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ON THE AGE OF OGAM

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The ogam signary as shown in figure 1 was used on Irish and Pictish stone monuments beginning in about the fourth century of the Common Era. However, it had been used prior to this period on wooden staves that have long since decayed, and a precise date of origin cannot be determined. At last year's meeting of the Celtic Studies Association of North America, it was pointed out that on the basis of the internal phonetic structure of the signary's array as well as of comparative evidence from Irish and Pictish inscriptions, the sign ᚼ traditionally designated as H was originally a *P (Griffen 2001, see also Griffen 2002).

ᚅ N /n/	ᚇ Q /k^w/	ᚏ R /r/	ᚁ I /i/
ᚄ S /s/	ᚈ C /k/	ᚑ Z /t^s/	ᚂ E /e/
ᚃ F /w/	ᚉ T /t/	ᚐ GG /g^w/	ᚃ U /u/
ᚆ L /l/	ᚊ D /d/	ᚌ G /g/	ᚄ O /o/
ᚁ B /b/	ᚼ H<*P /h/</p/	ᚋ M /m/	ᚐ A /a/

Figure 1: The Ogam Alphabetic Signary

Very briefly, each column is introduced by a basic sign followed by two pairs that display increasing hardness or complexity (including articulator retraction). Thus, the vowel column starts with the basic A which is retracted at the back of the oral cavity from O to U and then in the front from E to I. For the consonants, the basic signs are labial, the logical entry point to the oral cavity. The first is the soft B, the second the hard *P, and the third the complex (nasal) M. As it were, the B introduces the softest column, the *P introduces the hardest column, and the M introduces the most complex column. If the sign in question were H, the patterning would break down, and no alternative patterning would be possible.

Perhaps more convincingly, we know that Indo-European /p/ changed in Celtic through /χ/ to null. Thus, the Latin root *nepot-* 'nephew, grandson' corresponds with the more conservative (in this case) Pictish ogam NEHT- and

the Irish ogam NET-. This clearly shows that the Pictish H was derived from *P. In Irish, the H is never found — in a later development, the /χ/ sound is rendered in appropriate contexts by ᚃ C.

For the issue at hand, the reconstruction of *P is crucial, for it demonstrates that the original system would have to have been in place at a time preceding the disappearance of /p/ from Celtic.

Within the literature, three sources are proffered for the development of ogam script — Germanic runes, the Roman alphabet, and the Greek alphabet. One reason for requiring a model upon which ogam could be patterned is that the signary is a full alphabet with consonants and vowels, rather than a syllabary or consonantal alphabet. In the development of Western writing systems, traditional scholarship insists that the alphabet was invented only once, as an innovation by the Greeks on the Phoenician syllabary (see Gelb 1952, Pope 1999).

Of course, the reassessment of the age of ogam back to a point preceding the loss of Indo-European /p/ should once and for all eliminate the suggestion that it may have developed from Germanic runes. Indeed, if there had been any influence between the two systems, it would have been the ogam that influenced the runes.

This leaves us with Latin and Greek as possible precursors to the ogam signary. Once again, the presence of *P in the original system makes Greek appear to be more likely than Latin. McManus, however, points out that those developing the signary

> … showed considerable independence of mind in many respects. They devised a new script as the medium for the writing system. They gave graphic representation to a fundamental distinction made between vowels and consonants by Latin (and Greek) grammarians, a distinction which is irrecoverable, however, from either the Greek or Latin alphabet (McManus 1991: 30-31)

From Tally System to Alphabet

In all of the arguments on the origin of ogam, one important aspect is routinely ignored: Although the signary was quite obviously developed from a tally system and this aspect of its development is discussed (see, for example, Gerschel 1962), the transition from tally system to alphabet has not adequately been explored.

First of all, tally systems resembling ogam writing are in evidence in the British Isles since the Upper Palaeolithic. For example, we find tally markings on an animal rib bone from Gough's Cave in figure 2 (after Barham *et al.* 1999: 80).

Indeed, similar artifacts have been found in France dating from Cro-Magnon (Ifrah 2000: 62-63). Thus, tally systems had been in well-established use for millennia before the invention of the ogam alphabetic signary.

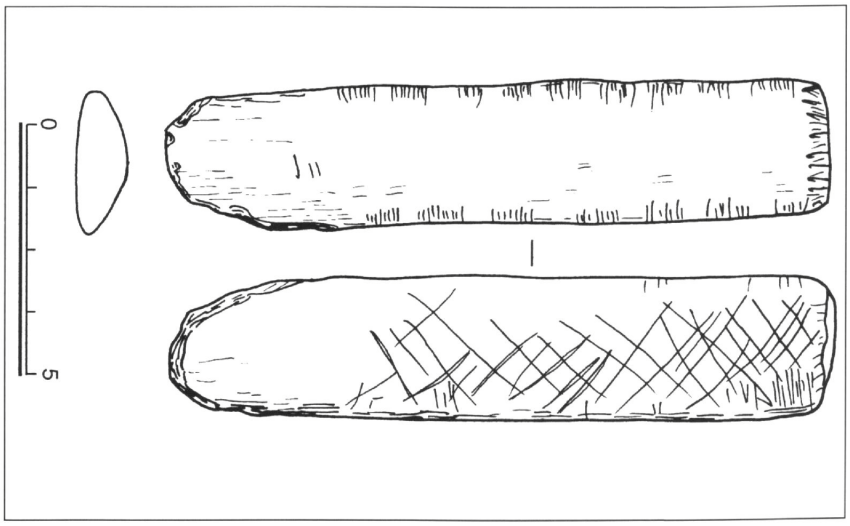

Figure 2: Rib Bone from Gough's Cave (after Barham *et al.* 1999: 80)

Consistent with such tally systems, ogam is divided into groups of five. According to Georges Ifrah (2000: 7), there is a psychological "limit of four" that crops up in the tally systems of many cultures. Not least among them is the English "five-barred gate" in which after four vertical lines are counted, a horizontal or diagonal line is drawn through them to designate a group of five. While ogam seems to be skirting this psychological limit, it is certainly within a reasonable tolerance, and the groupings are by fives.

As for the more pressing issue of the development from tally system to alphabet, ogam also appears to be well within the tradition of emerging writing systems. As noted by Amiet (1968):

> Writing was invented by accountants faced with the task of noting economic transactions which, in the rapidly developing Sumerian society, had become too numerous and too complex to be merely entrusted to memory. Writing bears witness to a radical transformation of the traditional way of life, in a novel social and political environment already heralded by the great constructions of the preceding era. (Translated and quoted by Ifrah 2000: 80)

The archaeological evidence for this process of invention has been uncovered by Schmandt-Besserat (1992, 1996). At the earliest stage, accounting tokens were placed within clay pouches, or bullae. In later stages representations of the tokens were engraved upon the bullae, and in still later stages these representations stood alone. While some debate her ultimate conclusions (see, for example, Lieberman 1980), Sampson notes that "…when a simple accounting system using number-graphs impressed on clay tablets had been created, it would … have been natural to begin supplementing the indications of number with pictures of the items numbered" (1985: 61).

If successful writing systems develop from accounting systems as a matter of course, then it could be argued that the ogam signary might have developed directly out of its preceding tally system. Given the evidence for prewriting systems in the Old European cultures (see Winn 1981; also Gimbutas 1991, Harrmann 1989), such a development cannot be dismissed out of hand. Moreover, the ritual, rather than economic stimulus for these signs apparently contributed to their failure to develop into a writing system *per se* (Winn 1981: 253-57), a shortcoming that the tally-based ogam system may well have avoided.

A more conservative approach, however, would call upon some influence from Rome or Greece, and our orientalist tradition demands that we examine this possibility first.

Ogam and Greek: The Typology of Alphabetic Number Systems

In order to determine what this alphabetic precursor may have been, we need to examine not only the ancient writing systems, but also the pertinent number systems. These number systems generally developed independently of the writing systems. For example, Mycenaean Linear B maintained the number system originally developed for Minoan Linear A, in spite of a major change in language and consequent adjustments to the syllabary (Ifrah 2000: 178-79, Chadwick 1987).

Shifting our attention to the Roman number system, which developed from the Etruscan, we also find a system that originally bore no resemblance to the writing system. Each unit was represented by a vertical line resembling a finger, five by the shape of an outstretched hand, and ten by the combination of two hands. It was not until later that the unit was iconically represented by the letter I, five by the letter V, and ten by the letter X. As seen in the representation of larger numbers, even the C for *centum* 'hundred' and the M for *mille* 'thousand' developed from vertical and curved lines having nothing originally to do with the letters of the alphabet (see Ifrah 2000: 191-200).

Thus, the close coordination of numbers and letters in the ogam signary does

not appear to have been influenced by the Etruscan or the Roman practice. This is to say that in the development of the ogam signary, the *typology* of the Etruscan and Roman number and alphabetic systems was inappropriate. The question now is: Was the typology noted in the ogam number/alphabetic system found in any other contemporary culture?

Indeed, we do find an appropriate typology in Greek. The original Greek number system was acrophonic. While units consisted of the usual vertical line, five was represented by the Greek letter π or *pi*, the first letter of *pente* 'five'; ten by the δ or *delta* of *deka* 'ten'; 100 by the η or *eta* of *hekaton*; 1,000 by the χ or *chi* of *chilioi*; and 10,000 by the μ or *mu* of *murioi* (Ifrah 2000: 182). This system may appear to be something similar to ogam, but it is by no means as well developed.

Beginning in the sixth century BCE, however, the Greeks further developed their acrophonic system into an alphabetic number system that matched letter to number from *alpha*/1 to *omega*/24, as in figure 3.

Α	1	Ι	9	Ρ	17
Β	2	Κ	10	Σ	18
Γ	3	Λ	11	Τ	19
Δ	4	Μ	12	Υ	20
Ε	5	Ν	13	Φ	21
Ζ	6	Ξ	14	Χ	22
Η	7	Ο	15	Ψ	23
Θ	8	Π	16	Ω	24

Figure 3: Earlier Greek Alphabetic Number System

As noted by Ifrah,

> The tablets of Heliastes, like the twenty-four songs of the *Iliad* and the *Odyssey*, used this kind of numbering, which is also found on funerary inscriptions of the Lower Period. However, what we have here is really only a simple substitution of letters for numbers, not a proper alphabetic number-system which … calls for a much more elaborate structure. (Ifrah 2000: 214)

This more elaborate structure — a "proper alphabetic number-system" — was introduced in the final quarter of the third century BCE and is represented in figure 4.

Α	1	Ι	10	Ρ	100
Β	2	Κ	20	Σ	200
Γ	3	Λ	30	Τ	300
Δ	4	Μ	40	Υ	400
Ε	5	Ν	50	Φ	500
Ϝ	6	Ξ	60	Χ	600
Ζ	7	Ο	70	Ψ	700
Η	8	Π	80	Ω	800
Θ	9	Ϙ	90	Ϡ	900

Figure 4: Later Greek Alphabetic Number System

The system was additive, in that a number such as 333 could be rendered as ΤΛΓ or τλγ. For yet larger numbers, there were more elaborate combinations, based upon the additive principle enhanced by multiplication. It is noteworthy that in order to adapt the alphabetic system to a number system, the Greeks resurrected three obsolete letters — Ϝ *digamma*, Ϙ *koppa*, and Ϡ *san*. Moreover, these three additions allowed a properly balanced array of letters representing numbers.

Finally, we find our typological match. The precise letter-*per*-number correspondence found in the ogam signary is matched by the number-*per*-letter system of Greek. But which system was matched — the earlier twenty-four alphabetic number system or the later more elaborate system?

If in fact the ogam system was influenced by the Greek, then we could determine the appropriate model by the additions both to the Greek number system and to the ogam alphabetic system. Parallel to the later Greek developments, ogam added five additional letters — the *forfeda*, as shown in figure 5.

ᚓ	N/n/	ᚔ	Q	/k^{w}/	ᚕ	R	/r/	ᚖ	I	/i/	ᚗ
ᚓ	S /s/	ᚔ	C	/k/	ᚕ	Z	/t^{s}/	ᚖ	E	/e/	ᚘ
ᚓ	F /w/	ᚔ	T	/t/	ᚕ	GG	/g^{w}/	ᚖ	U	/u/	ᚙ
ᚖ	L /l/	ᚔ	D	/d/	ᚕ	G	/g/	ᚖ	O	/o/	ᚚ
ᚖ	B /b/	ᚔ	H	/h/	ᚕ	M	/m/	ᚖ	A	/a/	᚛

Figure 5: The Later Ogam Alphabetic Signary with *Forfeda*

These additional letters were assigned various alphabetic values, and Gerschel (1962) suggests numerical values as well — perhaps 10, 20, 100, 200, and 400,

going up the column. Furthermore, as Macalister has pointed out (1937: 22-24), the form of the additional ogam signs shows a marked influence from the Greek alphabet (see also Sims-Williams 1992). Finally, it should be noted that the addition of the *forfeda* was done in such a way as to maintain the balanced array of numbers representing letters — precisely parallel, though inverse to the development in Greek.

Dating the Development of Ogam

If we were totally unaware of the history of ogam, it would be tempting to hypothesize that the *forfeda* were a direct result of the expansion of the Greek number system. However, the additional ogam letters actually do not appear until well afterwards — indeed, not until the second half of the first millennium CE. Nonetheless, the parallels in structure and in subsequent development do serve to identify the Greek and the ogam as belonging to precisely the same typology. Moreover, it was a typology unique to ogam, Greek, and systems historically influenced by Greek (see Ifrah 2000: 239).

Thus, if we were indeed to follow the traditional course and claim that ogam was influenced by an established Classical alphabet, we would have to conclude that the signary represented in figure 1 was developed under the influence of the earlier Greek alphabetic number system of twenty-four characters shown in figure 3. This development would provide us with an apparently reliable and reasonable range of dating for the development of the ogam signary — the period between the sixth and the third century BCE.

We should further note that — if there were a Greek influence on ogam — the parallel development of the ogam signary and the Greek alphabetic number system would provide us not only with a date for the ogam alphabetic signary, but also an earliest date for the loss of /p/ in Celtic. Since the position of H in the signary must have been preceded by *P to account both for the phonetic structure of the system and for comparative evidence of Pictish and Irish, then there must have been a time during the original use of the ogam alphabetic signary in which the sign was indeed employed to represent the sound /p/. According to this hypothesis, the /p/ would appear to have been lost in Celtic sometime after the beginning of the sixth century BCE.

Here is where the argument for a Greek influence falls apart and we get our first inkling as to the age of ogam. First of all, as noted above, original Indo-European /p/ changed through /χ/ to null, yielding such correspondences as the Latin root *nepot-* ‘nephew, grandson’ to the Pictish ogam NEHT- and to the Irish ogam NET-. This had to have been completed before most Celtic dialects changed /k^w/ to /p/, leading to such correspondences as Latin *quinque* ‘five’ and q-Celtic

Irish *cóic* to p-Celtic Welsh *pymp*. If the loss of Indo-European /p/ had not been completed first, Welsh *pymp* would have ultimately been realized as **yn*.

As it were, the Celtic or Celtic-influenced dialects of Lepontic and Ligurian had already completed the second shift by the beginning of the seventh century BCE at the latest (Lejeune 1971: 68-69, Whatmough 1970: 77-80). Indeed, this evidence could well draw us back into the second millennium (Whatmough 1970: 80). Once again, as we saw in last year's reconstruction of ogam *P, for the loss of /p/ to be complete before the division between p-Celtic and q-Celtic, we may need to push back the time frame for Celtic and/or for ogam to the Bronze Age or even to the Late Neolithic or Calcolithic.

While we may be partial to explaining relationships between Greek and the "barbarian" languages of northern Europe as springing from Greek innovations, the linguistic evidence actually points to the opposite in this case. Given the close typological match between the Greek and the Celtic letter/number systems and the absence of any other examples of this typology in the region (except for those directly and historically derived from Greek), the influence of one upon the other is quite likely. Given the actual linguistic evidence, however, the influence would have to have proceeded from the ogam to the Greek, perhaps by way of some intervening Indo-European or Old-European practice.

This conclusion is doubtless uncomfortable for many, if not most traditional Celtic linguists, for the old maxim *ex oriente lux* is still very much with us — in spite of the mounting evidence against it. Indeed, Newgrange and Stonehenge were constructed before the Pyramids (compare, for example, Burl 2000: xiv-xv), and there is evidence that the Old Europeans were using some form of symbolic prewriting at least as early as those in the Near East (Winn 1981, Gimbutas 1991, Harrmann 1989). Nonetheless, the concept that the direction of influence in such an important development should have been from northwest to southeast may still strike us as disconcerting.

For Celtic historians though, the new direction of influence may not come as such an unexpected surprise. The development of the Greek number system in question began at precisely the same time as the establishment of the colony at Massilia (Marseilles), which brought the Greeks into regular trade with the Celts near the mouth the Rhône (compare Cunliffe 1997: 48-51).

In his analysis of early writing systems and their decipherment, Pope notes that in their development, writing systems "have all been close copies of the most prestigious script of their time and place … with adaptations of detail to suit the requirements of the new language, but with no innovations of principle" (Pope 1999: 181). Ockham's razor would suggest that ogam may have taken the step from a more expected syllabary or consonantal alphabet to a full alphabet through contact with the Greeks; although, of course, we have no way of confirming this. On the other hand, the development uncovered here of Greek alphabetic numbers

from the ogam would indeed have been a mere "adaptation of detail" from the ogam system of numerical letters to the primitive Greek system of acrophonic numbers.

In any case, we seem to have achieved some appreciation for the age of ogam. And it appears to be very old indeed.

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