40

The use of computers in the decipherment of the Hackness Cross cryptic inscriptions

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40.1 Introduction

The Hackness Cross consists of two stone fragments of an 8th to 9th Century Anglian cross, located in the south aisle of St Peter's Church at Hackness in North Yorkshire. The mutilated stones were discovered some time before 1848 in an outhouse at Hackness Hall, and prior to that show signs of having been used as a gate post. The fragments would appear to come from the top and bottom of the cross shaft, and together stand to a height of 1.5 metres. However, the original height of the monument would have been approximately 4.5 metres.

The decoration on the stones consists of vine scroll, interlacing, the feet of two beasts, and what is presumably the head of Jesus. In its original form the Hackness cross would have been equal to the famous examples from Bewcastle and Ruthwell. The cross also bears five inscriptions, two coded or cryptic inscriptions, and three in Latin (Table 40.1).

Oedilburga probably refers to Abbess Aethelburg mentioned in the *Life of St Wilfrid* (Webb & Farmer 1983, 171). In this reference she is found accompanying Abbess Aelfflaed of Whitby, when visiting King Aldfrith of Northumbria on his deathbed in 705 AD. Aethelburg was presumably Abbess of the Monastery at Hackness which was founded in 680 AD by Abbess Hilda, according to Bede (Sherley-Price 1968, 249).
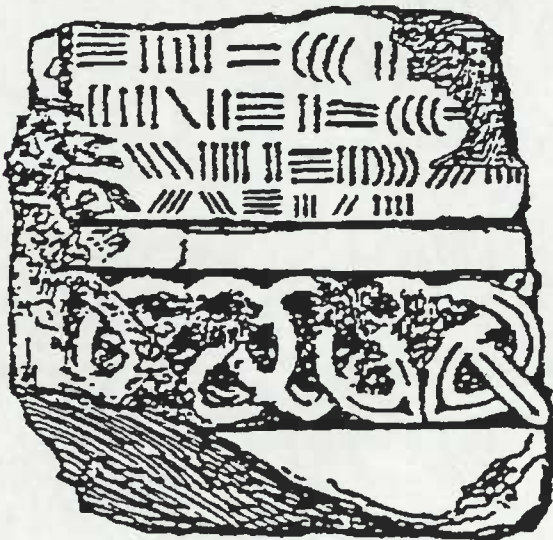

Figure 40.1: Hackness Ogham Inscription (based on Collingwood 1927 and Brown 1930).

(OEDI)L(BVR)GA SEMPER TENENT MEMORES COMMV(NITATE)S TVAE TE MATER AMANTISSIMA	Oedilburga your communities hold you always in memory most loving mother
TREL(..)OSA ABBATISSA OEDILBVRGA ORATE PR(O NOBIS)	Trel..osa Abbess Oedilburga pray for us
OEDILBV(RGA) BEATA A(D S)EMPER T(Œ REC)OLA(NT)	Blessed Oedilburga always may they remember you

Table 40.1: Hackness Latin inscriptions

During this century the monument has been examined by a number of scholars including W. G. Collingwood (1927, 59–61), G. B. Brown (1930, 52–75) and R. A. S. Macalister (1945, 478). However, it was Brown who provided the most comprehensive description, and set out the problems surrounding cryptic inscriptions upon which this present work is based.

The first of the cryptic inscriptions is written in a form of Ogham, a Celtic alphabet developed in Ireland in the 4th Century AD. The second inscription is written in Runic, a Germanic alphabet used by the Anglo-Saxons.

40.2 The Ogham Inscription

The inscription is located on the south side of the lower fragment and consists of 27 letters forming a four line inscription (see Figure 40.1). Brown (1930) suggests that about another six lines above may have been lost.

According to Macalister (1945) the inscription shows only a superficial similarity to Celtic Ogham but may have been invented by someone familiar with the Ogham system. The script was formed by dividing a fixed alphabet into groups of five letters and then using a particular type of stroke for each group, the letter within that group being denoted by the number of strokes employed. In the case of the Hackness Ogham this would give rise to an alphabet of 30 letters of which only 14 are used in the inscription (see Figure 40.2).

Attempts to decipher the inscription have so far proven unsuccessful due to uncertainty about the alphabet upon which the Ogham characters are based. In any event the alphabet would have to consist of at least 30 letters which would exclude Latin or Greek, leaving us with one of two options: the Anglo-Saxon runic alphabet (see Figure 40.3), or the Old Irish Ogham alphabet (see Figure 40.4).

Group A	I	II	III	IIII	IIIII
Group B	—	=	≡	≣	≣
Group C	/	//	///	////	/////
Group D	\	\\	\\\	\\\\	\\\\\
Group E	(	((	(((	((((	(((((
Group F	)	))	)))	)))))	)))))

Figure 40.2: Hackness Ogham Alphabet.

However, the choice between these two alphabets is not the only problem that confronts us. If we divide either of the above alphabets into six groups of five letters, we then need to find out which of the six different types of stroke employed in the inscription correspond to each letter group. For the six letter groups this gives us a total of 720 different possible permutations, i.e. the factorial of six.

Consequently, a program was written in Microsoft QBASIC (1992) with which it is possible to generate all 720 permutations for each of the two alphabets (a listing is available on request from the author).

40.2.1 Results

Having generated a total of 1440 possible readings of the inscription it was then necessary to start examining each one in detail. Most of the 720 readings based on the Runic alphabet contained completely unintelligible strings of consonants. On the other hand many of the readings based on the Ogham alphabet contained good syllables, especially the following examples.

```
Hackness Ogham Inscription Record : 003
Group Order : 3 4 5 6 1 2
----   |||||  --      ((((  ||
e      r      o       s     g
|||||  \      ||      ----  ||    ---   ((((  --
r      ea     g       e     g     u     s     o
\\\\   |||||  ||      ----  |||   ))))  ////  ||||
ui     r      g       e     ng    c     ph    z
////   \\\    ----    |||   //    ||||
ph     ia     e       ng    th    z
```

Group A	I	II	III	IIII	IIIII
	m	g	ng	z	r
Group B	-	--	---	----	-----
	a	o	u	e	i
Group C	/	//	///	////	/////
	kh	th	p	ph	x
Group D	\	\\	\\\	\\\\	\\\\\
	ea	oi	ia	ui	ae
Group E	(	((	(((	((((	(((((
	b	l	v	s	n
Group F	)	))	)))	))))	)))))*
	h	d	t	c	q

```
Hackness Ogham Inscription Record : 028
Group Order : 3 4 6 5 1 2
----   |||||  --      ((((  ||
e      r      o       s     g
|||||  \      ||      ----  ||    ---   ((((  --
r      kh     g       e     g     u     s     o
\\\\   |||||  ||      ----  |||   ))))  ////  ||||
ph     r      g       e     ng    c     ui    z
////   \\\    ----    |||   //    ||||
ui     p      e       ng    oi    z
```


Figure 40.3: Runic Alphabet (Anglo-Saxon)

Figure 40.4: Ogham Alphabet (Old Irish)

Group A	I	II	III	IIII	IIIII
	m	g	ng	z	r
Group B	-	--	---	----	-----
	a	o	u	e	i
Group C	/	//	///	////	/////
	ea	oi	ia	ui	ae
Group D	\	\\	\\\	\\\\	\\\\\
	kh	th	p	ph	x
Group E	(	((	(((	((((	(((((
	b	l	v	s	n
Group F	)	))	)))	))))	)))))
	h	d	t	c	q

Hackness Ogham Inscription Record : 373
Group Order : 3 4 5 2 1 6

----	|||||	--	((((	||			
e	r	o	s	g			
|||||	\	||	----	||	---	((((	--
r	h	g	e	g	u	s	o
\\\\	|||||	||	----	|||	))))	////	||||
c	r	g	e	ng	ui	ph	z
////	\\\	----	|||	//	||||		
ph	t	e	ng	th	z		

Group A	I	II	III	IIII	IIIII
	m	g	ng	z	r
Group B	-	--	---	----	-----
	a	o	u	e	i
Group C	/	//	///	////	/////
	kh	th	p	ph	x
Group D	\	\\	\\\	\\\\	\\\\\
	h	d	t	c	q
Group E	(	((	(((	((((	(((((
	b	l	v	s	n
Group F	)	))	)))	))))	)))))
	ea	oi	ia	ui	ae

Hackness Ogham Inscription Record : 397
Group Order : 3 4 2 5 1 6

----	|||||	--	((((	||			
e	r	o	s	g			
|||||	\	||	----	||	---	((((	--
r	kh	g	e	g	u	s	o
\\\\	|||||	||	----	|||	))))	////	||||
ph	r	g	e	ng	ui	c	z
////	\\\	----	|||	//	||||		
c	p	e	ng	d	z		

Group A	I	II	III	IIII	IIIII
	m	g	ng	z	r
Group B	-	--	---	----	-----
	a	o	u	e	i
Group C	/	//	///	////	/////
	h	d	t	c	q
Group D	\	\\	\\\	\\\\	\\\\\
	kh	th	p	ph	x
Group E	(	((	(((	((((	(((((
	b	l	v	s	n
Group F	)	))	)))	))))	)))))
	ea	oi	ia	ui	ae

Hackness Ogham Inscription Record : 436
Group Order : 3 4 6 2 1 5

----	|||||	--	((((	||			
e	r	o	s	g			
|||||	\	||	----	||	---	((((	--
r	h	g	e	g	u	s	o
\\\\	|||||	||	----	|||	))))	////	||||
c	r	g	e	ng	ph	ui	z
////	\\\	----	|||	//	||||		
ui	t	e	ng	oi	z		

Group A	I	II	III	IIII	IIIII
	m	g	ng	z	r
Group B	-	--	---	----	-----
	a	o	u	e	i
Group C	/	//	///	////	/////
	ea	oi	ia	ui	ae
Group D	\	\\	\\\	\\\\	\\\\\
	h	d	t	c	q
Group E	(	((	(((	((((	(((((
	b	l	v	s	n
Group F	)	))	)))	))))	)))))
	kh	th	p	ph	x

Hackness Ogham Inscription Record : 441
Group Order : 3 4 2 6 1 5

----	|||||	--	((((	||			
e	r	o	s	g			
|||||	\	||	----	||	---	((((	--
r	ea	g	e	g	u	s	o
\\\\	|||||	||	----	|||	))))	////	||||
ui	r	g	e	ng	ph	c	z
////	\\\	----	|||	//	||||		
c	ia	e	ng	d	z		

Group A	I	II	III	IIII	IIIII
	m	g	ng	z	r
Group B	-	--	---	----	-----
	a	o	u	e	i
Group C	/	//	///	////	/////
	h	d	t	c	q
Group D	\	\\	\\\	\\\\	\\\\\
	ea	oi	ia	ui	ae
Group E	(	((	(((	((((	(((((
	b	l	v	s	n
Group F	)	))	)))	))))	)))))
	kh	th	p	ph	x

40.2.2 Conclusions

Of the above examples Record 436 appeared to be the most promising, for which the following Old Irish interpretation is offered (Tables 40.2 and 40.3). However, it should be noted that the letter C has been added to the beginning of the inscription, the letter U to the end of the first line, and the number of strokes in the letter at the end of the third line increased from four to five. All three of these additions to the inscription occur where either the surface is damaged or fragments of stone are missing.

----	|||||	--	((((	||			
E	R	O	S	G			
|||||	\	||	----	||	---	((((	--
R	H	G	E	G	U	S	O
\\\\	|||||	||	----	|||	))))	////	|||||
C	R	G	E	Ng	Ph	Ui	R
////	\\\	----	|||	//	||||		
Ui	T	E	Ng	Oi	Z		

Table 40.2: Hackness Ogham inscription (final version).

Reconstruction	Old Irish	English
Ceros gu	Cross cu	Cross to
Rhge Guso	Ríg Ísu	King Jesus
crg eng phuir	carric an fóir	rock of help
uit Engoiz	uait Óengus	from Angus

Table 3: Hackness Ogham inscription (interpretation).

(	((	(((	((((	(((((
B	L	V	S	N
\	\\	\\\	\\\\	\\\\\
H	D	T	C	Q
I	II	III	IIII	IIIII
M	G	Ng	Z	R
–	– –	– – –	– – – –	– – – – –
A	O	U	E	I
)	))	)))	))))	)))))
Kh	Th	P	Ph	X
/	//	///	////	/////
Ea	Oi	Ia	Ui	Ae

Table 40.4: Hackness Ogham alphabet (final version).

If the interpretation in Table 40.3 is correct, then the inscription would have been written using the variant of the standard Ogham alphabet shown in Table 40.4.

The third line of the inscription may also be a reference to the biblical *Eben-ezer* meaning stone of help, which was set up by Samuel following an Israelite victory over the Philistines:

> 'Then Samuel took a stone, and set it between Mizpeh and Shen, and called the name of it Eben-ezer, saying hitherto hath the Lord helped us.' (Samuel I, 7:12).

Those who made the cross would have used the Vulgate Bible and therefore known the reference in its Latin form *Lapis adiutorii*. A contemporary cross at Bewcastle in Cumbria may have served a similar purpose. The Runic inscription, though altered by 19th Century antiquarians, would also appear to celebrate a victory:

> 'This victory sign set up by Hwaetred Wothgaer Olwfwolthu in memory of Alcfrith a king and son of Oswiu pray for his soul.' (Bewcastle Cross, Cumbria).

The Ogham inscription might at first appear unusual in this context, but not when we consider the Celtic origins of the Christianity in Northumbria. As Brown (1930) points out, the cryptic inscriptions were probably devised by monks or nuns among whom Irish individuals would

no doubt have been found. This would also account for the Irish name Angus at the end of the inscription.

40.3 The Runic Inscription

The inscription is located on the east side of the upper fragment and consists of 15 Anglo-Saxon Runes, 35 Tree Runes and three Latin letters, combining to form a six line inscription (see Figure 40.5).

The Tree Runes employed here are thought by Page (1973, 64–66) to be a form of *Hahalruna*, which are described in the 9th Century *Isruna* Tract, and are similar to Norse inscriptions from Maes Howe on Orkney. The Runic alphabet (futhorc) is split into four groups of eight letters (Figure 40.6). Each rune is then represented by a vertical stemline, with the number of arms to the left indicating the group in which the rune occurs and those to the right indicating its position within that group. This system would give rise to an alphabet of 32 letters, of which 14 are identified in the inscription.

Once again attempts to decipher the inscription have so far proven unsuccessful due to uncertainty about the alphabet upon which the Tree Rune characters are based. In any event the alphabet would have to consist of at least 32 letters, which would exclude the Latin, Greek or Ogham Alphabets leaving us with the Anglo-Saxon Runic Alphabet (see Figure 40.3).

However, the solution is not simply a matter of dividing the Anglo-Saxon Runic Alphabet into four groups of eight letters, since we still do not know the order in which the letter groups occurred. For the four letter groups this gives us a total of 24 different possible permutations, i.e. the factorial of four.

A program was therefore written to generate all 24 possible permutations. It was also decided to run the program using the Runic alphabet in reverse order, as some Norse inscriptions are known to use this system (Derolez 1954, 140–142).

40.3.1 Results

The program generated 48 possible readings of the inscription, none of which appeared to form any intelligible pattern. It would seem that the Tree Runes are now too fragmentary to be fully understood.

40.3.2 Conclusions

Though the results of the program were inconclusive, it was still be possible to glean something from the first two lines of the inscription (Figure 40.7) which appear to be an anagram:

Reconstruction	OEDILBURG GNOEW ME
Anglo-Saxon	Æþelburg cneow me
Modern English	Aethelburg knew me

The words appear to be spoken by the cross, a personification which is not unique. The Ruthwell Cross near Dumfries is also inscribed in Runic, with the Anglo-Saxon poem the *Dream of the Rood*, in which the cross

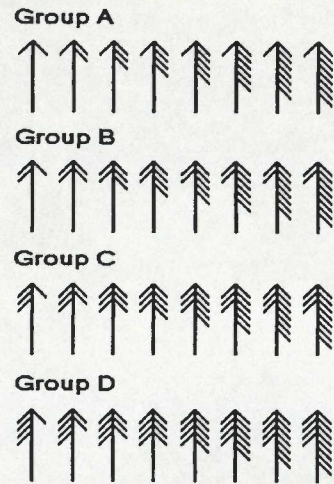**Figure 40.5:** Hackness Runic Inscription (based on Collingwood 1927 and Brown 1930)

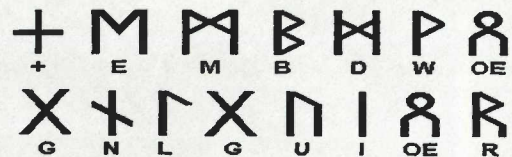**Figure 40.6:** Hackness Tree Rune Alphabet

Figure 40.7: Hackness Anglo-Saxon Runes

itself describes the suffering of Jesus. Parallels also exist for Runic anagrams, two of which appear in riddles (24 and 42) from the *Exeter Book* of Anglo-Saxon poetry (Rodrigues 1990, 104–107). Finally, this interpretation is in keeping with the three Latin inscriptions that also commemorate Abbess Aethelburg.

Acknowledgements

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