd* 'teeth' (not **danhedd*). This change can hardly have happened before the shift from final to penultimate stress dated to the eleventh century by Jackson (*LHEB* 682-9) but more cogently 'at least as early as the IX century' by Arwyn Watkins (1974, 11). Middle Welsh offers conflicting evidence with variations in spelling like *bre(e)nnin* or *brenhin*, *a(n)ghen*, *danhed* or *danned*, *angklad* or *aglad* 'burial' but the probability is that the spellings without *h* reflect actual pronunciation, those with it being merely conservative and perhaps due in part to the influence of forms with a further syllable (Arwyn Watkins, 1974, 4).

As a rule voiceless and voiced liquids were not differentiated in Old Welsh orthography except insofar as non-initial unlenited *l* was sometimes

written *ll*: e.g., *guollung* 'release' but *luidt* = MW *llwyth* 'clan'. In Middle Welsh the two *l*-sounds were mostly distinguished as *ll* (or the ligature *ʃl* in the Red Book of Hergest to distinguish it from double voiced *l*) and *l* respectively but *r* continued to be written for both sounds, use of *rr* or *rh* for the voiceless phoneme first occurring in the 15th. and 16th. century: e.g., *callon* 'heart' (double voiced *l*; Mod. *calon*), *lynn* or *llynn* 'pool' (Mod. *llyn*), *gallu* 'ability' (Mod. *gallu*), *llosc* /ʃosk/ 'burning' vs. lenited *heb losg* /losk/ 'without burning', *ran(n)* 'part' (Mod. *rhan*), *araf(f)* 'slow' (Mod. *araf*).

The semivowels /y/ and /w/ are written *i* and *u* in Old Welsh (bearing in mind that MW /w/ continues OW /ɣw/ as well as lenis /w/, both spelt *gu*), *i* or sometimes *y* and *w*, *u* or *v* in Middle Welsh: e.g., OW *iar*, MW *iar* or *yar* /yar/ 'hen', MW *dinion* or *dynion* /dɔnyon/ 'men', OW *petguar*, MW *pedwar* 'four', OW *neguid*, MW *newyd* 'new', MW *kyveir* or *kyweir* 'fit state', *gwelet* or *gwelet* 'see'.

4.6 The evolution of a British vowel system without phonemic distinctions of length by the time of the Old Welsh period is discussed in chapter six. High central /i/ probably arose around the beginning of the Old Welsh period and did not coexist with mid-high front /ɪ/ for long before the two merged as /i/ in Welsh but /ɪ/ in Cornish and Breton (VI.3.6 and 4.6). The other significant difference between the two was an additional mid-low rounded /ɔ/ phoneme in Old Cornish and Breton that was then fronted to /ö/ (VI.4.4-6).

In Old Welsh the vowels /i/ and /i:/ were both written *i*, the vowels /e/, /a/, /o/ were spelt *e*, *a*, *o* respectively, and the letter *u* represented both /u/ and /ü/. Only in West British did /i/ and /u/ develop the mid central allophones unrounded [ə] and rounded [ø] respectively in pretonic syllables, i.e. non-final ones since word-final stress was the norm in early Old Welsh. The former is generally written *i* and the latter *i*, *e*, *o* or *u* in Old Welsh: e.g., OW proclitic article *ir* /əɾ/ (MW *yr* usually), OW *cimadas* /kəʋaðas/ 'fitting' (MW *kyfadas* etc.), *celeell* 'knife' (MW *kyllell* etc. /kəʃeʃ/; < Lat. *cultellus*), *comoid* /kəʋoiθ/ 'power' (MW *kyuoeth* etc.), *Huwel* (MW *Hywel*). Both sounds had fallen together as [ə] by Middle Welsh, where they were spelt in the same way as /i/, namely *y* but sometimes *i* or *e*: e.g., vn. *kymryt* or *kemryt* /kəmrɪd/ 'take', pret. *kymmerth* or *kemyrth* /kəmrɪθ/ 'took', *dyn* or *din* /dɪn/ 'man', pl. *dynyon* or *dinion* /dɔnyon/ 'men'. The trend, then, was towards a distinction between *y* = /i/, [ə] on the one hand and *i* = /i/ on the other: e.g., OW/MW *hir* /hir/ 'long', MW *hin* /hin/ 'weather' vs. OW *hinn*, MW *hin* or usually *hyn(n)* /hɪn/ 'this'. There was a parallel tendency towards a distinction between *w* = /u/ and *u* or *v* = /ü/ but spellings *u* and *v* for /u/ are not uncommon; e.g., MW *crum* or usually *crwm* /krum/ 'crooked', MW *kun*, *cvn* or *kwn*, *cwn* /kun/ 'dogs' vs. *hun* /hün/ 'sleep', *un* or *vn* /ün/ 'one', OW *Tutbulc* /tütvulx/. The spelling of /e/, /a/, /o/ as *e*, *a*, *o* was generally retained, as is clear from plenty

of examples above.

The *i*-diphthongs are spelt *ai*, *ei*, *oi*, *ui* in Old and usually *ae* (sometimes *ay*), *ei* (rarely *ey*), *oe* (sometimes *oy*), *wy* respectively in Middle Welsh: e.g., OW *hair*, MW *aer* 'slaughter', MW *guayt* or *gwaet* /gwaid/ 'blood', OW *gurehic*, MW *gwreic* or *gwreyc* /gwreig/ 'woman', OW *coit*, MW *coit*, *coyt* or *coet* /koid/ 'wood', OW *luidt*, MW *luith* or *llwyth* 'clan'. The *u*-diphthongs /au/, /eu/, /iu/, /iu/ were spelt *au*, *eu*, *iu*, *iu* in Old Welsh with a marked tendency towards *aw*, *ew*, *iw*, *yw* in Middle Welsh: e.g., OW *lau*, MW *llau*, *llav* or *llaw* /ʎau/ 'hand', MW *bleu*, *blev* or *blew* /bleu/ 'hair', OW *liu*, MW (*l*)*liw* /ʎiu/ 'colour' but MW *byw* /biu/ 'alive' and *bywhau* [bəuhaü] '(to) animate'. The Old Welsh diphthong /oü/ became /eü/ in Middle Welsh and was spelt accordingly: e.g., OC *iouenc* vs. MW *ieuan(g)c* /yeüanj/ 'young', OW *ois-ou* /-oü/ 'ages' vs. MW *kerd-eu* /-eü/ 'poems'.

5.1. OGAM IRISH. As mentioned in 1.1, the earliest attested method of writing Irish is the Ogam alphabet normally written on a line formed by the edge of a stone and originally consisting of one to five notches on the line (the vowels A, O, U, E, I), one to five horizontal strokes to the right (B, L, F, S, N) or left of it (H, D, T, C, Q) and one to five diagonal strokes across it (M, G, NG, Z, R; McManus, 1991, 1-2). McManus (1991, 6-41) offers a judicious discussion of the alphabet's origins from which it emerges that it was almost certainly based upon the Roman alphabet, that its deployment of twenty signs in four basic groups of one to five obviously had a numeric basis (see Gippert, 1992, 29-31 for an interesting Maldivian parallel) and that it was probably devised in the fourth century A.D. 'The fact that Pope Celestine sent Palladius as first bishop to Ireland in the year 431..... suggests the existence, in all probability in the south of the country, of an established Christian community at that time. Given that the Christian religion is a book-based one and required reading skills in Latin, it is possible that this was the locus of the creation of the alphabet. On the other hand, Irish colonies were being established in Wales probably in the fourth century... and these may have provided the link with Latin learning..... At any rate archaeological evidence shows that Ireland was by no means cut off materially from the Roman world at the time in question..... and there is no difficulty in assuming cultural contacts of the kind which would have provided the environment and stimulus for the creation of the Ogam alphabet' (McManus, 1991, 41).

The inconclusive debate about quite how or why the sounds were arranged as they are need not concern us here but a more recent discussion of the original value of some of the signs by McManus (1986; cf. 1991, 30 and 34-40) is highly germane to the purpose of this chapter and must now be considered. The values given above for the Ogam symbols are those ascribed by a considerably later manuscript tradition. Since it follows from a number of

features such as the omission of an equivalent of Latin *p* and innovatory phonetic pairings like *D/T*, *C/Q* that the creators of this alphabet were not slavishly imitating a Roman original and had a practical concern with the sounds of Primitive Irish (which had no /p/, for example; II.1.5), it is reasonable to suppose that all of the signs had real equivalents in roughly fourth-century Irish and that deviations from this principle are due to the later substitution of more modern values.

In fact, this has been recognised in the case of *F*, which has long been transcribed *v* because this is its Latin equivalent on bilingual inscriptions (mostly from Wales) and /f/ had hardly arisen from /w/ in certain positions as early as the fourth century (V.2.2). An obvious catalyst for such later reanalysis as this was historically regular change of the initial of the name of the letter, in this case *fern* 'alder' < **wernā* (cf. MW *gwern(en)*). A possible counter-example is provided by the manuscript tradition's recognition of a distinction between *C* and *Q* lost in speech in the sixth century A.D. at latest (IV.3.4). However, once the initials of these two letters' names, *coll* 'hazel' (MW *coll-en*) < **kollo-* < **koslo-* and *cert* (no doubt originally the same word as *W perth* 'bush', Lat. *quercus* 'oak') < **k^werto-* (< **k^werxto-* < **k^werk^w-to-* < **perk^w-*; II.1.5b), had become identical as a result of this development, the obvious way of differentiating two inherited symbols for the same *k*-sound was to avail of the two letters in common use for /k/ in the Roman alphabet, namely *C* and *Q*. In this case the outcome is coincidentally suggestive of the original values /k/ and /k^w/ despite a sixth-century merger of these two phonemes as /k/. Like *F*, the signs *H*, *NG* and *Z* seem unlikely to have been devised to represent the sounds ascribed to them in the manuscript tradition. Since /h/, /ŋ/ and /z/ were hardly distinct phonemes in fourth- or fifth-century Irish, these values may be suspected of being 'cosmetic and Latin-based..... chosen on the basis of the contemporary forms of their letter names' (McManus, 1991, 34). The original values may have been /y/, /g^w/ and /s^t/ or the like (on the way from *st* to *s(s)*) but as yet this hypothesis cannot be directly tested because these 'three characters..... are not reliably attested at all' (McManus, 1991, 33) on available inscriptions.

A problem that does not seem to have been directly addressed so far is posed by two to four attestations of *DEGO(S)* or the like (Ziegler, 1994, 165-6), which undoubtedly corresponds to OIr. *D/dego*, the gen. sg. of *i*-stem *D/daig* occurring both as a personal name and as a word meaning 'flame, fire' < PC **deg^w-i-s* (PIE root *d^heg^{wh}* as in Skt. *dah-a-ti* 'burns' etc.). McManus' theory that the sign conventionally transcribed *NG* originally represented /g^w/ was suggested by Cowgill's (1980) irrefutable demonstration that the Proto-Celtic phoneme *g^w* (< PIE *g^{wh}*) survived in Irish for as long as *k^w*, both then being concurrently simplified to *g* and *k* respectively in the sixth century A.D. (II.1.2). This, however, seems hard to square with the reading *DEGO(S)* rather

than (in conventional transcription) *DENGO(S) on two to three inscriptions that appear to predate the apocope and anyway also contain MAQI '(of) son' with preserved /k^w/. If the forms are read /deg^wō(s)/ in accordance with Cowgill, then it must be concluded that the sign G represented both /g/ and /g^w/, in which case NG hardly stood for the latter. The alternative of reading them as /degō(s)/ would imply that /g^w/ was simplified to /g/ somewhat earlier than /k^w/ to /k/, which would not only spoil the neat parallelism of Cowgill's construct but also accords ill with the need to locate each of these reductions after both raising and lowering (IV.2.1b/c and 3.4). However, a way out of this impasse would be the *a priori* reasonable assumption that both /g^w/ and /k^w/ were first dissimilated to /g/ and /k/ before a following rounded back vowel (i.e. *u/ū* or *o/ō*), then rounded a following *a* and *i* to *o* and *u* respectively (IV.3.4), and finally were simplified in all other environments. Some support for this hypothesis may be found in QUNACANOS, on which Ziegler (1994, 224) remarks: 'The <Q> can hardly be an archaising spelling here because the inscription is to be dated to the time of vowel raising and lowering (see also CUNALEGI). According to Korolev... the sign <Q> stands for a /k/ labialised by the following -u-. However, CUNALEGI without the alleged labialisation is also attested on the same inscription.' McManus rightly posits hypercorrect Q for C here because the difference between them had already been lost in front of /u/ before lowering and corroborates this with the observation that 'the Wroxeter inscription (xxi **CUNORIX MACVS MAQUI-COLINE**) shows that the labial in /k^w/ (Q in Ogam) was lost earlier before back than before front vowels' (1991, 90). All that we now need to do in order to solve the problem of DEGO(S) is extend this rule to /g^w/, cases like TRIA MAQA '(of the) three sons' or INEQAGLAS indicating a restriction of its operation to position before a rounded back vowel.

5.2 The phonemic system below probably applied at the beginning of the Ogam period when lenition and palatalisation, although no doubt present and/or developing at allophonic level, had not yet obtained phonemic status and so were given no written recognition.

voiceless stops:		t	k	k ^w	
voiced stops:	b	d	g	g ^w	
sibilants:	s	s ^t			
nasals:	m	n			
liquids:	r	l			
semivowels:	w	y			
short vowels:	i	e	a	o	u
long vowels:	ī	ē	ā	ō	ū
diphthongs:			ai	oi	

Allowing for use of the digraphs AI and OI to spell the two diphthongs, we find fifteen consonant phonemes, to each of which (in the likely event that McManus is right) a separate Ogam sign corresponded, and five pairs of short and long vowel phonemes, each represented by a single bivalent sign without regard to distinctions of length securely inferred from a comparison between Old Irish and other Celtic and Indo-European languages. Unlike its Old Irish counterpart Ogam orthography distinguishes between non-initial voiced and voiceless stops as in MAQI-DEC(C)ED(D)A(S) vs. OIr. *Mac-Deichet* /mak dex'əd/ or TOGITACC vs. OIr. *Toicthech* /tog'θ'əx/.

The fifth and sixth centuries to which the vast majority of the older inscriptions seem to belong were, of course, a time of cataclysmic change for Irish, the most important result being the phonemicisation of lenition and palatalisation in the wake of the loss of certain final consonants and the subsequent reduction or loss of final vowels around the middle of this period. Nevertheless, neither of these crucial innovations was recognised by a system of orthography with already established basic conventions. Geminate spellings of consonants are notoriously frequent on Ogam inscriptions but efforts to link them with an opposition between unlenited and lenited variants must be deemed to have failed. For instance, Harvey's (1987) attempt at establishing a correlation between geminate spelling and unlenited pronunciation by means of statistical prestidigitation is invalidated by an apparently inadvertent geo-graphical bias in his sample (Ziegler, 1994, 4-5) and by the arbitrary exclusion of by far the commonest words in the corpus with an unlenited stop, namely MAQ(Q)I later MAC(C)(I) (OIr. gen *maic*) and MUC(C)OI (OIr. *moccu*), which both occur a good deal more frequently with a single Q/C than with a double QQ/CC and thus firmly contradict his rule. McManus (1991, 125) is clearly right to emphasise 'the capricious nature of the phenomenon' as demonstrated by variation such as that between LUGUDECCAS and LUGUDECA (OIr. gen. *Luigdech* /luγ'ð'əx/), CATTUVVIR, CATTUVIR and CATVVIRR (OIr. gen. *Caithir* /kaθ'ər'/) or by the fact that 'of four examples of the name related to OI *allaid* with geminate *ll* and a lenited dental only one (250 ALLATO) has LL and the others (215 ALATTO, 5 ALATTOS and 224 ALOTTO) have TT' (1991, 126) and so on.

Since such variants are not otherwise distinguished by Ogam, it would be remarkable if the difference between [s] and its lenited allophone [h] had been given orthographic expression, particularly in view of McManus' convincing argument that the sign designated H in the later manuscript tradition can hardly have represented [h] on the early inscriptions and may well have been devised for the subsequently lost phoneme /y/. Consequently there is no reason to suppose that DEGOS, ALLATOS above represent [-ōs] rather than [-ōh] or MAQI-DECCEDDAS [-as] rather than [-ah] and so on. It is clear that a final *-h* was still present when unstressed long vowels were shortened except before *-h* by IV.2.1

and that it had disappeared (IV.4.2) when short final vowels, including those once followed by *-h*, were lost by the apocope of c. 500 A.D. (IV.4.3). The change *-h* > \emptyset is presumably represented by Ogam spellings such as DEGO, ALATTO implying /- \bar{o} / and MAQI-DEC(C)EDA implying /-a/. Obviously a three stage development *-s* > *-h* > \emptyset between the earliest Ogam inscriptions probably dating from around the beginning of the fifth century and some time before the apocope roughly at its end is more of a squeeze than straightforward *-h* > \emptyset in the half century or so in question. The likelihood is, then, that postvocalic *-s* on Ogam inscriptions represented *-h* (or even on occasion \emptyset) and that its omission reflected loss of *-h* in auslaut as a rule. Various other fifth- and sixth-century developments such as raising or lowering of vowels and *k^w* > *k* that are sometimes reflected in Ogam spelling will be discussed in chapter four.

6.1. OLD IRISH. Before the end of the Ogam period the system in 5.2 had (with the exception of a phoneme in square brackets) been transformed into the following phonemic inventory of the early and classical Old Irish known from manuscript sources written (like Old Welsh; see Arwyn Watkins, 1966) in an insular version of standard Latin script from the later seventh century onwards (the *o*-diphthongs in round brackets had apparently merged with the corresponding *a*-diphthongs by the end of the seventh century).

non-palatal voiceless stops:	p	t	k		
palatal voiceless stops:	p'	t'	k'		
non-palatal voiceless fricatives:	f	θ	x		
palatal voiceless fricatives:	f'	θ'	x'		
non-palatal voiced stops:	b	d	g		
palatal voiced stops:	b'	d'	g'		
non-palatal voiced fricatives:	v	ð	ɣ		
palatal voiced fricatives:	v'	ð'	ɣ'		
sibilants:	s	s'			
aspirate:	h				
non-palatal nasals:	m	ṽ	N	n	[ŋ]
palatal nasals:	m'	ṽ'	N'	n'	[ŋ']
non-palatal liquids:	R	r	L	l	
palatal liquids:	R'	r'	L'	l'	
short vowels:	i	e	a	o	u
long vowels:	ī	ē	ā	ō	ū
diphthongs:			ai	oi	ui
	iu	eu	au	(ou)	
	īu	ēu	āu	(ōu)	
	ia				ua

As a result of the phonemicisation of palatalisation and lenition the number of consonant phonemes shows a remarkable threefold increase from just fifteen in 5.2 to forty five here. Acceptance of Thurneysen's doctrine that there was a third series of velarised or 'u-quality' consonants in addition to palatal and non-palatal (*GOI* 96-7) would add a further twenty two phonemes, while his postulate of moribund phonemic gemination of stops, nasals, liquids and *s* in Old Irish (*GOI* 89-91) yields a further twenty to produce a grand total of no less than eighty seven consonant phonemes. As Greene (1956 and 1962) has pointed out, not only is this a typologically incredible number to occur in conjunction with a full system of five short plus five long vowels and an appreciable number of diphthongs but there is no good empirical evidence for either of these two alleged extra phonemic contrasts in the synchrony of Old Irish. The obvious solution, then, is not to recognise them and to add just four (soon reduced to three) short *u*-diphthongs to the inventory as an equally effective and eminently economical substitute for the twenty two velarised consonants otherwise required. Phonemicisation of [ŋ] resulted from simplification of *ng* [ŋg] to *ng* /ŋ/ before or early in the Old Irish period.

6.2 The main areas of innovation in Old Irish orthographic practice as compared with the spelling conventions of Ogam were:

(a) A distinctly limited tendency to use geminate spellings to indicate non-lenition of nasals and liquids or even of voiced stops and *s* on occasion.

(b) The development of devices for indicating vowel length, namely an abortive experiment with geminate spelling or the ultimately successful alternative of writing a superscript ' probably derived from the Latin apex, neither of them used at all consistently.

(c) More or less regular use of the Latin digraphs *th*, *ch* and less frequently *ph* to distinguish the voiceless fricatives from the corresponding voiceless stops.

(d) Use of *p*, *t*, *c* to represent postvocalic (and, optionally, post-consonantal) internal /b/, /d/, /g/ owing to the effects of the first British lenition upon the pronunciation of Latin as well as the vernacular in Britain (4.2).

(e) A move towards employing vowel signs, more frequently in some contexts than in others, as indicators of palatal and non-palatal consonant quality.

A separate section will be devoted below to a more detailed discussion of each of the above along with any related matters deemed worthy of attention.

6.3 Although quite well attested in Ogam (e.g. *DECCEDDA* /dexeda/, *ALATTO* /alaθō/ in 5.2 or *COILLABBOTTAS* [koilavoθah] = OIr. gen. *Coilboth*, *COMMAGGAGNI* /coŋaγaγni/ = OIr. gen. *Comgá(i)n*), geminate spellings of the lenited counterpart of a stop, liquid or nasal are rare indeed in Old Irish ortho-graphy, a mere handful of examples having been noted in seventh-century Latin texts in the Book of Armagh (references to Bieler, 1979): e.g., *Bregg* (Muirchú

I 14,2; standard *Breg* /breɣ/), *Roddanus* (Tírechán 7,1; OIr. *Rúadán* /ruaðān/), *Coimmanus* and *Connanus* (7,2; OIr. *Coímán* /koiṽān/ and *Conán* /konān/; see Carney, 1978/9, 419-21, and McManus, 1986, 9).

Optional doubling of unlenited stops, liquids and nasals is a feature of both Ogam and Old Irish (to say nothing of Old Welsh; 4.2) orthography. In the case of (*pp*), *tt* and *cc* for internal postvocalic (/p/ or /b/,) /t/ or /d/ and /k/ or /g/ such duplication was trivial since the corresponding lenited sounds were normally spelt *f/ph* and *b, th* and *d, ch* and *g* respectively: e.g., OIr. *bec* or *becc* /beg/ 'small' (Mod. *beag*), *mac* or *macc* /mak/ 'son' (Mod. *mac*), nom. sg. *ette* /et'e/ 'wing' (Mod. *eite*) vs. dat. pl. *itib*. Occasional spellings of a voiced stop as *bb*, *dd* or *gg* in this environment such as the Book of Armagh's *ardd* /ard/ 'high' (*Thes.* II 242.17; Wb./Ml. *art* or *ard*) and acc. *abbaiith* 'abbot' (*Thes.* II 242.21; Wb. dat. *apid* /abəð'/) may be vestiges of Ogam usage.

Since /v/, /ð/, /ɣ/, /ṽ/, /n/, /r/, /l/ were almost invariably represented by single *b, d, g, m, n, r, l* respectively in Old Irish (as in Old Welsh; 4.2) orthography, the geminate spellings *bb-*, *dd-*, *gg-*, *mm*, *nn*, *rr*, *ll* were useful as a virtually unambiguous way of indicating the unlenited counterparts /b-/ , /d-/ , /g-/ , /m/, /n/, /r/, /l/. In initial position after a proclitic *b, d* or *g* could represent /b/ or /v/, /d/ or /ð/, /g/ or /ɣ/ but, nonetheless, unambiguous geminate spellings such as *nu:ggabad* /nu gavəð/ 'he might take' (*Thes.* II.242.7; standard *no:gabad*), *du:bbert* /du bert/ 'conferred' (*Thes.* II 241.16 and 242.18; Ml. *do:bert*) vs. rel. *du:bert* /du vert/ 'who conferred' (*Thes.* II 242.9) in the Book of Armagh are rare in texts from the Old Irish period. On the other hand, the doubling option was employed a good deal more frequently after vowels in the case of the nasals and liquids: e.g., *lám* /Lāṽ/ 'hand' (Mod. *lámh*) but *lom* or *lomm* /Lom/ 'naked' (Mod. *lom*), *glan* /glan/ 'clean' (Mod. *glan*) but *cenn* /ken/ 'head' (Mod. *ceann*), *du:luith* or *du:lluid* /du luð'/ 'came', *fo:cicherr* or *fo:cicher* /fo kix'əR/ 'will put'.

6.4 Gemination would seem to have been the first device employed in order to distinguish a long from a short vowel. Thus the seventh-century Cambrai Homily mostly leaves vowel length unmarked but sometimes indicates it by doubling: e.g., *is ee* (*Thes.* II 246.6) or *iss e* (246.33) /is ē/ 'it is', *ood* /ōð/ 'from him' (244.25), *baanmartre* /bānṽartre/ (246.30) or *banmartre* (247.1). The superscript generally employed to denote length in Old and Middle Irish from the main Würzburg glossator onwards seems to have been still an experimental device for his 'prima manus' predecessor: e.g., *tú:ercómlássát cómtínól* (Wb. 7^a7; standard OIr. *do:erchomlaiset comthinól*), where length was clearly not the criterion as only the non-initial stressed vowel of the deuterotonic compound verb is not so marked. Typical examples of what then became standard, but still optional, usage from the main hand are *is hé* /is ē/ and *dígal*

vs. (Ml.) *digal* /dīγə/ 'vengeance', while compromises between the moribund doubling and the rising superscript system are also found on occasion: e.g., Wb. *gabáal* 'taking' alongside *indocbál* 'glory', *báas* alongside *bás* 'death', *láam* 'hand' alongside Ml. *lám* or *lam*, Arm. *cuírsagad* (*Thes.* II 242, 11) alongside Wb. *cúrsagad* 'reproaching' (*GOI* 20-1). In the common enough event that length is not indicated in the manuscript(s), editors normalise by writing the standard length mark (e.g. *lám* for ms. *lam* or *lám*) or a macron (e.g. *lām* for ms. *lam* vs. *lám* for ms. *lám*).

6.5 As Harvey (1989) points out, the digraphs (*ph*), *th*, *ch* normally used to spell Old Irish (/f/), /θ/ and /x/ were employed in Latin orthography but hardly represented voiceless fricatives there. Given that the spellings with *h* were not yet firmly established in the Würzburg 'prima manus', which may also (e.g. Wb. 7^a7 in 6.4 above) use ambiguous *t*, *c* as in Ogam orthography, he goes on to suggest that the second British lenition of /p/, /t/, /c/ to /f/, /θ/, /x/ (III.4.4) might perhaps have led to words like *pulcher* and *bracchium* being pronounced /pulxer/ and /braxium/ in British Latin (cf. *uache* = Lat. *vaccae* 'cows' in the *Surrexit* memorandum; Jenkins and Owen, 1984, 103). This could then have paved the way for association of the potentially unambiguous *h* with the voiceless fricatives first in Britain and then in Ireland, although an Irish origin can scarcely be ruled out in view of the earlier development of voiceless fricatives in Goedelic. Be that as it may, the practice was only just beginning to establish itself in Old Irish orthography by the later seventh century on the evidence of the Würzburg 'prima manus'.

One might add that the Cambrai Homily mostly uses *c* for /k/ and *ch* for /x/ but also has several examples of *ch* for /g/ (internal /g/ or nasalised /k/) and *c* for /x/: e.g., *din cenelu* (*Thes.* II 244.23-4; standard *din chenélu*), *tre cenele* /tre xen'ēle/ (247.21) vs. *tre chenelæ* (246.27), acc. *a chruich* /a xrux'/ (245.5), *diltuth* /dīltuθ/ (245.7) and so on; *i chomus* /i gomus/ (244.30; *i com(m)us*), *ar chruche* /ar grux'e/ (245.11; *ar cru(i)che*), *loch* /log/ (245.36; *loc(c)*), *tond:echomnuichuir* /tond egə̃nəgə̃r'/ (247.11-12; *dond:ecomnacair*) vs. *bec* /beg/, gen. pl. *inna cloen* /iNA gloin/. Although the homily seems to have been 'transcribed - with every misreading which the Irish script could suggest - by a Continental copyist ignorant of Irish' (*GOI* 9), the *ch* for /g/ in particular can hardly be due to this. It thus looks as though this seventh-century composition had not yet rigidly differentiated the spellings with and without *h* (cf. Wb. *prima manus*) in the case of the gutturals at least but nevertheless showed a marked preference for *ch* to spell what would otherwise be *c* representing /g/ or /x/. This suggests that *p* and *ph*, *t* and *th*, *c* and *ch*, having been inherited as mere variant spellings of /p/, /t/ and /k/ in Latin, may first have been differentiated in Irish by the expedient of simply continuing to use basic *p*, *t* and *c* for the voiceless stops while using spare *ph*, *th* and *ch* to spell

their 'mutations' /b/, /d/, /g/ and /f/, /θ/, /x/. Whereas the experiment with *ch* = /g/ (either as a nasalisation of initial /k/ or as a variant /g/ of internal *c* /k/) and so on proved abortive, use of *ph* (alongside *f* and allowing for a reluctance to mutate initial *p*- as it was confined to loanwords; V.5.1), *th* and *ch* had established itself as the overwhelmingly normal method of representing the voiceless fricatives by the time of the roughly mid-eighth-century Würzburg main glossator and has been basically continued ever since: e.g., OIr. *pridchim* /prið'x'əm'/ 'I preach', *do thab(a)irt* /do θavər't'/ 'for giving' (unlenited base *tab(a)irt*), *étach* /ēdθx/ 'clothing', *ata chomarpi* /ada xoṽərbi/ 'who are heirs' (unlenited base *comarpi*).

Since /x/ was the only phonotactically permitted guttural before /t/ by virtue of II.1.5(a), there was no phonemic opposition between /k/ and /x/ in this environment with the result that a *c* spelling was unambiguous and survived as an uncommon variant of *ch* here even in sources from the eighth century and later: e.g., Cambrai acc. pl. *s(c)lictu* /slixtu/ 'footsteps' (*Thes.* II 244.32; Sg. *sliucht*), *rectire* /rextər'e/ 'steward' (Wb. 17^d13 'prima manus'; Sg. *rechtaire*), Wb. main hand *act* or *acht* /axt/ 'but'.

6.6 The establishment of a British-style pronunciation of Latin in Irish clerical circles would have been a natural enough consequence of a fifth- and sixth-century process of Christianisation in which British missionaries played a decisive part, and Latin loanwords such as OIr. *loc(c)* /log/ 'place' (< Lat. *locus* pronounced /loguh/ in the British manner as in 4.2 above; ModIr. *log*) supply plenty of good evidence for just such a pronunciation.

Since the first British lenition responsible for voicing /p/, /t/ and /k/ to [b], [d] and [g] between a vowel and another sonorant (4.2) had almost certainly not yet taken place at the beginning of this period, one would expect the inventor(s) of the Ogam alphabet to ascribe the phonemes /t/, /k/ and /k^w/ plus (once they had arisen) their new (III.4.2) lenited allophones [θ], [x], [x^w] to T(T), C(C), Q(Q) and the phonemes /b/, /d/, /g/, /g^w/, /s/, /m/, /n/, /r/, /l/ plus their old (III.4.1) lenited allophones /v/, /ð/, /y/, /y^w/, /h/, /ṽ/, /n/, /r/, /l/ to B(B), D(D), G(G), 'NG', S(S), M(M), N(N), R(R), L(L). This seems to be exactly what happened (5.2). One would also expect postvocalic *p*, *t* and *c* to have the values /p/, /t/ and /k/ in early loans from British Latin and then be adapted or subjected to the effects of Irish lenition of the last two to [θ] and [x]. This too is borne out by the material: e.g., MidIr. *ortha* 'prayer' < OIr. **orthu* < **orathiyu* < Lat. *oratio* (/orθt-/?; cf. VI.2.4), OIr. *cuithe* 'pit' < **k^vuθiyah* < Lat. *puteus*.

As McManus (1983) has conclusively demonstrated (VI.2.5), the absorption of Latin loanwords into Irish during the fifth and sixth centuries was a continuous process in the course of which the individual equivalences involved were liable to modifications triggered at various stages by changes in the phonological (and morphological; McManus, 1984) structure of the source

and/or target language. One such change was, of course, British lenitional voicing of the voiceless stops at a time when Irish had a clear phonemic distinction between /t/[θ] and /d/, /k^(w)/[x^(w)] and /g^(w)/ in intervocalic position: e.g., OIr. *cét* /kēd/ 'hundred' (Mod. *céad*) < */kēdan/ (< PC **kantom*; cf. MW *cant*) vs. OIr. *cethair* /keθər/ 'four' < */k^wetures/ [k^weθureh] or OIr. *tocad* /togəð/ 'luck' < */togetas/ [togeθah] vs. *tochim(m)* /tox'əm/ 'gait' < */tokemen/ [toxemen]. It was, then, natural to associate the new British Latin voiced pronunciations with an Irish voiced stop phoneme: e.g., OIr. *loc(c)* /log/ 'place' above, *notaire* /nodər'e/ < Lat. *notarius* [nodōriuh], *oróit* /orōd'/ 'prayer' (borrowed later than *orthu* above) < Lat. *oratio* [orōd-] (VI.2.3b-4 and 2.7), *Notlaic* /nodləg'/ 'Christmas' < **nodolig* < Lat. *Natalicia* [nōdōlig-] < [nōdōlig-] (VI.4.3). These and plenty of other similar examples suffice to show that by some stage in the later fifth century before the general apocope (cf. *notaire* < **nodareya(h)*) the new British Latin fashion of voicing a hitherto voiceless stop between a vowel and another sonorant had established itself in an Irish Church still intimately connected with its British counterpart. In other words, from this time on the pronunciation of Latin in both Celtic Britain and Ireland essentially conformed to the principles adumbrated in 4.2 above.

When, in all probability not long before the middle of the seventh century (McCone, 1989, 72-3), the Roman alphabet began to be used in monastic circles to write continuous Irish texts on vellum, Irish clerical pronunciation of Latin after the British fashion was almost bound to be decisive in the first instance. Thus *b*, *d*, *g* and *m* had the values /b/, /d/, /g/ and /m/ in unlenited contexts (basically in anlaut or after a consonant) but /v/, /ð/, /ɣ/ and /ʃ/ in lenited ones, whereas *p*, *t* and *c* had the values /p/, /t/ and /k/ in unlenited environments but otherwise corresponded to voiced /b/, /d/, /g/. Typical vernacular examples of these rules, which were naturally extended to take in the Irish initial mutations, are *ben* /ben/ 'woman' but *a ben* /a ven/ 'his woman' (Mod. *bean*, *a bhean*), *slíab* /sliav/ 'mountain' (Mod. *sliabh*) but *scúap* /skuab/ 'brush' (< Lat. *scopa* [skōba]; ModIr. *scuab*) and *sop* /sop/ 'wisp' (Mod. *sop*); *deug* /deuɣ/ 'drink' but *mo deug* /mo ðeuɣ/ 'my drink' (Mod. *deoch*, *mo dheoch*), *bodar* /boðər/ 'deaf' (Mod. *bodhar*) but *bot* /bod/ 'penis' (Mod. *bod*) and *brat* /brat/ 'cloak' (Mod. *brat*); *galar* /galər/ 'sickness' but *a galar* /a ɣalər/ 'his sickness', *mag* /maɣ/ 'plain' (Mod. *ma(i)gh*) but *macraille* /magrəl'e/ 'testicle(s)' (Mod. *magairle*) and *macrad* /makrəð/ 'group of boys' (Mod. *macra(dh)*); *mac* /mak/ 'son' but *a mac* /a ʋak/ 'his son' and *a (m)mac* /a mak/ 'her son', *comadas* /koʋəðəs/ 'fitting' but *com(m)us* /komus/ 'power'; *tech* /tex/ 'house' but *a tech* /a dex/ 'their house' (Mod. *teach*, *a dteach*) and *étach* /ēdəx/ 'raiment' (Mod. *éadach*); *cath* /kaθ/ 'battle' but *i cath* /i gaθ/ 'in battle' and *cocad* /kogəð/ 'war' (/g/ < -nk-; *con* + *cath*; ModIr. *cogadh*).

Since postconsonantal position was non-leniting in Irish and, in the first

instance (prior to III.4.4), British, it is not surprising that *b*, *d*, *g* can still represent voiced stops there in Old Irish. However, the spellings *b*, *d*, *g* not only compete in this environment with less common *p*, *t*, *c* (no doubt by extension from their function as spellings of non-initial /b/, /d/, /g/ after a vowel) but also sometimes represent lenited /v/, /ð/, /ɣ/ that came to stand after another consonant as a result of syncope (or, in the case of *b*, /w/ > /v/ after a voiced consonant by III.4.1). For instance, *fedb* /feðv/ 'widow' (< *wiðvā < *widwā; MW *gwedw*, Lat. *vidua* etc.) vs. *odb* /oðb/ 'knot' (Mod. *fadhb* '(knotty) problem'); *derc(ad)* /derk(əð)/ '(eye) socket/looking' (Mod. *dearc(adh)*) vs. *derg(ad)* or *derc(ad)* /derg(əð)/ 'red(dening)' (Mod. *dearg(adh)*) vs. *éirge* /ē'ɣ'e/ 'rising' (< *ēreye; Mod. *éirghe* or *éirí*); *art* /art/ 'stone' (Mod. *art*) vs. *ard* or *art* /aɾd/ 'high' (Mod. *ard*) vs. *airde* /aɾ'ð'e/ 'sign' (Mod. *airdhe* or *airí*); *ingen* /iŋ'(g)ən/ 'nail' (Mod. *ionga*) vs. *ingen* /in'ɣ'ən/ 'daughter' (Ogam INIGENA; Mod. *inghean* or *iníon*). Although it is not possible to establish the precise value of *c* or *g*, say, from a single occurrence, the overall ground rules are that fluctuations between *c* and *g* prove /g/ and that, given an adequate number of attestations, invariable *g* or *c* point to /ɣ/ and /k/. In practice, of course, Modern Irish reflexes and/or etymological considerations often clinch things.

It is to be noted that the position directly after a proclitic counts as anlaut in this context, an 'inlaut' spelling here such as Cambrai *ba calar* /ba galər/ 'it was a sickness' (*Thes.* II 246.15) being quite unusual and contrasting with normal *na galar* /na galər/ 'any sickness' (245.34), *fo:geir* /fo ger'/ 'heats' (246.2) etc. in the same text. The following examples of Old Irish compound verbs should serve to illustrate some basic phonological and orthographic alternations of this type: deuterotonic *as:beir* /as ber'/ 'says' (or lenited relative /as ver'/ 'who says'), *do:beir* /do ber'/ 'gives' (or /do ver'/ 'who gives'), *fo:daim* /fo daĩ'/ 'suffers' (or /fo ðaĩ'/ 'who suffers'), *ad:gair* /að gar'/ 'summons' (or /að ɣar'/ 'who summons'), *fo:gaib* /fo gav'/ 'gets' (or /fo ɣav'/ 'who gets'), *con:tuli* /kon tul'i/ 'sleeps', *do:claid* /do klað'/ 'digs' (lenited rel. *do:chlaid* /do xlað'/ 'who digs', nasalised rel. *do:claid* /do glað'/ 'which he digs') vs. prototonic *-epir* /eb'ər'/, *-tab(a)ir* /tavər'/, *-fodaim* /foðəĩ'/, *-acair* /agər'/, *-fogaib* /foɣəv'/, *-cotl(a)i* /kodli/ (/d/ < -nt-), *-tochlaid* /toxləð'/.

6.7 Whereas palatalisation was phonemically irrelevant to the system in 5.2 above held to have been in effect when the Ogam alphabet was devised and so continued to be ignored in Ogam writing even after the apocope had first rendered it phonemic to any significant extent (IV.4.3), seventh-century efforts to forge a new means of writing Irish could hardly ignore so crucial a feature of the sound system (see 6.1) they were trying to capture. The method adopted was to use *a* as a non-palatal off-glide, *e* or *i* as a palatal off-glide and *i* as a palatal on-glide. No glide was written if a back vowel *a/ā*, *o/ō* or *u/ū* was

flanked by non-palatal consonants (C_C), if a front vowel *e/ē* or *i/ī* was preceded by a palatal and followed by a non-palatal consonant (C'_C) or if *i/ī* was flanked by palatal consonants (C'_C'): e.g., nom. *mac* /mak/ `son', *dán* /dān/ `gift', *cruth* /kruθ/ `shape', gen. *crotho* /kroθo/, nom. *slógad* /slōγəð/ `hosting', *rún* /rūn/ `mystery', *tech* [t'ex] `house', *tét* [t'éd] `rope', nom. *mil* [m'íl] `honey', *fíus* /fíus/ or *fís* [f'ís] `knowledge' (V.5.4), *síl* [s'íl] `seed', gen. *síl* [s'íl].

Since palatalisation of initial consonants (IV.3.3-4) was by and large still a mere allophonic concomitant of a following front vowel or a diphthong with *i/ī* or *e/ē* as first element, there was no call for an off-glide in stressed syllables. In the Old Irish Glosses an on-glide *i* was mostly inserted between a short or long stressed back vowel *a*, *o*, *u* (and *íu*, *éu*, *úa*, the only non-*i*-diphthongs occurring in this environment) and a following palatal consonant, particularly in closed syllables, but this practice was somewhat less common after the front vowel *e*: e.g., gen. *maic* /mak'/ `son's', acc. *rúin* /rūn'/ `mystery', 3sg. *as:beir* (occasionally *as:ber*; II.5.2) /as ber'/ `says', nom. pl. *eoin* /ēun'/ `birds', 3pl. *-taibret* /tav'r'əd/ `give' (but *-epret* /eb'r'əd/ `say'), 3sg. *beirth-i* or *berth-i* /ber'θ'i/ `bears it', 3pl. *as:beirtis* or *as:bertis* /as ber'd'əs'/ `used to say', ipv. 2sg. *teilc* /tel'g'/, 2pl. *telcid* /tel'g'əð'/ `throw!' and in an open syllable 3sg. *berid* `bears', 2pl. *do/as:berid* /ber'əð'/ `you bring/say', 3sg. *-léici* or *-léci* /lēg'i/ `leaves', gen. *tuaithe* or *tuathe* /tuaθ'e/ `kingdom's'. The Cambrai Homily too mostly writes the palatal on-glide after a stressed back vowel in closed syllables but is less consistent in open ones or in the case of stressed *e*: e.g., *airde* /ar'ð'e/, acc. *cruich* /krux'/ twice but gen. *cruche* /krux'e/ three times, gen. *coirp* /cor'p'/, *coicsath* /kog's'aθ/, gen. *duini* /dun'i/, dat. *duiniu* /dun'u/, *ine chuis* /xus'/, *ine laim* /lāĩ'/ etc., *-secheth(ar)* /sex'əθ(ə)/, *-ber* /ber'/ three times vs. *-beir* /ber'/ twice and *-geir* /ger'/ once (see V.4.2-3 on unstressed vowels in Cambrai). Presumably the practice of writing a palatal on-glide arose before a back vowel first because it was more audible in that environment, e.g. [du'n'e], [lā'ĩ'], and then began more slowly to be used as an indication of palatalisation after *e/ē*, where the non-phonemic on-glide would have been non-existent or at most barely notice-able in pronunciation, e.g. [ber'].

Short preconsonantal unstressed vowels apart from *u* had been reduced to /ə/ not long before the eighth century (V.4.3) and this phoneme was spelt differently according to the quality of the flanking consonants, namely as *a* between two non-palatals (C_C), *e* between a palatal and a non-palatal (C'_C), *i* between two palatals (C'_C') and (*a*)*i* with frequently omitted optional off-glide between a non-palatal and a palatal (C_C'): e.g., 3sg. *berid* /ber'əð'/, *-tabir* or *-tabair* /tavər'/, 3pl. *berit* /berəd'/, (*do/as*)-*berat* /berəd'/, *-taibret* /tav'r'əd/, *-epret* /eb'r'əd/. After a palatal consonant an off-glide *i* was usually

written before *-u(-)* and an off-glide *e* before final *-o* or *-a*, an off-glide *a* being less regularly used between a non-palatal consonant and final *-e* or *-i*: e.g., *teilciud* /tel'g'uð/ 'casting', *ro:léicthea* /ro lēg'θ'a/ 'have been left', gen. sg. *doirseo* /dor's'o/ 'door's', nom. pl. *doirse* /dor's'a/ 'doors' (sg. *dorus*), gen. *láme* or *lámae* /lāvē/ 'hand's', gen. *sosceli* or *soscelai* /sok'ēli/ 'gospel's'.

Apart from the short *u*-series, the diphthongs in 6.1 above are not infrequently accompanied by a superscript mark of length in the manuscripts. Modern editorial practice is to write this over the first element except in the case of /oi/, /ai/, and /ui/, where it is written over the second in order to avoid orthographical confusion with /ā/, /ō/ and /ū/ plus palatal on-glide. Hence *áe* or *ái*, *óe* or *óí*, *uí*, short *iu*, *eu*, *au* (*ou*) vs. long *íu*, *éu*, *áu* (*óu*), and *úa*, *ía*. No such consistency is observed in the originals: e.g., *tuath*, *túath* or *tuáth* /tuaθ/ 'kingdom', *óen*, *oén*, *oen* or *oín* /oin/ 'one', *fiadib* or *fiadib* /fiad̪v/ 'before you/them', gen. *ceniuil*, *ceníuil*, *cenéiuil* or *ceneiuil* /ken'ēul/ 'kindred's', nom. pl. *beiuil* /bēul/ 'lips, mouth' (but see V.5.4).

6.8 Loss of *f* (< *w*) by lenition was not normally marked in Old Irish: e.g., Wb. *oinfer* /oin'ər/ 'one man', *ind fir* /ind ir'/ 'the men', Tur. *do foísitin* /do ois'əd'ən/ 'for confession' as opposed to the quite unusual phonetic spelling *m'oísitiu* /m ois'əd'u/ 'my confession' (Ml. 46^b12). Not until later in the period was a compromise between these extremes experimented with by writing a dot or *punctum delens* over the *f* in order to indicate both its lexical presence and non-pronunciation in a given instance such as *a forcomét* 'its (leniting) observation' (Sg. 22^a1).

Like /N/, /R/ and /L/, /s/ could be written double initially after a proclitic vowel as well as in postvocalic inlaut or auslaut and there was no consistent attempt at differentiation from its initial lenited variant /h/ normally written *s*: e.g., *soírad* /soirəð/ but *mo soírad* /mo hoirəð/ 'my deliverance', *-ges* /ges/ 'I may pray' or *-geiss* /ges'/ 'you may pray', *uisse* /us'e/ 'fitting'. By the time of the St. Gall Glosses the *punctum delens* could be optionally written over *s* (like *f*) to indicate its lenition to /h/: e.g., *di seirc* /di her'k/ 'of love' (Sg. 1^a2).

Apart from being the lenited counterpart of /s/, the non-lexical and invariably initial phoneme /h/ was also prefixed to an immediately following vowel by a non-leniting proclitic ending in a vowel as in Mod. Ir. *a cheann* 'his head' vs. *a ceann* 'her head' but *a aistear* 'his journey' vs. *a haistear* 'her journey'. Since, however, *h* was no longer pronounced in late Latin, it basically functioned as a silent letter in Old Irish as often in Old Welsh (4.5) orthography and no particular effort was made to associate it with prevocalic /h-/ in Old Irish. Thus the Old Irish ancestors of Modern Irish *is ea* 'it is' and *ní hea* 'it is not' were undoubtedly pronounced /is eð/ and /nī heð/ respectively but may be spelt either *is ed* or *is hed* and *ní ed* or *ní hed*.

The foregoing has sought to highlight the more important features of Old Irish orthography with regard to the phonological reality that lay behind it. Some further details will be found in *GOI* 18-26. The system described above continued in use without significant change, except insofar as this was due to certain phonological developments (V.6.1-4), until the end of the Middle Irish period c. 1200 A.D. Orthographical experimentation in the next four centuries of the Early Modern Irish period as a new standard gradually emerged from the old lies beyond the scope of the present work (see Ahlqvist, *SnaG*, 23-59).

