Kristján Ahronson

One North Atlantic Cave Settlement: Preliminary Archaeological and Environmental Investigations at Seljaland, Southern Iceland

Abstract

The 2001 results of archaeological investigations in southern Iceland have the potential of challenging the generally accepted view of Viking Age settlement in the North Atlantic area. Scandinavian groups are believed to have settled the northern North Atlantic islands of Iceland and the Faroe Islands in the late ninth century of their own pioneering initiative. This may be too simple a scenario. Archaeological and environmental research in southern Iceland may date a cave site at Seljaland to earlier than AD 871. Such an early date is particularly interesting because the caves of Seljaland have features paralleled in early Christian western Scotland. Archaeological survey revealed human and animal house-structures as well as field boundaries. Unusual structures were also noted, including the caves Kverkarhellir, Seljalandshellar, Þrasahellir and the Krosshóll 'chapel'. Holistic study of the Seljaland area presents unique possibilities for a multi-disciplinary approach to human exploitation of the natural environment and continuity of land use. A new method for environmental studies, the *tephra contour*, provided unexpected results. The results of the *tephra contour* need to be refined by further work but may suggest reduction of birch woodland before AD 871.

Introduction

In July and September 2001, preliminary investigations focused upon the artificial caves and environmental record of the

Seljaland area of southern Iceland.[1] Impressive physical features mark this region of southern Iceland. To the east, the glaciers Eyjafjallajökull and Mýrdalsjökull as well as the active volcano Katla dominate the landscape. The escarpment that forms Seljaland is itself a landmark, looking west over the glacial river Markarfljót and the lowland coastal plain (*sandur*), as well as looking southwest to the nearby Westmen Islands. Archaeological and environmental fieldwork in 2001 concentrated along three lines: dating a construction phase of the artificial cave Kverkarhellir, archaeological survey of the Seljaland area, and development of a new 'archaeological' method for environmental studies – the *tephra contour*.

Test trenches in front of Kverkarhellir cave identified putative spoil from cave construction in soils within a dated sequence of volcanic ash layers, or tephra. Fractured soft volcanic rock lies 10 cm beneath an ash deposit which analysis suggests is the Landnám tephra. The Landnám tephra is the earliest historical deposit of volcanic ash, dated to AD 871±2. If a 'pre-Norse' date for Kverkarhellir cave is ultimately accepted, one could look to the Gaelic communities of Iceland described in early Icelandic and Gaelic documentary traditions as well as the 106 surviving cross carvings at Seljaland. Many of Seljaland's cross carvings are best paralleled in early Christian western Scotland. Further fieldwork is, however, necessary in order to maintain an early date for Kverkarhellir cave.

Context

Little is known about the 170 artificial caves of southern Iceland. The caves may form an aspect of the earliest settlement of the island and thus have important implications for the study of the Viking North. The Norse longhouse, a Viking Age house-type built of turf and found as far west as L'Anse-aux-Meadows in Newfoundland, is understood as one of the earliest medieval house-structures of Iceland. In contrast,

[1] Since submission of this 2001 field report, substantial fieldwork in 2002 provided robust results which extend and develop the material presented here. The 2002 field report is in preparation.

while cave sites are thought to be old (Holt & Guðmundsson 1980:16-17), their origins and history enigmatic.

The Seljaland area, noted in Figure 1, forms part of the highland summer grazing grounds used by local farmers. The vegetation is characterised by low shrubs and grassland and is without tree cover, except in the sheltered *kverk* (small 'corrie'). The *kverk* has been fenced off from livestock since 1981[2] and is now host to a number of well-established trees with thickly vegetated understorey. The Seljaland area forms part of an escarpment that the cave sites Kverkarhellir and Seljalandshellar/Papahellir[3] lie at the foot of. The Seljalandsá ('river of Seljaland') runs east-west along the northern edge of the study area until it cascades off the escarpment onto the lowland *sandur* plain in a spectacular waterfall, Seljalandsfoss ('waterfall of Seljaland'). The eastern boundary is marked by Hofsá/Veystri-Hofsá, a north-south running river. East of Hofsá, the land ascends steeply to higher mountainous ground. The southern boundary is delimited by the escarpment/lowland boundary, the western edge forming a natural border of cliffs within which the Kverkarhellir cave site is located, overlooking the heavily sedimented *sandur* plain. The escarpment rises gently to its highest and most exposed point, Krosshóll, where the remains of a small eroded structure survive. The derivation of Seljaland is best understood as 'land of the shielings' (Peder Gammeltoft *pers. comm.*) and could suggest a communal use of the area by the naming population, presumably early Norse settlers. Certainly, Kverkarhellir cave was used for communal purposes between 1872 and 1895, when the site served as *þingstaður*, housing local parliamentary meetings (Tómasson 1997:151). This is not the first appearance of the cave in documentary records. Kverkarhellir also features in Jón Árnarson's collection of 19th-century folklore, where folk tradition describes the use of the cave for human habitation in the 1500s (Árnarson 1856:200-202).

[2] A memorial inscription at Kverkin describes the planting of woodland in 1981.
[3] Papahellir, 'cave of *Papar*', is an alternate place-name for Seljalandshellar, 'caves of Seljaland' (Hálfdan Ómar Hálfdanarson *pers. comm.*).

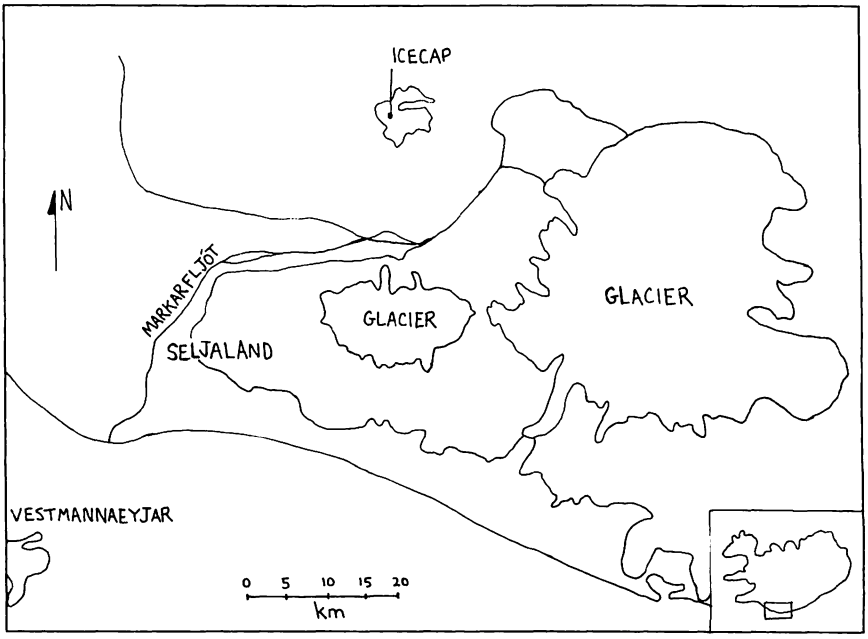

Figure 1: Location of Seljaland in southern Iceland. Adapted from Simpson *et al* 2001:178.

Hjartarson *et al* (1991) published a survey of the numerous artificial caves of Iceland. This book, along with a series of articles (Hjartarson & Gísladóttir 1983, 1985, 1993) and *Um Manngerða Hella á Suðurlandi* (Holt & Guðmundsson 1980), was a significant advancement upon Matthías Þórðarson's 1931 study. Nonetheless, the origins of the caves and their role in Iceland's settlement archaeology remain poorly understood. This rare situation in Atlantic archaeology, of investigating a well-represented site type that is without a place in the settlement sequence, provided the impetus for investigations at Seljaland. Figure 2 illustrates the distribution of artificial caves across Iceland. Working in the Eyjafjallasveit region of southern Iceland, we are fortunate to be able to use tephrochronology so extensively. Tephrochronology, the study of volcanic ash layers, is a powerful dating tool that is particularly applicable to the excellent tephra sequence at

Seljaland. Integrated archaeological and environmental research focuses upon a well-constrained study area that is characterised by substantial aboveground survival of the archaeological record (Ahronson & Jónsson *in prep*). The study area is a visually prominent point in the landscape where several ecological niches and consequent resources converge (highland, lowland plain, cliffs, river, marshland and sea) (Thomson *in prep*). From an environmentally determinist perspective, such a grouping of resources would probably have been consistently exploited by human populations from an early period – thus providing a rich archaeological sequence in which the cave sites of Seljaland can be situated. The Seljaland Project aims to formulate a model for artificial cave use in southern Iceland.

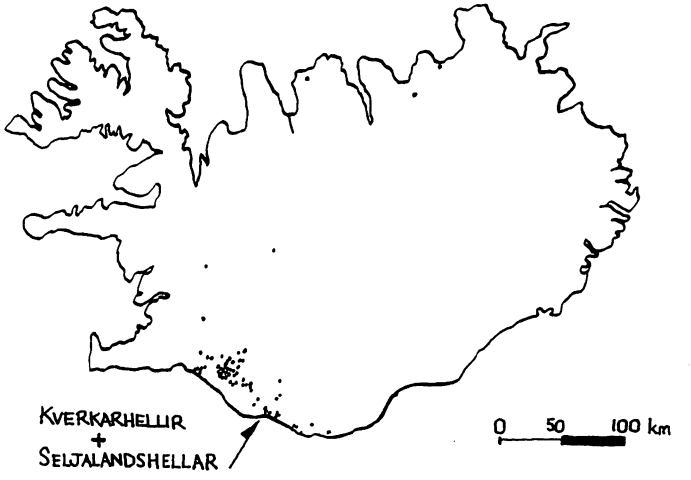

Figure 2: Artificial caves across Iceland. Adapted from Hjartarson *et al* (1991:12).

Hjartarson and Gísladóttir (1983:133) describe the southern Iceland caves as including a number of 'the oldest *housebuildings* in Iceland'. Many caves are listed in 1709 land registers (*ibid*), while a late 12th-century description of Bishop Þórlakur's miracles mentions the collapse of a cattle cave[4]. It

[4] *Biskupa sögur I-II*. 1858-1878. Hið Íslenzka Bókmenntafélag, Copenhagen. I:320, 346-347. Cited in Friðriksson 1994:25.

is noteworthy cave use is described at such an early date, for the 12th century is the period of the oldest Icelandic writing. From a north central European perspective, Adam of Bremen provides the earliest known depiction of Icelandic cave use. In an 11th-century account, Adam describes the people of Iceland[5] as dwelling "... in subterraneis habitant speluncis, communi tecto et strato gaudentes cum pecoribus suis / in underground caves, glad to have roof and food and bed in common with their cattle" (Schmeidler 1917:272, Tschan 1959:217).

A feature of numerous southern Iceland caves as well as some Westmen Island rock shelters are stylistically distinctive cross-carvings that, taken together, form a coherent body of data. These cross carvings have been discussed at length elsewhere (Ahronson 2000, 2002, *forthcoming*). On typological and contextual grounds, specific comparisons have been drawn to the Argyll expanded terminal type, a style linked to the Columban *familia* of monastic houses of the seventh and eighth centuries (Campbell 1987, Ahronson 2000:119). A number of the Argyll expanded terminal crosses are found in caves, which Campbell (1987:108-9) suggests as "...retreats or *deserta* for anchorites or penitents." The stone carvings of Scotland's West Highlands and Islands have been subjected to academic attention for many years, the most recent contribution providing a sophisticated presentation of comparative data and analysis (Fisher 2001). Fisher (*pers. comm.*) consulted published drawings of a number of Seljaland cross carvings (Hjartarson *et al.* 1991:248) and noted the possibility of several styles finding close parallels in early Christian western Scotland, though specialised illustrations are needed before further comment can be made.

Folklore and onomastics associate some of southern Iceland's artificial caves with *Papar*, a group Icelandic folk tradition and medieval texts believe inhabited the island previous to Scandinavian-led settlement in the late ninth-century. Seljalandshellar, for example, was known under the alternate 'child's name' of *Papahellir*, 'cave of *Papar*' (Hálfdan Ómar Hálfdanarson *pers. comm.*). *Papar* are described in the earliest documentary sources of the island as

[5] Here Adam refers to Iceland as *Thule*.

being present "Í þann tíð vas Ísland viði vaxit á miðli fjalls ok fjøru / At that time when Iceland was covered with woods between mountains and shore" (ÍF 1968:5) or "áðr Ísland byggðisk af Nóregi / before Iceland was built from Norway" (ÍF 1968:31). These *Papar*, or *Vestmenn* ('Westpeople'), find context within the northwards-looking monastic communities of western Scotland, related to the Columban *familia*, and appearing in Gaelic documentary traditions (Tierney 1967:72-7, Anderson & Anderson 1991, Morris 1991:65) as well as to a limited degree in the North Atlantic archaeological record (Bourke 1983:464-468, 1997:163-165, Ahronson 2000, Fisher 2001, Fisher 2002). The southern Iceland cross carvings and caves also fit into a context provided by place-names. *Papa-*, *vestmanna-*, and *íra-* place-names are found across the North Atlantic islands, a distribution well seen in *papa*-names found from the Hebrides to Iceland. The distribution of *papa*-names argues for a group known to the Norse as 'papar' having some role in the early Norse societies of the North Atlantic – at a time when the landscape was being appropriated and 'named' by the Norse.

Anecdotal use of modern folklore and place-names, however, cannot establish a connection between southern Iceland's artificial caves and *Vestmenn* communities without further archaeological investigations. The situation is such that an association may quite legitimately be proposed but not accepted – not without further data. The Seljaland Project seeks to provide a chronology of cave construction and occupation combined with a rich environmental record of land use. By looking at the caves of Seljaland (Kverkarhellir, Seljalandshellar, Þrasi/Þrasahellir), investigations hope to construct a model for artificial cave use in southern Iceland – thus addressing this long ignored and very substantial body of *housebuildings*.

Excavation

Three lines of preliminary fieldwork were followed in July and September 2001 (Figure 3). Two test trenches were excavated near the mouth of the artificial cave Kverkarhellir, *tephra contours* were exposed approximately

200 metres northwest of Krosshóll (at the same location as Figure 1:Profile 3 in Ashburn *et al. this volume*), and detailed archaeological survey of the study area was completed. The

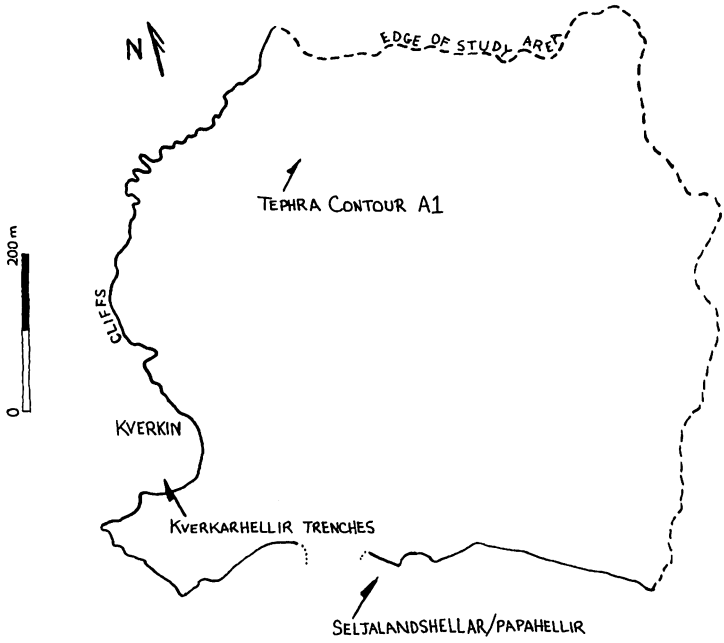

Figure 3: Seljaland area.

test trenches in front of Kverkarhellir identified fractured volcanic rock (palagonite) and palagonite gravels as putative waste material from cave construction. The palagonite material was noted to be of the same visual character as the artificial cave. It was found in aeolian soils and intercalated with a stratified sequence of tephra deposits. In this volume, Smith and Ahronson analyse the stratified sequence to produce a preliminary tephra stratigraphy for the trenches. Tephra stratigraphy is a powerful dating tool and is used here to situate the putative spoil within a time-constrained context. Trench D1 was located 1.60 metres northeast of the cave mouth and included putative construction spill. A control trench D3 was also excavated 14 metres along the cliff-base, east-southeast of trench D1. For trench D1, a 2 metre west-

facing section and a 1 metre north-facing section were dug to a maximum depth of 2.2 metres. Layers were recorded according to a system of trench number (D1 or D3) and layer (A, B, C, D...). Thus D1G expresses trench D1 layer G. For each trench section, the sequence of sedimentary layers (contexts) was recorded by scale diagram, based on measurements and observations of grain size, colour, layer thickness, continuity of units and layer composition. For this preliminary report, the stratigraphic sequence of layers, or contexts, is illustrated in Figure 4 with Table 1 describing each context.

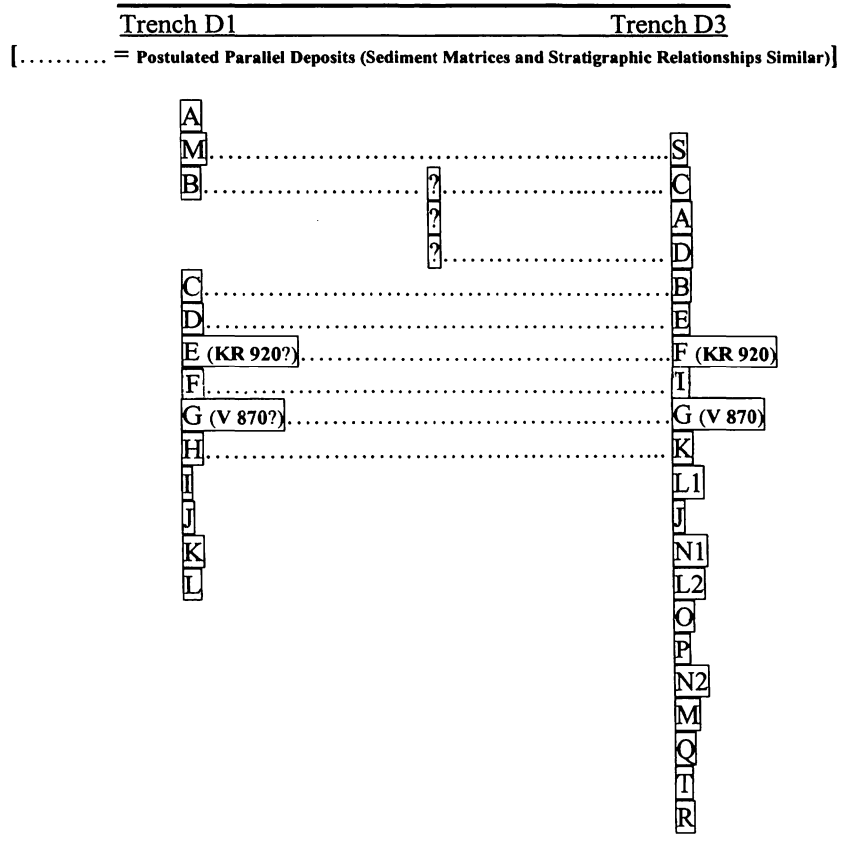

Figure 4: Stratigraphy of Contexts from Trenches D1 and D3.

Table 1: Contexts from Trenches D1 and D3

	Layer	Description		Layer	Description
D1	A	very dark brown clay with sand, palagonite gravel and fractured stones			
D1	M	black coarse sand tephra	D3	S	black coarse sand tephra
D1	B	dark brown clayey silt with sand, palagonite gravel and fractured stones	D3	C	dark brown silt with little sand
D1			D3	A	grey coarse silty sand tephra (?)
D1			D3	D	brown clayey silt with some sand
D1	C	intermittent grey silty sand	D3	B	intermittent grey silty sand tephra
D1	D	brown silty clay with sand, palagonite gravel and fractured stones	D3	E	brown silt
D1	E	black fine sand tephra **(KR 920?)**	D3	F	black fine sand tephra **(KR 920)** (possible tree casts)
D1	F	light grey-brown very silty clay with sand, palagonite gravel and fractured stones	D3	I	light brown silt
D1	G	grey fine sandy silt tephra **(V 870?)**	D3	G	grey fine silty sand tephra **(V 870)**
D1	H	grey-brown silty sand with palagonite gravel **(earliest putative construction spoil)**	D3	K	red brown silt
D1	I	grey pumacious tephra (or pumice)	D3	L1	intermittent black fine sand tephra
D1	J	light brown clay with sand, gravel and occasional fractured stones	D3	J	black fine sand tephra
D1	K	grey coarse pumice (?)	D3	N1	brown silt
D1	L	very compact brown to grey sandy gravels	D3	L2	intermittent black fine sand tephra
			D3	O	light brown silt
			D3	P	intermittent black fine silt tephra
			D3	N2	brown silt
			D3	M	black fine silty sand tephra
			D3	Q	brown sandy silt
			D3	T	black fine silty sand tephra
			D3	R	brown silty clay

Tephra Contours

For the *tephra contours*, trench A1 was excavated using the 'archaeological' technique of contouring, or exposing, the continuous surface of a deposit. When an airfall of volcanic ash, or tephra, is deposited, it preserves a record of the vegetated land surface upon which it fell. Thus, a heavily wooded environment with lush under storey produces an undulating and discontinuous tephra layer with 'holes' where tree trunks stood. Open grassland, in contrast, produces an evenly distributed and well-defined tephra layer. For trench A1, located on Figure 3, a 1.5 metre x 1.5 metre area was excavated to a depth of 1.20 metres. The surfaces of three stratigraphically identified volcanic airfall layers were contoured and recorded by scale diagram, noting clearly defined circular 'holes' in the deposits as probable tree casts. East- and south-facing sections were also recorded by scale diagram, noting the formation sequence of *þúfur*, or frost tussocks. Simplified scale diagrams are presented in Figure 5. The three tephra deposits contoured were identified (Andy Dugmore *pers. comm.*, Martin Kirkbride & Donald Ashburn *pers. comm.*) as Katla AD 1500 (Larsen 1984), Katla c. AD 920 (Hafliðarson *et al.* 1992), and the Landnám tephra of Veiðivötn AD 871±2 (Grönvald *et al.* 1995). Full discussion outlining this new method for analyzing the tephra record of past land surfaces will be presented elsewhere (Ahronson *in prep*). Surprisingly, 9 cm 'holes', or tree casts, were noted in the Katla 1500 and Katla c. 920 tephras – but not in the Landnám tephra.

Survey

Archaeological survey was carried out by Guðmundur Helgi Jónsson and Florian Huber in particularly wet conditions from the 17th to the 22nd of September. An aerial photograph of the study area formed the basis for the survey with the entire area being walked in 20-30 metre strips. All visible features were measured and sketched and Global Positioning Satellite (GPS) points taken. Full presentation of the survey will appear elsewhere (Ahronson & Jónsson *in prep*).

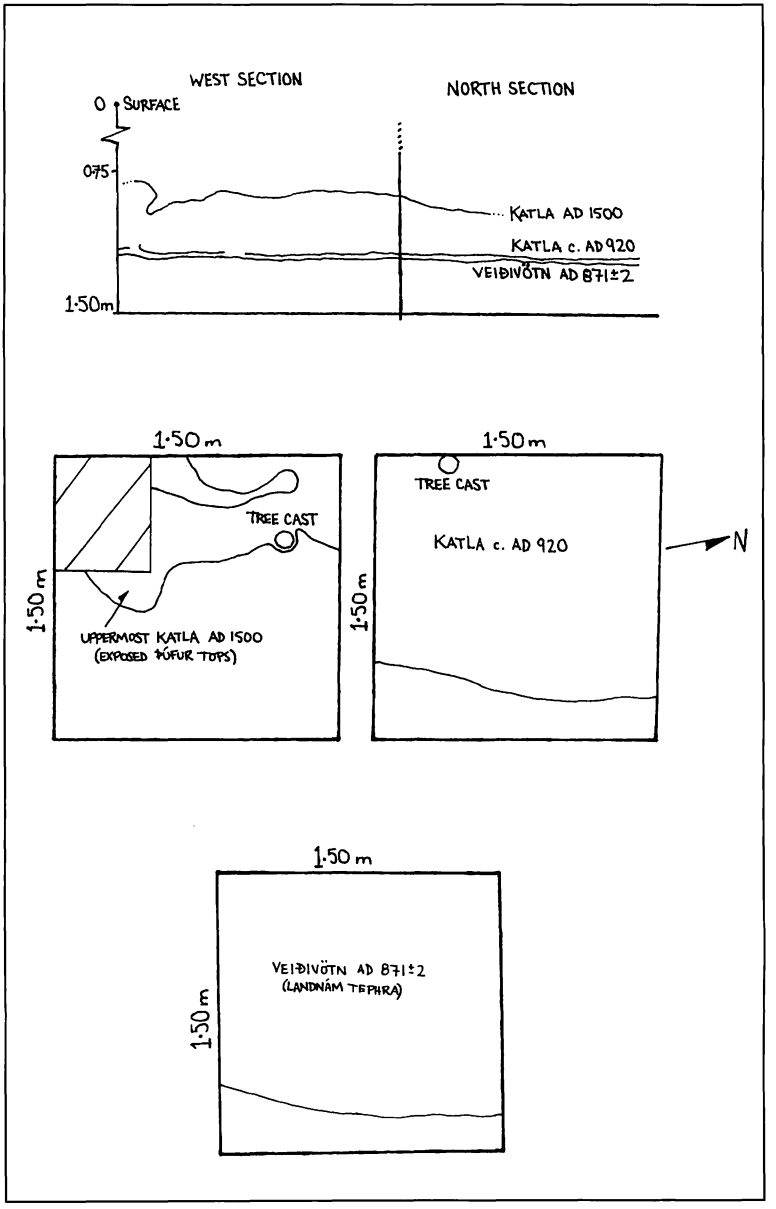

Figure 5: Simplified tephra contour scale diagrams.

Discussion and Results

Kverkarhellir is an artificial cave excavated out of palagonite, a soft volcanic rock. By locating the debris from construction – sealed with tephra deposits of known age – we sought to date the earliest phase of cave construction. The local historical tephra sequence is well-studied (Dugmore 1987, Mairs *in prep*, Smith & Ahronson *this volume*), comprising fall-out from the following eruptions (accompanied by AD dates): Hekla 1947 (Þórarinsson 1954), Katla 1918 (Þórarinsson 1975), Eyjafjallajökull 1821 (Larsen 1979), Katla 1755 (Þórarinsson 1975), Katla 1721 (Þórarinsson 1975), Hekla 1510 (Þórarinsson 1967), Katla 1500 (Larsen 1984), Hekla 1341 (Þórarinsson 1967), Eyjafjallajökull 935 (Zielinski *et al.* 1995), Katla c. 920 (Hafliðarson *et al.* 1992), and the Landnám tephra Veiðivötn 871±2 (Grönvald *et al.* 1995). These tephra layers are centimetre-scale deposits and clearly separated by aeolian sediments.

Palagonite material was found only in trench D1, situated directly in front of the cave Kverkarhellir. The fractured palagonite and palagonite gravels lay within a stratified sequence of tephras which includes a pair of volcanic layers identified by initial analysis as the Landnám tephra (AD 871±2) and the Katla R tephra (c. AD 920). A detailed discussion of this analysis appears in this volume (Smith & Ahronson). The Landnám tephra is generally understood to separate the prehistoric sequence from the historic or Norse settlement archaeology of Iceland (Vésteinsson 1998:3-4). The oldest deposit of this fractured and gravel palagonite lies 10cm beneath the volcanic ash layer identified as the Landnám tephra. Only with difficulty can estimates be made on how long before AD 871 the putative construction spoil was deposited. A late eighth/early ninth-century date is a reasonable approximation, judging from local rates of sediment accumulation at that time (Dugmore & Erskine 1994).

Two limitations of the data need to be resolved by further work. Firstly, the identification of the AD 871 tephra must be confirmed. Preliminary analysis (Smith & Ahronson *this volume*) suggests the tephra layer D1G/D3G is the Landnám deposit, but further fieldwork and geochemical analyses are necessary. Secondly, the palagonite material needs to be

firmly established as spoil from cave construction. 14 metres along the cliff base from trench D1, trench D3 noted a comparable tephra and aeolian sequence of sediments, but without the palagonite material. This suggests the putative construction spoil is not from cliff collapse, but further work is necessary to support this interpretation, including analysis of the palagonite fragments and cave walls for tool marks.

If an early date for a construction phase at Kverkarhellir is maintained, these results complement the work of Dugmore and Erskine (1994:69-73) and Ashburn *et al* (*this volume*). Dugmore and Erskine noted a soil colour change at Seljaland as palaeoenvironmental evidence of change in the late eighth/early ninth centuries. Also working at Seljaland, Ashburn *et al* measured a magnetic susceptibility record of environmental change that may begin in the soils beneath the Landnám tephra, though this needs further study.

Tephra contours reveal the vegetated land surface during that short time when a layer of volcanic ash was deposited. By exposing these past land surfaces, the *tephra contour* seeks to identify a human impact upon the natural landscape. In 2001 preliminary investigations, density of woodland cover was investigated as an indicator of early human influence upon the environment.

Thomson's work (*in prep*) on the pre-Landnám vegetative environment of Eyjafjallasveit describes the following ecological environments for the Seljaland study area:

> The sandur plain between the coast and the uplands at the time of Landnám is thought to have been covered by marshy grassland, with scattered patches of birch woodland on raised areas, as indicated by peat deposits and macro-fossils found throughout the region. ...Above the marshland, up to 300 m, birch woodland predominated, with a lush under storey composed of grasses and herbs.

This scenario of dense woodlands is also reflected in the tephra record. Working to the northeast of Seljaland, at Langanes, Mairs (*in prep*) noted 'holes' in the Landnám and older prehistoric tephra layers. She identified these as tree casts, evidence for forest cover. Furthermore, she recorded an undulating and discontinuous soil-tephra contact surface for the Landnám and prehistoric layers. Such undulating and discontinuous tephra deposits would be expected in birch woodland with lush under storey. This is to be contrasted

with the continuous and well-defined bottom contact of the Katla c. AD 920 tephra at Langanes, which indicates largely deforested open grassland – suited to grazing animals. Mairs does not find any tree casts in the Katla c. AD 920 or younger tephras. From this data, one imagines extensive woodland in AD 870 rapidly reduced by AD 920 – this is the period of Norse settlement. Certainly, the Icelandic medieval legal code *Grágás* describes forest clearance to create arable land (GG II 1852:448, Macniven *this vokume*) while Ashburn *et a l* (*this volume*) may have identified the magnetic signature of forest clearance by fire after AD 920 in the soils at Seljaland.

The single 1.5 metre x 1.5 metre *tephra contour* area at Seljaland presents clear statistical limitations to wider interpretations. Nevertheless, it is remarkable that the data from this contour stands in direct contrast to the scenario outlined for Langanes – a scenario reasonably extrapolated across the Eyjafjallasveit region. *Tephra contours* at Seljaland identified two 9 cm diameter tree casts, one in the Katla AD 1500 tephra and another in the Katla c. AD 920 tephra. In contrast, the Landnám contour revealed a continuous and well-defined surface consistent with open grassland: no tree casts were found. This could suggest natural or human processes cleared the birch forest before the AD 870 tephra was deposited. The tree casts in the AD 1500 and AD 920 tephras were unexpected and highlight the importance of excavating a statistically significant number of *tephra contours* over a larger area. The results from the *tephra contour* stand in contrast to the Langanes data and call for further *contours* to refine the environmental record of past land surfaces at Seljaland.

As mentioned earlier, a full presentation of the archaeological survey will be made elsewhere (Ahronson & Jónsson *in prep*). What follows is a brief discussion. At the edge of an escarpment overlooking the *sandur* plain, the Seljaland area forms a visually prominent point in southern Iceland. Bounded by rivers, cliffs and escarpment edge, this naturally bordered unit has a high concentration of the classic Icelandic assemblage of archaeological features, in addition to a number of exceptional structures. The typical assemblage of visible features relating to farming practices include many animal houses, such as a possible shieling site,

and a large L-shaped structure, probably a 19th- or 20th-century *fjárhús* ('sheep house') for hay storage and to house sheep during the winter. The assemblage noted at Seljaland also includes a network of turf- and stone-walled field boundaries. These walls vary in size, style, material and most likely age as well. Re-use of older boundaries is a possibility as well as abandonment, demonstrated by heavily eroded examples. In contrast, other large distinct walls still stand as physical boundaries today. Exceptional sites include the cave sites Seljalandshellar/Papahellir, Kverkarhellir, and Þrasi/Þrasahellir. Seljalandshellar in particular is of interest, with its three distinct rooms, chimney and 105 cross carvings on the surviving walls. As noted earlier, a number of these carvings appear to be paralleled in early Christian western Scotland. Another exceptional feature is the small west-oriented subrectangular stone structure at the prominent and exposed point Krosshóll. Folklore describes this eroded structure as a catholic chapel (Tómasson 1997:152) and this is certainly one possibility, though difficult to assess.

Thus the Seljaland archaeological survey reveals a good representation of the typical assemblage of human and animal house-structures as well as field boundaries, many of which relate to farming practices. This classic assemblage is made exceptional in that structure types (such as shielings, *fjárhús*, field boundaries...) are well-represented and survive well as visible features – and occur in an area provided with a powerful dating tool: an enviable tephrochronological sequence (Dugmore 1987, Mairs *in prep*, Smith & Ahronson *this volume*). The unusual features such as the Krosshóll 'chapel' and the Seljaland caves warrant further investigation in their own right, as they are difficult to accommodate within the settlement sequence. Holistic study of the Seljaland area presents unique possibilities for a multi-disciplinary approach to human exploitation of the natural environment and continuity of land use.

Conclusions

Preliminary investigations in 2001 concentrated on a focused archaeological and environmental study at Seljaland. Initial

results date a construction phase of the cave Kverkarhellir to c. AD 800. Though such a date is earlier than the Norse archaeology of Iceland[6], other palaeoenvironmental work at Seljaland noted a complementary record of environmental change in the late eighth/early ninth centuries (Dugmore & Erskine 1994:69-73, Ashburn *et al. this volume*). However, difficulties in identifying construction spoil and the Landnám tephra need to be overcome before this early dating can be accepted. Archaeological survey notes the special potential of the area to investigate human exploitation of the natural environment and continuity of land use. Survey also revealed several unusual features that warrant further investigation, such as the Krosshóll 'chapel' and the Seljaland caves. Intriguingly, preliminary environmental work hints the study area may have stood out in AD 871 as open grassland within a larger wooded landscape.

Several independent lines of archaeological and environmental investigation suggest parallel hypotheses. The cross sculpture styles, cave construction dates, land surface *tephra contours*, existing work of Dugmore and Erskine, and the new work of Ashburn *et al* all are consistent with very early or Scotland-related settlement. However, these lines of investigation are in the preliminary stages and additional work is necessary to maintain and refine the early results. What does appear clear, however, is how well placed the Seljaland area is proving for collaborative inter- and multi-disciplinary work on early Iceland. Investigations at Seljaland confront a long ignored body of *housebuildings* in southern Iceland and have the potential of challenging the generally accepted view of Viking Age settlement in the North Atlantic area.

Acknowledgements

Limited archaeological investigations were undertaken in July and September 2001. July fieldwork was directed by Kristján Ahronson and inspired by Dr Andy Dugmore (University of

[6] See, however, Hermanns-Auðardóttir (1989, 1991) and Vilhjálmsson (1992:167-181) for a discussion of early dates for Norse settlement in the Westmen Islands.

Edinburgh) as well as assisted by Dr Thomas McGovern, Dr Sophia Perdikaris and their students from the City University of New York. An environmental *tephra contour* trench was opened in parallel with the work of Dr Martin Kirkbride and Donald Ashburn (*this volume*) from the University of Dundee. September fieldwork was directed by Kristján Ahronson and co-directed by Guðmundur Helgi Jónsson, formerly of the Þjóðminjasafn Íslands (National Museum of Iceland). Florian Huber (Christian-Albrechts-Universität), Alan Macniven (University of Edinburgh) and Ray Geisli Meaney carried out this work. Dr Anthony Newton (University of Edinburgh) kindly assisted with field identifications. September fieldwork was undertaken alongside the University of Edinburgh Geography field school, including the work of Kerry-Anne Mairs (*in prep*). The Geography field school (directed by Nick Holton) helpfully supplied logistical support. Ragnheiður Traustadóttir and Guðmundur Ólafsson of Þjóðminjasafn Íslands generously made available equipment for 2001 fieldwork. Halldóra Jónsdóttir acted as Project Conservator. Post-excavation analyses of tephra stratigraphies and geochemical samples were completed by Kate T. Smith (Smith & Ahronson *this volume*) in consultation with Guðrún Larsen (Háskóli Íslands/University of Iceland) and Dr Andy Dugmore.

The crucial advice and assistance of Fraser Hunter (National Museums of Scotland), Professor William Gillies (University of Edinburgh), Alex Woolf (University of St Andrews), Professor Gísli Pálsson (Háskóli Íslands/University of Iceland), Páll Marvin Jónsson (Háskóli Íslands á Vestmannaeyjum/University Field Station in the Westmen Islands), Hálfdan Ómar Hálfdanarson, Kristján Ólafsson and Þórður Tómasson í Skógum is gratefully acknowledged. Early aspects of this work were fostered by the interest and support of Professor Ann Dooley (University of Toronto).