WHAT HAPPENED TO PRIMITIVE CORNISH /ɪ/ WHEN LONG IN CLOSED SYLLABLES?

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A B S T R A C T

Of the four unrounded front vowels in Primitive Cornish, /i/, /ɛ/ and /a/ remained stable when long in closed syllables, but /ɪ/ had a tendency to fall together with /ɛ/. Jackson (1953) and Williams (1995) dated this change to the twelfth century, but the present research indicates that in most words, the change took place substantially later. An analysis of spellings and of rhymes show that not all words changed at the same time. Most words in historical /-ɪz/ were pronounced [-ɪːz] in Middle Cornish and [-ɛːz] in Late Cornish. Those with historical /-ɪð/ and /-ɪθ/ were bimorphic in Middle Cornish, showing the sound-change in progress during that time. The process of change from [ɪː] to [ɛː] was one of lexical diffusion. The implications for the revived language are briefly examined.

1   BACKGROUND

1.1   **Previous work**

Jackson (1953) showed that there were four unrounded front vowels in Primitive Cornish and Breton (henceforth Prim CB). Examples are given in this table:

	Cornish	English	Welsh	Breton
/i/	*mis*	month	*mis*	*mis*
/ɪ/	*bys*	world	*byd*	*bed*
/ɛ/	*pes*	how many	*ped*	*ped*
/a/	*mas*	good	*mad*	*mad*

They will here be labelled /i/, /ɪ/, /ɛ/ and /a/, but /a/ plays no real part in the discussion. In Welsh, the phoneme corresponding to CB /ɪ/ was already /ɨ/. When stressed and long in closed syllables, /i/ and /ɛ/ remained stable in all three languages. According to Jackson (1967 §140), in Breton, /ɪ/ was lowered and fell together with /ɛ/ "by the end of the O[ld] B[reton] period", i.e. *c.*1100. He also suggested (Jackson 1953, §7(2)) that the same happened in Cornish at about the same time.

The present author (George 1984) put forward a much later date for the change /ɪ/ > /ɛ/ when stressed and long in closed syllables, viz. *c.*1650. This was based on the fact that in Middle Cornish (MidC) the vowel was spelled with a mixture of <y>-type and <e>-type spellings, while in Late Cornish, Lhuyd usually spelled it as <ê>. I also suggested that the change did not take place simultaneously for all words, but rather that a process of lexical diffusion was at work. Thus in the **Kernewek Kemmyn** (KK) orthography (George 1986), which is based on the MidC phase, all four front vowels are identified: /i/ <i>, /ɪ/ <y>, /ɛ/ <e> and /a/ <a>.

Williams (1995, §3.6) ascribed the lowering of [ɪː] (in his terms /ɪː > eː/) to his postulated prosodic shift, which he later dated to the 13th century. He stated that the sound change "was probably accomplished soon after the prosodic shift". He dismissed the many examples of <y>-type spellings in MidC in words containing the reflex of PrimC /ɪ/ as orthographic conservatism:

> "Even though *byth* [i.e. 3rd sg. fut. and 2nd sg. impv. of *bos* 'to be'] is overall more frequent than *beth* in all the Middle Cornish texts put together, we can be sure [*sic*] that the word was pronounced /beːð/, because this was the regular form in Late Cornish"

Williams (1995, §17.4) applied these ideas when he devised the orthography known as UCR[1]. So he re-spelled *byth* 'will be, be' as *bedh*, thus making it indistinguishable from *bedh* 'grave'.

Dunbar and George (1997, chapter 6) showed that the orthographic profiles of stressed monosyllables containing /-ɪːz/ in MidC and those containing /-ɛːv/ are very different, and claimed that:

> "in so far as one can prove anything in historical linguistics, that the two phonemes had not fallen together in Middle Cornish."

They also identified MidC *cref* 'strong' as a word in which /ɪ/ > /ɛ/ early.

In his latest monograph, which is an attempt to discredit **Kernewek Kemmyn**, Williams (2006, chapter 11) tackled in more detail the question of /ɪ/ when stressed and long in closed syllables. He listed numerous examples of stressed monosyllables containing /ɪ/, with their vowel spelled variously <e> and <y>, in both MidC and LateC, and also <ey>. His lists for <y> include *bysma* 'this world', which does not belong; here the <y> is short, as indicated explicitly in Lhuyd's notebook, p.26. He took these spellings at their face value, and postulated two different developments, attributed to two putative dialects:

(i)   [ɪː] > [eⁱ] > [eː]   to explain <e>-type spellings in LateC;
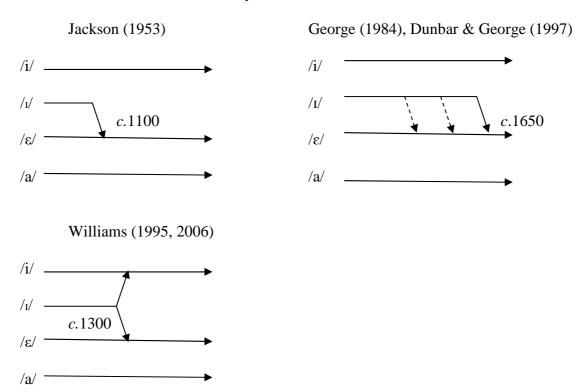(ii)   [ɪː] > [ɪi] > [ii] = [iː]   to explain <y>-type spellings in LateC.

Having examined these spellings, his chapter finishes with a *non sequitur:*

> "In fact, of course, [*sic*] there was no Middle Cornish /ɪː/. The vowel had already fallen together with either /eː/ as a result of the Prosodic Shift or with /iː/ for phonetic reasons or by analogy."

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[1]   i.e. Unified Cornish Revised

To sum up, we have the following possibilities for the development of the long unrounded front vowels in closed syllables:

Jackson (1953)   George (1984), Dunbar & George (1997)

/i/ ——————————————▶   /i/ ——————————————▶

/ɪ/ ————————┐   /ɪ/ ————————╲╲ ╲
            │ *c*.1100   *c*.1650
/ɛ/ ————————▼——————▶   /ɛ/ ——————————————▶

/a/ ——————————————▶   /a/ ——————————————▶

Williams (1995, 2006)

/i/ ——————————▲——————▶

/ɪ/ ——————————╱
         c.1300   ╲
/ɛ/ ——————————▼——————▶

/a/ ——————————————▶

In this paper the development of PrimC /ɪ/ when long in closed syllables is revisited in more detail. Not only the spellings but also the rhymes of the front vowels are taken into account.

2   METHODOLOGY

There are only three sources of information regarding the phonological history of Cornish:

  1)   Lhuyd's observations (1701)
  2)   Spellings of words in the texts
  3)   Rhymes in the texts

In addition, comparison with Breton and Welsh can be useful.

2.1   **Lhuyd's observations**

Table 2.1 shows that Lhuyd was aware of the sound-change [ɪː] > [ɛː]; it also suggested that /ɪ/ and /ɛ/ were in free variation.

Table 2.1   Extracts from Lhuyd's Archaeologia Britannica (1707)

AB018c   Y *chang'd into* E
                          [W.] Prŷd, *Time* : Corn. Prêz.
                          [W.] Prŷv, *A Worm* ; Corn. Prêv.
                          W. Gulŷdh, *Chick-weed*; Corn. Glêdh.
                          W. Bŷs, *A Finger or Toe*; Corn. Bêz.

AB228a
I *and* E *were used indifferently by the* Cornish.

AB230a
The Letter y *in* Cornish MSS. *has various pronunciations.*
For 1st 'tis frequently exchanged with e;

2.2   **Spellings of words in the texts**

The multiplicity of spellings used in traditional Cornish to represent the three vowels /i/, /ɪ/ and /ɛ/ when long in closed syllables may be grouped into four types:

	Medieval spelling of Middle Cornish	Lhuyd's spelling	Signpost spelling of Vernacular Late Cornish
<y>-type = {y}	*y, i*	*ŷ, î*	*i-e, ii-e, y-e, yi, ie, ye-e, ee, ee-e*
<ey>-type = {ey}	*ey, ei*	*ei*	*eye, ey-e, ei-e*
<e>-type = {e}	*e*	*ê*	*e-e, ea, ea-e*
Other			

The traditional corpus of Cornish was divided into chronological blocks, as follows:

PHASE	CODE	TEXTS
Old Cornish	VC	Vocabularium Cornicum, plus minor pieces
Middle Cornish	CE.	Charter Endorsement, plus minor pieces
	PC.	*Passio Christi*
	RD.	*Resurrexio Domini*
	OM.	*Origo Mundi*
	PA.	*Pascon agan Arluth*
	BK.	***Bywnans Ke***
	BM.	*Beunans Meriasek*
	TH.	Tregear Homilies
	SA.	*Sacrament of the Altar*
	CW.	*Creacon of the World*
Late Cornish	Lh.	Works by Edward Lhuyd
	VLC	Vernacular Late Cornish

Tables were drawn up showing the numbers of spelling-types of a given word (or set of words) in each of these blocks; these are known as orthographic profiles.

2.3   **Rhymes in the texts**

Middle Welsh poetry used strict and complicated rules of rhyme in *cynghanedd.* Middle Breton poetry used strict and complicated rules involving internal rhymes. In contrast, rhymes in Middle Cornish poetry were much looser. Nevertheless, the rhymes are a valuable source of information about the historical phonology. The textual material is arranged in stanzas, most[2] of which are based[3] on one of three principal rhyming schemes:

    (a)   ABABABAB;
    (b)   ABABCDDC;
    (c)   AABCCB.

Once the rhyming scheme of a stanza has been identified, one can ascertain which words rhyme, and indeed (often more usefully) which words contrast in rhyme. It was customary in Middle Cornish for stressed syllables to rhyme with unstressed syllables, and for voiced consonants to rhyme with unvoiced consonants. Rhymes in Late Cornish are more like those in English.

The concept of rhyming ensembles was introduced by Dunbar and George (1997: 94). A **rhyming ensemble** comprises sets of similar but not identical sounds which were customarily rhymed together in MidC verse. Typically sub-perfect rhymes in a rhyming ensemble include:

- stressed syllables with unstressed syllables;
- voiced consonants with unvoiced consonants.
- sometimes similar but not identical vowels were rhymed[4].

3   **ANALYSES OF WORDS WITH EARLY MIDDLE CORNISH ['ɪːz]**

3.1   **The *DHIS, BYS* and *MES* sets of words**

We first examine three sets of words ending in <-s> in Middle Cornish:

/-ɪz/   represented by ***bys*** 'world' is the set under investigation;
/-iz/   represented by ***dhis*** 'to thee', and
/-ɛz/   represented by ***mes*** 'out', are examined for comparison purposes

The core-words[5] in each set are those whose etymology is reasonably certain.

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[2]   The schemes in CW are more complicated, and not always evident.
[3]   There are numerous variations on the given rhyming schemes; see Bruch (2005).
[4]   In particular, words with /-iC/ (C is any consonant) were frequently rhymed with words in /-ɪC/, but as we shall see, that does not mean that /i/ and /ɪ/ had fallen together.
[5]   The analysis includes compounds of these words, where appropriate; e.g. ***norvys*** 'world' as well as ***bys***.

3.1.1 Core-words in the *BYS* set

KK	English	Origin	Welsh	Breton	Middle Cornish			Late Cornish
					{y}	{ey}	{e}	
brys	mind	Celt. *brit-*	*bryd*	-----	22	10	1	*Brêz*
bys	world	Celt.	*byd*	*bed*	204	172	3	*Bêz, beaze*
hys	length	Celt. *si-tu-*	*hyd*	*hed*	9	9	1	*Hêz*
krys	believe(s)		*(cred)*	*kred*	75	29	1	*Krez*
prys	time	Brit. *pritu-*	*pryd*	*pred*	38	12	1	*Prêz*
pys	pray(s)			*ped*	97	38	3	*pidge*

Note that all of these words in the sister languages end in /-d/; in Cornish, assibilation to /-z/ (though written <-s>) took place *c*. 1225.

3.1.2 Core-words in the *DHIS* set

KK	English	Origin	Welsh	Breton	Middle Cornish			Late Cornish
					{y}	{ey}	{e}	
dhis	to thee	Clt.		*dit*	330	34	4	*theeze*
mis	month	Clt. *mîns*	*mis*	*miz*	7	3	1	*Mîz, mees*
pris	price	MidE < OldF	*pris*	*priz*	8	2	0	*Prîz, preeze*
sakrifis	sacrifice	MidE < OldF	*(sacriffeis)*		18	1	0	-----

This set contains both historic /-iːd/ and /-iːs/.

3.1.3 Core-words in the *MES* set

KK	English	Origin	Welsh	Breton	Middle Cornish			Late Cornish
					{y}	{ey}	{e}	
kres	peace	Clt. *kred-*	*cred*	*cret*	0	4	25	*cres*
les	profit	Clt.	*lles*	*les*	0	1	18	
les	width	Clt. *letos*	*lled*	*led*				
mes	out	Brit. *magest-*	*(maes)*	*(maez)*	0	3	205	*Mêz, meaz*
nes	near	Clt.	*nes*	*nes*	1	3	24	*Nêz, nez*

This set contains both historic /-ɛːd/ and /-ɛːs/.

3.2   **Analysis of spellings in the texts**

Every instance of the core-words in the texts was counted, and the results compiled in a spreadsheet, which supplied the numbers in columns 6 to 8 of the tables in section 3.1 above. The results are given in table 3.2.1:

*Table 3.2.1   Spellings of the core-words in the **DHIS**, **BYS** and **MES** sets*

		CE	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
DHIS	{y}	5	75	44	83	19	46	65	5	5	16	46	41
set	{ey}	0	0	0	3	1	0	5	0	0	31	1	1
(core)	{e}	0	0	0	0	0	1	2	0	0	0	0	7
BYS	{y}	0	82	65	67	27	73	11	62	5	53	11	12
set	{ey}	0	41	34	60	2	0	92	1	1	40	1	4
(core)	{e}	1	0	0	2[6]	2[7]	2[8]	1[9]	0	1[10]	0	16	32
MES	{y}	0	0	0	0	0	0	0	0	0	1	0	1
set	{ey}	0	0	2	1	0	0	9	2	0	0	0	0
(core)	{e}	2	26	54	39	18	21	37	0	1	32	24	30

This and other tables use the following colour-coding:
- Instances of ten or more spelling-types are printed in **bold**; these are the important data. For these cases, the cells are shaded in bright green where:
  - (a)   etymological /i/ or /ɪ/ are spelled with {y} or {ey};
  - (b)   etymological /ɛ/ is spelled with {e}.
- Cells which fit the pattern of the green bold cells, but have fewer than ten cases, are shaded in light green. (This usually applies to data from CE and SA).
- Cases of historical /ɪ/ being spelled with {e} are shaded in orange. (In Table 3.2, these indicate that in Late Cornish ['ɪːz] had changed to ['ɛːz]).
- The cells shaded in pale yellow form fewer than 10% of the relevant total, and are regarded as exceptions.
- Pink is used for the surprisingly large number of cases of **DHIS** words being spelled with {e} in vernacular Late Cornish.

It is highly significant that of all of the spellings in the **BYS** set, only 1.1% are of the {e}-type. Details and some explanations of these exceptional cases are given as footnotes. Ignoring these and the other yellow cells, and also the pink cell, a clear picture emerges, plotted as Table 2.1.4. (The green-shaded cells in this table indicate the usual spellings of the three sets of words). This is important because it identifies, apparently for the first time, the relationship between spelling and pronunciation for these words.

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[6]   *hes* 'length' at OM.0396; *gres* 'believe' at OM.1098
[7]   *pres* 'time' at PA.020*; pes* 'prays' at PA.105
[8]   At BK22.54, *bes* (rhyming with *pup prys* 'always') is the earliest example of ***bys*** being spelled with <e>; it may mean ['bɛːz], or it may be a scribal error. At BK19.85, ***brys*** 'mind' is spelled *vres,* although it rhymes with *bys*; the other eight instances of this word in BK are spelled with {y}.
[9]   At BM.4524, *beas* (for ***bys*** 'world') is a poor eye-rhyme with *guirhas* 'virgin'.
[10]   On page SA60v, *nore ves* 'world' may be an early case of the new sound ['ɛː].

*Table 3.2.2   Frequent spelling-types for words in the **DHIS, BYS** and **MES** sets*

		PC RD OM BM				PA BK TH				CW		
		{y}	{ey}	{e}		{y}	{ey}	{e}		{y}	{ey}	{e}
/i/	***dhis***	🟩				🟩				🟩	🟩	
/ɪ/	***bys***	🟩	🟩			🟩				🟩	🟩	
/ɛ/	***mes***			🟩				🟩				🟩

Table 3.2.2 shows that, at least on a statistical basis, four of the texts in MidC distinguish /-iːz/ and /-ɪːz / in these words.

3.2.1   /-iːz/, /-ɪːz/ and /-ɛːz/ were separate in Middle Cornish

Table 3.2.2 may be inverted to give table 3.2.3, which shows that four of the texts distinguished /i/, /ɪ/ and /ɛ/ when followed by /z/.

Table 3.2.3   Which phonemes are distinguished in writing?

	PC RD OM BM		PA BK TH CW
/-iːz/ and /-ɪːz /	yes		no
/-iːz/ and /-ɛːz /	yes		yes
/-ɪːz /and /-ɛːz /	yes		yes

This same result is also evident from the ternary diagram below.

/-Vz/ in MidC

The diagram shows the **MES** set (in green) clustering around the {e}-vertex, and clearly separated from the other words. The **DHIS** set (in brown) clusters around the {y}-vertex[11]. The blue cluster along the {y}-{ey} side represents the **BYS** set. The clusters are sufficiently well separated to confirm that in general in MidC:

> **the three front vowels were distinct when followed by /-z/.**

3.2.2 **The meaning of the spelling-types**

Table 3.2.2 may also be inverted to give table 3.2.4:

Table 3.2.4   The meaning of spelling-types in each text

	PC	RD	OM	PA	BK	BM	TH	CW
{y}	/i:/ or /ɪ:/							
{ey}	/ɪ:/					/ɪ:/		/i:/ or /ɪ:/
{e}	/ɛ/							

- {y} is ambiguous in all texts; it may mean /i:/ or /ɪ:/.

- {ey} means /ɪ:/ in PC, RD, OM and BM, but in CW it is ambiguous (/i:/ or /ɪ:/).

- In all texts the number of cases of {e} being used for /i/ or /ɪ/ is so small as to be exceptional: **{e} is therefore a marker of /ɛ:/.** This may seem obvious, but to the author it was a revelation. (Previously I wondered if /ɪ:/, as a vowel between /i:/ and /ɛ:/, might not be represented by a mixture of {y} and {e}; but it is now clear that {e} means /ɛ:/ and not /ɪ:/). Indeed, if a word with historical /ɪ:/ is found in a later text regularly spelled with {e}, then it may be taken to have changed its vowel sound.

It is also of interest to compare the spellings of stressed [-'ɪ:z] (the BYS words) with unstressed [-ɪs] and of [eɪz] in the word **treys** 'feet' (table 3.2.5):

*Table 3.2.5   Comparing spellings of **BYS** with those of /-ɪs/ and /eɪz/*

		PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
BYS	{y}	82	65	67	27	73	11	62	5	53	11	12
set	{ey}	41	34	60	2	0	92	1	1	40	1	4
(core)	{e}	0	0	2	2	2	2			1	16	32
unstressed	{y}	300	165	273	366	233	347			261		2
/-ɪs/ in	{ey}	0	0	7	1	1	22			0		0
rhymes	{e}	0	0	3	0	4	2			67		1
treys	{y}	4	1	1	0	--	0	0	4	3	0	0
'feet'	{ey}	18	5	0	5	--	5	5	0	0	5	0
	{e}	0	0	0	0	--	0	0	0	0	0	0

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[11]   Except for **mis**, which in BM is spelled thrice with <ey> and once with <e>. BM is a text which used <ey> more as a marker of quantity than quality. Scribe A of BM (Rad[ulphus] Ton) used <ey> for /i:/and /ɛ:/ as well as /ɪ:/, (but Scribe B, who rewrote the first 260 lines, did not). This upsets the statistics. In the same way, he used <oy> for both /o:/ and /ɔ:/, which Williams (2006:chapter 7) mistook to mean that these two phonemes had fallen together.

- Where {ey} is used for the stressed case (PC, RD, OM, BM, CW), it may be regarded as a marker of length.
- In BM, {ey} is anomalously applied also to unstressed [-ɪs].
- In CW, [-ɪs] was often spelled <-es>, reflecting the change [-ɪs] > [-ɛs]; the original [-ɛs] had by then been lowered to [-as].

3.3   **Analysis of rhymes of words with /V:z/**

Though words containing [-'iːz] and [-'iːs] (the **DHIS** set) were naturally rhymed with one another on occasion, the number of such words was insufficient to form a large enough pool for the purposes of composition. These words were therefore usually rhymed, imperfectly, with words in [-'ɪːz] (the **BYS** set). Together the two sets formed part of a rhyming ensemble, here labelled $\mathscr{R}$iz. The fact that words from each set were regularly rhymed with one another does not mean that /ɪ:/ had fallen together with /i:/ in closed syllables; the orthographic profiles, and the fact that /ɪ:/ subsequently fell together with /ɛ:/ while /i:/ did not, shows that the two were kept separate.

Moreover, words in the **DHIS** and **BYS** sets were not rhymed with words in the **MES** set, which belonged to the $\mathscr{R}$ez ensemble, usually written *–es*. Indeed, it was possible for the $\mathscr{R}$iz and $\mathscr{R}$ez ensembles to contrast in rhyme, as in the following stanza:

PC.1069	*ow tas ma ny yl bones*	A	My Father, if it may not be	$\mathscr{R}$ez
PC.1070	*may treylyo mernens the ves*	A	that death turn away,	$\mathscr{R}$ez
PC.1071	*sav y wothaf thym a reys*	B	but that I must suffer it,	$\mathscr{R}$iz
PC.1072	*the volnegeth re bo gures*	A	Thy will be done;	$\mathscr{R}$ez
PC.1073	*rak an scryptor bynyges*	A	for the Holy Scriptures	$\mathscr{R}$ez
PC.1074	*reys yv y vos guyr porrys*	B	must of necessity be true.[12]	$\mathscr{R}$iz

All of the rhyming words in the **DHIS, BYS** and **MES** sets were examined and assigned to a rhyming ensemble. The results are tabulated below. Sometimes it was difficult to decide which ensemble a group of rhyming words belongs to; occasionally it was impossible, in which case the classification $\mathscr{R}$*z[13] is used.

3.3.1   **The DHIS set of words**

Table 3.3.1   Total number of DHIS words in ensembles $\mathscr{R}$iz and $\mathscr{R}$ez

Text	CE	PC	RD	OM	PA	BK	BM	CW	VLC
$\mathscr{R}$iz	0	31	15	42	10	10	20	32	0
$\mathscr{R}$ez	0	0	0	0	0	0	0	0	0
$\mathscr{R}$*z	0	1	0	0	0	0	0	1	0

No word in the **DHIS** set is associated with the $\mathscr{R}$ez ensemble.

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[12]   Translation by Graham Sandercock.
[13]   For example, at OM.1446, *my a greys* 'I believe' is rhymed with *moyses* 'Moses'; it is impossible to classify this rhyme as $\mathscr{R}$iz or as $\mathscr{R}$ez, so it is listed as $\mathscr{R}$*z.

3.3.2 **The core of the *BYS* set of words**

*Table 3.3.2   Total number of **BYS** words in ensembles ℛiz and ℛez*

Text	CE	PC	RD	OM	PA	BK	BM	CW	VLC
ℛiz	0	**102**	**66**	**95**	**10**	**74**	**63**	**95**	0
ℛez	0	0	0	1[14]	1[15]	0	2	0	5
ℛ*z	0	0	0	1	0	0	0	1	0

98% of the occurrences of the ***BYS*** words are found in the ℛiz ensemble; in Late Cornish a few are found in the ℛez ensemble, because by then ['-ɪːz] had become ['-ɛːz].

3.3.3 **The *MES* set of words**

*Table 3.3.3   Total number of **MES** words in ensembles ℛiz and ℛez*

Text	CE	PC	RD	OM	PA	BK	BM	CW	VLC
ℛiz	0	1[16]	0	0	0	0	7[17]	1[18]	0
ℛez	0	**12**	**34**	**10**	2	2	**14**	4	3
ℛ*z	0	0	1	0	0	0	0	2	0

Except in BM, almost all of the rhyming MES words appear in ensemble ℛez.

3.4 **Other words in the rhyming ensembles ℛiz**

The analysis of rhymes showed that the ensembles contained many other sets of words in addition to the three tabulated above. It was customary in Middle Cornish for stressed syllables to rhyme with unstressed syllables, and for voiced consonants to rhyme with unvoiced consonants. Thus in the ℛiz ensemble, stressed words such as ***bys*** ['bɪːz] were commonly rhymed with words in [-ɪs], notably past participles; in the ℛez ensemble, words ending in unstressed /-ɛs/ were common in earlier Middle Cornish, but tended to disappear after /-ɛs/ was lowered to [-as].

The information gained about these additional words proved to be a useful by-product of the analysis. The words are considered individually.

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[14]   At OM.0387, *hys* 'length' (a ***BYS*** word) is forced to rhyme with *nebes* 'few', *res* 'need' and *trylles* '…'; the <-es> in these three words, and their origin, show that the ensemble is to be classified as ℛez. It does not mean that the pronunciation of *hys* had been lowered to ['hɛːz]; the very spelling *hys* argues against this: we are just dealing with poor rhymes.

[15]   In stanza 029 of PA, *kekyffris* 'also' is rhymed with *benenas* 'women', *rag y welas* 'to see Him' and *a les* 'widely'.

[16]   At PC.0349, *geys* 'mockery' is rhymed with *gurys* 'done' on the following line; the only reason that these are classified as ℛiz is that both spellings end in <-ys>.

[17]   These are all poor eye-rhymes; the spelling <-eys> has been used to force the words into ℛiz.

[18]   At CW.2264, the word ***les*** 'length' sits unconformably with three words in /-ɪz/.

3.4.1 *spys* **'interval'**

This word is found principally in the Middle Cornish expression *a ver spys* 'in a short time'; it corresponds to Welsh *ysbaid* 'interval'.

*Table 3.4.1   Orthographic and rhyming profiles of **spys** 'interval'*

	PC	RD	OM	PA	BK	BM	TH	CW	Lh	VLC
{y}	3	5	1		4			3		
{ey}			1			1				
{e}										
ℛiz	3	5	2		3			3		
ℛez										
ℛ*z										

Table 3.4.1 shows that it has the same orthographic profile and rhyming pattern as the **BYS** set of words. We may reasonably deduce that the vowel in *spys* was [ɪː].

3.4.2 *y'n wis*

This curious hybrid expression is Middle English *ywis* 'surely', with an infixed pronoun, presumably meaning 'I know it'; it features in ensemble ℛiz.

3.4.3 *treys* 'feet'

As we have seen (table 3.2.5), *treys* had a distinctive orthographic profile, reflecting the pronunciation [-'eɪz]. At PC.0835 and OM.0760, the word formed a congruent rhyme with *leys* 'mud'. The word also featured four times, however, in the ensemble ℛiz:

*Table 3.4.3   Words which were rhymed with **treys** 'feet'*

Reference	Ensemble	1st rhyming word	2nd rhyming word	3rd rhyming word
PA.046	ℛiz	*ʒys* 'to thee'	*tregis* 'domiciled'	*golhys* 'washed'
BM.2030	ℛiz	*confundijs* 'confounded'	*guanys* 'gained'	
CW.0020[19]	ℛiz	*gwryes* 'done'	*pub preyse* 'always'	
CW.1747	ℛiz	*kevys* 'found'	*baradice* 'Paradise'	*leskys* 'burnt'

These rhymes were "half-rhymes", i.e. only the second element of the diphthong [eɪ] counted towards making the rhyme.

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[19]   The MS actually has *skavall droose*, but the rhymes indicate that this is a mistake for **skavall dreyse.*

3.5   **Additional sets and words found in both *ℛiz* and *ℛez* ensembles**

Certain words are found in both ensembles, *ℛiz* and *ℛez*, which suggest that they were bimorphic, and perhaps in transition between /-ɪz/ and /-ɛz/.

3.5.1   **The *LEHES* set of words**

The past participles of verbs in *–he* form a distinctive set. They are found in both the *ℛiz* and the *ℛez* ensembles, the fact that they are much commoner in *ℛiz* may just be because *ℛiz* is itself much commoner than *ℛez*. The {ey} spellings in PC, RD and OM (but not BM) indicate that the last syllable was stressed.

Table 3.3.3(a)   *Total number of **LEHES** words in ensembles **ℛiz** and **ℛez***

	PC	RD	OM	PA	BK	BM	CW	Total
{y}	3	2	3	0	15	1		
{ey}	1	4	4	0	0	9	1	
{e}	0	2	0	0	0			
<ee>			1				1	
ℛiz	4	5	7	0	15	9	2	42 (89%)
ℛez	0	3	1	0	0	1	0	5 (11%)

3.5.2   *gwrys* 'done'

Table 3.5.2   *Orthographic and rhyming profiles of **gwrys** 'done'*

	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
{y}	16	13	16	17	12	3	41	15	48	2	3
{ey}	1	0	10	0	1	27	0	7	0	7	1
{e}	1	2	3	1	0	0	0	2	3	0	23
Other					1						2
ℛiz	8	5	19	7	6	14			38		1
ℛez	1	3	2	4	0	0			0		3
*ℛ*z*									2		

The word **gwrys** comprises the root **gwr-** and the ending **–ys** for past participles. Most of the spellings and rhymes reflect ['gwrɪːz], but it is clear that a newer form ['gwrɛːz] also existed in MidC.

3.5.3   *res* **'necessity'**

Table 3.5.3   *Orthographic and rhyming profiles of **res** 'necessity'*

	PC	RD	OM	PA	BK	BM	TH	CW	Lh	VLC
{y}	1		8	10	18					
{ey}	14	18	10	2		24				
{e}	1		8	1	1					
ℛiz	10	2	3	2		4		4		
ℛez		2	1	1				1		
*ℛ*z*		1				1				

It is of interest to compare this word with **spys** (para. 3.4.1). The vowel in both arose from *i*-affection of *a.* It is therefore tempting to suppose that *i*-affection of *a* always gave /ɪ/, but table 3.5.4 shows that this is not the case.

Table 3.5.4   Words which suffered i-affection of British a

KK	English	Origin	Welsh	Breton	OldC	MidC	LateC
bregh	arm	Lat. *bracchium*	*braich*	*brec'h*	*Bregh*	*bregh*	*Brêh*
gwreg	wife	Clt. *ṷrakō*	*gwraig*	*gwreg*	*grueg*	*gurek*	*gwreage*
hes	shoal	Brit. *satjo-	*haid*	*hed*	-----	-----	*Hêz*
res	necessity	Lat. *ratiō*	*rhaid*	*ret*	-----	*rys, res*	-----
spys	interval	Lat. *spatium*	*ysbaid*	-----	-----	*spys*	-----

Late Cornish *Hêz* may have been preceded by **hys*, but in the case of bregh and gwreg, the result of the affection was /ɛ/ rather than /ɪ/. Languages are just not as neat as we might like them to be!

3.6   **Summary of results from rhymes**

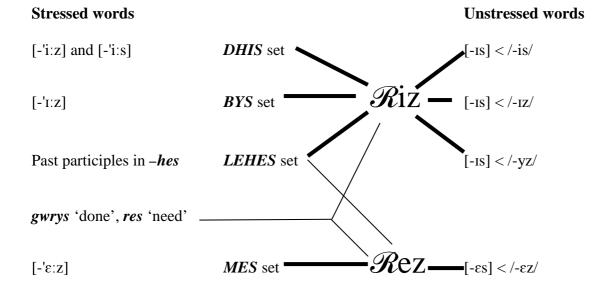The following diagram illustrates the contents of the two ensembles in early MidC.

Stressed words   **Unstressed words**

[-'iːz] and [-'iːs]   ***DHIS*** set   [-ɪs] < /-is/

[-'ɪːz]   ***BYS*** set $\mathscr{R}$iz   [-ɪs] < /-ɪz/

Past participles in –***hes***   ***LEHES*** set   [-ɪs] < /-yz/

gwrys 'done', ***res*** 'need' _____

[-'ɛːz]   ***MES*** set $\mathscr{R}$ez ——[-ɛs] < /-ɛz/

Table 3.6   Total number of rhyming words in ensembles $\mathscr{R}$iz, $\mathscr{R}$ez and $\mathscr{R}$*z

Text	CE	PC	RD	OM	PA	BK	BM	CW	VLC	Total
$\mathscr{R}$iz	0	472	264	451	404	358	540	525	7	3021 (86%)
$\mathscr{R}$ez	6	66	100	90	24	20	79	20	35	440 (13%)
$\mathscr{R}$*z	0	2	4	4	4	0	6	13	0	33 (1%)
Total	6	540	368	545	432	378	625	558	42	3494

Table 3.6 shows that the numbers of rhyming words in the ensembles are very different. Ensemble $\mathscr{R}$iz is more than six times the size of ensemble $\mathscr{R}$ez. The percentage of rhyming words which cannot be classified (ensemble $\mathscr{R}$*z) is very small, which justifies the method used.

3.7   **Discussion about /-ɪz/**

Nicholas Williams' ideas about the development of /ɪ:/ are very different from mine. In Williams (2006: chapter 11), he lists many examples (but not exhaustively), but does not count them, nor examine the differences between different texts. On p. 119 he postulates two different dialectal[20] developments of /ɪ:/, both resulting from his putative 13th century prosodic shift.

| Raising | dialect R | [ɪ:] → [ɪi] → [i:] <y> |
| Lowering | dialect L | [ɪ:] → [eⁱ] <ey> → [ɛ:] <e> |

If this were correct, one would expect {y} in texts in dialect R, and {ey} > {e} in texts in dialect L, viz. a set of data as a function of time such as:

R	L	L	R	L	R	R	L
y	--	--	y	--	y	y	--
--	ey	ey	--	--	--	--	--
--	--	--	--	e	--	--	e

but we actually find, from table 3.2.1 for the ***BYS*** set:

PC	RD	OM	PA	BK	BM	TH	CW	Lh	VLC
y	y	y	y	y	y	y	y	y	y
ey	ey	ey	--	--	ey	--	ey	--	--
--	--	--	--	--	--	--	--	e	e

Five of the ten blocks of text have both {y} and {ey}, which one would not expect from Williams' hypothesis.

If <ey> meant [eⁱ], as Williams implies, then it meant that original /ɪ/ in his dialect L would have fallen together with [eɪ] in words with historical /eɪ/ like ***treys*** 'feet'; these would then have taken part in the alleged further development to [ɛ:]. Table 3.2.5 shows no case of {e} in the profile for ***treys.*** There is no trace of such a development.

In words with /eɪ/ such as ***treys***, {ey} indeed meant [eɪ]; but in words with historical /ɪ/, it was employed to denote [ɪ:], a sensible choice since [ɪ:] lies between [i:] and [ɛ:]. In BM, <ey> was used primarily as a marker of length, just as <oy> was used in BM as length-marker in back vowels.

•

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20   Williams is fond of invoking dialectal variation in traditional Cornish. It may have existed, but is by no means obvious; one possible example is that Old Cornish /d/ tended to be assibilated to [z] in the south (especially in Powder hundred) and palatalized to [dʒ] in the north.

4 ANALYSES OF WORDS WITH /-ɪːð/ AND /-ɪːθ/

4.1 Sets of words

Here again we examine three sets of words, as listed in Table 4.1:

Table 4.1

Phonemically	Type-word	Other words in the set
/-iːθ/	***gwith*** 'keep'	***lith*** 'limb', ***skwith*** 'tired'
/-ɪːð/ /-ɪːθ/	***dydh*** 'day'	***a'fydh*** 'thou hast', ***bydh*** 'will be, be!', ***denvyth*** 'nobody', ***dohajydh*** 'afternoon', ***fydh*** 'faith', ***gwryth*** 'performance', ***gwydh*** 'trees', ***hanter-dydh*** 'midday', ***pyth***[21] 'what, thing', ***puptydh*** 'every day', ***seuladhydh*** 'formerly', ***syth*** 'upright', ***travyth*** 'nothing', ***vyth*** 'at all'
/-ɛːð/ /-ɛːθ/	***bedh*** 'grave'	***edh*** 'thou goest', ***eth*** 'went', ***eth*** 'eight', ***eth*** 'odour', ***feth*** 'beats', ***freth*** 'vigorous', ***gweth*** 'worse', ***gwredh*** 'thou dost', ***keth*** 'same', ***kledh*** 'left', ***kweth*** 'cloth', ***leth*** 'milk', ***medh*** 'hydromel', ***meth*** 'shame', ***pleth*** 'plait', ***redh*** 'thou givest', ***seth*** 'arrow', ***soweth*** 'alas', ***ynwedh*** 'also'

4.2 Analysis of spellings in the texts

The overall profile of spellings (table 4.2) is not so clear-cut as in the case of /-Vːz/, except for words in the ***BEDH*** set. The latter were spelled almost exclusively with {e}; the exceptions (shaded in rose) are caused by Tregear's spelling the word ***keth*** 'same' as *kyth ~ kith*, and Rowe's anomalous use of <ee>.[22]

*Table 4.2   Spellings of the core-words in the **GWITH, DYDH** and **BEDH** sets*

		PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
GWITH	{y}	7	7	13	1	6	6	10	--	5	6	9
set	{ey}	0	0	1	1	0	2	0	--	0	0	0
	{e}	0	0	3	0	1	3	1	--	0	0	0
	Other						1					
DYDH	{y}	110	92	109	44	128	65	169	9	102	17	52
set	{ey}	18	20	17	1	2	1	36	2	0	6	0
	{e}	10	11	10	6	8	148	12	2	3	40	63
	Other						2		5	19	1	
BEDH	{y}	0	0	1	0	1	0	25	1	1	0	6
set	{ey}	4	4	0	1	0	3	0	1	0	0	0
	{e}	75	133	63	91	60	92	100	28	93	57	18
	Other					1					4	6

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[21] Included because the usual spelling in MidC was *pyth* (except in BM), though the cognates (Breton *pezh*, Welsh *peth*) and the etymology (Clt. **pett-*) indicate original *e* in this word.

[22] In Late Cornish, where other authors used <eað> to denote [ɛː], Rowe used <ee>. Thus he wrote *neeve* for Middle Cornish *nef* 'heaven', though it is clear from rhymes, etymology and cognates that this word was pronounced ['nɛːv].

In Middle Cornish, {y} was still the most frequent spelling-type for the words in the **DYDH** set, but the proportion of {e} is significantly greater than for words in the **BYS** set. In BM, <e> was the dominant spelling; there we find *deth* and *peth* where in other texts *dyth* 'day' and *pyth* 'what' are the norm. The question then arises: "Are the spellings in {e} anomalous, or do they represent secondary pronunciations ([-ɛːð] and [-ɛːθ]?" The results from the **BYS** set suggest that the pronunciations with [ɛː] are real. To confirm this, we examine the rhymes.

4.3   **Analysis of rhymes of words with /Vːð/ and /Vːθ/**

Again, we define rhyming ensembles:
*ℛ*ið   includes rhymes in /-ið/, /-iθ/, /-ɪð/ and /-ɪθ/;
*ℛ*eð   includes rhymes in /-ɛð/ and /-ɛθ/;
ℛ*ð   rhymes in /-Vð/ and /-Vθ/ where the intended vowel V is indeterminate.
The numbers of rhymes in these ensembles are given in the following tables:

*Rhymes of words in the **GWITH** set*

Text	CE	PC	RD	OM	PA	BK	BM	CW	VLC
*ℛ*ið	0	3	3	4	2	0	0	1	0
*ℛ*eð	0	0	0	0	0	0	0	0	0
ℛ*ð									

The **GWITH** set of rhyming words appears only in ensemble *ℛ*ið.

*Rhymes of words in the **BEDH** set*

Text	CE	PC	RD	OM	PA	BK	BM	CW	VLC
*ℛ*ið	0	2	0	0	1	0	0	0	0
*ℛ*eð	1	17	63	17	31	23	14	0	0
ℛ*ð									

Almost all of the rhymes of words in the **BEDH** set belong to ensemble *ℛ*eð.

*Rhymes of words in the **DYDH** set*

Text	PC	RD	OM	PA	BK	BM	CW	VLC
*ℛ*ið	31	31	28	6	14	2	8	1
*ℛ*eð	5	1	10	8	0	23	0	0
ℛ*ð								

The number of rhymes in *ℛ*eð is considerably greater than the equivalent in table 3.3.3, and cannot be considered as exceptions. We conclude that, in Middle Cornish, words in the **DYDH** set were definitely sometimes pronounced with [ɛː], i.e. the sound-change [ɪː] > [ɛː] was in progress.

5   WORDS WITH /ɪ/ + OTHER FINAL CONSONANTS

/-ɪːz/, /-ɪːð/ and /-ɪːð/ have been examined in detail, because there are large numbers of examples. Other cases of /-ɪːC/ have far fewer examples, and may be dealt with more briefly.

5.1   **/-ɪːb/**

This is found in only three words, the results are scanty but very clear: {y} was used exclusively in MidC and {e} in LateC, indicating a late lowering of the vowel.[23]

				PC	RD	OM	PA	BK	BM	TH	CW	Lh	VLC
a dyb	{y}				1				1				
'thinks'	{ey}												
	{e}												
glyb	{y}												
'wet'	{ey}												
	{e}											5	
ryb	{y}				2		4		10	1	2		
'next to'	{ey}												
	{e}											9	6

5.2   **/-ɪːx/**

Before BK was discovered, only one such word was known: **sygh** 'dry' < Lat. *siccus*; it has the following profile:

sygh	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh.	VLC
{y}			2		1						
{ey}				1					2		
{e}	2		6		1					2	4
{a}										1	

The {e}-spellings and the rhyme with *pegh* 'sin' at OM.0757, show that the change [ɪ] > [ɛ] was already in progress in Middle Cornish.

In BK, we find *vrygh* (BK15.21), a lenited form which may mean 'pox' (W *brych,* B *brec'h*).

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23   When unstressed, *ryb* was apparently lowered to *reb* sufficiently early to suffer the further change to *rab*, as in the place-name Morrab in Penzance.

5.3   **/-ɪːv/**

a-dryv 'behind' is found only in PA.079 (apart from copying by Lhuyd and Pryce); it is there spelled *a dryff*, and is not a rhyming word.

pryv 'worm, reptile' has the following profile:

pryv	VC	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh.	VLC
{y}	2									2	1	
{ey}										4		
{e}					1		2			3	7	

Rowe's *hagar-breeve* (the serpent which tempted Eve) suggests that no sound-change had taken place, but the fact that Rowe spells **nev** 'heaven' (which definitely contains /ɛ/) as *neeve* tends to negate this.

At BM.4133, *preff* is rhymed with *grueff* 'face'; the only way that this can form a congruent rhyme is if ['prɪːv] has become ['prɛːv] and ['grœːv] has been unrounded to [gr'ɛːv].

5.4   **/-ɪːn/**

This is represented by just one word, but a very common one: **dhyn** 'to us':

pryv	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh.	VLC
{y}	47	42	36	15	8	63	101	2	7	5	5
{ey}	0	0	0	1	1	0	0	0	1	0	0
{e}	0	0	0	0	2	2	11	6	0	1	3

The change [-ɪːn] > [-ɛːn] began at the time of BK (*c.* 1450), but the earlier form was not entirely superseded in Late Cornish; instead the word was replaced by *tha ny*.
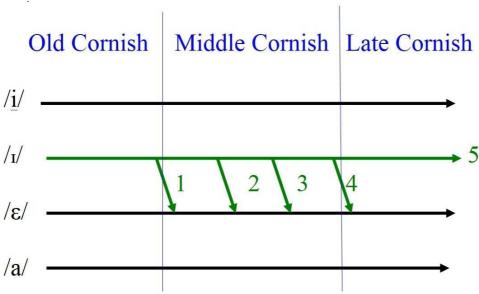
5.5   **/-ɪːr/**

Lat. *viridis* 'green' became Old Cornish *guirt* /gwɪrð/; when the final consonant was lost, the vowel was lengthened, and at some stage lowered, so that the Late Cornish form recorded by Lhuyd was *gwêr*.

Lhuyd's *ẏr (A*B042c)*, êr* (AB136c) 'fresh' may be another case of /-ɪːr/.

6   SUMMARY OF RESULTS

We are now in a position to improve the diagram showing the change from /ɪ/ to /ɛ/, and to confirm that the process was lexical diffusion:

Evolution of the front vowels

In the following table, we identify which words suffered the sound-change at the various times:

Table 6   When did various words suffer the sound change [ɪ:] > [ɛ:] ?

English	Old Cornish	Middle Cornish	Late Cornish
1) Change occurred earlier than the MidC phase			
strong	*crif*	*(cryff) ~ cref*	*krêv, kreaue*
2) Change already in progress in Middle Cornish, shown by bimorphism			
day	*(det)*	*dyth ~ deth*	*deth*
will be	-----	*byth ~ beth*	*Veath*
dry	-----	*sygh ~ segh*	*Zeah*
worm	*prif*	*pryf ~ preff*	*(-breeve)*
done	-----	*gwrys ~ gwres*	*gwrez*
(past ptcpl.)	-----	*-hys ~ -hes*	-----
necessity	-----	*rys ~ res*	*rez*
3) Change from /ɪ/ in MidC to /ɛ/ c. 1450			
to us	-----	*thyn*	*dhen*
4) Change from /ɪ/ in MidC to /ɛ/ in LateC			
world	*bit*	*bys*	*beaze*
time	*prit*	*prys*	*Prêz*
beside	-----	*ryp*	*reb*
5) Change from /ɪ/ to /ɛ/ not recorded			
believe(s)	-----	*krys*	*kridj*
pray(s)	-----	*pys*	*pidge*
interval	-----	*spys*	----

7   IMPLICATIONS FOR REVIVED CORNISH

Whereas in the Middle Ages, it was quite natural to spell a given word in several different ways, in more recent times the idea has grown up that every word should always be spelled the same way. This principle evidently flies in the face of bimorphic words, so it is not surprising that arguments have raged as to which is "correct" – *sygh* or *segh*? *gwrys* or *gwres*? Since most of the reconstructions of Cornish are based on the Middle Cornish phase, orthographic designers have chosen the form perceived to be current in Middle Cornish. Even so, Nance sometimes cited both forms in his 1938 dictionary of Unified Cornish (UC), e.g. "Inf. ʙᴇʀʜᴇ̄·, to shorten: Past Part. *berhē·s, -hȳ·s*."

A minority of Cornish speakers has preferred to use Late Cornish as a base. In an attempt to reduce the chronic strife between these and the majority, a new "political" orthography[24] was introduced (Bock and Bruch 2008). Unlike any previous spelling system, this attempts to satisfy the requirements of all factions of Cornish speakers. In order to do this, it allows variant spellings, as shown in Table 7; thus both forms of bimorphic words in historical /ɪ/ may be catered for.

Table 7   Spellings of the words in table 6 in Revived Cornish

Type	English	MidC	LateC	UC	UCR	KK	SWF Middle	SWF Late
1	strong	*(cryff) ~ cref*	*krêv, kreaue*	*crēf*	*crēf*	***krev***	*krev*	*Krev*
2	done	*gwrys ~ gwres*	*gwrez*	*gwrēs gwrȳs*	*gwrȳs gwrēs*	***gwrys***	*gwrys*	*gwres*
2	necessity	*rys ~ res*	*rez*	*rēs*	*rēs*	***res***	*res*	*res*
2	(past ptcpl.)	*-hys ~ -hes*	*-hyz, -es*	*-hēs -hȳs*	*hes*	***-hes***	?	?
2	day	*dyth ~ deth*	*deth*	*dēth*	*dedh*	***dydh***	*dydh*	*dedh*
2	dry	*sygh ~ segh*	*zeah*	*sēgh*	*sēgh*	***sygh***	*sygh*	*segh*
2	worm	*prif ~ preff*	*(-breve)*	*prȳf*	*prēf prȳf*	***pryv***	*pryv*	*prev*
2	will be	*byth ~ beth*	*veath*	*bȳth*	*bȳdh bēdh*	***bydh***	?	?
3	to us	*thyn > then*	*dhen*	*dhyn*	*dhyn*	***dhyn***	*dhyn*	?
4	world	*bys*	*beaze*	*bȳs*	*bȳs*	***bys***	*bys*	*bes*
4	time	*prys*	*prêz*	*prȳs*	*prȳs*	***prys***	*prys*	*pres*
4	beside	*ryp*	*reb*	*ryp*	*ryb*	***ryb***	*ryb*	*reb*
5	believe(s)	*crys, cres*	*kridj*	*crȳs*	*crȳs creys*	***krys***	*krys*	?
5	pray(s)	*pys, pes*	*pidge*	*pȳs*	*pȳs peys*	***pys***	*pys*	?
5	interval	*spys*	----	*pȳs*	*pȳs peys*	***spys***	*spys*	-----

Kernewek Kemmyn, being based at least in part on etymology, has tended to spell the words under consideration with <y>, representing the historical /ɪ/; thus new words based on Breton and Welsh forms use <y>, even though the attested words may have <y> ~ <e>, e.g. ***gwlygh*** 'wet' (W *gwlych*, B *glec'h*), ***krygh*** 'wrinkle' (W *crych*, B *krec'h*), cf. attested *sygh ~ segh* 'dry'. This research shows that ***res*** 'necessity' and *–**hes*** (past participle of verbs in *–**he***) would be better spelled ***rys*** and ***-hys.***

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8   **CONCLUSIONS**

- Williams' idea that /ɪ:/ changed in the thirteenth century to either [ɛ:] or [i:] is manifestly untenable.
- The results of the present analysis show that the change from /ɪ/ to /ɛ/ took place at different times in different words, i.e. the process was lexical diffusion.
- This supports the earlier conclusion of Dunbar and George (1997).
- The revived language needs to take account of this.

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