

Innse Gall: Culture and Environment on a Norse Frontier in the Scottish Western Isles.

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‘Frontier’ is a term which means many things to many people. In straightforward political geography terms, the *Shorter Oxford English Dictionary* defines a frontier as: ‘The part of a country which fronts, faces, or borders on another country; the marches’.¹ It also offers a second definition, drawn from the United States, which describes ‘frontier’ as: ‘That part of a country which forms the border of its settled or inhabited regions’.² In popular tradition, the ‘frontier’ is a place of heroism and danger: an exposed front line drawn between known and unknown territory; the boundary between civilisation and barbarity; or, quite simply, the dividing point between ‘us’ and ‘them’. Whether it is the physical frontier of the Roman *limes*, the abstract frontier of the current limits of knowledge, or the ‘Final Frontier’ of Science Fiction adventure, it is a term used to divide human experience into the quantified or quantifiable and the void beyond our current understanding. For archaeologists and historians, the term carries another layer of meaning with subtle internal gradations, from the anthropological notions of liminality and marginality to the socio-economic concept of frontiers as ‘contact zones of cultures’ in which ‘people of different cultures struggle with each other for control of resources and political power’.³ For environmental historians, the term carries another implication: the notion of a limit to the viable or sustainable pursuit of a specific exploitation regime. These three main definitions will provide the frame in which this present paper will attempt to explore the possible status of Innse Gall – the ‘Islands of the Foreigners’ - as a Norse frontier along the Atlantic and Irish Sea coasts of Britain.

The title of this paper encapsulates a central problem to be faced when looking at the notion of a frontier zone in the islands which fringe western mainland Scotland. It asks if the region was a ‘Norse frontier’, yet the territorial designation of the kingdom which encompassed most of the maritime zone from Lewis in the north to Man in the

¹ *The Shorter Oxford English Dictionary* (Oxford, 1983).

² *Ibid.*

³ From William Cronon, ‘Revisiting the Vanishing Frontier: The Legacy of Frederick Jackson Turner’, *Western Historical Quarterly*, 18 (1987), cited in R I Burns, ‘The Significance of the Frontier in the Middle Ages’, in R Bartlett and A Mackay (eds), *Medieval Frontier Societies* (Oxford, 1989), 307-330 at 310.

south is given in its medieval Gaelic form. This labelling, which first occurs in association with an individual accorded the title of *rí* or king over them in the obit entry in the *Annals of Ulster* for 989 recording the death of Gothfrith/Gofraid son of Aralt,⁴ is intended to stress the apparent hybridity of the population and culture of the islands in the earlier Middle Ages, but it also throws up immediately questions of self-identity and external perceptions of the identity of the islands and their inhabitants. ‘Innse Gall’ means the ‘Islands of the Foreigners’, *i.e.* non-Gaelic-speaking foreigners, and is a label coined by Gaelic-speaking outsiders to identify a population whom they saw as representing something quite alien and distinct from their own cultural norm.⁵ It is most emphatically not what the inhabitants of those islands called the polity within which they lived. In fact, until the emergence of the *Regnum Manniae et Insularum* in the late 11th and 12th centuries, we actually have no sense of a common political identity shared by the inhabitants of the islands which came to comprise that kingdom and reference instead to individual islands by name and to ‘lawmen’ as the key political figures might point to a shallower social hierarchy and a high degree of political fragmentation rather than unity of political identity.⁶ While exploration of that issue might reveal much about the socio-political structures of the earlier Norse period in the Isles – and there are very interesting parallels with the Icelandic experience – it is too expansive an issue to deal with in this present paper. The post-11th-century political development and secular and ecclesiastical institutions of the kingship and kingdom of Man and the Islands will also not be explored here, having been the subjects of recent detailed analysis by a number of scholars.⁷ Instead, the focus will be on the characteristics of the material culture, economy and society of the Western Isles portion of the kingdom.

How did the Norse or Norwegians themselves view the Isles? It is unfortunate that we have no authentic indigenous voice from the region until the mid-13th-century

⁴ S mac Airt and G mac Niocaill (eds and trans), *Annals of Ulster*, vol 1 (Dublin, 1983), s.a. 989.

⁵ The recent historiographical association of the people referred to in some Gaelic sources as *Gall-Ghàidheil* (Foreigner-Gaels) with the Western Isles or the southern Hebrides has been rejected in a recent comprehensive review of the evidence by Thomas Clancy. See T O Clancy, ‘The Gall-Ghàidheil and Galloway’, *The Journal of Scottish Name Studies*, 2 (2008), 19-50.

⁶ A Woolf, *From Pictland to Alba 789-1070* (Edinburgh, 2007), 298, 300.

⁷ I Beuermann, *Masters of the Narrow Sea: Forgotten Challenges to Norwegian Rule in Man and the Isles, 1079-1266*, Acta Humaniora (Faculty of Humanities, University of Oslo, 2007); B Hudson, *Viking Pirates and Christian Princes: Dynasty, Religion and Empire in the North Atlantic* (Oxford, 2005); R A McDonald, *The Kingdom of the Isles* (East Linton, 1997).

Latin *Chronica Regum Manniae et Insularum*.⁸ That chronicle is a highly partisan account, strongly Man-centric in its reporting and distinctly dismissive of the value – economic and social - of other parts of the kingdom, especially the northern portion in Lewis and Harris. According to the chronicle, the island of Lewis was:

More extensive than the other islands, but it is cultivated by few inhabitants because it is mountainous and rocky, and almost wholly inarable. Its inhabitants live principally by hunting and fishing.⁹

The chronicler, an apologist for the segment of the Manx royal line descended from Olaf Godredsson, explains that it was the poverty of Lewis, which provided Olaf with insufficient resources to support his rightful royal state, which drove him into the rebellion which resulted in the overthrow and death of his half-brother, King Rognvald. The chronicler's disparaging description of conditions in the Outer Hebridean portion of the kingdom has been taken at face value and offered as an accurate reflection of the social, cultural and economic development of that region by the 1220s.¹⁰ This reported 13th-century condition has subsequently received retrospective projection by more modern observers to support a view of the Isles as an impoverished and socially, culturally, economically and environmentally marginal backwater throughout the later prehistoric and early historic periods. Such a view, however, says far more about the perception of the Hebrides that had formed in lowland Scottish eyes by the 16th century and which moulded 18th- and 19th-century British opinion – and which continues to be projected by later 20th-century academic studies, contemporary tourist literature and lowland Scottish popular cultural prejudices¹¹ - than it does about the realities of life amongst the Norse colonists and their descendents in the 9th to 13th centuries.

A quite different picture of the Isles emerges from an alternative but equally unreliable form of source. Saga tradition offers some insight into how the Hebrides were viewed from a Norwegian or Icelandic perspective in the later 12th and early 13th centuries. In *Laxdaela Saga*, for example, the western lands, usually interpreted as referring to the Hebrides, are cast in a very favourable light when compared to Iceland:

⁸ *Chronica Regum Manniae et Insularum. The Chronicle of Man and the Isles. A Facsimile of the Manuscript Codex Julius A. VIII in the British Museum* (Douglas, 1924).

⁹ *Ibid.*, s.a. undated following annal for 1217.

¹⁰ Hudson, *Viking Pirates and Christian Princes*, 57; McDonald, *Kingdom of the Isles*, 85

¹¹ See, for example, R A Dodgshon, *From Chiefs to Landlords* (Edinburgh, 1998), 15-21; M Gray, *The Highland Economy, 1750-1850* (Edinburgh, 1957), 'The North-West: the Archaic Fringe', 193-212.

Then they decided to leave the country [Norway], since Ketil's sons were greatly in favour of the idea and no one opposed it. Bjorn and Helgi wanted to go to Iceland, as they claimed they had heard many favourable reports of the country; there was good land available, they said, without having to pay for it. There were reported to be plenty of beached whales and salmon fishing, and good fishing every season.

To this Ketil answered, 'I do not intend to spend my old age in that fishing camp.'

Ketil said he preferred to travel to the west; there, he said, they seemed to have a good life. He knew the country well, for he had gone raiding through much of the area.¹²

This 'good life' was one based on opportunities for plunder in the Gaelic, Welsh and English lands which shared a maritime boundary with the islands, coupled with a more mixed agricultural economy, as opposed to what Ketil considered was a meaner existence in a land where raiding was a distant dream and fishing was the mainstay of existence. It may seem difficult to square the round of the negative view of the Iceland colony in the period of Landnám expressed in the saga and the rosier picture of a land where 'butter dripped from every blade of grass' offered by *Landnámabók*,¹³ but from the perspective of the 12th and 13th centuries, by which time environmental degradation had brought the Icelandic colony to the brink of a subsistence crisis, the more stable environment of the Isles must certainly have seemed more attractive. Furthermore, in a period where an idealised view of the Norse Viking past was reaching maturity in saga tradition, a region whose internal political structures and external relations still offered opportunities for what was coming to be viewed as 'the authentic Norse frontier experience' would probably have featured as a more desirable destination than a land of subsistence farmers and fishermen. For the purposes of this paper, however, the key point to ponder is what was it about this region that enabled Icelandic saga-composers in the late 1100 or early 1200s to consider it not only to be a 'frontier' but, more particularly, a *Norse* frontier?

¹² *Saga of the People of Laxardal*, trans Keneva Kunz, in *The Sagas of Icelanders* (London, 2000), 277.

¹³ *Landnámabók*, in R I Page (ed), *Chronicles of the Vikings* (London, 1995), 61.

The standard answer would be to look at the evidence for settlement within it of a distinctly Norse population who apparently attempted to replicate a form of economic exploitation regime that had evolved in western Norway by the early 9th century. Until recently, however, archaeologists and historians have tended to be quite coy when asked to provide concrete evidence for such a development. In comparison to Orkney and Shetland, the archaeological record for a settled Norse population in the Western Isles has, with the marked exception of the Isle of Man where the pioneering work of Gerhard Bersu in the mid-20th century provided the impetus for a continuing tradition of archaeological survey and excavation which climaxed in the six-year programme of excavation at St Patrick's Isle, Peel,¹⁴ been exiguous in the extreme and, as Ted Cowan provocatively remarked of the Norse and Hiberno-Norse finds from the initial stages of the excavations at Whithorn and from elsewhere in Galloway, there was little that could not have been the product of a single merchant's cargo or the detritus of occasional marauding bands.¹⁵ While the place-name record has pointed to levels of intense settlement in the Outer Hebrides, where 80% of the settlement names in Lewis alone are of Norse origin,¹⁶ until recently the published archaeological evidence which would give physical substance to what seems to have been an almost overwhelming influx of colonists has been restricted to a handful of burials and scattered artefact finds recovered from insecure contexts.

The publication in 2005 of the results of excavations at Bornais in South Uist has begun to redress the imbalance between the onomastic evidence and the archaeological record,¹⁷ but it has also served to emphasise the woeful lack of

¹⁴ For Bersu's work, see for example, G Bersu, 'A promontory fort on the shore of Ramsey Bay, Isle of Man', *Antiquaries Journal*, 20 (1949), 62-79; G Bersu and A M Cubbon, 'Excavation of the Cashtal, Ballagawne, Garwick, 1941', *Proceedings of the Isle of Man Natural History and Antiquarian Society*, 7:1 (1966), 88-119; G Bersu and D M Wilson, *Three Viking Graves on the Isle of Man*, Medieval Archaeology Monograph Series, 1 (1966); G Bersu and J R Bruce, 'Chapel Hill – a prehistoric, early Christian and Viking site at Balladoole, Kirk Arbory, Isle of Man', *Proceedings of the Isle of Man Natural History and Antiquarian Society*, 7:4 (1974), 632-655. D Freke (ed), *Excavations on St Patrick's Isle, Peel, Isle of Man 1982-1988: Prehistoric, Viking, Medieval and Later* (Liverpool, 2002).

¹⁵ E J Cowan, 'The Vikings in Galloway: a Review of the Evidence', in R D Oram and G P Stell (eds), *Galloway: Land and Lordship* (Edinburgh, 1991), 63-75 at 68-9, 71.

¹⁶ B E Crawford, *Scandinavian Scotland* (Leicester, 1987), 96-98, 101-103. For detailed studies of Norse place names in the western mainland and Hebridean regions, see I Fraser, 'Norse settlement on the north-west seaboard' and A Johnston, 'Norse settlement patterns in Coll and Tiree', in B E Crawford (ed), *Scandinavian Settlement Names in Northern Britain* (London, 1995), 92-105 and 108-125.

¹⁷ N Sharples (ed.), *A Norse Farmstead in the Outer Hebrides: Excavations at Mound 3, Bornais, South Uist* (Oxford, 2005).

published evidence from the region. The final archaeological report on The Udal in North Uist, perhaps the largest and most significant settlement site yet excavated in the Outer Isles, remains unpublished over 30 years after work there commenced,¹⁸ as do the results from a second major Norse-period site in the Uists, Cille Pheadair,¹⁹ and those from Barvas in Lewis. Interim reports and summaries of findings from these sites, coupled with the published results from Bornais and the less detailed discussions of Norse material at sites at Drimore and Rosinish,²⁰ however, do now provide us with a platform upon which to build a clearer picture of the density, character and longevity of the Scandinavian colonisation of the Western Isles. But here a word of caution needs to be entered, for we are now in the bizarre position of knowing more about the Norse in the Outer Isles than in any other part of the Hebrides. While there have been models for Norse settlement in the Inner Hebrides advanced by historical geographers based largely on place-name studies, there has been little published archaeological investigation of 9th to 13th-century settlement in Skye, Mull or Islay to test those models.²¹ More critical yet, with the exception of the excavations at the principal centre of the MacDonald Lords of the Isles at Finlaggan in Islay,²² while there have been great advances made in understanding of the culture and society of the Late Iron Age people in the Western Isles similar work at doctoral and post-doctoral level on how the non-Norse native society in these areas evolved

¹⁸ I A Crawford, 'Structural Discontinuity and Associable Evidence for Settlement Disruption: Five Crucial Episodes in a Continuous Occupation (the Udal evidence)' in *Settlement and Society in Scotland: Migration, Colonisation and Integration* (Association of Scottish Historical Studies, 1988), 1-34; A Selkirk, 'The Udal', *Current Archaeology* 147 (1996), 84-94.

¹⁹ M Parker Pearson, H Smith, J Mulville and M Brennand, 'Cille Pheadair: the life and times of a Norse-period farmstead, c.1000-c.1300', in J Hines, A Lane and M Redknap (eds), *Land, Sea and Home: Proceedings of a Conference on Viking-period Settlement, at Cardiff, July 2001* (Society for Medieval Archaeology, 2004), 219-234.

²⁰ H Fairhurst, 'The wheelhouse site A'Cheardach Bheag on Drimore machair, South Uist', *Glasgow Archaeological Journal* 2 (1971), 72-106; A MacLaren, 'A Norse house on Drimore machair, South Uist', *Glasgow Archaeological Journal* 3 (1974), 9-18. The best overview accounts of archaeological work at these sites are in J Graham-Campbell and C E Batey, *Vikings in Scotland: An Archaeological Survey* (Edinburgh, 1998), 74-84, 173-178, N Sharples and M Parker Pearson, 'Norse settlement on the Outer Hebrides', *Norwegian Archaeological Review*, 32:1 (1999), 41-62 and Sharples (ed), *Bornais*, 2-6, 181-2, while N Sharples, M Parker Pearson and J Symonds, 'The archaeological landscape of South Uist', in R A Housley and G Coles (eds), *Atlantic Connections and Adaptations: Economies, environments and subsistence in lands bordering the North Atlantic* (Oxford, 2004), 28-47, sets the Norse sites into their wider sequential context.

²¹ For example, A Small, 'Norse Settlement in Skye', in R Boyer (ed), 'Les Vikings et leur civilisation', *Bibliothèque Artique et Antartique*, v (1976), 29-37; Graham-Campbell and Batey, *Vikings in Scotland*, 77-78, 84-91. For Islay, see A MacNiven, *The Norse in Islay, a Settlement History Case-Study for Scandinavian Activity in Western Maritime Scotland* (Unpublished University of Glasgow PhD Thesis, 2006).

²² D Caldwell, *Finlaggan, Islay: A Preliminary Report on the Archaeological Project by the National Museums of Scotland, 1989-1993* (Ballygrant, 1993).

socially or materially across that same critical 9th- to 13th-century period and beyond is yet to appear in print.²³ Indeed, there is no consensus even on the cultural identity of the indigenous people of the Western Isles and northern sector of the Inner Hebrides before the Norse settlement began.

Publication of the excavation report for Mound 3 at Bornais in South Uist possibly represents the single most significant contribution yet to knowledge and understanding of the Norse character of settlement and society in the Western Isles from the 9th to at least the 13th century. Taken in conjunction with what is known from the excavations at Bostadh, Barvas, Cille Pheadair, Cnip, Drimore and Rosinish, the Bornais results point to a seismic shift in social organisation reflected in the physical record of settlement forms – represented most clearly in the replacement of indigenous building styles by distinctly Scandinavian longhouses – and in the fundamental basis of the agricultural economy of the region.²⁴ The change, moreover, is abrupt and points to a rapid replacement of the indigenous Late Atlantic Iron Age tradition with one that was more closely akin to that which had evolved in Norway. On its own, a progressive transition from one suite of economic exploitative choices to another could be explained as the consequence of indigenous, independent adaptation to the changed environmental conditions of the so-called Medieval Warm Period, but, when combined with the evidence for a fundamental break in material culture, and the historical record of colonisation, we appear to have the physical evidence for the establishment in the southern sector of the Outer Isles at least of a Norse society as a replacement for the indigenous Celtic one.

The careful emphasis being placed on the Norse character of the Outer Hebrides rather than the Western Isles in general is a reflection of the lower density of Scandinavian place-names the further south and east one moves through the archipelago, and, with the exception of Man, the thinner the known physical evidence for significant settlement sites (rather than place-names). This latter situation,

²³ Important overviews of Late Iron Age developments are offered by I Armit, *Beyond the Brochs: Changing Perspectives on the Later Iron Age in Atlantic Scotland* (Edinburgh, 1990); I Armit, *The Archaeology of Skye and the Western Isles* (Edinburgh, 1996); M Parker Pearson and N Sharples, *Between Land and Sea: Excavations at Dun Vulan, South Uist* (Sheffield, 1999). For post-9th-century developments see J Raven, *Medieval Landscapes and Lordship in South Uist* (Unpublished University of Glasgow PhD Thesis, 2005).

²⁴ Sharples (ed), *Bornais*, 182-195,

however, is possibly more a product of the targeting of archaeological fieldwork and recording of chance finds over the last two centuries than a truly accurate reflection of a past cultural zoning. The lower incidence of Scandinavian place-names, however, may point to a gradually thinning level of Norse settlement from north to south through the Hebrides or, as has been argued frequently, signal the areas in which a rapid re-Gaelicisation or hybridisation of the population occurred, possibly within a generation or so of the initial phase of significant colonisation.²⁵ Clancy has suggested that the longevity of the identification of the Western Isles as ‘Innse Gall’ and the density of the surviving Scandinavian place-names in those islands could indicate that they were ‘exclusively or predominantly Scandinavian in speech from first Scandinavian settlement up to the 12th century’.²⁶ His further observation that there is in fact no evidence that the Western Isles (as opposed to the southern Hebrides) had been inhabited by Gaelic-speakers prior to the Norse settlement adds a further twist to the debate over cultural succession and hybridity in the islands in the 8th to 12th centuries.

If ‘frontier’ characteristics are being sought for the Norse polities which emerged and endured in this island chain, this ebb and flow of cultural predominance could be one of the clearest indicators, fitting in with Cronon’s definition of a frontier as a ‘contact zone of cultures’ or an area in which rival cultures competed for resources and political power. Such a situation appears to be reflected in the experience of the Norse kingdom constructed around a Dublin-Man axis in the 11th and 12th centuries, where rival Gaelic-Irish kings and their Norse and Gaelic Dublin-Manx kinsmen and clients contended for political domination and, from the early 12th century, faced challenges for the same power from Galwegian and Scottish kings and magnates.²⁷ The Isles, or at least the Inner Hebrides and Man, however, are physically less of a frontier or march than they are a salient or corridor between two major zones of similar culture: Ireland and the south-western Highland coastline of Scotland. The hybridity of Islands culture in the areas where the Gaelic cultures of the two mainlands were closest – the southern Inner Hebridean group centred on Mull and

²⁵ A Ritchie, *Viking Scotland* (London, 1993), 79; Fraser, ‘Norse settlement’, 104; A A M Duncan, *Scotland: the Making of the Kingdom* (Edinburgh, 1975), 86.

²⁶ Clancy, ‘Gall-Ghàidheil’, 46.

²⁷ S Duffy, ‘Irishmen and Islesmen in the kingdoms of Dublin and Man, 1052-1171’, *Ériu* 43 (1992), 93-133, R D Oram, *The Lordship of Galloway* (Edinburgh, 2000), 1-21, 39-44.

Islay - has the effect of turning the southern end of the corridor into a liminal zone which is neither distinctively Norse nor Gaelic but a blurred interface of both. This observation, however, returns us to the problem of the lack of work so far undertaken on early medieval non-Norse sites down Scotland's western seaboard north of the geographical dividing line of the Ardnamurchan peninsula and our at best superficial understanding of the relationship of the Gaelic and Pictish inhabitants of that region with the Norse colonists. Here, if Clancy's aside is accepted, was an area where Norse culture prevailed unchallenged and there was no competition for dominance until at least the 12th century. If this zone of Norse culture in the Western Isles is to be regarded as a frontier, it must be viewed as such in other than simple political terms.

What factors, then, other than political structures and affiliations, helped to make the Norse character of the settlements in the Western Isles such an enduring feature of the region? Was it the environmental conditions of the Hebrides rather than conflict over political control which made them more of a frontier of Norse culture? It was not climate, soil conditions or resource base but socio-economic and political structures that Archie Duncan had in mind when he observed that few Norsemen from the Western Isles chose to settle rather than plunder in Ireland. Nevertheless, his comment that: 'the environment of Ireland offered a way of life with which the Norse were not familiar,' has an unintended relevance for contemporary environmental history studies.²⁸ The expanding body of geoarchaeological and palaeoenvironmental evidence from settlement sites in the Outer Hebrides seems, however, to point to development of a suite of exploitation regimes of terrestrial, maritime and marine resources through the 9th century close to those which had emerged in western Norway rather than, say, Denmark, by the later 8th century: the environment of the Western Isles was, clearly, conducive to Norse settlement.

One of the clearest indicators of a significant change in technology and potentially dietary preferences is an apparently abrupt shift in the fish species being caught and processed. A key strand in arguments for the Scandinavianisation of the population and culture of the Northern Isles and Caithness advanced by James Barrett and others

²⁸ Duncan, *Making of the Kingdom*, 84.

is the evidence for just such an apparently abrupt and decisive shift in the nature of marine fish exploitation. While gadoid species, principally cod and hake, had been represented in bone assemblages recovered from pre-Norse settlement sites in these areas, in the late 9th and 10th centuries bones from these varieties became the overwhelmingly dominant component in midden and processing deposits. Barrett has linked this transition to a radical shift in fishing technology and has linked that shift to an equally radical change in the population of these areas: diet, it is argued, was linked to technology and, through that, to ethnicity.²⁹ He has, furthermore, postulated a link between intensive gadoid exploitation and the integration of the fishing activities of the Norse colonies in Caithness, Orkney and Shetland into the international trade in dried fish that was dominated by Icelandic and northern Norwegian production centres by the 13th century.³⁰ A similar technology and, probably, ethnological shift in fishing practice appears to be represented in the excavated Norse-period sites in the Outer Hebrides.³¹ Here, the emphasis appears to have been on pelagic species, principally herring, rather than cod and hake, but this was probably an emphasis dictated by local availability of species rather than any other reason. At Bornais, The Udal, Rosinish and Bostadh, Norse period middens all reveal a preponderance of off-shore species, principally herring, in their bone assemblages.³² This position stands in marked contrast to the assemblages recovered from middens at pre-Norse sites in the Outer Isles, including the Late Atlantic Iron Age settlement at Dun Vulcan, located only 1.8km from Bornais, where the excavated remains indicate fishing activities limited to inshore and immediately coastal waters.³³ What this transition represents in cultural terms is a shift from inshore fishing from small boats or rock perches to deep-water exploitation, and the sharpness of the dichotomy suggests that either the earlier inhabitants of the islands lacked the technology to fish in those deeper and more weather-exposed waters or were, it has been argued, unprepared to risk the perils of such activities. It is perhaps overly

²⁹ J H Barrett, R P Beukens and R A Nicholson, 'Diet and ethnicity during the Viking colonization of northern Scotland: evidence from fish bones and stable carbon isotopes', *Antiquity* 75 (2001), 145-154; J H Barrett, R A Nicholson and R Cerón-Carrasco, 'Archaeo-ichthyological evidence for long-term socioeconomic trends in northern Scotland: 3500 BC to 1500 AD', *Journal of Archaeological Science* 26 (1999), 353-388.

³⁰ J H Barrett, 'Fish trade in Norse Orkney and Caithness: a zooarchaeological approach', *Antiquity* 71 (1997), 353-388.

³¹ C Ingrem, 'Fish', in Sharples (ed.), *Bornais*, 192-4.

³² *Ibid.*, 192.

³³ *Ibid.*, 193; R Cerón-Carrasco, 'The fish bones', in Parker Pearson and Sharples, *Dun Vulcan*, 234-274.

culturally deterministic to link this shift exclusively to the colonisation of the Western Isles by people noted for their maritime skills, but, coupled with the other evidence for cultural change in the region, that conclusion seems inescapable.

Similarly sharp dichotomies emerge from the record in respect of evidence for arable farming and livestock management. For the former, there appears to have been an intensification in the cultivation of hulled six-row barley, which had been already the dominant crop of the indigenous population, and in cultivation of oats, but alongside these rye, which favours poor and dry soils, appears to have been a new introduction, possibly marking an overall expansion of the cultivated area into land which the Late Iron Age population had been unwilling to farm or considered incapable of exploiting productively.³⁴ This intensification of cereal cultivation, coupled with the introduction of new technology for drying grain – represented by a corn-drying kiln and barn at Bornais – points to a population for whom arable farming was much more central to their culture than it had been for their predecessors. There is mounting evidence, too, for the introduction of other new cultivated species which signal a major shift in cultural mores. Flax, for example, has now been identified as a new component in the agricultural repertoire of the areas of Norse settlement in Shetland, Orkney and the Hebrides, possibly for its fibres for weaving into linen but more likely for its seed for pressing for flaxseed (the cold-pressed product) or linseed oil.³⁵ Neither linen production nor the use of oil from flax seeds – for food purposes or in preparation and preservation of wood and other perishable materials – appear to have featured in the culture of the Western Isles before the arrival of the Norse.

A final aspect of a sharp cleavage in the utilisation of environmental resources in the region is in the profile of the livestock farmed and in the manner in which they were exploited.³⁶ The first point is that there seems to have been an intensification of

³⁴ H Smith, 'Plants', in Sharples (ed), *Bornais*, 189-190; Sharples, 'The kiln/barn' in *ibid.*, 187-188; H Smith and J Mulville, 'Resource management in the Outer Hebrides: An assessment of the faunal and floral evidence from archaeological investigations', in R A Housley and G Coles (eds), *Atlantic Connections and Adaptation: Economics, Environments and Subsistence in the North Atlantic* (Oxford, 2004), 48-64 at 55-6, 57.

³⁵ Smith, 'Plants', 189; C A Dickson and J H Dickson, *Plants and People in Ancient Scotland* (Stroud, 2000); J M Bond and J R Hunter, 'Flax-growing in Orkney from the Norse period to the 18th century', *Proceedings of the Society of Antiquaries of Scotland*, 117 (1987), 175-181.

³⁶ J Mulville, 'Animals' in Sharples (ed), *Bornais*, 190-192; Smith and Mulville, 'Resource management', 55, 57-9.

grazing numbers revealed in the bone assemblages from the excavated sites and a widening of the range of animals present: goat, for example, first emerges as a significant element in the stock profile at this time. Sheep appear to become more significant to the regional economy, perhaps reflecting a higher level of wool production rather than dairy or meat exploitation.³⁷ There is also, however, a change in age profiles of the flocks and herds represented in the bone assemblages towards older ages at time of slaughter. This may reflect a shift from a primarily dairying culture to one where the meat and skins were the more valued commodities. There is variation in the age profiles of the slaughtered animals, noticeable too across species, at the main excavated sites.³⁸ The important point, however, is that these trends all mark a significant departure from the indigenous Late Atlantic Iron Age practices.

One factor common to the development of all these economic sectors or agricultural exploitation regimes is climate. The move towards offshore and deeper water fishing is not solely a technological issue, but also relates to sea conditions both in terms of migratory patterns of the fish stocks and in terms of storminess. The widening range of cultivated plants required particular climatic conditions alongside the right soil conditions and agrarian knowledge. Rye and flax, in particular, have quite specialist requirements. Finally, the higher numbers of animals being kept for longer requires a change in grazing practice and availability of fodder resources. More summer pasture is needed and more winter fodder must be stored. In the absence of fodder, overwintering out-of-doors may have been an option, but that would require a milder winter climate. Cumulatively, then, a position emerges which points to the successful implanting of a Norse culture into the Western Isles of Scotland as wholly contingent upon the environmental conditions prevailing at the time of the colonisation. It is the precariousness of that environment which establishes the Western Isles as a true 'Norse frontier'.

What evidence is there for climate trends across the period from the establishment of the Norse colony in the islands in the earlier 9th century and the end of a recognisably Norse culture in the Outer Hebrides in the later 14th and early 15th century? Beyond what fragmentary data can be culled from the limited historical record sources for the

³⁷ Mulville, 'Animals', 190, 191.

³⁸ Smith and Mulville, 'Resource management', 58-9.

North Atlantic, there are proxy environmental measures which can be used to construct a long-term perspective on past climate. This long-term view may offer context for the social and cultural reconfigurations that we can identify as reflecting the Norse colonisation and ‘Scandinavianisation’ of the Western Isles. Research in this field has been stimulated by the current global climate change debate and advances in understanding palaeoclimate records have been made from use of a variety of different proxies; these include ice-core, ocean sediment and tree-ring data. Many of these data are region-specific but a synthesis of different data can be undertaken in order to understand climatic changes both over wider spatial areas and longer temporal periods. Considerable buffering of long-term climatic shifts by the North Atlantic Ocean is likely given that the western margins of the British Isles experience a temperate maritime climatic regime. Nevertheless, there is likely to be year-on-year seasonal differences *i.e.* summer *vs.* winter which have been shown to have had significant effects on landscape management in other North Atlantic locales.³⁹ Such climatic variation has previously been considered for various upland or marginal areas of the United Kingdom from historical data.⁴⁰

In respect of the climate for the period 900 – 1300, there are limited numbers of climatic proxies that have been resolved to annual or seasonal resolution. These are, moreover dispersed over a wide geographic range across the northern hemisphere. The approach taken is therefore to contrast Northern Hemisphere/North Atlantic summer temperatures from dendrochronological analyses (Figure 1a), stable isotope records providing an index of relative winter “severity”⁴¹ from ice core data (figure 1b) and for an annualised long-multi-proxy mean (Figure 1c). The annualised data demonstrate that extended period of comparative stability and high annual mean temperatures, the so-called ‘medieval warm period’ lasted through to the late 13th century, after which there was a considerable shift towards colder northern

³⁹ W P Adderley and I A Simpson, ‘Soils and Palaeo-climate based evidence for irrigation requirements in Norse Greenland’, *Journal of Archaeological Science*, 33 (2006), 1666-1679; W P Adderley and I A Simpson, ‘Early-Norse home-field productivity in the Faeroe Islands’, *Human Ecology*, 33 (2005), 711-736; I A Simpson, W P Adderley, G Guðmundsson, M Hallsdóttir, M Sigurgeirsson and M Snæsdóttir, ‘Soil limitations to agrarian land production in pre- modern Iceland’, *Human Ecology*, 30 (2002), 423-443.

⁴⁰ A L Davies, E Tisdall and R Tipping, ‘Holocene Climatic Variability and Human Settlement in the Scottish Highlands: Fragility and Robustness’, in Housley and Coles (eds), *Atlantic Connections and Adaptations*, 2-11; M L Parry, ‘The impact of climatic variations on agricultural margins’, in R W Kates, J H Ausubel and M Berberian, (eds.) *Climate Impact Assessment* (Chichester, 1985),. 351-367.

⁴¹ See Adderley and Simpson, ‘Soils’.

hemisphere temperatures. Caution must be used when interpreting the summer and winter temperature indicators from Ural and Siberian tree-ring data and from the Greenland Ice cap respectively as these are, obviously, distant to the Western Isles context. There is, however, a clear co-incidence in higher summer and winter temperatures through the 10th to 13th centuries, punctuated by brief cold episodes, changing dramatically to a sustained period of reduced winter and summer temperatures from AD 1300 for c.30 years. This last episode suggests that an abrupt and continuous cold period was perhaps experienced across the North Atlantic region. The cumulative effects of first this long period of warming followed by these cold periods over many years is likely to be more pronounced than shorter periods of year-to-year variation. In effect, the broad trend over the first phase – the Medieval Warm Period – was an amelioration of climate. This improving position produced a lengthening of growing seasons, milder winters, better crop-growing and livestock rearing conditions, and a lower incidence of storm events to threaten low-lying and exposed island areas. Such conditions encouraged and facilitated the settlement of Iceland from the late 9th century and Greenland in the 10th century and the construction there of one model of Norse society.⁴² Likewise, it was the end of those more favourable climatic conditions which probably hastened the failure of the Greenland colony and the near collapse of Iceland.⁴³

How were these cumulative climatic effects manifest in the Western Isles? The palaeoenvironmental data from the excavated settlement sites which lie on the *machair* (the low-lying coastal strip of land founded on calcareous shell-sand deposits) down the western, Atlantic coast of the islands signal a change in exploitation strategies which point to more than just an evolving indigenous response to improving conditions. Large scale colonisation to bring about such change may, then, be one of the first key indicators of the effect of these cumulative trends; better sea conditions for long-distance voyages may have facilitated significant population movement. In the Hebrides, these more stable environmental conditions made

⁴² K P Smith, 'Landnám: the settlement of Iceland in archaeological and historical perspective', *World Archaeology*, 26:3 (1995), 319-347; O Vésteinsson, T H McGovern and C Keller, 'Enduring Impacts: Social and Environmental Aspects of Viking Age Settlement in Iceland and Greenland', *Archaeologia Islandica*, 2 (2002), 98-136.

⁴³ L K Barlow, J P Sadler, A E J Ogilvie, P C Buckland, T Amorosi, J H Ingimundarson, P Skidmore, A J Dugmore and T H McGovern, 'Interdisciplinary investigations of the end of the Norse Western Settlement in Greenland', *The Holocene* 7, 4 (1997), 489-499.

settlement down what is otherwise the very exposed Atlantic seaboard an attractive proposition; relatively stable ocean-surface temperatures would have reduced the relative frequency and potential severity of storm incidents affecting that coastline. Such climatic amelioration also rendered the *machair* more suitable for the introduction of terrestrial exploitation regimes which had developed originally in southern and western Norway, particularly involving cultivation of a suite of crops that required particular soil and climatic conditions. Likewise, the increased biomass production on grassland which the more temperate conditions produced enabled the establishment and maintenance of stock-management regimes of Scandinavian type; more animals could be sustained for longer periods on the pasture and be maintained over winter on harvested fodder crops. Superior maritime technology alone did not lead to a change in exploitation of a different marine environment but calmer sea-conditions probably contributed significantly to the development of a deep-water fishery. Finally, as the historical and archaeological evidence would suggest, this long term climatic stability across this era permitted the colonists to maintain long-distance contacts with other zones of large-scale Norse colonisation around the North Atlantic and to participate at some level in the commercial networks established between these zones and the wider trading communities along the Atlantic seaboard of Britain, Ireland and Europe.

What about the end of the distinctly Norse period? Unfortunately for the Western Isles, the Manx chronicle peters out in the later 13th century and its few post-1300 entries relate principally to the place of Man in the Anglo-Scottish conflict of the early 14th century. Although politically the Isles had been brought into the Scottish polity after 1266, the three main Scottish chronicles which exist for this period – the compilation attributed to John of Fordun, Andrew of Wyntoun's verse *Orygynal Cronykil*, and Walter Bower's *Scotichronicon* - hold little information relating to the region. They are, moreover, disappointingly less detailed than other contemporary records in terms of evidence which might indicate the impact of a changing climate. There is, however, some tantalising glimpses which can be correlated with non-Scottish sources and proxy climate data to produce an outline scenario for a long-term change occurring with the first significant effects manifest late in the second decade of the 14th century. Writing in *c.*1380, John of Fordun in a probably misdated reference to a 1315-6 event (given in his chronicle as occurring in 1310) reported that

‘so great was the famine and dearth of provisions in the kingdom of Scotland that, in most places, many were driven, by the pinch of hunger, to feed on the flesh of horses and other unclean cattle’.⁴⁴ For 1321-2 he noted that ‘there was a very hard winter, which distressed man, and killed nearly all animals’.⁴⁵ Between these two events, Scotland was also ravaged by the cattle murrain which had spread from the European mainland into Britain in 1319.⁴⁶ These reported incidents are amongst the only surviving historical records of the impact on Scotland of the phenomenon which modern historians have labelled as the Great European Famine of 1315-22.⁴⁷ They do, however, accord with the palaeoenvironmental record and suggest the onset of a sustained period of climatic disturbance. This episode, it is suggested, saw the growing season in parts of the country shortened by about a month.⁴⁸ Traditional interpretations of the principal impact of that shortening are linked to English evidence for increasingly frequent harvest failures and a decline in arable production generally, but this reflects a perspective rooted in acceptance that a cereal-based diet was the medieval socio-economic norm for all parts of Britain and Ireland. The possibility that non-arable based, fishing or livestock-rearing societies were any less affected by weather events and climate change is a questionable premise.

Generalised accounts of the nature of the agricultural economy of Highland and Hebridean Scotland in the Middle Ages are of limited value, given the extreme range of regional and local variation in geology, geomorphology and climate effects. There is a tendency to extrapolate data from a few detailed examples, often of a highly localised nature, and apply it generally to areas far removed from the source of the information. The limited survival of pre-1500 record data for most of the Ghàidhealtachd adds a further complication, as regimes illustrated in post-medieval sources, sometimes of late 18th- or 19th-century date, have been projected back into the Middle Ages. There is also too great a reliance on the few surviving regional

⁴⁴ *John of Fordun's Chronicle of the Scottish Nation*, trans. F J H Skene, ii (Edinburgh, 1872), 338.

⁴⁵ *Chron Fordoun*, 341.

⁴⁶ R D Oram and W P Adderley, ‘Lordship and Environmental Change in Central Highland Scotland c.1300-c.1400’, *Journal of the North Atlantic*, 1 (2008), 1-14; R D Oram and W P Adderley, ‘Lordship, land and environmental change in West Highland and Hebridean Scotland c.1300-c.1450’, *Fondazione Istituto Internazionale di Storia Economica "F. Datini" xli* (2009), *Economic and Biological Interactions in Pre-Industrial Europe from the 13th to 18th Centuries* (forthcoming 2010).

⁴⁷ W C Jordan, *The Great Famine* (Princeton, 1996).

⁴⁸ I Morrison, ‘Climate’ in M Lynch (ed.), *The Oxford Companion to Scottish History* (Oxford, 2001), 100.

descriptions, such as that provided by Fordun. He drew a sharp contrast between the primarily cereal-producing arable lowlands and the less fertile uplands, describing the latter as ‘very hideous, interspersed with moors and marshy fields, muddy and dirty; it is however, full of pasturage grass for cattle, and comely with verdure in the glens, along the water-courses’.⁴⁹ Despite recognition that such accounts represent a continuation of the late Antique Classical tradition established by Isidore of Seville in his early 7th-century *Etymologiae* rather than an accurate reflection of contemporary conditions, they continue to be used to illustrate the general conditions of the rural agricultural regime in Highland and Hebridean Scotland in the late 14th century. Fordun’s contrast of an arable Lowlands and pastoral Highlands has given rise to suggestions of the Western Islands’ relative insulation through established diversification into low risk agricultural strategies and higher levels of investment in livestock from the worst consequences of crop-failures in the early 14th century.

But did the region have continued access to the ample fish, dairy products and meat which its Norse economic regime provided to cushion the blow of any failure of its more limited cereal crops? The answer to that is a simple No; the climate affected all vegetation growth, not just cereal crops, and was also changing the sea conditions in the Atlantic. It can be estimated that a cooling of annual average temperatures shortened the growing season by around a fortnight at either end. This may not sound extreme, but a seasonal reduction of around a month meant that grass growth on pastures in upland and exposed maritime districts began later in May and ended earlier in September. Furthermore, reduced biomass production meant that summer pastures could no longer support the levels of grazing which had prevailed down to the late 13th century throughout the shortened season; it is possible that the pasturing of cattle at shieling locations was curtailed to only four months in summer. Coupled with these factors was a probable reduction in the altitudinal range of grazing, as the more extreme weather conditions lowered the altitude at which both crops could be grown and pastures exploited productively.⁵⁰ Down the Atlantic seaboard of Scotland

⁴⁹ Chron Fordoun, 37.

⁵⁰ M L Parry, ‘Secular climatic change and marginal agriculture’, *Transactions of the Institute of British Geographers*, 64 (1975), 5-11; R Tipping, ‘Cereal cultivation on the Anglo-Scottish Border during the “Little Ice Age”’, in C Mills and G Coles (eds), *On The Edge - Human Settlement in Marginal Areas* (Oxford, 1998), 1-11; R Tipping, ‘Towards an environmental history of the Bowmont Valley and the northern Cheviot Hills’, *Landscape History*, 20 (1999), 41-50; R Tipping, ‘Palaeoecology and political history: evaluating driving forces in historic landscape change in southern

that range may have fallen significantly below 300m. The impact of climate change was also felt in hay production in low-level meadows where growth was affected by extreme weather, diminishing supplies of winter fodder. Indeed, winter grazing generally was possibly subject to stress as animals had to be pastured on them for longer periods each year. For a culture with significant dependence on cattle and sheep the consequences were dire, but the situation was equally dire for a culture which had specialised in *machair*-based cultivation and offshore fishing also. It is likely that increased storminess as a consequence of changes in ocean surface temperatures had a major impact on the heavily cultivated *machair*. Marine transgression – flood events – and incidents of wind-blow, where the fragile shell-sand soils were literally blown away as a consequence of the removal of the vegetation which bound its surface layer, appear to be attested in the archaeological record of sites with 14th- and 15th-century occupation.⁵¹ Such stormy conditions as this record details can also be translated into a reduction in the possible days at sea for fishermen working the deep-water fisheries off the west coast of the islands. On all fronts, the economy of the Western Isles and the Norse-style culture which had prevailed there since the 9th century was facing a crisis of sustainability.

In conclusion, it can be suggested that it was probably environmental conditions rather than political upheavals which led to the collapse of a distinctly Norse social, economic and cultural tradition in the Western Isles.⁵² A position on an environmental frontier, precarious but sustainable during the Medieval Warm Period, pushed Outer Hebridean society off its ‘knife-edge of sustainability’ into marginality and crisis. Adaptation – resilience in contemporary jargon – or collapse were the alternatives and, unlike the Greenland colony in this same period, the Western Islanders were able to make a transition into an economic regime better-suited to the more unpredictable environmental conditions of the later Middle Ages.⁵³

Our understanding of the Norse character of the northern sector Kingdom of the Isles in Lewis, Harris and the Uists has come a long way since the mid-1970s when Archie

Scotland’, in I D Whyte and A J L Winchester, *Society, Landscape and Environment in Upland Britain* (2004), 11-20.

⁵¹ Sharples (ed), *Bornais*, 195-6.

⁵² Ibid.

⁵³ Ibid., 196-7. For the nature of the late medieval society and economy of the western Isles, see Dodgshon, *From Chiefs to Landlords*, chapter 1.

Duncan could dismiss the existence of any substantial long-term legacy of Scandinavian settlement in the region with the observation: ‘The significant legacy of the Viking age to the western seaboard [of Scotland] was not an infusion of Norse blood and speech, but the design of ships and to a lesser degree of weaponry which had distinguished the Viking Age.’⁵⁴ Archaeology has enabled a huge advance to be made in our understanding of the Norse character of this territory that was at once liminal and marginal in the wider context of the Scandinavian North Atlantic, but it has not been alone in shifting perceptions. A keener awareness of the national historiographical trends which downplayed the long-term significance of the Germanic Scandinavians and stressed instead the supposed continuities in the Gaelic character of most of the Western Isles has reversed a long-established trend in Scottish historical writing of dismissing the Norse colonisation of the Western Isles as a short-lived ‘blip’ in the middle of an otherwise Gaelic continuum. While toponymy is questioning traditional models of pre-Norse Gaelic society in the region and a rapid process of re-Gaelicisation within the first few generations of Scandinavian colonisation occurring, environmental history is bringing the traditional sectors together and giving us a more richly-textured and nuanced picture of how that Norse colony fitted into a particular niche, how relative climatic stability across four centuries allowed it to maintain its cultural distinctiveness, and how climate change rather than political upheaval led to its final collapse.

⁵⁴ A A M Duncan, *Scotland: the Making of the Kingdom* (Edinburgh, 1975), 86.

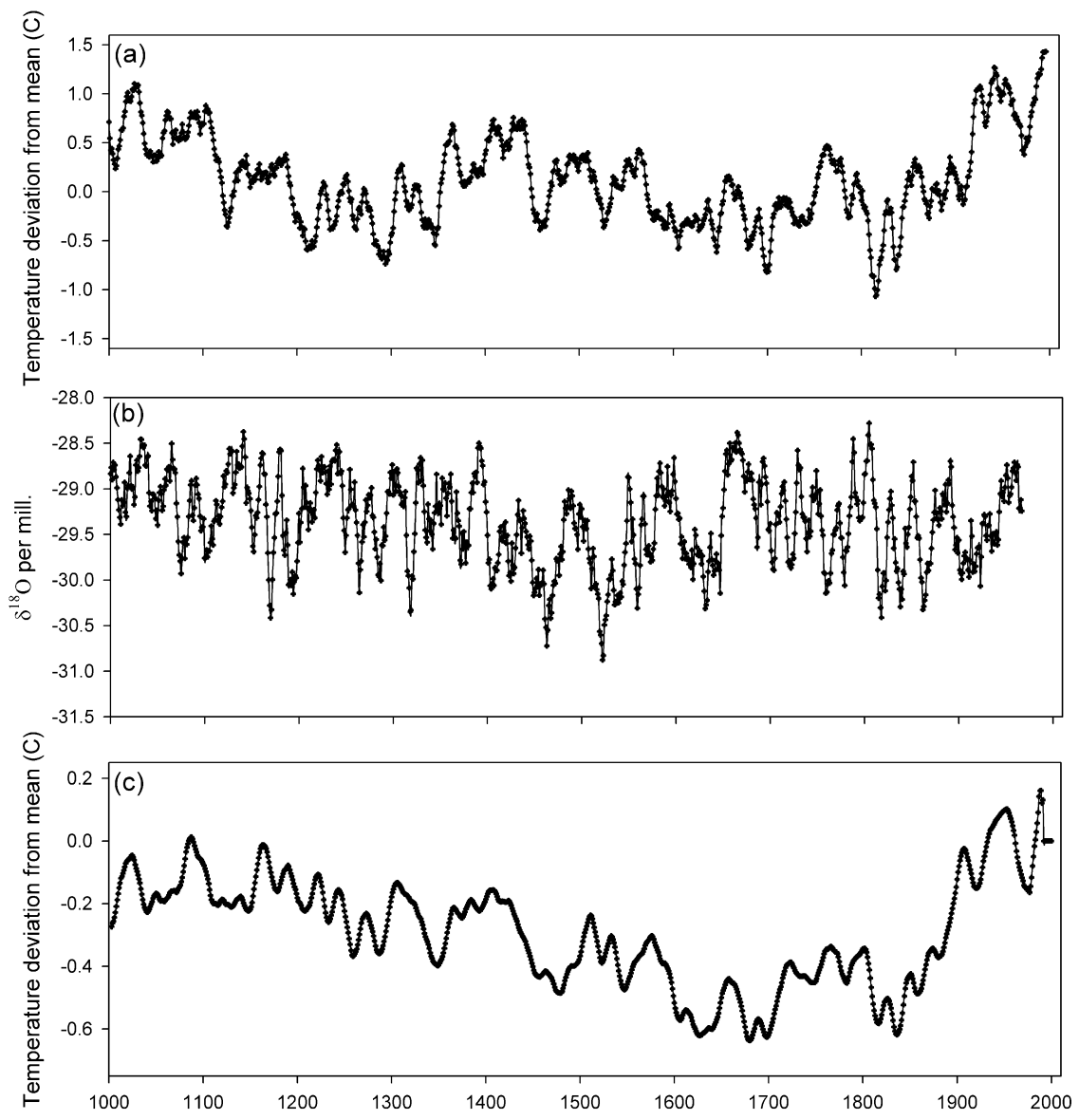


Figure caption

Long-term climate proxies AD 1000 – AD 2000 for the exotropical Northern Hemisphere and North Atlantic: (a) normalised simple mean of four dendroclimate sequences showing deviation of summer temperature from mean (1601-1974) summer temperature (resampled data after Briffa, et al., 2000); (b) Winter $\delta^{18}\text{O}$ data from DYE-3 ice core of Greenland Ice Cap Summit (Adderley and Simpson, 2006; Vinther, Pers. Comm.; Vinther, et al., 2003) and (c) Unweighted aggregate of fifteen Northern Hemisphere proxies – annual deviations from long-term mean (Crowley and Lowery, 2000). All data plotted as 10-Year Moving Averages.