O-TYPE VOWELS IN CORNISH

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A B S T R A C T

Evidence from traditional Cornish texts and from place-names is used to trace the development of the two o-type vowels, /o/ and /ɔ/. Recent denials by Williams of the existence of two long o-type vowels are refuted. Further evidence shows a difference between /o/ and /ɔ/ when short, and by inference, when of mid-length. The significance of this for the spelling of the revived language is briefly discussed.

1. **INTRODUCTION**

1.1 **/ɔ/ and /o/**

In George (1984), I showed that there were two o-type vowels in Middle Cornish (MidC), which will be denoted /o/ and /ɔ/. /o/, from Old Cornish (OldC) /ui/ and /ɔ/ from OldC /ɔ/ were separate phonemes. Support for their separateness, when followed by [s], [z], [θ] and [ð] appears in three different historical orthographies, in rhymes and in place-names. (The evidence in other phonetic environments, particularly when followed by nasal and liquid consonants, is weaker, and is reviewed below).

My discovery has gained wide acceptance, but has been persistently attacked by Nicholas Williams. In Williams (2006), he devoted a whole chapter (31 pages) to the case of the long stressed vowels, concluding:

"Middle Cornish never contained two separate long vowels /o:/ and /ɔ:/. [2].
The distinction … between ***troes*** 'foot' and ***tros*** 'noise' is unjustified."

In this paper, the evidence for the two o-type vowels is reviewed in detail, and the reasons for Williams' erroneous conclusion are examined.

1.2   **Orthographies of Cornish**

Four different historical orthographic systems were used in traditional Cornish, as follows:

Code	System	Description
O	Old	based on Old English spelling
M	Medieval	based on MidE spelling before the Great Vowel Shift
S	"Signpost"	based on early ModE spelling after the Great Vowel Shift
L	Lhuyd	Edward Lhuyd's phonetic spelling for Celtic languages

System M was used in the principal Cornish texts up to and including BM. The mid-point of the change-over from M to S was *c.*1525; later texts (particularly CW) still showed some aspects of M, perhaps because the scribes were partially re-spelling an earlier exemplar. System S was used by pre-Lhuydian writers of LateC, including external observers such as Andrew Boorde. After Lhuyd published his book *Archaeologia Britannica* using his own spelling system (L) for Celtic words, some of the subsequent Cornish writers modified their system S to include some of his graphs.

A ***bold italic*** typeface is used throughout to denote Cornish words spelled in the ***Kernewek Kemmyn*** orthography used in the revived language.

1.3   **Orthographic profiling**

Orthographic profiling was extensively used in the author's original research on the phonological history of Cornish (George 1984). This entails counting the frequency of the different ways in which the reflex of a given phoneme was spelled. Each text or group of texts is examined separately. The MidC texts used are as follows:[3]

early MidC			**later MidC**	
CE	Charter Endorsement		BK	*Beunans Ke*
PA	*Pascon agan Arluth*		BM	*Beunans Meriasek*
OM	*Origo Mundi*	}	TH	Tregear Homilies
PC	*Passio Christi*	} The Ordinalia	SA	*Sacrament of the Altar*
RD	*Resurrectio Domini*	}	CW	*Creacon of the World*

Late Cornish material is conveniently divided into:

Lh.   Lhuyd's writings, in which it is not easy to distinguish words taken from texts from those heard from native speakers;

VLC   Vernacular Late Cornish, i.e. writings by other authors, mainly in System S.

1.4   **Quantity of vowels**

The rules governing the quantity of vowels in OldC were:

1)   In unstressed syllables, all vowels were short.
2)   In stressed syllables, vowels preceding consonant groups and double consonants were short.
3)   In stressed syllables, vowels preceding single consonants[4] were long in monosyllables and of mid-length in polysyllables.

The length of vowels was thus dictated by the stress and by the nature of the following consonants. Dunbar & George (1997, chapter 4) argued that this system continued throughout MidC, and may have lasted through LateC until the expiration of the traditional language *c*.1800. For this reason, long, mid-long and short /ɔ/ and /o/ are discussed separately below.

Williams (1995) took a different view. He postulated that a prosodic shift took place in Cornish *c*.1175, which reduced the mid-long vowels to short, thus creating a two-length rather than a three-length system. Bock and Bruch (2009) showed that Williams' hypothesis is completely incompatible with Lhuyd's spelling of diphthongs. This has to be borne in mind when interpreting spellings. Graphemic devices used to indicate the length of vowels are shown in the table below. These were used extensively in LateC and rarely in MidC.

Marker of length	Example for o vowels	System	Interpretation	
			in a 3-length system	in a 2-length system
doubling the following consonant <VCC>		S	not long i.e. short or mid-long	short
using a grave accent	<ò>	L		
inserting <y> after the vowel <VyC>	<oy>	M:	not short i.e. long or mid-long	long
using silent <e> after the following consonant <VCe>	<o-e>	S		
doubling the vowel <VVC>	<oo>	S		
using a digraph	<oa>	S		
using a circumflex accent	<ô>	L		

2   LONG O-TYPE VOWELS

We begin by looking at MidC /ɔ/ and /o/ when long, i.e. stressed before a single consonant, or before /sp, st, sk/, which clusters behaved as if they were single consonants. George (2000) emphasized that the spelling of /o/ depended on the nature of the following consonant C; the case C_L = /m, n, l, r/ (a liquid or nasal) needs to be treated separately from the case C_O = any consonant other than /m, n, l, r/ We deal with C_O first.

A minimal pair which distinguishes MidC /ɔ:/ and /o:/ is *bos* 'to be' and *boes* 'food'. This would be crystal clear if <bos> had been used exclusively for *bos* and <boys> for *boes*, but this is not the case. Williams (2006: 59) pointed out that:

> "In the texts <boys> is written to represent both *bos* 'food' < *boys* and *bos* 'to be'."
> "On the other hand, <bos> is also used to represent both *bos* 'to be' and *bos* 'food'."

He gave 19 examples of <bos> being written for 'food', and 51 examples of <boys> being written for 'to be'; and as a result declared that:

> "I find it impossible to believe that by the period of our written texts *bos* 'to be' and *boys* 'food' … had anything but the same vowel."

This is not the best way to deal with noisy data. Williams has drawn the wrong conclusion from the evidence.

2.1   <u>The spelling of the word *boes* 'food' in the traditional texts</u>

We start by examining the word for 'food' in great detail, in order to illustrate the methodology used. Tables 2a, 2b, 2c and 2d give a list, intended to be exhaustive, of all occurrences of this word in traditional Cornish. Williams (2006: 59) gave a selective list of occurrences of the word; the cases cited by him are marked W in column 5 of the tables.

The fourth column in the tables shows the graphs used to represent the vocoid in the word. Since there are many of these, it is convenient to group them into graphemes, denoted by «»:

Table 2a   ***boes*** *in VC (System* O*); PC and RD (System* M*)*

Source	Text	Graph	Grapheme		Notes
VC.292	maer-**buit**	<ui>	«**ui**»		
VC.878	**buit**				
PC.0046b	evl the **vos**	<o>	«**o**»	W	
PC.0458	ragh yma **bos** parusys				
PC.0618	**bos** pask thynny hep lettye			W	
PC.0623	**bos** pask thynny ordyne			W	
PC.0639	gueyteugh dygtye **bos** ynny			W	
PC.0651	the thyghye **bos**			W	
PC.0672	**bos** pask omma ef a vyn			W	
PC.0688	rag yma **bovs** lour certan	<ov>	«**ou**»		
PC.0695	aga **bos** a vyth parys	<o>	«**o**»	W	
PC.0701	nans yv **bos** soper parys			W	
PC.0720	**boys** pask kyns ov bos marow	<oy>	«**oy**»		1
PC.0749	am tallyovr yn keth **bos**ma	<o>	«**o**»		2
PC.0813	war ow **bos** yn vhelder			W	
PC.2784	yn dyw crous kyns bos pris **bos**			W	
RD.0541	vynytha na theppro **bous**	<ou>	«**ou**»		
RD.1685	messeger ny thebbraf **bos**	<o>	«**o**»		

In Table 2a, <ou> and <ov> are treated as allographs of a grapheme «**ou**».

Notes
1   Here the words for 'to be' and 'food' are distinguished by spelling them differently.
2   In *bosma* 'this food', the vowel in *bos* is likely to have been shortened.

Table 2b   ***boes*** *in OM, PA, BK, BM, TH (System* M*)*

Source	Text	Graph	Graph-eme	
OM.0366	rum kymmer hag awel **bos**	\<o\>	«**o**»	W
OM.0378	ynno **bos** thym the welas			W
OM.0993	pup maner **bos** yn bysma			
OM.1052	ha cam degyns **bos** hep fal			
OM.1053	ota saw **bos** war ov kyn			
OM.1060	a gef **bos** lour dewthek mys			
OM.1140	**bos** theth ly ha theth kynyow			
OM.1218	hagy **bos** theugh ordenys			W
OM.1810	nan nyl thyn **bos** na dewes			
PA.010	eff an gefe awell **boys**	\<oy\>	«**oy**»	
PA.042	Ze berna **boys** ha dewas			
PA.087	dybbry **boys** ef ny vynnas			
BK06.34	Christ ew ow bewnans ha^ **boys**	\<oy\>	«**oy**»	
BK29.15	Rag pry^nya dewas ha **boys**			
BK30.30	na ny uyttyaf **boys**			
BK32.52	a vith **boys** the^ bryny bras			
BK35.75	ny thebbra **boys**			
BM.0116	ha flehys yonk a gar **boys**	\<oy\>	«**oy**»	
BM.1673	**boys** ha dewes the perna			
BM.1961	y **vos** hay susten nebes	\<o\>	«**o**»	
BM.1972	a veth ov **bos** thum preggyov			
BM.2015	pendr~yv ol **boys** an ena	\<oy\>	«**oy**»	
BM.3578	ny feth na deves na **boys**			
BM.3603	**boys** na dewes na regh ry			
BM.3613	vastya **boys** heb feladov			
BM.3887	gans **boys** eleth in torma			
BM.3893	gans **boys** neff pan of megys			
BM.3929	schant yv an dewes han **boys**			
BM.3984	na nefre ny debre **boys**			
BM.4243	ha tan dis dewes ha **boys**			
BM.4464	megys vue gans **boys** eleth			
TH40v	gesys the famya rag fowt **bos**	\<o\>	«**o**»	
TH41r	ny a vith megys gans an **bos**			W
TH51v	thyn **vois** a crist	\<oi\>	«**oy**»	
TH51v	pana **vois** ew henna			
TH51v	solem promys a **vois**			
TH51v	ow kyge ew verely **bos**	\<o\>	«**o**»	W
TH52r	gul an promes a **vois**	\<oi\>	«**oy**»	
TH52r	fatell o an **bois** na defferis			
TH52r	ha **bois** an parna			
TH52v	A ra tus vsya offra **bois**			
TH54r	kyns ny the thos then **vois**			

Table 2c   **boes** *in SA, CW and vernacular Late Cornish (Systems* M *and* S*)*

Source	Text	Graph	Graph-eme		Notes
SA59v	Insted rag henn a **boos**	<oo>	«oo»		
SA61r	ow kyg ew verel[y] **bos**	<o>	«o»	W	
SA63r	e thew disquethas thyn **bois**	<oi>	«oy»		
SA63v	megis gans an spirituall **bois**				
CW.1032	rag cawas susten ha **boos**	<oo>	«oo»		
CW.2275	pub maner **boos** in bysma				
Boorde	Hostes, eus **boues** de why?	<oue>	Other		1
	Rewh **boues** de vy, hostes da!				
Keigwin	kenyver ehan a **booz** daber	<oo>	«oo»		
Rowe	tro an wethan da rag **booze**	<oo-e>			
J. Boson	do vy enz ra bos rag **boaz**	<oa>	«oa»		2
	lushan glaz rag **boaz**				
Jenkins	Do cuntle gu **booz**	<oo>	«oo»		
	Eye venjah dendel gu **booz**				
Gwavas	Tha why tra boaze ragg **booze**	<oo-e>			
	Lozoazn Glaze ragg **boaze**	<oa-e>	«oa»		

Notes
1   Andrew Boorde came to Cornwall in 1543, and recorded Cornish phrases as he heard them. His form *boues* suggests breaking of the long vowel to a disyllable, perhaps ['buˑɛs].
2   This line is a translation of Genesis 1:29, which in the King James' Version reads 'to you it shall be for meat'; it again shows the words for 'to be' and 'food' spelled differently.

Lhuyd obtained data both from Cornish-speaking informants (labelled V for Vernacular) and from texts. He had access to the Old Cornish Vocabulary, to the Middle Cornish texts PA, OM, PC, RD, CW (but not BM, BK, TH, SA), and to some Late Cornish material. From these he either copied words in their original spelling (labelled C), or re-wrote them in his own phonetic spelling (R). In both copying and re-writing, he sometimes made errors (E). The cases labelled C, R and E are shaded in the table below; they are excluded from subsequent analysis, because they are not representative of contemporary speech.

In his notebook (referred to as LV = Lhuyd's Vocabulary), Lhuyd used the graph <ŵ> to denote the vowel in the word for 'food'; this is taken to mean [uː]. In some cases he used <w> without the circumflex accent; this was either an oversight, or an indication that the vowel was shortened. When he published his work in *Archaeologia Britannica* (AB), he substituted <û> for <ŵ>, describing it (AB, page 2) as "the *English* oo", which again points to [uː]. We may thus treat <ŵ>, <w>, <û>, <u> and <oo> as allographs of the grapheme «û».

Table 2d   ***boes*** *in Lhuyd's writings (System* L*)*

Source	Text	Graph	Grapheme	Label	Notes
LV018	Belin **bŵz**	<ŵ>	«û»	V	
LV022	**Bôs**	<ô>	«ô»	E	1
LV025	**Buit**	<ui>	«ui»	C	
	Bwz pebyz	<w>	«û»	V	
	Bŵz freiaz	<ŵ>		V	
	Bwz drodha **bwz** da ciba	<w>		V	
	Bwz leath			V	
LV097	Lian **bwz**			V	
LV101	Maer **buit**	<ui>	«ui»	C	
LV120	Prêz **bŵz**	<ŵ>	«û»	V	
AB047c	**Bûz**	<û>		V	
	bûyd	<ûy>	«ui»	R	
AB057a	Prez **bûz**	<û>	«û»	V	
AB057c	**Bûz**			V	
AB103c	**Bûz**			V	
AB137b	Prêz **bûz**			V	
AB173c	**Bûz**			V	
AB292a	**Bûz**			V	
	bûyd	<ûy>	«ui»	R	

Notes
1   Lhuyd's *Bôs* is thought to be a re-writing of MidC *bos.* Lhuyd realized that the vowel was long, and so added a circumflex accent.

In 1790, Pryce published a Cornish-English vocabulary, which had been compiled by Tonkin. His principal source was Lhuyd's work, and the compilation therefore includes words from Old, Middle and Late texts. Sometime Lhuyd's spellings were miscopied. There are, however, a few words in Pryce not found elsewhere, often of doubtful quality.

Table 2e   ***boes*** *in Pryce's Vocabulary*

Source	Text	Graph	Grapheme	Label	Notes
PV076	**Boos,** *food*	<oo>	«û»	C	CW.
	See **Buz**	<u>	«û»	V	Lhuyd
	and **Boz**	<o>	«o»	R	
	Bos, *meat, food;*			C	
	bos palk			C	1
PV078	**Buit,** *food,*	<ui>	«ui»	C	
	Hod. **Buz**	<u>	«û»	V	Lhuyd
	Buz, *food*			V	Lhuyd
PV081	rage cawas susten ha**boos**	<oo>	«û»	C	CW.1032
PV096	dho dyghthy**bos**	<o>	«o»	C	2
PV154	Prez-**bûz,** *a banquet, ..*	<û>	«û»	C	AB137b
	Bûz, *meat*			C	Lhuyd

In the case of the word for 'food', all 12 entries have been copied from elsewhere, and Pryce adds no new data; this is very often the case for other words.

Notes
1   <palk> is a miscopying of <pask> 'Easter'.
2   Source not identified.

2.2   **The BOES and BOS sets of words**

Two lexical sets of words are now defined:

(a)   BOES (in small capitals) denotes all words containing the reflex of OldC stressed /-uiz/;

(b)   BOS stands for all words containing the reflex of OldC stressed /-ɔd/ and /-ɔs/.

2.2.1   **Methodology**

In addition to orthographic profiles, two other devices are used to deal with the noisy data:

(a)   in the ternary diagrams, circles are used to denote BOES, and triangles represent BOES;

(b)   truth tables show the number of cases of specific graphs, and take the form:

	graphemes linked with /-ɔːz/	graphemes linked with /-oːz/
BOS words	correct	type II anomaly
BOES words	type I anomaly	correct

In the ideal case, there should be no entries in the boxes marked "anomaly". A truth table for Kernewek Kemmyn, in which BOES is spelled exclusively with <oe> and BOS with <o> would look like this

100%	0%
0%	**100%**

In a noisy data-set, with a truth table of the form

a	*b*
c	*d*

We define two anomaly-ratios as *b/(a+b)* for BOS, and *c/(c+d)* for BOES.

2.2.2   **BOS and BOES in *CE, PC* and *RD***

We first look at the earliest texts, viz. CE (*c.*1340), PC and RD[5] (*c.*1375). The table shows the number of occurrences of the different graphs used to denote the vocoids in each type. It is convenient to group the various graphs into graphemes, denoted by «». As well as <ou> and <ov>, <u> and <u-e> are also conveniently included under **«ou»,** since they too suggest the high back vowel [uː]. In this and similar tables, graphemes which constitute 10% or more of the total are deemed significant, and the corresponding numbers of cases are printed in **bold type.**

		BOES				BOS		
	text →	CE	PC	RD		CE	PC	RD
graph-eme	**allographs**							
«o»	<o>	1	**55**	**28**		6	**305**	**271**
«ou»	<ou, ov, u, u-e>		**15**	**5**			4	4
«oy»	<oy>		2					
Other	<e>					1	1	
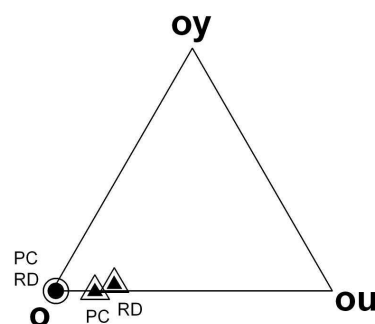
There are insufficient examples from CE to draw any conclusions. In PC and RD, it is manifest that <o> was used for the vowel in both BOES and BOS, but that does not necessarily mean that it was the same vowel in each of the sets. It is well-known that in the Middle English orthography on which System M is based, <o> when long represented two different sounds, [ɔ:] and [o:], sometimes distinguished in older text-books as <ǫ> and <ọ> respectively. Thus <o> cannot be considered as a distinctive indicator of either /ɔ/ or /o/. There is no reason why *bos* could not mean both /bɔ:z/ and /bo:z/, just as in English, *bow* means both [bəʊ] and [baʊ].

Although PC and RD usually spelled both /ɔ:/ and /o:/ as <o>, following Middle English practice, when it was really important to distinguish them, /o:/ was sometimes spelled differently, as in:

> PC.0718   *my re thysyryas fest mer*
> PC.0719   *dybry genogh why haneth*
> PC.0720   ***boys** pask kyns ov **bos** marow*

Here Christ is speaking at the Last Supper: He says:

> I have desired very greatly
> to eat with you this night
> the **food** of the Passover, ere **I am** dead.

There is, however, a significant difference in the way in which the two sets of words were spelled in PC and RD: BOS was spelled almost exclusively as <o>, while BOES was spelled with a mixture of <o> and «**ou**». This pattern is also indicated by the small separation between the circles and the triangles in the ternary diagram, and it serves to distinguish the two sets. The <o> graph may mean either /ɔ:/ or /o:/, but the «**ou**» grapheme acts as a marker of MidC /o:/. Since <ou> in MidE meant [u:], it may mean that the result of /ui/ becoming a monophthong was closer to [ʊ:] than to [o:].

The truth table confirms that it was quite common for BOES to be spelled «**o**», but spellings of BOS as «**ou**» or «**oy**» are rare (only 1.4%).

	«o»	«ou» «oy»	Anomaly -ratio (%)
BOS words	582	8	1.4
BOES words	84	22	79.2

Williams acknowledges that BOES was sometimes spelled «**ou**» in PC and RD, but claims this as evidence that these texts were written in a "western dialect", in which OldC /ui/ was monophthongized to [u:] instead of to [o:].

2.2.3 BOS and BOES in *OM, PA and BK*

We next look at *Origo Mundi, Pascon agan Arluth and Beunans Ke,* all of which were written using system M. These texts are thought to date from the 15th century. Although PA was composed before PC, the manuscript is substantially newer, since it shows later characteristics such as <-a> for original /-ɛ/. The results are shown in the following table:

graph-eme	allographs	BOES				BOS		
	text →	OM	PA	BK		OM	PA	BK
«o»	<o>	28	10	11		234	120	319
«ou»	<ov, v, ovy, ow>		1	1			1	5
«oy»	<oy, oi, oe, ooy>	11	31	64		1	8	2
Other	<*, ey>		1	1				2
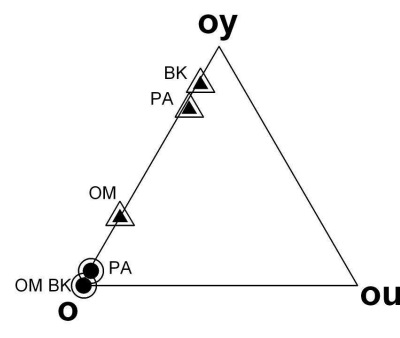
	OM				PA				BK		
	«o»	«oy»	Ratio (%)		«o»	«ou» «oy»	Ratio (%)		«o»	«ou» «oy»	Ratio (%)
BOS	234	1	0.4		120	9	7.0		319	7	2.1
BOES	28	11	71.8		10	32	23.8		11	65	14.5

Again there is a significant difference in the spelling pattern of the two sets of words: BOS was spelled almost exclusively as <o>, while BOES was spelled largely with a mixture of <o> and «oy». In MidE orthography, <oy> was used for the diphthongs /ɔi/ and /oi/, and this was applied in early MidC to represent both /ɔɪ/ (all loan-words) and the reflex of OldC /ui/. When the latter became a monophthong, the same digraph continued to be used for the new sound. The reflex of OldC /ui/ was never rhymed with loan-words containing /ɔɪ/, such as *voys* 'voice',[6] which implies that it was not a diphthong. Furthermore, the occasional use of {oy} for the reflex of OldC /ɔ/ shows that it was also used as a marker of a long vowel. This second function of {oy}, to indicate length, is very marked in BM, but less so in TH, SA and CW.

Williams' hypothesis would predict the following:
(a)   BK (allegedly written in a "western dialect") should have a different pattern from PA and OM (allegedly in an "eastern dialect");
(b)   in PA and OM, there should be no significant difference between the way in which BOS and BOES are spelled.
The orthographic profile above shows that neither of these predictions is correct.

2.2.4 BOES and BOS in *Beunans Meriasek*

The data for *Beunans Meriasek* have been divided into:

(a)   BM1 (lines 246 to 2512) + BM2 (lines 2513 to 4568), written by Rad. Ton in 1504;

(b)   BMb (lines 1 to 245, which were re-written by an unknown scribe (B) perhaps *c.*1540.

System	graph-eme	allographs	BOES			BOS	
		text →	Ton	BMb		Ton	BMb
M	«o»	<o>	18			213	19
M	«oy»	<oy, oi, oe>	58	5		179	1
M	«ou»	<u>	1				
S	«o»	<o-e, oa>	1			5	
	Other		1			1	

|	Ton				Scribe B		
	«o»	«oy» «ou»	Ratio (%)		«o»	«oy»	Ratio (%)
BOS	218	179	45.1		19	1	5.0
BOES	19	59	24.4		0	5	0.0
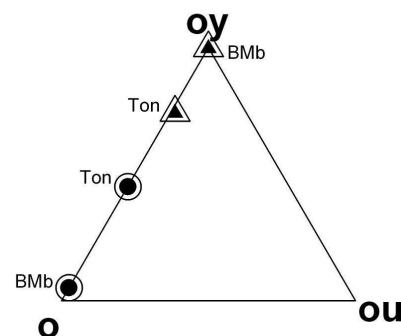
Ton used the grapheme **«oy»** rather differently from previous scribes; in BM1+BM2 it denotes a non-short back vowel, just as <ay> means [aː] and <ey> means a non-short front vowel. Because **«oy»** was used for /ɔː/ as well as for /oː/, it is easy to find examples of ***bos*** spelled <boys>; Williams listed over 40 of them, but it does not follow that ***bos*** and ***boes*** were homophones in BM. This is shown by the work of scribe B, who used a different spelling convention from that of Ton. He used only <oy> for BOES, and <o> almost exclusively for BOS; although the number of cases is small, his truth table is almost perfect. The difference between ***bos*** and ***boes*** therefore still existed at the time of BM.

Among the minor spellings in BM, we may note the first appearance of <o-e>[7] and <oa>; these are features of system S, and were used for the reflex of MidE /ɔː/ after the Great Vowel Shift, viz. [oː]. These graphs become progressively more frequent in subsequent texts.

2.2.5 BOES and BOS in the Tregear Homilies and *Sacrament of the Altar*

The data for these two texts are conveniently treated together.

System	graph-eme	allographs	BOES			BOS	
		text →	TH	SA		TH	SA
M	«o»	<o>	22	6		363	45
M	«oy»	<oy, oi, oe, oe-e>	36	33		23	4
S	«o-e»	<o-e>	1	2		1	5
S	«oo»	<oo, oo-e, ooi> <ow, u-e>	6	2		5	1
	Other	<*[8], a, ae, e>	1	1		3	
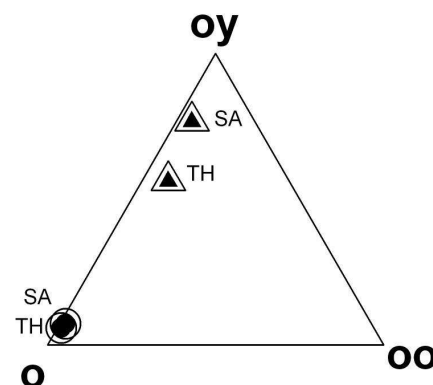
	TH				SA		
	«o»	«oy» «ou»	Ratio (%)		«o»	«oy»	Ratio (%)
BOS	364	28	7.1		50	5	9.1
BOES	23	42	35.4		8	35	18.6

In these texts, another grapheme from System S makes its appearance; this is **«oo»,** which was used for the reflex of MidE /oː/ after the Great Vowel Shift, viz. [uː][9]. This is taken to indicate that MidC [oː] was also raised to [uː]; in George (1984), this change was dated as *c.*1625, but this appears to be too late; c.1525 is nearer the mark. (See below, §2.4.2). In the ternary diagram, the BOES and BOS words are again well separated. The digraph <ow> (likewise <ow-e>) is assigned to «**oo**», because <ow> appears in ModE words like *flows, grown* to denote [əʊ] < [oː].

2.2.6 BOES and BOS in *Creacon of the World* and Late Cornish

			BOES			BOS	
			CW	VLC		CW	VLC
System	**graph-eme**	**allographs**					
M	«o»	<o>	9	1		152	117
M	«oy»	<oy-e, oe>	4	2		7	3
M	«ou»	<ou, oue> <ow, ow-e>	0	5		3	3
S	«o»	<oa, oa-e> <oaa-e, ô>	3	9		57	167
S	«oo»	<oo, ooe>, <û, oo-e> <u, ue>	10	33		31	6
S	«au»	<ao, au-e> <aw, aw-e>					5
	Other			2		3	11
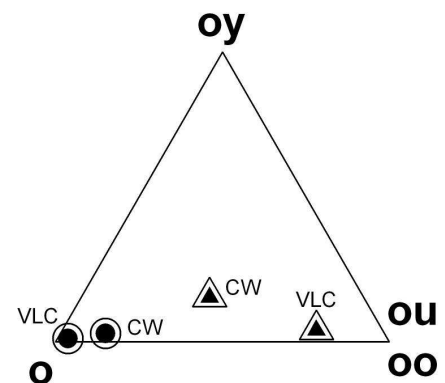
	CW				VLC		
	«o»	«oy» «ou» «oo»	Ratio (%)		«o»	«oy» «ou» «oo»	Ratio (%)
BOS	209	41	16.4		284	12	4.1
BOES	12	14	53.8		10	40	20.0

Although CW is written in the style of a Middle Cornish mystery play, its orthography is partly contemporary with its date of 1611, and may therefore be grouped with the Late Cornish material. In the ternary diagram, the two vowels are even more separated for VLC than for CW; the fact that they are manifestly separate in Late Cornish shows that they must have been separate throughout.

Data from Lhuyd are not included in the table, because it is often difficult to decide whether a given spelling represents the contemporary language or a re-spelling of Middle Cornish material. The commonest spellings used by Lhuyd are <ŵ> and <û> for /oː/, and <ô> and <ɐ> for /ɔː/.

2.2.7   **Overall view of the spelling of BOES and BOS words**

The following table shows the significant graphemes used in spelling the vowels in BOES and BOS. Except for BM, the selection for BOES differs from that for BOS in every block of texts, showing that there was a persistent difference between the two vowels.

	BOES				BOS		
System →	M	S	L		M	S	L
CE PC RD	o ou				o		
OM PA BK	o oy				o		
BM1 BM2	o oy				o oy		
BMb	oy				o		
TH SA	oy	o				o	
CW	oy	o oo				o oo	
VLC		o oo				o	
Lhuyd			û			o	ô ɤ
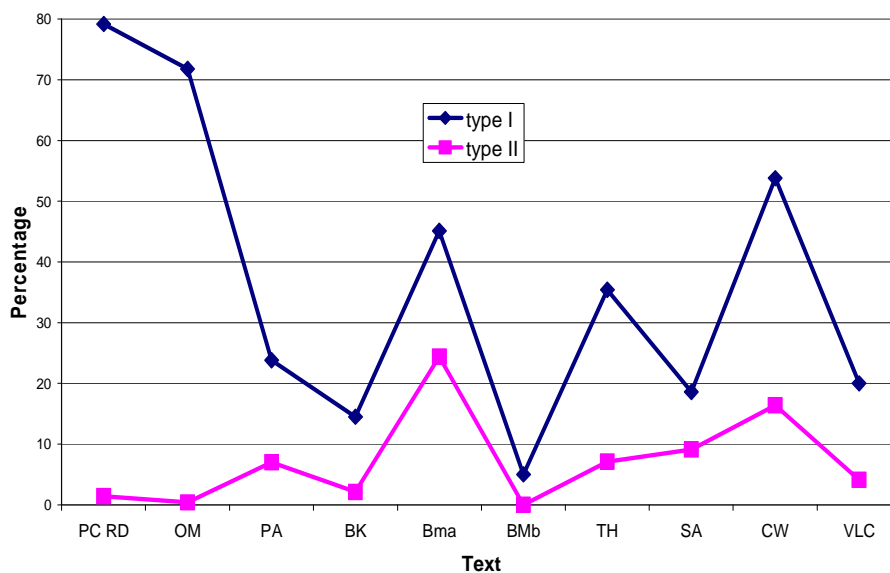
Anomaly-ratios

If the two long o-type vowels really fell together, as Williams insists, then we should expect that confusion between them would increase with time. The anomaly ratios are a measure of such confusion, and the graph above does not show an increase in their value. Rather they indicate how good each scribe (or group of scribes) was at spelling; the author of BK and the scribe B who edited BM were the best spellers.

2.2.8   **Evidence from rhymes in the traditional texts**

A manageable subset of rhymes was drawn up; it comprises all rhymes which involve BOES and BOS words. Thus the subset includes only rhymes between stressed syllables, but it would be possible and instructive to extend it to include stressed – unstressed and unstressed – unstressed cases. The subset may be divided into the following categories:
(a)   poor rhymes between a BOS word and a distant sequence of sounds;
(b)   perfect rhymes between two BOS words;
(c)   imperfect rhymes between a BOS word and a BOES word;
(d)   perfect rhymes between two BOES words;
(e)   poor rhymes between a BOES word and a distant sequence of sounds.

The data are presented in Table 2.2.8a[10] and the results in Table 2.2.8b[11]. It is remarkable how few cases there are of (c) imperfect rhymes between /'ɔːz/ and /'oːz/; four of the eight texts have none at all. If the two phonemes had merged, then we would expect far more such rhymes. Only BM is the exception. Williams (2006:67) listed all nine (c)-rhymes in BM as evidence in support of his idea that /ɔ/ and /o/ had merged. Rather it is evidence that the author of BM (thought to be Radulphus Ton) was a poor rhymester.

Dunbar & George (1997:95) gave a powerful method of ascertaining whether two sounds had fallen together or not: "If two words in a stanza are contrasted in rhyme, it means that the sounds in their final syllables are not the same". Consider the following stanza:

PC.0965	*lauar cowyth da del os*	A	'Say, good comrade as thou art,
PC.0966	*fatel yllyn aswonvos*	A	how shall we be able to recognize
PC.0967	*en harlot yn mysk y tus*	B	the knave amongst his crew?
PC.0968	*rak ganso yma hep fal*	C	For with him there are no doubt
PC.0969	*mur ay tus thotho haval*	C	many of his crew resembling him
PC.0970	*na aswonyn an profus*	B	so that we shall not recognize the prophet.'

Here /'ɔːz/ in *os* 'thou art' is contrasted with /'oːz/ in *y tus* 'his bunch' (***y does*** in ***Kernewek Kemmyn).*** The two sounds are different.

Table 2.2.8a

Monosyllabic rhymes in MidC /ɔ:z/ and /o:z/

Ref.[12]			
PA.010	*oes*	*poes*	d
	oes	*goes*	d
	oes	*boes*	d
	poes	*goes*	d
	poes	*boes*	d
	goes	*boes*	d
PA.045	*moes*	*goes*	d
PA.063	*dos*	*nos*	b
	dos	*tros*	b
	nos	*tros*	b
PA.135	*troes*	*goes*	d
	troes	*oes*	d
	goes	*oes*	d
PA.224	*goes*	*gloes*	d
PA.250	*ros*	*nos*	b
OM.0065	*goes*	*troes*	d
	goes	*loes*	d
	troes	*loes*	d
OM.0359	*koes*	*boes*	d
OM.1033	*os*	*mos*	b
OM.1553	*nos*	*tros*	b
OM.1687	*fos*	*klos*	b
OM.2769	*nos*	*klos*	b
PC.0019	*loes*	*skoes*	d
PC.0043	*nos*	*boes*	c
PC.1225	*os*	*ros*	b
PC.2109	*plos*	*tros*	b
PC.2265	*ros*	*plos*	b
	ros	*nos*	b
	plos	*nos*	b
PC.2779	*troes*	*boes*	d
PC.3231	*nos*	*klos*	b
RD.0164	*klos*	*ros*	b
RD.0241	*dros*	*nos*	b
RD.0259	*os*	*bos*	b
RD.0331	*oes*	*goes*	d
	oes	*loes*	d
	goes	*loes*	d
RD.0385	*klos*	*nos*	b
	klos	*plos*	b
	nos	*plos*	b
RD.0511	*poes*	*gloes*	d
RD.0859	*bos*	*oes*	c
RD.1285	*nos*	*klos*	b
RD.1363	*kows*	*oes*	e
BM.0115	*oes*	*boes*	d
BM.0126	*mos*	*goes*	c

BM.0278	*moes*	*loes*	d
BM.1192	*goes*	*loes*	d
BM.1394	*dos*	*mos*	b
BM.1452	*gloes*	*poes*	d
BM.1597	*goes*	*bos*	c
BM.1612	*goes*	*koes*	d
BM.1637	*goes*	*bos*	c
BM.1725	*nos*	*klos*	b
BM.1787	*nos*	*klos*	b
	nos	*mos*	b
	nos	*bos*	b
	klos	*mos*	b
	klos	*bos*	b
	mos	*bos*	b
BM.1866	*koes*	*oes*	d
BM.2166	*bos*	*loes*	c
BM.2326	*dos*	*mos*	b
BM.2460	*nos*	*dos*	b
BM.2860	*mos*	*bos*	b
BM.3491	*plos*	*nos*	b
BM.3573	*troes*	*boes*	d
BM.3585	*bys*	*mos*	a
BM.3924	*mos*	*boes*	c
BM.3980	*troes*	*boes*	d
BM.4088	*dos*	*mos*	b
	dos	*poes*	c
	mos	*poes*	c
BM.4413	*bos*	*loes*	c
BM.4473	*dos*	*loes*	c
BK01.28	*bos*	*mos*	b
BK01.34	*bos*	*os*	b
BK02.45	*oes*[13]	*koes*	d
	oes	*loes*	d
	oes	*goes*	d
	koes	*loes*	d
	koes	*goes*	d
	loes	*goes*	d
BK06.17	*bos*	*dos*	b
BK06.34	*boes*	*goes*	d
BK06.50	*bos*	*mos*	b
BK07.25	*bos*	*mos*	b
BK08.65	*koes*	*treus*	e
BK13.76	*loes*	*troes*	d
BK19.41	*loes*	*koes*	d
BK20.45	*dos*	*bos*	b
BK21.33	*loes*	*skoes*	d
BK21.59	*dos*	*hos*	b
BK23.25	*klos*	*bos*	b
BK24.45	*oes*	*kows*	e
BK27.53	*dos*	*bos*	b
BK29.10	*boes*	*loes*	d
BK30.27	*boes*	*goes*	d
BK31.75	*troes*	*koes*	d
BK35.70	*boes*	*troes*	d
BK35.80	*tros*	*klos*	b
BK36.07	*nos*	*ros*	b
BK40.57	*mos*	*bos*	b

CW.0350	*goes*	*troes*	d
	goes	*loes*	d
	troes	*loes*	d
CW.1104	*bos*	*glos*	b
	bos	*ros*	b
	bos	*bos*	b
	glos	*ros*	b
	glos	*bos*	b
	ros	*bos*	b
CW.1142	*plos*	*bos*	b
CW.1266	*os*	*nos*	b
CW.1576	*bos*	*nos*	b
CW.1654	*os*	*bros*	b
CW.2160	*dos*	*bros*	b
	dos	*bros*	b
	bros	*bros*	b
CCWA	*dos*	*mos*	b
NGNB.8	*bos*	*bros*	b
BITB	*res*	*bros*	a
P1JJ	*koes*	*boes*	d
PRJB	*roes*	*koes*	d
PRJB	*troes*	*poes*	d
PRJB	*dos*	*mos*	b
	dos	*bys*	a
	dos	*bros*	b
	mos	*bys*	a
	mos	*bros*	b
	bys	*bros*	a
KWJB	*poes*	*nos*	c
	poes	*mas*	e
	poes	*mos*	c
	nos	*mas*	a
	nos	*mos*	b
	mas	*mos*	a

Table 2.2.8b

Summary of results

	a	b	c	d	e
PA		4		11	
OM		4		4	
PC		6	1	2	
RD		7	1	4	1
BM	1	13	9	8	
BK		12		14	1
CW		13		3	
LC	6	6	2	3	1

2.3   **Words with /-oːð/ and /-oːθ/**

The following orthographic profile applies to all words with /-oːð/ and /-oːθ/, except those dealt with in 2.3.1 and 2.3.2 below.

System	Text → Grapheme	VC	PC	RD	OM	PA	BK	BM	TH	CW	Lh.	VLC
O	«ui»	8										
O, M, S	«o»	1	25	5	13	8	2	16	15	6		
S	«o-e»							1		1		2
S	«oa»											5
M	«ou»		5	1								
M	«oy»				6	3	31		1	2		
S	«oo»									2		10
L	«û»										7	
	<ei>, <e>	1									1	

The pattern is similar to that of the BOES words, including:
- <ui> in VC;
- <o> and «**ou**» in PC and RD;
- <o> and «**oy**» in OM, PA, BK, TH;
- «**û**» in Lhuyd.

2.3.1   **The loan-word *forsoedh* 'forsooth'**

This loan-word is attested as follows:

Reference	Textual spelling	Rhyming words (in original spelling)	Eye-rhyme	Quality
BK01.40	*forsoth*	*arluth* 'lord'	no	/-oz/
BK05.46	*forsoyth*	*vloyth* 'year'	yes	/-oz/
BK09.89	*forsoth*	*coyth* 'behoves'	no	/-oz/
BK22.96	*forsoth*	*goyth* 'wild'	no	/-oz/
BK24.10	*forsoyth*	*arluth* 'lord'	no	/-oz/
BK24101	*forsoyth*	*arluth* 'lord'	no	/-oz/
BK24109	*forsoth*	*arluth* 'lord'	no	/-oz/
BK25.39	*forsoyth*	*arluth* 'lord'	no	/-oz/
BK27.80	*forsoyth*	*goyth* 'behoves'	yes	/-oz/
		arluth 'lord'	no	/-oz/
TH15v	*forsoth*			
CW.1433	*forsoth*	*goyth* 'behoves'	no	/-oz/
CW.1890	*forsothe*	*goeth* 'behoves'	no	/-oz/

It was rhymed only with words in /-oð/. In Middle English, it was pronounced [fɔrˈsoːð], which suggests that the stressed rhyming words also had [-oːð]. This is important evidence; it confirms that the <oy> digraph did not mean a diphthong.

2.3.2 **Words with Welsh and Breton /i/, but Cornish /o/**

Nance (1938: 143) was apparently the first to point the correspondence between Breton <i> and Cornish <o> in the following words.

Kernewek Kemmyn	English meaning	cf. Welsh	cf. Breton	Etymology (2)
noeth	winnowing	*nith*	*nizh*	CC *nikto-*
roeth	shape	*rhith*	*(ar)rith* (1)	
stroeth	strict	-----	*strizh*	CLat *strictus*
toeth	speed	*taith*	*tizh*	CC *tik-to-*

(1)   found only in Old Breton (Fleuriot 1985:74)
(2)   according to Deshayes (2003)

noeth 'winnowing' is found only in the word *nothlennow* (PC.0881) 'winnowing-sheets'; it is a homophone of *noeth* 'naked'.

roeth 'shape' is found only in Gwavas' edition of Genesis 1, translating 'form' in the Authorized Version; it is spelled *roath*, which suggests [ɔː] rather than [oː].

stroeth 'strict' appears in the verbal noun *strothe* (RD.2592) 'to gird', *strotha* (TH39v) translating Bonner's 'embrace'. /o/ is suggested by Tregear's spelling of the adjective itself as *stroyt* (TH27v), but the <-t> here stands for [-t] rather than [-θ], as is shown by the comparative forms *stroytia* (TH27v) and *stroytya* (TH37r).

toeth 'speed', unlike the other three words, is well attested in Middle Cornish (but not used in rhymes): the <ou, ov> and <oy> spellings in the following table show clearly that this word contained [oː]. In Late Cornish, it appears only as copies in Lhuyd and Pryce; though interestingly, Pryce sometimes spells it *tooth*, which would be consistent with Late Cornish [uː].

	PC	RD	OM	PA	BK	BM	TH	SA	CW
<ou, ov>	2	2	1						
<oy>	1				1				
<o>	6		4	1		1			2
<o-e>									1

Since the evidence shows that *toeth* is a word with /o/, we may reasonably suppose that the other three words in this group also had /o/. The question arises as to why they contain /o/ when the corresponding vowel in Welsh and Breton is /i/. Although none of these words is attested in Old Cornish, it would seem that the development in Cornish dates from the Old Cornish phase. Taking *toeth* as an example, one can postulate the insertion of [u] before [i]:
    OldC *tith* > *tuith* > MidC *toyth* > LateC *tooth*

2.4   **Summary of the reflex of OldC /ui/ before /s, z, θ, ð/**

The following table summarizes the data for the better attested words:

| Kernewek Kemmyn	English meaning	OCV	Middle Cornish			Vernacular Late Cor.	Lhuyd
		O	System M			System S	L
		\<ui\>	\<oy\>	\<o\>	\<ou\>	\<oo\>	\<û\>
boes	food	*buit*	*boys*	*bos*	*bous*	*booz*	*bûz*
goes	blood	*guit*	*goys*	*gos*	*gous*	-----	*gûdzh*
goes	goose	*guit*	*goyth*	*goth*	-----	-----	*gûdh*
koedh	falls	-----	*coyth*	*coth*	*couth*	-----	-----
koes	wood	*cuit*	*coys*	*cos*	-----	*cooz*	*kûz*
moes	table	*muis*	*voys*	*vos*	-----	-----	*bûz*
oes	age	*huis*	*oys*	*hos*	-----	*uz*	*ûz*
poes	weight	-----	*poys*	*pos*	-----	*pouz*	*pûz*
roes	net	*ruid*	-----	*ros*	-----	*rooz*	*rûz*
skoedh	shoulder	*scuid*	*scoyth*	*scoth*	*scouth*	*skooth*	*skûdh*
toeth	speed	-----	*toyth*	*toth*	*touth*	-----	-----
troes	foot	*truit*	*troys*	*tros*	*trovs*	*trooz*	*trûz*

All of these spellings are distinctive for the reflex of OldC /ui/, except for \<o\>, which is ambiguous (it could mean /o/ or /ɔ/).

2.5   **Evidence from place-names**

Dunbar & George (1997: 34) presented maps showing places containing the following as second elements (i.e. stressed):

(a)   with MidC ['oːz]   *koes* 'wood';
(b)   with MidC ['ɔːz]   *ros* 'spur' and *fos* 'wall'.

The first of these, with dates of retreat added from Spriggs (2003) and other improvements, is redrawn here:

Stressed -koes on modern maps
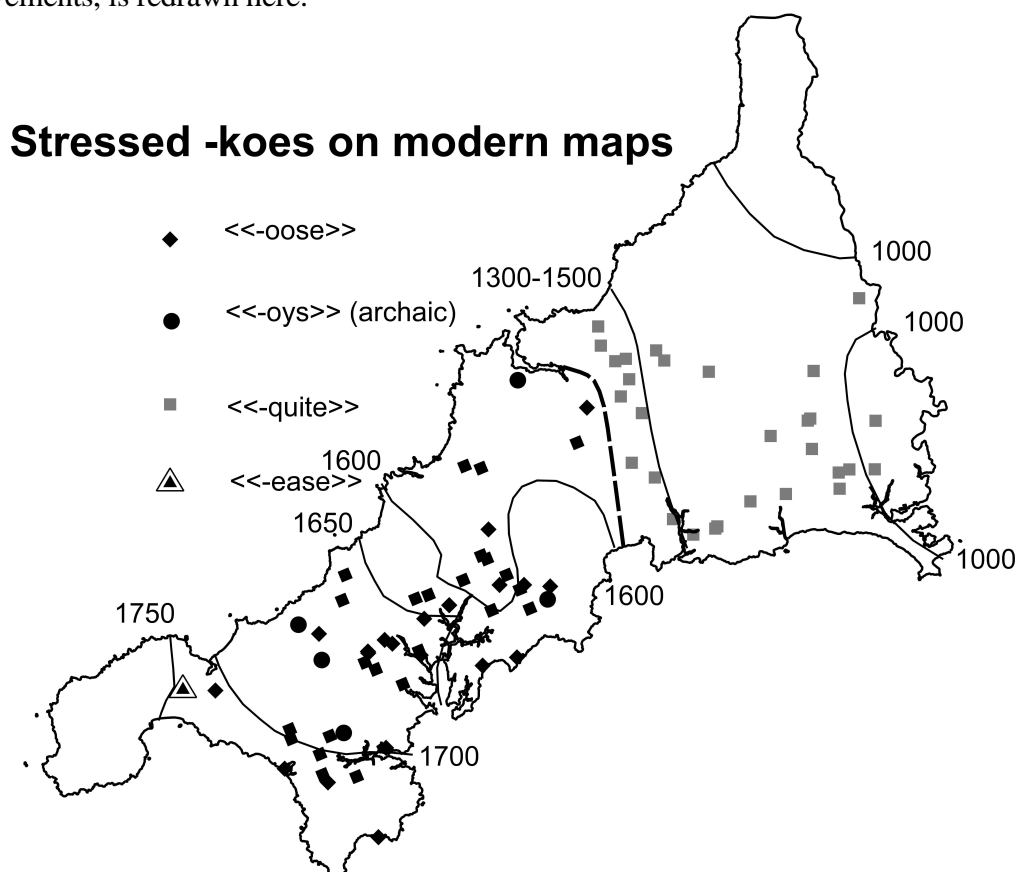
There is a clear separation between «**-oose**» in the west and «**-quite**» in the east, the boundary being roughly the Fowey-Camel line.

A new analysis of the historical forms of place-names containing the elements *fos* 'wall' and *koes* 'wood' when stressed gave the following clear results:

Grapheme	Allographs	FOS	KOES
Medieval spelling before *c.*1525			
«**o**»		**23**	1
«**oy**»	<oy, oi, oe, oye> <oi-e, uey, u, owi>	0	**75**
Signpost spelling after *c.*1525			
«**o**»	<o, oa, o-e>	**54**	3
«**oo**»	<oo, oo-e>	4	**99**
«**ou**»	<ou, ow-e>	0	2
«**ea**»	<ea-e>	0	4
Corrupt	various	0	2

2.5.1   **Williams' ideas on dialects**

Williams cannot deny that in Late Cornish, the reflex of Old Cornish <ui> before /z, ð, θ/ appears as <oo> and <û>, indicating [uː], but to explain this he invoked "western" and "eastern" dialects:

> "I assume that western Cornish monophthongised Old Cornish /ui/ > /uː/, but did not lower it to /oː/. Eastern Cornish, the origin of the literary standard, on the other hand, monophthongised Old Cornish /ui/ and simultaneously lowered it to /oː/." (Williams 1995: §3.8)

He considered the development of OldC *cuit* 'wood', and in particular how place-names containing it may have been affected by the English Great Vowel Shift (GVS):

> "In Mid-Cornwall many *cōs*-names were borrowed early enough to undergo the English Great Vowel Shift and appear as –coose, -goose. In West Cornwall –coose, -goose forms were borrowed after the shift and their vowel is that of [kuːz], the western reflex of Old Cornish cuit." (Williams 2006: 80)

When this idea is combined with his assertion that:

> "Middle Cornish never had anything but one long o-vowel [oː]" (Williams 2006:58),

the following schema may be drawn up:
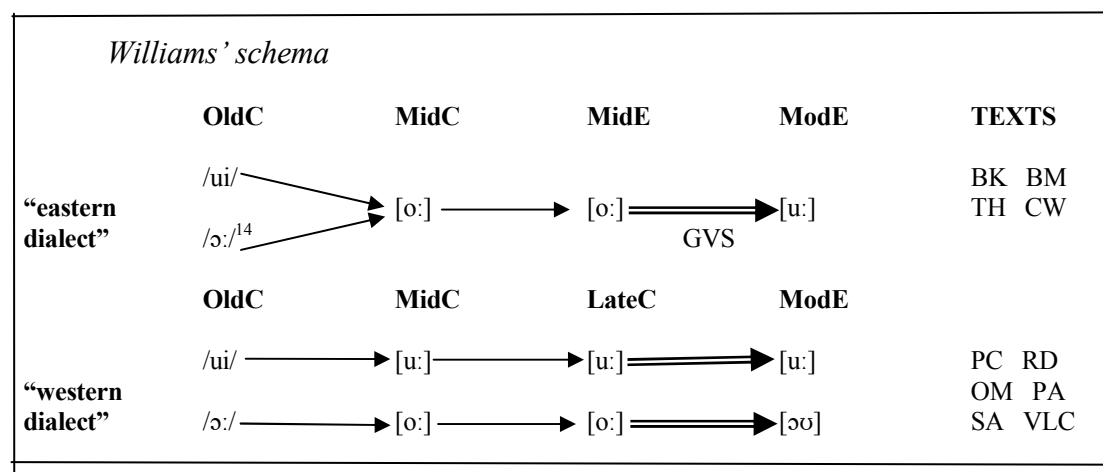
Williams is thus arguing that the zone to the west of the pecked black line on Map 2.4(a) is divisible into two dialectal regions; that the forms in <-oose>, as represented by the black diamonds, have two different origins. He adds the rider that:

> "It is impossible to say where the isogloss line should be drawn" (Williams 2006:73)

Now if Williams' ideas were correct, before the English Great Vowel Shift *koes* when stressed was pronounced with [oː] in the eastern part of this zone and with [uː] in the western part. One would expect the corresponding graphemes to be «**oy**» and «**ou**» respectively. In order to check this, a list was drawn up of historical instances of stressed *koes* in place-names during the hundred years before the shift (1350-1450).[15]   The graphemes used are plotted as the following map.

Stressed -koez circa 1400

●   <<-oys>>

■   <<-uyd>>
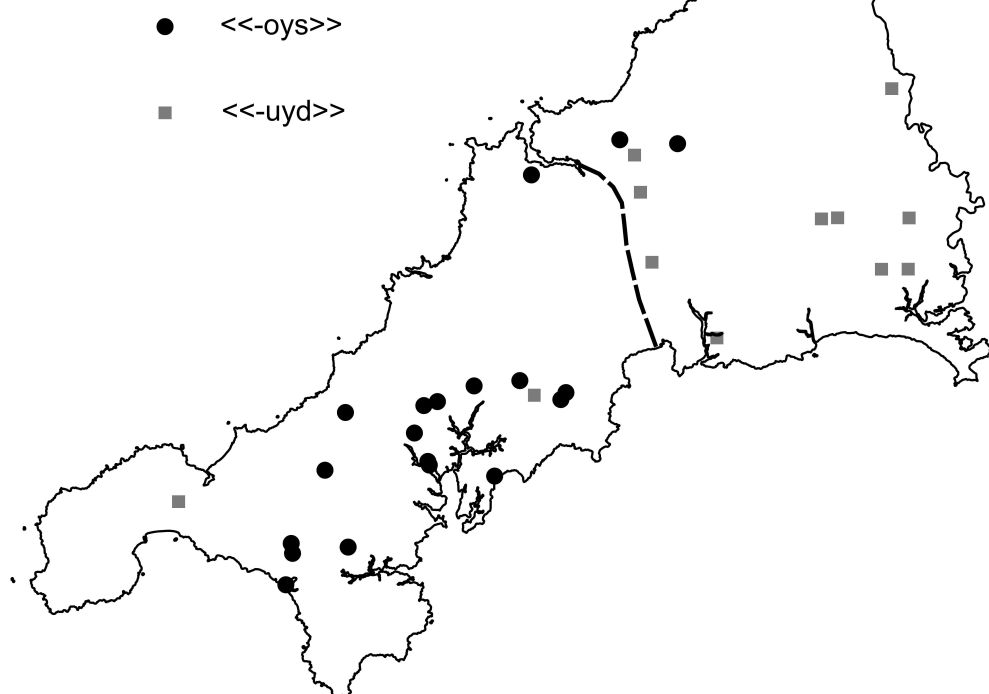
Apart from two cases of the archaic «**uy**», all of the place-names west of the pecked line were spelled with «**oy**»; the grapheme «**ou**» denoting [uː] does not feature at all. There is no sign of Williams' putative dialects[16], but a division roughly along the Fowey-Camel line is again evident.

2.5.2   Linguistic divisions in Cornwall, c.1200 to 1500

It was once thought (Gover 1948, Wakelin 1975) that this marked division between <-quite> forms and <-coose> forms meant that Cornish had died out to the east of the line at the date of assibilation (*c.*1225). However, Williams (1990) pointed out the real reason for unassibilated forms east of the line:

"The appearance of place-names in English with original *d* rather than shifted *s* does not, however, mean that Cornish was extinct in this part of Cornwall by *c.*1100. It means only that the English had been familiar with names of settlements in the area since before the change –d > -s began."

Holmes (2003) showed that there are several dozen examples of <s> and <g> east of the Camel – Fowey line, indicating that Cornish was spoken there at the time of the assibilation, and probably for some time afterwards. The map below shows the locations of these places; it indicates that during the period *c.*1200 to 1500, Cornwall could be split into a largely Cornish-speaking area west of the Fowey-Camel line and a bilingual area to the east of it; only the extreme east was all English-speaking.

Languages in Cornwall

in medieval times

(c.1200 to 1500)

Anglophone borderlands

Sowsnegva

bilingual east

Diwyethegva

Kernewegva

Celtophone west

● Places showing assibilation on the modern map

○ Places showing assibilation in the historical record
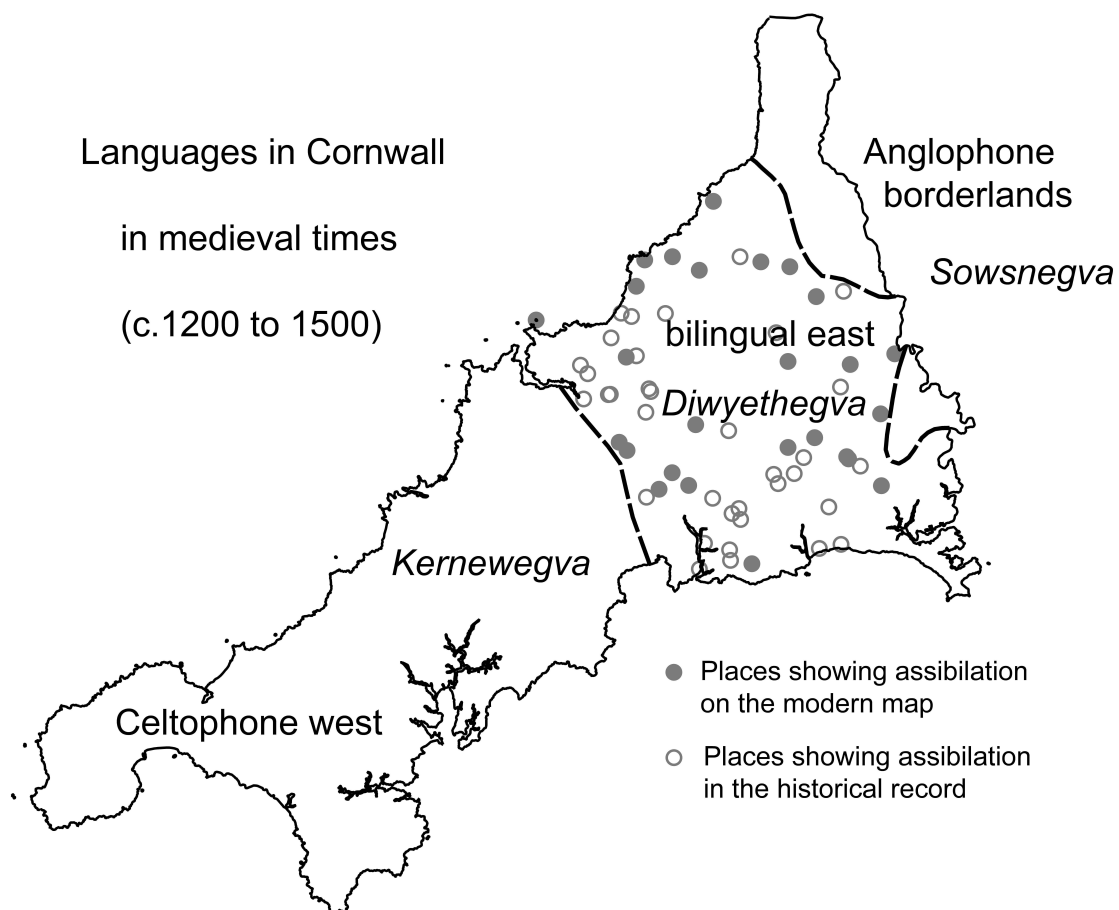
The supposed development of the word for 'wood', when stressed, is as follows:

Pronunciation of stressed **koes**

	OldC	**MidE**	**MidE**	**ModE**	**ModE**
bilingual east	<-oyd> [koɪd] ⟹	<-uyd> [kuɪt] →	<-uit> [kwiːt] → GVS	<-uite> [kwʌɪt] →	<-uite> [kwaɪt]

	OldC	**MidC**	**MidC**	**LateC**	**ModE**
Celtophone west	<-oyd> [koɪd] → *c.1225*	<-oys> [koɪz] → *c.1350*	<-oys> [koːz] → *c.1525*	<-oose> [kuːz] ⟹	<-oose> [kuːz]

Although a few cases of *cowse* and *cose* are found historically in mid-Cornwall, none has survived to appear on the modern map. This indicates that the change [koːz] > [kuːz] took place at about the same time as the English Great Vowel Shift, and not *c.1625* as suggested by George (1984).

2.6   **The reflexes of OldC /ɔ/ and /ui/ when stressed and long before /m, n, l, r/**

The orthographic profile of the reflex of OldC /ɔ/ in words like *on* 'we are' is straightforward:

Graph-eme	Allographs	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
	Text →											
System M												
«o»	<o>	62	57	85	15	43	57					
«oy»	<oy, <oe>					3	7					
«ou»	<ou, ov>				1		5					
System S												
«o»	<o, oe, o-e> <oa, ôa, oa-e>						10	105	11	46	20	63
«oo»	<oo, oo-e> <ow-e, ou-e>							4		6	1	1
«au»	<au> <ao, aô>										3	28
Other	<a, ê-e>										2	1
System L												
«ô»	<ô>										18	
«û»	<û, ŵ>										2	

The vast majority of spellings are of an <o>-type, though there is the usual confusion in BM.

The profile for the reflex of OldC /ui/ superficially looks much the same, suggesting that before /m, n, l, r/, /ui/ > /ɔ:/ rather than /o:/:

Graph-eme	Allographs	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
	Text →											
System M												
«o»	<o>	27	17	19	7	20	34					
«oy»	<oy, oye, oe>	1	2		5		4	1				
«ou»	<ou, ow, oo>	1		2	2		1					
System S												
«o»	<o, oe, o-e> <oa, oa-e>						1	23	4	31	13	18
«oo»	<oo, oo-e, u> <ow-e, ou-e>									4	4	7
«au»	<au, a, ao-e> <ao, aô>									1		4
System L												
«ô»	<ô, ôa>										28	2
«ɐ»	<ɐ, â>										13	
«û»	<û, ŵ>										19	
Other	<e, oi, y, ỳ, ŷ>										6	

A more detailed examination, however, shows cases of «ɐ», and substantially more cases of «û» than for the reflex of OldC /ɔ/; each word needs to be considered individually.

The following words in VC have stressed /ui/ followed by /m, n, l, r/:

Reference	Original text	*Kernewek Kemmyn*	English meaning	Welsh	Breton	MidC	LateC
VC.280	*guil*	**goel**	sail	*hwyl*	*gouel*	yes	yes
VC.139	*ꝑuir*	**hwoer**	sister	*chwaer*	*c'hoar*	yes	yes
VC.781	*coir*	**koer**	wax	*cwyr*	*koar*	yes	yes
VC.007	*luir*	**loer**	Moon	*lloer*	*loar*	yes	yes
VC.947	*muin*	**moen**	slender	*mwyn*	*moan*	yes	copies
VC.605	*oin*	**oen**	lamb	*oen*	*oan*	yes	yes
VC.857	*oir*	**oer**	cold	*oer*	-----	no	copies
VC.029	*trein*	**troen**	nose	*trwyn*	-----	no	yes

These were spelled in VC with a mixture of <ui> and <oi>. However, <ui> does not correspond to Welsh <wy> and <oi> to Welsh <oe>, as one might expect if the two diphthongs were still differentiated.

Words attested subsequent to VC may be divided into four classes, according to the nature of the stressed vowel:

(i) **probably MidC [o:] > LateC [u:]**
e.g. *loer* 'Moon', which is quite well attested:

lor	OM.0036, 0039; BM.2102	*luuir*	Lh. MS.
loer	PA.211; BK19.10; CW.0100	*lûr*	AB.017b, 082b, 294b
loor	CW.2160, Lh. MS.	*lur*	Gwavas

All of this points to MidC [lo:r] > LateC [lu:r].

(ii) **probably [ɔ:]**
e.g. *woer* 'knows' (from **goer**, almost always in lenited form in the texts) is very well attested, with the following profile:

	PC	RD	OM	PA	BK	BM	TH	SA	CW	VLC
<ou, ov>						1				
<oy>										
<oe>									1	
<oo>									1	
<o>	15	10	8	2	10	17		2	1	3
<o-e>						1	12		17	7
<oa-e>										1
<ao-e>										1

The absence of **woyr* in Middle Cornish and the spellings in Late Cornish point to /ɔ/ in this word, despite Welsh *gwyr* and Breton *goar*. Lhuyd began his discourse *A Cornish grammar* (AB222) with the phrase *Mi a ẏôr* 'I know'.

(iii) **ambiguous evidence**
e.g. **koer** 'wax', which is found in Middle Cornish only as *cor* (PC.2723); this could mean [ko:r] or [kɔ:r]. Lhuyd's *Côr* (AB018a) does not necessarily mean that the LateC pronunciation was [kɔ:r]; it may be just a re-spelling of the entry in PC, just as his *Koir* (AB047b) is a re-spelling of Old Cornish *coir*.

(iv)   **conflicting evidence**

e.g. **goel** 'sail', appearing as *gol* (BM.1085), which is ambiguous, and as *goyl* (RD.2291, 2331, BM.0598), which indicates [oː]. This is in conflict with Lhuyd's *Gôl,* which apparently represents a contemporary Late pronunciation rather than a rewriting of MidC *gol*, because Lhuyd did not have access to BM.

hwoer 'sister' is found as *hore* (TH31r, N.Boson) and as *hoer* (CW.1330, 1336); in 1602, Richard Carew recorded the word as *whoore* (carefully distinguishing it from the word for 'whore' by writing the latter as *whorra*). Lhuyd wrote *Hôr*, and also *Hôar,* which shows breaking of the long vowel.

Additionally, the words for 'down' and 'sheath', which have different origins,

Reference	Original text	*Kernewek Kemmyn*	English meaning	Welsh	Breton	MidC	LateC
VC.723	*guen*	**goen**	down	*gwaun*	*geun*	yes	yes
VC.820	*guein*	**goen**	sheath	*gwain*	*gouin*	yes	yes

fell together as [goːn] in MidC. A third homophone was the loan-word *gon* 'gown', which is unexpected, since Modern English *gown* implies MidE [guːn].

The following table summarizes the data for the better attested words:

Kernewek Kemmyn	English meaning	OCV	Middle Cornish			Late Cor.	Lhuyd	Evidence
			«oy»	«o»	«ou»			
boel	axe	-----	*boell*	-----	*bool*	-----	*bûl*	[oː] > [uː]
doen	to carry	-----	*doyn*	*don*	*doun*	*doone toane*	*dôn dɵn*	conflicting
goel	sail	*guil*	*goyl*	*gol*	-----	-----	*gôl*	conflicting
goel	feast	-----	*woyl*	*gol*	-----	-----	*gôl*	conflicting
goen	down	*guen*	-----	*gon*	*goon*	*goon*	*gûn*	[oː] > [uː]
goen	sheath	*guein*	*goyn*	*won*	-----	-----	*gûn*	[oː] > [uː]
goen	gown	-----	-----	*gon*	-----	-----	*gûn*	[oː] > [uː]
hwoer[17]	sister	*þuir*	*hoer*	*hore*	-----	*whoore*	*hôr*	conflicting
koel	omen	-----	*coyl*	-----	*cooll*	-----	-----	[oː] > [uː]
koen	supper	-----	*goyn*	*con*	-----	*Coon*	*kôn*	conflicting
koer	wax	*coir*	-----	*cor*	-----	-----	*kôr*	ambiguous
loer	Moon	*luir*	*loer*	*lor*	*loor*	*lur*	*lûr*	[oː] > [uː]
moen	slender	*muin*	-----	*mon*	-----	-----	-----	ambiguous
oel	weeps	-----	*noyll*	-----	*oole*	-----	-----	[oː] > [uː]
oen	lamb	*oin*	-----	*on*	-----	*oane*	*ôan*	[ɔː] > [ɔˑə]
poen	pain	-----	-----	-----	-----	-----	*Poan*	[ɔː]?
soen	blesses	-----	-----	*son*	-----	-----	-----	ambiguous
Stoel	Epiphany	-----	-----	-----	-----	-----	*Stûl*	[oː] > [uː]?
troen	nose	*trein*	-----	-----	-----	*tron*	-----	[ɔː]?
woer	knows	-----	-----	*wor*	-----	*ore*	*u̯ôr*	[ɔː]

3 UNSTRESSED /ɔ/ AND /o/ IN FINAL CLOSED SYLLABLES

This case is dealt with next, because it was customary to rhyme stressed and unstressed syllables.

3.1 /ɔ/ unstressed finally in closed syllables

	OldC	PC	RD	OM	PA	BK	BM	TH	SA	CW	VLC
<u, v>	1		1	3		2	5	16			
<ou, ov>				1			1				
<o, o-e>	28	222	178	153	141	109	232	54	2	3	17
<oy, oe>							8				
<a, ay, a-e>		2	1	1	5	66	28	207	20	74	65
<e>	2	4	2	7	2	6	47	15		8	27
<y, i>						1	2	4	2		

<o>-type spellings predominate up to and including BM; afterwards <a>-type spellings are the commonest. This is interpreted as reflecting a sound-change [ɔ] > [a][18] *c*.1525. In this table, <u, v>, <ou, ov> and <y,i> are regarded as aberrant spellings; <oy, oe> are seen as idiosyncratic alternatives in BM for <o>. <e> is to be grouped with <a>-type spellings, because MidC /ɛ/ when unstressed in finally in closed syllables also began to be spelled <a>, reflecting [ɛ] > [a], and scribes were not always sure whether a word with [a] came from earlier [ɔ] or [ɛ]; i.e. <e> for /ɛ/ was an (incorrect) hypercorrection.

It should be noted that loan-words which do not fit the pattern <o> > <a> have been excluded from the table above. Only a very few loan-words do show this change, e.g. *presan* (BM.3713) for 'prison', which may be anomalous, being controlled by rhyme. Usually, loan-words with /ɔ/ were spelled with <o>, before and after the sound-change, because English was always available for renewed borrowing; e.g. in CW we find *harlot, season, Enoch* with no change of vowel.

3.2 /o/ unstressed finally in closed syllables

The number of words with /o/ unstressed finally in closed syllables is far smaller than that with /ɔ/, and any statistical approach is influenced by the overwhelming dominance of the word **arloedh** 'lord', which occurs nearly 700 times. It is thus best to examine the relevant words in small groups, or individually.

3.2.1 Words recorded in Old Cornish

The following words were recorded in Old Cornish and attested in later works (excluding copying by Lhuyd and Pryce).

Reference	Original text	*Kernewek Kemmyn*	English meaning	Welsh cognate	Later attestations		SBCHP
					Middle	**Late**	
VC.188	*arluit*	*arloedh*	lord	*arglwydd*	numerous	yes	yes
VC.461	*gwaintoin*	*gwenton*	spring	*gwanwyn*	no	copies	yes
VC.399	*hepuil*	*hewoel*	watchful	*hywyl*	no	copies	no
VC.850	*holoin*	*hoelan*	salt	*halwyn*	no	yes	yes
VC.782	*cantuil*	*kantol*	candle	*cannwyll*	yes	yes	yes
VC.087	*morpoit*	*mordhos*	thigh	*morddwyd*	no	yes	yes
LS01.06	*propus*	*Proboes*	Probus	-----	as a place-name		no
VC.100	*profuit*	*profoes*	prophet	*proffwyd*	yes	no	no
VC.401	*hichhepuil*	*ughhewoel*	vigilant	-----	no	copies	no

We examine some of these words individually.

arloedh 'lord' has the following profile:

	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh.	VLC
<u>	64	101	85	20	135	108	23	46	12	1	12
<u-e>									3		
<o>	1		3							1	
<oy>				2							
<e>										1	32
<eu, ue>											2
<i, y>										2	11

This profile is very different from that of /ɔ/ unstressed finally, showing that the vowel sound of /o/ was different from that of /ɔ/ in this position. <u> was by far the commonest spelling in Middle Cornish, and this is thought to mean [ɤ]. In Late Cornish, <e> is the commonest. Spellings in <o> are very rare, and at no time was the word spelled with <a>.

hoelan 'salt'

The entry at VC.850 has usually been read as *haloin*, which corresponds to Welsh *halwyn,* though the commonly used Welsh form is *halen.* The Breton word is *hoalen,* which shows metathesis.

mordhos 'thigh'

The <a> in LateC *morrhas* (BOD.042) and Lhuyd's *Morraz* and *Morras* imply that the final vowel in MidC was /ɔ/ rather than /o/.

Proboes (place-name, Probus on maps)

This name appeared in the tenth-century list of saints as *propus*; here the <u> is to be compared with the <u> in MidC *arluth.* The Cornish form of the place-name comprises **lann** 'church-site' + the saint's name; in the Domesday Book, it appears with the Old Cornish diphthong as *Lanbrebois* and *Lanbrabois.* Later Cornish forms are *Lanbrobes* 1302, *Lamprobus* 1312, c.1540 (data from Gover 1948). The Latin forms are of particular interest:

accusative   *Sanctum Probum* 1284
genitive   *Sancti Probi* 1086, 1146, 1361
ablative   *Sancto Probo* 1207, 1223, 1291, 1342

because they show that the name Probus was treated as a masculine noun, i.e. the ending <-us> clearly contained an [u]-type vowel and not an [ɔ]-type vowel.

profoes 'prophet'

The reflex of Old Cornish *profuit* is recorded only in the Ordinalia. The form *profet* in the Tregear Homilies is a later borrowing from English. The spellings are as follows:

	PC	RD	OM
<u>	8	4	1
<o>	1	3	
<e>	1		
<y>	1		

The spellings in <u> are consistent with /o/ rather than /ɔ/. The word is rhymed only in PC and RD, and in every case its spelling, or that of the word with which it rhymes, is altered so as to make an eye-rhyme.

Reference	Textual spelling	Rhyming words (in original spelling)	Eye-rhyme	Quality
PC.0562	*profes*	*gynes* 'with thee'	yes	poor
PC.0970	*profus*	*tus* 'crew'	yes	/-oz/
PC.0988	*profus*	*gafus* 'to get'	yes	/-oz/
PC.1923	*profys*	*lethys* 'slain'	yes	poor
PC.2367	*profos*	*gos* 'blood'	yes	/-oz/
PC.2672	*profus*	*ihesus* 'Jesus'	yes	see section 8 below
RD.0066	*profos*	*wos* 'blood'	yes	/-oz/
RD.1686	*profos*	*bos* 'food'	yes	/-oz/

3.2.2 Middle Cornish *angus*

This loan-word is found thrice in PA:

Reference	Textual spelling	Rhyming words (in original spelling)	Eye-rhyme	Quality
PA.059	*angus*			
PA.221	*angus*			
PA.224	*angus*	*woys* 'blood'	no	/-oz/
		galloys 'power'	no	/-oz/
		los 'grey'	no	/-oz/

and also in Lhuyd, re-spelled as *angos*. It comes from Middle English < Anglo-Norman *anguisse,* the <ui> suggesting that the unstressed vocoid was originally /ui/, and the rhymes with /-oz/ indicate that the diphthong became /o/, in line with native Cornish words like *arluth*.

3.2.3   **Words showing lowering of Old Cornish /u/ to /o/ instead of /ɔ/**

galloes 'power'

The Breton cognate *galloud* suggests that the final vowel was originally /u/. Primitive Cornish /u/ was usually reduced to Old Cornish /ɔ/, but in the case of **galloes**, it was reduced to /o/. This is shown by the words with which **galloes** was rhymed:

Reference	Textual spelling	Rhyming words (in original spelling)	Eye-rhyme	Quality
PC.0021a	*gallos*	*lovs* 'grey'	no	/-oz/
		dennuos 'persuasion'	yes	poor
		scos 'shield'	yes	/-oz/
PC.0044b	*gallos*	*terros* 'havoc'	yes	/-oz/
		nos 'night'	yes	poor
		vos 'food'	yes	/-oz/
PC.0053	*gallos*	*ros* 'net'	yes	/-oz/
PC.0788	*gallos*	*los* 'grey'	yes	/-oz/
RD.0331b	*allos*	*hos* 'age'	yes	/-oz/
		wos 'blood'	yes	/-oz/
		los 'grey'	yes	/-oz/
RD.0834	*gallos*	*wos* 'blood'	yes	/-oz/
RD.0966	*gallos*	*los* 'grey'	yes	/-oz/
RD.1183	*allos*	*wos* 'blood'	yes	/-oz/
OM.0070	*galloys*	*woys* 'blood'	yes	/-oz/
		troys 'foot'	yes	/-oz/
		loys 'grey'	yes	/-oz/
PA.135	*alloys*	*troys* 'foot'	yes	/-oz/
		woys 'blood'	yes	/-oz/
		oys 'age'	yes	/-oz/
PA.224	*galloys*	*angus* 'anguish'	no	/-oz/
		woys 'blood'	yes	/-oz/
		los 'grey'	no	/-oz/
BM.0233	*galloys*	*vnwoys* 'blood-related'	yes	/-oz/
BM.0282	*galloys*	*voys* 'table'	yes	/-oz/
		loys 'grey'	yes	/-oz/
BM.2062	*galloys*	*goys* 'blood'	yes	/-oz/
BM.2387	*galloys*	*goys* 'blood'	yes	/-oz/
BM.2675	*gallos*	*ponfos* 'pain'	yes	poor
BM.3217	*galloys*	*guelfoys* 'wilderness'	yes	poor
BM.3305	*galloys*	*moys* 'to go'	yes	poor
BM.3497	*galloys*	*oys* 'thou art'	yes	poor
BM.4244	*galloys*	*boys* 'food'	yes	/-oz/
CW.0086	*gallus*	*noos* 'night'	no	poor
CW.0355[19]	*gallus*	*woys* 'blood'	no	/-oz/
		tros 'foot'	no	/-oz/
		loose 'grey'	no	/-oz/

	PC	RD	OM	PA	BM	CW	All texts
No. of rhyming words in /-oz/	6	6	3	6	6	3	**30**
No. of rhyming words in /-ɔz/	2	0	0	0	4	1	**7**
%age of rhyming words in /-oz/	75	100	100	100	60	75	**81**

81% of the rhymes were with words containing /-oz/. The imperfect rhymes with /ɔz/ imply that the vocoid in the unstressed final syllable was a monophthong.

The orthographic profile of all cases of **galloes** (rhymed and unrhymed) shows a mixture of <u>, <o> and <oy>:

	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh.	VLC
<u>		1	2	4	1	13	4	6	2	no	no
<o>	11	5	2	1	3	1				useful	data
<oy>			1	2		8				data	at
<a, a-e>				1							all
<e>	1										
Other				1							

terroes 'havoc'

The etymology of this word is obscure[20], but seven out of eight rhymes are with words in /-oz/, showing that the final vowel was /o/.

Reference	Textual spelling	Rhyming words (in original spelling)	Eye-rhyme	Quality
OM.0360	*terros*	*anwos* 'cold'	yes	/-oz/
		cos 'wood'	yes	/-oz/
		bos 'food'	yes	/-oz/
OM.0554	*derrus*	*gafus* 'to get'	yes	/-oz/
PC.0043b	*terros*	*gallos* 'power'	yes	/-oz/
		nos 'night'	yes	poor
		vos 'food'	yes	/-oz/
PC.1534	*terrus*	*gafus* 'to get'	yes	/-oz/

kavoes 'to get'

Like **galloes**, this word had Primitive Cornish /-ud/ (as shown by Breton *kavout*), but the final vowel had two different developments, which were text-dependent:

	CE	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh.	VLC
<u>	1	15	7	11			15	26				
<o>		3	1	1	9					1		
<a, a-e>						5	2	2	1	8	15	30
<e>				2								
<i, y>			1	1					1			

(a)   In CE, the Ordinalia, BM and TH, the unstressed vowel was usually *u*, like Middle Cornish *arluth,* compatible with /o/;

(b)   The *o* in PA and the *a* in BK, CW and LateC are typical of a word with MidC /ɔ/.

This interpretation is supported by the rhymes:

Reference	Textual spelling	Rhyming words (in original spelling)	Eye-rhyme	Quality
OM.0432	*gafys*	*gvrys* 'done'	yes	poor
OM.0554	*gafus*	*derrus* 'havoc'	yes	/-oz/
PC.0985	*gafus*	*profus* 'prophet'	yes	/-oz/
PC.1531	*gafus*	*terrus* 'havoc'	yes	/-oz/
PC.2067	*gaffos*	*tros* 'foot'	yes	/-oz/
RD.0540	*gafus*	*bous* 'food'	yes	/-oz/
BM.1639	*coweys*	*lethys* 'slain'	yes	poor

3.2.4 The word *eglos* 'church'

This word, deriving from British Latin *eglēsia* < Classical Latin *ecclēsia,* had an exceptional development. Although it contained Primitive Cornish /ui/, it appears as *eglos* at VC.745, suggesting that the diphthong had already been reduced to the monophthong [ɔ]. That this was [ɔ] and not [o] is confirmed by rhymes: 6 out of 7 rhymes were with /-ɔz/.

Reference	Textual spelling	Rhyming word (in original spelling)	Eye-rhyme	Rhyming phoneme
PC.0333	*eglos*	*plos* 'dirty'	yes	/-ɔz/
BM.0723	*eglos*	*nos* 'night'	yes	
		porpos 'purpose'	yes	
BM.1876	*eglos*	*poys* 'heavy'	no	/-oz/
BM.2826	*eglos*	*bos* 'to be'	yes	/-ɔz/
BM.3791	*eglos*	*clos* 'closely'	yes	
BM.4488	*eglos*	*nos* 'night'	yes	

If the unstressed vowel were [o], then one would expect cases of **eglus*. The following table shows that none is found; <o> is dominant.

	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
<-os, -oz>	1			1	1	9	202	6		2	3
<-ys, -iz>								1		6	3
<-es, -ez>											5

One would also expect [ɔ] to be lowered to [a], as happened in most words containing unstressed /ɔ/ in a final closed syllable, but apart from one historical place-name[21], the form *eglas* is not found. This is probably because the word *eglos* was very well known, and found its way into the Cornish dialect of English. A trawl through place-names containing the element ***eglos*** gave the following numbers:

|	pre-1200	13th cent.	14th cent.	15th cent.	16th cent.	17th cent.	18th cent.
<-os>	13	37	70	13	8	4	7
<-es>		5			1		
<-as>			1				

4   **PRE-TONIC /ɔ/ AND /o/**

Pre-tonic /ɔ/ is found in place-names containing ***bos*** 'house' as an unstressed first element (code B2 in Padel 1985); pre-tonic /o/ is found in place-names containing ***koes*** 'wood' as B2. Lists of such place-names were drawn up; the modern forms show the following statistics:

Bos-	Ba- 5	Be- 13	Bi- 2	Bo- 176		Bu- 5
Koes-	Ca- 1			Co- 4	Coo- 5	Cu- 14

The profiles are quite different: the commonest spellings are <o> for /ɔ/ and <u, oo> for /o/. This shows that we are again dealing with two different vowel-sounds, presumed to be [ɔ] and [ɤ] respectively.

Unstressed Koes- on modern maps
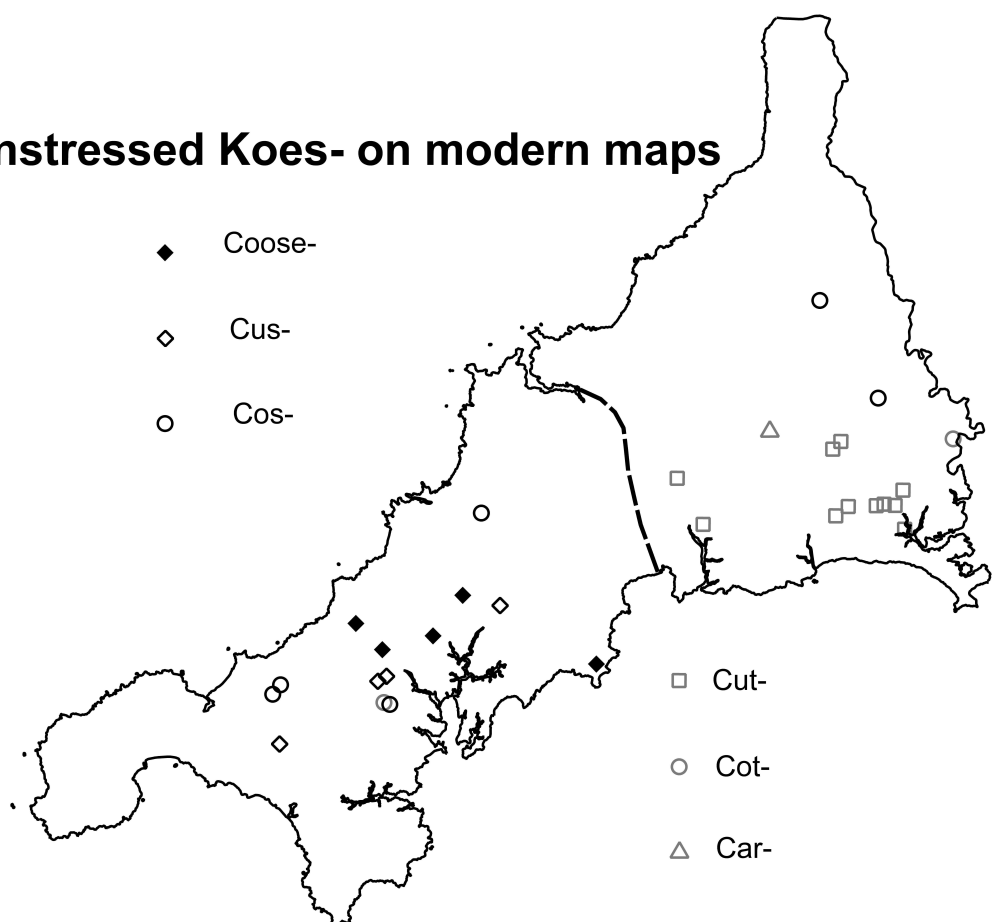
5   /ɔ/ AND /o/ WHEN SHORT AND STRESSED

5.1   /o/ and /ɔ/ when short in stressed monosyllables

In short stressed monosyllables, /o/ is found only before /mm, nn, ll/. The following table shows all of the cases found by the author[22]. <u>-type spellings dominate in Late Cornish.

	Textual spelling	Kernewek Kemmyn	English meaning
Old Cornish			
VC.856	*toim*	***toemm***	warm
Ordinalia			
OM.2163, 2704, 2710, 2744	*bom*	***boemm***	blow
PC.2111			
OM.2559	*tol*	***toell***	deceit
PC.0286	*tovl*		
Later Middle Cornish			
PA.138, 224	*bum*	***boemm***	blow
BM.2148			
CW.1987	*toll*	***toell***	deceit
CW.2348	*tull*		
Lhuyd's writings			
LV025, AB074a	*Brydn*	***broenn***	rushes
LV017 (twice)	*Gwêl*	***goell***	yeast
AB045c, 059b, 162b	*Tųbm*	***toemm***	warm
AB231a	*Tųbn*		
	dųbn		
LV044 (twice)	*twbm*		
AB009b	*Tÿbm*		
Vernacular Late Cornish			
10 commandments (J.Keigwin)	*skul*	***skoell***	waste
Pilchard Rhyme (Gwavas)	*tooben*	***toemm***	warm
Pilchard Rhyme (Tonkin)	*Tubm*		
Legal Verdict (ed. Pryce)	*tubm*		

There is a vastly greater number of cases here than for /o/, over 2200 in total, so for comparison purposes only the cases of /ɔ/ before /mm, ll, mm/ are tabulated here.

System	Text → Graphs	VC	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
O, M, S, L	<o, o-e>	3	139	91	126	97	77	140	249	16	87	47	66
M, S	<oo>						1		1				
M	<oy, oe>							2					
M, L	<u, û, w>							1				3	15
L	<ɐ, ò>											4	
L	<ô>											3	
S	<a>												2

<o>-type spellings are overwhelming, but in Late Cornish there is a significant proportion (18%) of <u>-types.

5.2 /o/ and /ɔ/ when short in stressed polysyllables

/o/ when stressed and short in polysyllables

There are few examples in Late Cornish, and none in Lhuyd (apart from copies and re-spellings, which are not included in this table).

	VC	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC	Total
<o>		22	6	16	7	10	26	19		6		1	74%
<ui>	3												
<u, v>	5	6	1	2	3			1	2	14		2	24%
<oe, oy>						1		3					

/ɔ/ when stressed and short in polysyllables

	VC	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC	Total
<o, ò>	6	63	45	56	31	50	104	69	7	46	40	12	89%
<u, v, û> <ụ, w>	1		1			2	1	3		5	13	7	6%
<ou, ow>	1						1	3				2	
<a, aw> <ao, oa>						1				2	4	3	
<e>		1		1									
<y, i, ỳ>										11	4	1	

Both profiles are a mixture of «o» and «u», but the percentage of «u» is rather greater for /o/, as might be expected.

6   **MID-LONG /ɔ/ AND /o/**

The quantity rules (section 1.4 above) tell us that in polysyllables, stressed vowels preceding single consonants and /sp, st, sk/ were of mid-length. The profile of mid-long /o/ is as follows:

	VC	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
<ui, uy>	6										1	
<oi, oy>	3	1		1								
«o»	2	20	21	34	28	25	44	35	2	29	58	44
«u»	2	1	1		1					1	13	6
<ou>	2									1		1
<oo>										1		7
«y»				1		3					4	
<e>					1							
«a»					1						11	

Interestingly, Lhuyd has some cases with <ô>, implying a non-short vowel, and others with <ò>, implying a non-long vowel. This is just what one would expect if the vowel was of mid-length. However, by far the commonest graph in use in MidC and in LateC was <o>; but all this tells is that the vowel was mid-back rounded of indeterminate quantity. It does not necessarily mean that the vowel's quality was [ɔ], nor that it was short. It was evidently different in some way from the long vowel (spelled <o, oy, ou> in MidC), as is shown by the pair in the Boderwyd manuscript *skooth* 'shoulder' / *skothow* 'shoulders'. It was also different from the short vowel, which was usually spelled <u> in MidC rather than <o>.

The table above needs to be compared with that for mid-long /ɔ/:

	VC	PC	RD	OM	PA	BK	BM	TH	SA	CW	Lh	VLC
«o»	36	285	204	250	227	241	353	734	69	199	307	201
«ou»		14*	4	3		6		1	6	1	7	5
«u»	5	8	1	2	3	1	23	11		8	63	27
«y»			2			1					8	1
«oy»								2				
«e»		11	4	2		3		7	1	1	23	12
«a»						3		1	1	4	30	16

Here again, <o> was by far the dominant graph, though <u> is also significant in Late Cornish. The exceptions are nearly all apply to the same small set of words, e.g. the word *diogel* 'certain' was spelled with **«ou»** in PC.

We have seen in section 2.1 that in MidC, <o> was used for both [oː] and [ɔː]. It should not be surprising, then, that <o> was used for both [oˑ] and [ɔˑ]. The use of <o> for both does not necessarily mean that there was only one sound[23].

6.1 **The word *woeles***

A common qualifier in place-names containing historic [oˑ] is ***woeles*** 'lower', almost always lenited. Over 100 examples of this word were collected from place-names, and 23 more from the texts: here are their spellings.

	woeles	*woles*	*wolas*	*wollas*	*woollas*	*woolas*
1225-74	1					
1275-1324	10	4				
1325-74	7	4		1		
1375-1424		16				
1425-74	1	8	4			
1475-1524		5	4			
1525-74		6	5			
1575-1624			8	13		1
1625-74		1	1	3	2	
1675-1724		1	7	4		
1725-74				7		2
1775-1824				1	1	1
1825-74				11	2	2
1875-1924				8		

This shows a clear progression *woeles > woles > wolas > wollas*. The reduction of <oe> to <o> may be dated *c.*1375. The following table applies to place-names containing stressed mid-long /o/ in other elements:,

	<oy, oi, oe>	<o>	<u>
1225-74	1		
1275-1324	19	4	
1325-74	24	5	3
1375-1424		3	
1425-74		2	
1475-1524		4	
1525-74		1	
1575-1624		6	
1625-74		4	
1675-1724		1	1
1725-74		7	
1775-1824		7	
1825-74		11	
1875-1924		7	
map		9	1

Again, there is a change of spelling *c.*1375, probably representing the reduction of a diphthong to a monophthong.

6.2   **Double rhymes with mid-long /o/**

The following double rhymes (those where the last two syllables are rhymed) are found with words containing mid-long /o/:

Reference	Textual spelling	Rhyming words (in original spelling)	Eye-rhyme	Quality
BM.0438	*galosek* 'powerful'	*bohosek* 'poor'	yes	mixed
BK04.25	*gallosak* 'powerful'	*marthojek* 'wondeful'	yes	mixed
BK06.14	*cronow* 'thongs'	*ponow* 'pains'	yes	/-o-/
BK09.79	*gothow* 'geese'	*nawothow* 'news'	yes	mixed
BK23.36	*gallosak* 'powerful'	*trosak* 'footed'	yes	/-o-/
BK24104	*galosak* 'powerful'	*trosak* 'footed'	yes	/-o-/
BK29.69	*gothow* 'geese'	*nowothow* 'news'	yes	mixed
MKJT.6	*gotha* 'to fall'	*dotha* 'to him'	yes	mixed

The results are inconclusive; there was evidently no objection to rhyming /o/ with other vowels, and spelling them all as <o> so as to make eye-rhymes.

7 EVALUATION

7.1 <u>Summary of results</u>

The case of long o-type vowels before /m, n, l, r/ is discussed separately, in section 7.3. The following table and section 7.2 apply to vowels preceding consonants other than /m, n, l, r/:

	Length →		Long	Mid-long	Short			
	Stress →		Stressed	Stressed	Stressed		Unstressed	
	Syllables →		mono-	poly-	mono-	poly-		
	Position →						pre-tonic	post-tonic
MidC /o/	System	M	«o, oy, ou»	«o»	«o, u»	«o, u»	‹u›	«u»
		S	«o, oo»	«o, u, oo»	«u»	«u»	‹u›	«u, e»
		L	«û»	«o, u, »	‹u›			
	Supposed sound		[oː] > [uː]	[oˑ] > [uˑ]	[ɤ]	[ɤ]	[ɤ]	[ɤ]
MidC /ɔ/	System	M	«o»	«o»	«o»	«o»	‹o›	«o»
		S	«o»	«o, u»	«o, u»	«o, u»	‹o›	«a, o»
		L	«ô, »	«o, u»	«ɐ, ô, u»	«o, u»		
	Supposed sound		[ɔː]	[ɔˑ]	[ɔ]	[ɔ]	[ɔ]	[ɔ] > [a]

7.2 <u>Spelling of the two o-type vowels in Revived Cornish</u>

Since the quality of the vowels when short is independent of stress, the above table may be inverted to express the contents as functions of vowel-length. Here the graphs used in four modern orthographies are compared with those used in BK:

	Reflex of OldC /ui/			Reflex of OldC /ɔ/		
Length	long	mid-long	short	long	mid-long	short
Sound	[oː] > [uː]	[oˑ]	[ɤ]	[ɔː]	[ɔˑ]	[ɔ]
BK	‹oy›	‹o›	‹u›	‹o›	‹o›	‹o›
KK	‹oe›	‹oe›	‹oe›	‹o›	‹o›	‹o›
Unified	‹o›	‹o›	‹u›	‹o›	‹o›	‹o›
UCR	‹o›	‹o›	‹u›	‹o›	‹o›	‹o›
SWF	‹oo›	‹o›	‹o›	‹o›	‹o›	‹o›

There is no dissent as regards the spelling of /ɔ/; as in Middle Cornish, it is spelled ‹o› in all cases (long, mid-long and short) by all the modern orthographies listed in the table. Nance failed to appreciate that there were two long o-vowels in Cornish, so in Unified Cornish he spelled them both as ‹o›. Williams made the same mistake in his Unified Cornish Revised (UCR). The largely morpho-phonemic ***Kernewek Kemmyn*** (KK) uses ‹o› for /ɔ/ and ‹oe› for /o/, in all instances. Thus ‹oe› stands for two rather different qualities of vowel: [o] and [ɤ]. Standard Written Form (Bock and Bruch 2008) aspires to be phonetic; it distinguishes long /o/ and mid-long /o/ by using ‹oo› and ‹o› respectively, but fails to recognize the much greater phonetic difference between mid-long /o/ and short /o/..

The following table illustrates these differences:

	long		mid-long		short stressed		short unstressed	
	/o/	/ɔ/	/o/	/ɔ/	/o/	/ɔ/	/o/	/ɔ/
	'weight'	'wall'	'to weigh'	'walls'	'deceit'	'hole'	'lord'	'wait'
MidC	*poys*	*fos*	*pose*	*fosow*	*tull*[24]	*tol*	*arluth*	*gortos*
Unified	pos	fos	posa	fosow	tull	toll	arluth	gortos
UCR	pos	fos	posa	fosow	tull	toll	arluth	gortos
KK	***poes***	***fos***	***poesa***	***fosow***	***toell***	***toll***	***arloedh***	***gortos***
SWF	poos	fos	posa	fosow	toll	toll	arlodh	gortos

- Unified and UCR fail to distinguish between long /o/ and long /ɔ/, not because of a fault in the orthography, but owing to a misunderstanding of the underlying phonology.
- KK distinguishes between /o/ and /ɔ/ in all cases, but does not indicate the different quality of the long and short /o/; <oe> is also an unusual digraph to use for [ɤ], both when unstressed as in **arloedh**, and when stressed as in loan-words like **boekka, roegbi.**
- SWF fails to distinguish [tɔl:] 'hole' from [tɤl:] 'deceit', which is a clear error.
- SWF's <o> in *arlodh* is inappropriate; in the texts, the word was spelled with <o> only thrice in 686 attestations.

The following table is of considerable interest, because it shows how the the reflex of OldC /ui/ is spelled in different words containing a single etymon, **arloedh;** and for completeness, a case of long /o/:

	Stressed long	Unstressed short	Stressed mid-long	Unstressed short	Stressed mid-long
Sound →	[o:]	[ɤ]	[o·]	[ɤ]	[ɪ]
	'shoulder'	'lord'	'lady'	'ladies'	'lords'
BK	*scoyth*	*arluth*	*arlothas*	*arluthesow*	*arlythy*
UC	scoth	arluth	arlodhes arludhes	-ow	arlydhy
UCR	scodh	arluth	arlodhes	arlodhesow	arlydhy
KK	**skoedh**	**arloedh**	**arloedhes**	**arloedhesow**	**arlydhi**
SWF	skoodh	arlodh	arlodhes	arlodhesow	arlydhi

The three different realizations of /o/ were spelled in three different ways in BK.

In UCR and in SWF, the spelling *arlodhes* is understandable, but the plural *arlodhesow* is incompatible with the attested form *arluthesow* in BK: if in a phonetic orthography one just tacks the plural suffix –*ow* on to *arlodhes,* then one gets the wrong result; in the plural, the vowel is unstressed, and is better spelled as <u>.

7.2.1 **Improvements to SWF**

SWF <oo>, being a digraph taken from System S, sits uncomfortably with the rest of the orthography, much of which reflects System M. It also suggests the pronunciation [uː], which is inappropriate for anyone wishing to use a pronunciation based on MidC. One cannot practically use <oy>, as in MidC, because that would connote [ɔɪ]; the author suggests using <oe>, as in KK.

The use of SWF <o> for short /o/ is inadvisable, because that connotes [ɔ]; <u> would be better, as in MidC and in Unified. The problem here is that <u> is in use for /y/. By adopting a mild stratagem, however, it is possible to improve this aspect of the spelling of SWF without resorting to using diacritics. If the unstressed form of /y/ is treated as [ɤ], the same as the supposed realization of short /o/, then <u> can be used for both. A problem still remains with short stressed /y/; if <u> is used for short stressed /o/, i.e. [ɤ], then it cannot also be unambiguously used for short stressed /y/, i.e. [y]. The following table shows that the number of words with short stressed /y/ is very small; of these, *stumm* 'bend', *drumm* 'ridge' and *hirdrumm* 'long ridge' (attested only in place-names) may be re-written as *stymm, drymm* and *hirdrymm*; this is tantamount to unrounding [y] to [ɪ], as happened in the history of the language. The other word, *unn* 'one' is much more common, and needs to be treated as an exception; but it is exceptional in any case, because it contains /n/ rather than /nn/, and yet was pre-occluded in Late Cornish.

		Long	**Mid-long**		**Short**	
					Unstressed	**Stressed**
/o/	**No. of head-words in George (2009)**	95	188		165	75
	Pronunciation	[oː]	[oˑ]		[ɤ]	[ɤ]
	Suggested spelling	<oe>	<oe>		<u>	<u>
/y/	**No. of head-words in George (2009)**	92	282		511	only 4
	Pronunciation	[yː]	[yˑ]		may be treated as [ɤ]	*drumm* 'ridge' *hirdrumm* 'long ridge'
	Suggested spelling	<u>	<u>		<u>	*stumm* 'bend' *unn* 'one'

The suggested amendment to SWF is therefore:
<u>   all occurrences of /y/, and also short /o/
<oe>   long and mid-long /o/

7.3 **Long /o/ before /m, n, l, r/**

As shown in section 2.5, the distinction between long /o/ and long / / before /m, n, l, r/ is less clear-cut than before other consonants. When ***Kernewek Kemmyn*** was first devised, the decision was made to spell the reflex of OldC /ui/ as <oe> in all cases, including before /m, n, l, r/, even though the evidence for [oː] is weaker. This decision may have led to an over-generalization. When reviving a language which is inadequately attested, there is an almost irresistible tendency to over-normalize features, to seek to tidy the messy remains of a language which may itself have been untidy[25].

SWF treats cases on an individual basis. We have seen in section 2.5 that some words apparently had the expected [oː] > [uː], others had [ɔː], but for a large number, the evidence was conflicting or ambiguous. In cases of doubt, SWF defaults to <o>.

8 **CONCLUSIONS**

- There is abundant evidence that, when stressed and long before consonants other than /m, n, l, r/, the reflexes of Old Cornish /ɔ/ and /ui/ were kept apart throughout the history of traditional Cornish, becoming [ɔː] and [oː] > [uː] respectively.
- When stressed and long before /m, n, l, r/, Old Cornish /ɔ/ became [ɔː], but the development of /ui/ was lexically dependent.
- When short (both stressed and unstressed), Old Cornish /ɔ/ remained as [ɔ] and /ui/ became [ɤ].
- When of mid-length, evidence for the difference between the two o-type vowels in Middle Cornish is less clear-cut; <o> was the dominant spelling for both, but this <o> is believed to represent both [ɔ·] and [o·].
- In SWF, the present spelling of o-type vowels is unsatisfactory, but may be improved by using <oe> for long and mid-long /o/, and <u> for /y/ and short /o/.

REFERENCES

BOCK, A. and BRUCH, B. (2008) *An outline of the standard written form of Cornish.*
          Cornish Language Partnership, Truro.

BOCK, A. and BRUCH, B. (2009) "Nucleus length and vocalic alternation in Cornish diphthongs."
          Die Sprache, **48**, 34-43.

DESHAYES, A. (2003) *Dictionnaire étymologique du breton.* Chasse-Marée, Douarnenez.

DUNBAR, P.A. and GEORGE, K.J. (1997) **Kernewek Kemmyn***: Cornish for the twenty-first century.*
          Cornish Language Board, Saltash.

FLEURIOT, L. (1985) *A dictionary of Old Breton.* Prepcorp, Toronto.

GEORGE, K.J. (1984) *A phonological history of Cornish.* Unpublished doctoral thesis presented to the
          University of Western Brittany, Brest. 555 pp.

GEORGE, K.J. (2000) 'Long o-type vowels in Cornish.' *Agan Yeth* **2**, 14-28.
          Cornish Language Board, Saltash.

GEORGE, K.J. (2009) *An gerlyver meur.* Cornish Language Board, Callington.

GOVER, J.E.B. (1948) *The place-names of Cornwall.* Unpublished manuscript.

HOLMES, J.G. (2003) "On the track of Cornish in a bilingual country".
          Cornish Studies, series 2, **11**, 270-290.

NANCE, R.M. (1938) *A new Cornish-English dictionary*. Federation of Old Cornwall Societies.

PADEL, O.J. (1985) *Cornish place-name elements.* English Place-Name Society, Nottingham.

WILLIAMS, N.J.A. (1990) "A problem in Cornish phonology". Celtic linguistics **68**, 241-274.

WILLIAMS, N.J.A. (1995) *Cornish today.* Kernewek dre Lyther, Sutton Coldfield.

WILLIAMS, N.J.A. (2006) *Towards authentic Cornish*. Evertype, Westport, Ireland.

[1]   The views expressed in this paper are those of the author, and not the corporate views of the Cornish Language Board.

[2]   In insisting that MidC had only one long o-type vowel, Williams is following Nance, who in 1938 wrote: "In Late Cornish *ō* sometimes becomes *ū,* especially in monosyllables ending in an *s* that represents an older *d* or *t;* e.g. *bōs* (food), *cōs, trōs, lōs* become *būz, cūz, trūz, lūz.*" Nance did not seem to notice that all of these words originally had OldC /ui/. Neither did he note the difference between his *trōs* 'foot', which in LateC became *trūz,* and his *trōs* 'noise', which did not.

[3]   The order here is the presumed order of composition (oldest to newest).

[4]   The consonant clusters /sp, st, sk/ behaved as single consonants in this respect.

[5]   PC and RD were almost undoubtedly written by the same scribe.

[6]   The only rhymes containing *voys* are
RD.2295-96   *lemmyn hertheugh hy the ves / me a glew vn hager noyes /*
BM.2710-11   *yma oll an comen voys / gans meryasek ov cul noyys /*
BM.3025-26   *an dynnyte thymo vs reys / ythevel gena y voys /*
The first and last of these are poor, and the second is imperfect.

[7]   In English, the graph <o-e> is in theory ambiguous; (it could mean ModE [əʊ] < [oː] < MidE [ɔː] as in *pose,* or ModE [uː] < MidE [oː], as in *lose*). An examination of stressed monosyllables spelled <-oCe> in ModE, listed in Fergusson (1985), showed the following numbers of words:

Meaning of <o-e>	C_O = /γ, st, ð, v, z/	C_L = /m, n, l, r/
ModE [əʊ]	32	61
ModE [uː]	4 *move, prove, whose, lose*	1 place-name *Scone*

In practice, therefore, <o-e> is much more likely to represent the more open vowel, and may be assigned to the group {o̞}, implying [oː] < MidC [ɔː].

[8]   * indicates a missing or indeterminate vowel.

[9]   In a few English words (such as *good, wood*), <oo> represents the short vowel [ʊ], but inspection of the individual cases suggests that this was not the case in Cornish.

[10]   All of the rhyming words are here spelled in **Kernewek Kemmyn**. The word **bros** is treated as a separate word from **bras** 'great', but with much the same meaning.

[11]   In this table, LC stands for Late Cornish.

[12]   The reference is to the first line in the stanza, not necessarily the line with the rhyme.

[13]   The rhyming lines here are:
BK02.46   *lader athoys*   'perpetual thief'
BK02.48   *a-barth om coys*   'within my wood'
In the Thomas/Williams edition of BK, line 02.46 was mistranslated as 'You are a robber', i.e. the rhyming words were taken to be **os** 'thou art' and **koes** 'wood'. Williams (2006:61) proffered this as "evidence" that there was no difference between /ɔ/ and /o/. His argument is false; the rhyme is perfect.

[14]   It is not clear what Williams supposed the realization of OldC /ɔ:/ to be, since he never sets out phonological developments in clear scientific diagrams of this type.

[15]   In cases of conflicting graphemes during this period, the example closest to 1450 was used.

[16]   There are no data west of Camborne, so it could be argued that Williams' "western dialect" might fit in there. Note, however, that Tregoose (St Erth) was spelled *Tregos* in 1301.

[17]   Schrijver (pers. comm.) suggests that **hoer** would be a better spelling in **Kernewek Kemmyn.**

[18]   Some scholars interpret the <a> as schwa.

[19]   The stanza beginning at CW.0349 is a copy, with minor modifications, of that beginning at OM.0065. Except for *woys*, Jordan has re-spelled the rhyming words in /-oz/.

OM.	CW.
0065 *Adam saf yn ban yn clor*	0349 *adam save in ban in cloer*
0066 *ha treyl the gyk ha the woys*	0350 *ha trayle ʒa gyke ha tha woys*
0067 *preder my theth whul a dor*	0351 *preda[r] me thath wrill a thoer*
0068 *haval theym an pen then troys*	0352 *havall yᵐ then pen ha tros*
0069 *myns vs yn tyr hag yn mor*	0353 *myns es in tyre hag in moer*
0070 *warnethe kemer galloys*	0354 *warnothans kymar gallus*
0071 *yn bys~ma rak dry ascor*	0355 *yn serten rag drỹ ascore*
0072 *ty a vew bys may fy loys*	0356 *tỹ a vew maỹ fota loose*

[20]   It may be compared with Welsh *taer* 'violent', Breton *taer* 'vehement'.

[21]   *Withieleglas* 1305

[22]   Another possibility is *beron* (BK11.28), which could be an otherwise unknown word **broenn**, cognate with W. brwyn 'sad'.

[23]   The use of <o> for the reflexes of both OldC /ui/ and /ɔ/ when of mid-length is to be compared with the use of <e> for the reflexes of OldC /i/, /ɪ/ and /ɛ/ when of mid-length.

[24]   The word for 'deceit' is also spelled *tol, toll* and *tovl* in MidC.

[25]   Another example is the set of place-names containing the reflexes of:
(i)   Proto-British **alanī,* later represented by the personal name Alan;
(ii)   a Proto-Celtic river-name **alaunā,* represented by MidC *alun..*
Over-zealous normalization would spell all names by rivers with **alun,** and the remainder with **alan,** but a survey showed thatl the names are mixed up, and their spelling has to be decided on an individual basis.