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ARE THERE ECHOES OF THE AD 536 EVENT IN THE VIKING RAGNAROK MYTH? A CRITICAL APPRAISAL

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EVENTFUL HISTORICAL CHANGE AND LAYERS OF NARRATIVE

The environmental turn in the Humanities has touched many disciplines, including literature studies in the form of eco-criticism, and environmental history in the form of eco-historicims.[1] The shared concern with the relationship between humans and the environment unites these fields of study, but their diverging perspectives also keeps them separate.[2] Working through a particular case study – the powerful narrative of the Nordic end of the world, Ragnarok – we here explore a slightly different approach, one we term the 'palaeoenvironmental humanities' approach. The prefix 'paleo' is derived from Ancient Greek (παλεο) meaning 'old' or 'ancient'; it is today most commonly conjoined in words such as Palaeolithic – the Old Stone Age – or indeed palaeoenvironmental where it refers to aspects of past environments. We thus employ the 'palaeoenvironmental humanities' label in an effort to signal our intention to i) extend environmental history further back in time, to ii) widen the sources of evidence to include archaeological materials, and iii) at the same time not abandon an awareness of a wider environmental humanities or eco-critical narrative setting. Inspired by literary and social theory, archaeologists have, for instance, devised methods to read the material culture record of the past[3], but these are not generally applied in the study of past human-environment relations. In fact, attention to the environment has largely been eschewed as determinist by those same scholars. At the same time, our approach is also different from traditional environmental archaeology, which is a form of human paleoecology and consists by and large of the application of geological methods to study past human-environment relations.[4] Environmental archaeologists have a tendency to reject theoretical approaches derived from social or literary theory.[5] We here attempt to strike a balance between the two; drawing on palaeoenvironmental, archaeological and literary sources, we are concerned with human understandings of the environment in the past and how such understandings relate to our own through the construction of contemporaneous and contemporary narratives.

Our study places not only the Ragnarok myth, but also its re-narration in contemporary scientific sources within a framework of multiple, layered narratives. This perspective nests ancient narratives of already then past cataclysmic events within an analysis of contemporary academic discourse that also takes the form of catastrophist scenarios. Our point of departure here is the writing of sociologist William H. Sewell Jr. who, in his effort to resolve the tension between structure and agency in history, constructs an argument for what he calls 'eventful history'.[6] For Sewell, perched between the presentist perspective of sociology and the longue durée offered by history, societal change is

[1] Buell 2011; Marland 2013; Wood 2008.
[2] Bergthaller et al. 2014.
[3] e.g. Hodder 1991.
[4] Dincause 2000; Driver 2001.
[5] Barker 2001.
[6] Swell 1992; 1996a; 1996b; 2005.

saltational, focused on episodes of condensed and amplified individual and collective agency during which otherwise rigid social structures become malleable. Whilst not himself concerned with environmental relations, the linkage between Sewell's conception of historical change and the notion of the tipping point are evident.[7] Indeed, in archaeology, scholars are now making powerful, nuanced and independent arguments that much past culture change was concentrated around 'moments of crisis' not at all unlike Sewell's events.[8]

Events, Sewell[9] suggests, "may be defined as that relatively rare subclass of happenings that significantly transform structures"; they have personal, institutional and affective dimensions and they precipitate into most if not every aspect of life. According to Sewell,[10] such event horizons are characterised by important transitions in socio-cultural constellations. They are usually spatially extensive and go hand-in-hand with marked changes in ritual practice. Events *sensu* Sewell are also emotionally charged. He stresses the contingency in the unfolding of such events, but also acknowledges the difficulties in analytically circumscribing and capturing historical events (Table 1).

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Importantly, "a single, isolated rupture rarely has the effect of transforming structures because standard procedures and sanctions can usually repair the torn fabric of social practice. Ruptures spiral into transformative historical events when a sequence of interrelated ruptures disarticulates the previous structural network, makes repair difficult, and makes a novel re-articulation possible."[11] Sewell's focus on rupture articulates his conception of historical change with the narrative perspective: The term catastrophe derives from the Ancient Greek καταστροφή, and according to the Oxford English Dictionary[12] refers to both "an event causing great and usually sudden damage or suffering; a disaster" – its now common catastrophist meaning – but in a more ancient meaning it also refers to "the denouement of a drama", its turning point. Sewell is well aware of this and notes that it is the dramatic narrative quality of such punctuated models of historical change lend them a particularly compelling quality. In a footnote to his *Three Temporalities* essay he draws an explicit analogy to palaeontology's punctuated equilibrium model so eloquently put forward by the late Stephen J. Gould. Archaeology sits more or less comfortably between the truly deep time of palaeontology and the finer temporal scales of history. Punctuations, crises, collapse are also tropes commonly employed here. They are as sensitive to contemporary societal concerns as they are to their actual empirical grounding,[13] but it seems inescapable that at least some if not many episodes of major cultural change in the past – usually with winners *and* losers[14] – occurred rapidly and in relation to environmental upheavals.

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[7] Nutall 2012; Steffen, Crutzen et al. 2007.
[8] Tipping et al 2012.
[9] Sewell 1996b, 262.
[10] Sewell 1996a, 861-879.
[11] Sewell 2005, 228.
[12] www.oed.com
[13] Middleton 2012.
[14] Scanlon 1988.

The suggestion has been made that the Nordic end of the world, Ragnarok, can be linked historically to one or several geological or climate events in the 6th century ad[15] Several written sources from China to the Mediterranean record unusual weather phenomena and a persistent 'dust veil' that lessened the sun's warmth. These effects are in turn linked to societal distress;[16] one or several causal culprits – volcanic eruptions in East Asia or Central or North America, meteorites – have been pointed to; recent studies of climatic fluctuations around this time shows that most likely several volcanic eruptions and their atmospheric input together caused a prolonged period, from ad 536 to at least ad 550, of sustained Northern Hemisphere cooling.[17] The widespread, at times global effects on climate of such eruptions are well known and can be captured through both environmental proxy data as well as models with increasing precision and accuracy.[18] It is also worth noting that modelling of such large volcanic eruptions also suggests spatially variable effects, both in the direction and magnitude of temperature changes[19] – we can thus not expect to see identical environmental signatures of a given event in different areas. Also, strong claims have been made for downstream causal links between economic, socio-political and cultural changes in, for instance, the 19th century vis-à-vis the 1815 Tambora eruption[20] but also further back in historical time.[21]

Here, we retain the shorthand of the ad 536 Event to denote these decades of climatic calamity and focus on societal responses and changes in the para-historic Nordic region, where no direct contemporaneous written sources exist; the archaeological record instead provides insights into the time period itself, the later written sources – closer investigated subsequently – provide later narrative re-workings of these candidate events.

THE AD 536 EVENT – READING THE MATERIAL CULTURE

Material culture, it has been suggested, can be read like text.[22] The evidence from the 6th century is varied and relates to economic changes, migration and demographic change as well as changes in ritual and religious practices. In Sweden, the societal crisis of the mid-6th century has been investigated most intensely. In the Mälaren valley area around Stockholm, these changes are reflected in changing ritual practices that are moved from the outside to within houses;[23] similarly, settlement patterns and landscape-use across the region appear to have changed with a cessation of many otherwise stable villages and their attendant burial grounds and a relocation of settlements to higher ground.[24] It has been suggested that not only did agricultural production become depressed due to

[15] Wohletz 2000; Gräslund 2008.
[16] Gunn 2000.
[17] Sigl et al 2015; Buntgen et al. 2016.
[18] e.g. Self 2006: Stoffel et al. 2015.
[19] see footnote 17 and Timmreck et al. 2012.
[20] Wood 2014; Luterbacher and Pfister 2015.
[21] e.g. McCormick et al. 2007; Lavigne et al. 2013.
[22] Tilley 1991; Hodder 1991.
[23] Arrhenius 2013.
[24] Löwenborg 2012.

generally adverse conditions,[25] but that the lower temperatures and increased precipitation led to a spread of endemic ergot, a crop disease that can, in turn, cause traumatic physical and mental conditions in humans.[26] Elsewhere in Sweden, traditional symbolic representations relating to sun worship (the whirling disc motif) is replaced by a different repertoire. It has furthermore been suggested that massive acts of collective building activity such as the erection of the Raknehaugen mound in southern Norway reflect "unusual and even desperate measures in ritual contexts".[27] Although less thoroughly investigated, the Baltic area appears to also have been affected negatively by the poor conditions with many settlements being abandoned.[28] Potentially, a fairly large proportion of the population in the Nordic area died in the course of this bad year succession. In southern Scandinavia, the decline of old settlements, the emergence of new centres of economic and political power and the appearance of new forms of material culture indicate large-scale demographic and economic changes. These appear to have been instigated by a combination of disadvantageous climatic conditions and environmental refugees from further to the north.[29] A final line of archaeological evidence that has been directly related to the ad 536 Event are gold pendants, so-called bracteates. A very large number of these valuable personal objects also believed to relate to sun worship were deposited in a frenzied fervour to appease the higher powers and to cajole them to let conditions return to normal.[30]

The dating of these different lines of archaeological evidence is not sufficiently precise to link it them directly to the year ad 536. They can, however, be dated confidently to the middle of the 6th century and together they point to a period of societal unrest and increased fluidity of social and political constellations, matching the recent palaeoenvironmental data that point to a sharp onset but also prolonged unfolding of adverse conditions. In sum, it seems that the old economic, political and religious order linked to sun worship and the agricultural cycle was challenged and eventually fell out of favour; it was potentially replaced by a more apocalyptic faith in which the millennial narrative of the end of the world rose to prominence.[31] Elsewhere, the such breaks or radical shifts in ritual practice have been described as 'ritual failure': The perceived loss in ritual efficacy led people to engage in extreme ritual behaviour and to significantly change habits.[32]

Inventing an event?

The above sketch of the ad 536 Event and its societal aftermath paints a gloomy picture of societal collapse. It is worth pointing out, however, that far from all scholars agree on the causal role – or indeed any role at all – of this particular episode of environmental change. Some see it as yet another explanatory fad,[33] a cheap narrative sleight-of-hand

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[25] Engvild 2005.
[26] Bondeson and Bondesson 2014.
[27] Price and Gräslund 2015.
[28] Tvauri 2014.
[29] Høilund 2000; 2005; 2006.
[30] Axboe 1999; 2001.
[31] Gräslund and Price 2012; Price and Gräslund 2015.
[32] Koutrafouri and Sanders 2013.
[33] Näsman 1988; Wickham 2005.

for telling and selling apocalyptic stories to readers eager for drama and destruction. Whilst not many regions in the world have been subject to similarly intense archaeological scrutiny, evidence from the Mediterranean as well as further afield do support the notion that the 6th century saw widespread calamity.[34] Clearly, the archaeological record is as open to different interpretations as any text. Yet, if indeed the middle of the 6th century was particularly troublesome and did witness an unusual degree of social change, then perhaps echoes of this can be found in the written sources that codify earlier oral traditions in the Nordic region.

THE RAGNAROK MYTH

The Ragnarok myth is recorded in two different medieval versions, namely in a poem, which has its primary form in the collection of Old Norse poems known as the *Elder Edda* from ad 1270, and in a prose version, which is in several aspects derived directly from the poem. The prosaic work that preserves the Ragnarok myth is sometimes known as the *Younger Edda*, or just *Edda,* and it was written by the Icelandic chieftain Snorri Sturluson (ad 1179-1241) in ad 1220. The poem relaying the Ragnarok myth in the *Elder Edda* is called *Völuspá,* 'the *Sibyl's Prophecy*'. There is a general consensus among scholars of Old Norse that the content of the poem was largely conceived in the Viking Age, presumably in the 10th century ad.[35] The *Elder Edda* comprises a variety of poetic forms, but the one that has been used in the composition of the *Sibyl's Prophecy* is known as *fornyrðislag,* the 'ancient-word-law'. This meter is known to have been in use in Scandinavia in the Migration Age. It is a type of poetry that is closely related to the poetic form in the Old English poem *Beowulf* from the 7th century ad, and the Old High German poem *Hildebrandslied.* Additionally, the meter is preserved in native Scandinavian runic inscriptions, such as the Norwegian Tune rune stone from the period ad 200-450.[36]

Much indicates that the *Sibyl's Prophecy* as well as other Eddic poetry was retained orally in Scandinavian culture for centuries. Whilst it is certainly a possibility that the Book of Revelations also influenced the images of the Sibyl's Prophecy including especially Ragnarok[37], our focus will be on how the Ragnarok myth relates to the time of Migration Age Scandinavia. Emphasis will be on the version of Ragnarok as it is related in the *Sibyl's Prophecy*, as this version has been at the core of recent arguments in favour of its Migration Age-origin and a relation to the ad 536 Event.[38, 39]

The narrative of Ragnarok is in both the prose and poetic versions relatively extensive. In the *Sibyl's Prophecy*, the calamities set in on the world with the death of Baldr in stanza 31. From there they increase in intensity until the world is destroyed, and then re-emerges from the sea in stanza 59. The remaining stanzas until the last one, number 66, describe the new world. This means that around half the poem is concerned with Ragnarok and the

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[34] Gunn 2000; Price and Gräslund 2015.
[35] Nordal 1927; Dronke 1997; Simek 2007, 366; McKinnell 2008.
[36] Gunnell 1995, 93; Kristjánsson 2007, 27-28.
[37] Gunnell 2005; McKinnell 2008; North 2003; Steinsland 2008.
[38] Price and Gräslund 2012.
[39] We use Neckel and Kuhn's version of the *Sibyl's Prophecy*, though with modern Icelandic 'ö' instead of their 'hooked o'.

reconstitution of the world, while the initial 22 stanzas are concerned with the creation of the world. Stanzas 23 to 30 are concerned with the first war of the world, between the *Æsir* (gods) and the *Vanir,* which build toward Baldr's death. This means that the events of Ragnarok in the *Sibyl's Prophecy* are encased in an explanatory frame that provides a reason for why the world will perish: the Æsir (gods), who initially built the world, introduce chaos into it by waging war on another supernatural species, the Vanir. From this point on, the world is in decline.

There has been much debate about the origin of the Ragnarok myth, not least the provenance of the sources at the root of the narrative. There is little doubt that the myth does have deep roots in Eurasian cultural history,[40] yet it is doubtful that the *Sibyl's Prophecy* in its current form is older than the 10th century ad.[41] It is most probable that the *Sibyl's Prophecy* gained its current compositional form in Iceland in the 10th or early 11th century ad,[42] and subsequently existed in oral form until codified in the 13th century ad.[43]

CRITICAL ASSESSMENT – ORAL VS. WRITTEN SOURCES

When comparing the content of the extant versions of the Ragnarok myth, one finds minor differences between them. It is difficult to tell if these changes belong to the editor of the written versions, or if it is possible to talk about different written versions based on different oral traditions, mainly because the internal relationship between the written versions is a complex problem in itself. From the Viking Age and long into the 13th century ad, it was Scandinavian court tradition to employ native poets (skalds), to compose praise poetry about the kings, and retain important cultural knowledge. These skalds would have learned the traditional oral poetry that contained knowledge about Old Nordic mythology, kings, and heroes. Their methods of remembering and sharing these extended narratives is not entirely clear to modern scholars. Presumably, one of the methods used for remembering was to retain stock narratives in memory.[44] This method of remembering has been identified as the oral-formulaic theory by Albert Lord,[45] who surveyed the tradition of remembering extended traditional narratives among Serbian folksingers. The traditional singers memorized stock narratives from stories, and would combine these stock narratives into meaningful stories, employing a certain dose of artistic ingenuity. For the purpose of remembering, key formulas were employed in order to scaffold recollection. Studies of certain forms of Old Norse literature have shown that this was likely also the case in medieval Iceland.[46] Yet, it remains unclear how this relates to pre-Viking Age narratives. Certainly, some narratives seem to have been preserved as a faint memory of the Migration Age. It is widely held that the fantastic story of Sigurd the Dragon Slayer, who killed the dragon Fafnir and took his gold, is in fact a story based loosely on historical events in the Migration Age Rhineland region. What was once battles between kings and warlords, Germanic tribes, Romans, and

[40] Reitzenstein 1923-24; Simek 2007, 259-260.
[41] Simek 2007, 366-367.
[42] Nordal 1927.
[43] Gunnell 2012.
[44] Harris 1983.
[45] Lord 1965.
[46] Sigurðsson 2004; Scholes and Kellogg 1968.

invading Huns, has in the medieval German poem *Niebelungenlied,* and the Icelandic *Völsungasaga* been compressed into a tale of a hero, who vanquishes a dragon and wins a maiden, only to die as a result of the terrible curse that comes with the dragon's gold.[47]

Sequences and formulas in the Ragnarok myth

At the centre of the discussion about a possible reference to the ad 536 Event in the Ragnarok myth is the question of a formulaic encoding of a description that would match up with natural phenomena, which would be observed at the time. Descriptions in Late Antique sources recount unusual optical phenomena in the sky, a blue-tinted sun, cold summer months, unnatural drought, darkening of the rays of the stars.[48] In the *Sibyl's Prophecy*, it is expected that a wolf will steal the moon in the guise of a troll (witch), and that the wolves who are known as 'Fenriz' family' will drink the blood of doomed men, and redden the gods' home with that blood. After this, the sun's rays will become dark (40-41). In order for this to become a reference to a sky phenomenon, the wolves would be interpreted as darkness with an added meaning of 'chaos', the gods' home would have to be understood as the sky, and the blood would be the sunlight that is affected by some celestrial phenomenon. This is a reasonable interpretation based on what we already know about Nordic mythology, where wolves represent celestial darkness in other contexts.[49] The idea of a bloody sky is not out of place either, given that it is a relevant analogy to a sunset, and other celestial phenomena. Finally, in the *Sibyl's Prophecy*, the sun turns black, and the stars are hewn from the sky (57). The descriptions of a darkening sun and stars that 'fall from the sky' are relatively close to the sources mentioned from Late Antiquity. So is the description of a summer with no heat with the idea of the Great Winter. However, the idea of a reddened sky seems to contradict the Late Antiquity description of a 'blue coloured sun'. The atmospheric phenomenon in the North does not seem to align with the one in the South – but recall also that recent models of climatic anomalies that occurred during the mid-6th century as also di suggest a large degree of spatial heterogeneity. Furthermore, it should be noted that the darkened sun and the stars hewn from the sky seem to have very close comparison to Mark 13:24-25: 'the sun shall be darkened, and the moon shall not give her light, and the stars of heaven shall fall'. This has been interpreted as a direct borrowing of formulaic material from the *Vercelli Homily* 2 by John McKinnell,[50] and this possibility cannot be ruled out. Regardless of these formulaic similarities, both with natural and literary sources, a nagging problem is the sequence, and how the key images relate to the natural features of the ad 536 event.

THE AD 536 EVENT AND THE RAGNAROK MYTH

The death of the god Baldr in Nordic mythology is a central event, which turns the power balance between the Nordic gods and the forces of evil, said to bring destruction to the world in Ragnarok. This mythical image along with the image of the wolves in the sky, and the prolonged winter, have been assumed to refer back to the ad 536 Event. The following will offer a critical assessment of these components of the Ragnarok myth as well as the sequence of the apocalypse as it is related in the *Sibyl's Prophecy*.

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[47] Byock 1990.
[48] Price and Gräslund 2012: 429.
[49] *Gylfaginning* 2012: 11-12
[50] McKinnell 2008: 21-25.

The death of Baldr in the Migration Age

The death of Baldr is one of the myths recorded in both Old Norse literature, and medieval Danish literature, in Saxo's *History of Denmark*. This indicates that the myth may have an ancient origin, especially because there is great divergence between the East- and West Nordic versions, and this may indicate alternating traditions related to regional differences. The myth of Baldr's death has been identified in the imageries of the above-mentioned gold bracteates that date to the Migration Age and were deposited *en masse* at the time of the ad 536 Event.[51] It is never fully possible to determine whether or not interpretations of images without any immediate textual context can be verified as having a relationship to the much later written sources, but if the interpretation is correct, it is possible to connect this aspect of the Ragnarok myth directly with a feature of what has been argued to be a response to the ad 536 Event, namely the above-mentioned mass deposition of gold bracteates as a ritual attempt to effect respite from the climatic and subsequent societal consequences at the time. As a mythological figure, Baldr has indeed been linked to both notions of fertility and the epitome of everything that is good, and as such his death in a myth can be interpreted as the death of the world's fertile foundation for human society. In a religious-mythical worldview this would be a precursor to a cosmological disaster on the scale of the ad 536 Event.

If the Ragnarok sequence in the *Sibyl's Prophecy* indeed does has its origins in the catastrophic events of ad 536, it should, in principle, be possible to identify more direct links. Following the death of Baldr is a sequence detailing the capturing and punishment of the god Loki in the Underworld for his hand in the killing of Baldr (36-39). In connection with the Underworld there are mentioned spectacles of rivers of swords, corpse filled frozen lands, and halls made of serpents, where the oath-breakers and murderers are punished by a great monster named Nidhögg, which seem to have little reminiscence of any rationally verifiable human experience, except as images of catastrophe. It is thus hard to connect this part of the narrative to any memory of the ad 536 Event, unless it is seen as a moralistic interjection in the poem that serves to remind everyone where perpetrators will be punished in the Nordic apocalypse. If that is the case then it seems that Migration Age Scandinavians may have interpreted the ad 536 Event on the same terms as prophetic Biblical tales of the apocalypse, as a form of punishment that is imposed on the human species for their immoral behaviour, their warfare. This is not impossible, but on the other hand it is hard to dismiss the well-rounded arguments that these details exhibit strong influence from the *Book of Revelations*,[52] and thus must have been added to the Ragnarok myth after the Migration Age, when Christian mythology became more commonly known in Scandinavia.

Wolves in the sky

The next stanzas relate the meteorological phenomena associated with the ad 536 Event: a dimmed sun, unseasonal cold, and unusual red skies. Stanza 40 refers to 'Fenris kindir', the children of the great wolf Fenriz, and remarks that one of them is 'tungls tiúgari' (the moon's thief). This wolf feeds on the blood of doomed men, and 'rýðr ragna siöt rauðum

[51] Axboe 1999; Heizmann and Axboe 2015.
[52] North 2003; McKinnell 2008; Steinsland 2008.

dreyra' (reddens the gods' home with red blood) in stanza 41, which leads to the darkening of the sun and a prolonged winter. From this point, the poem proceeds to list warning signs of impending doom; a golden rooster crows in the gods' dwelling, and a red rooster crows in hell (43). A dog called Garmr, which may be a kind of hell-hound, is let loose, and the narrator, the Sibyl, interjects that she sees ahead to the 'römm sigtýva' (darkness of the Victory-gods) (44). Stanzas 45-46 detail the reaction to these conditions among the human population as well as the gods. Among the humans, incest and war are mentioned as primary aspects of the break-down of the fabric of society (46). Finally, the actual apocalypse begins in stanza 47. Here it is described that the World Tree is shuddering as the fire-giant Surtr (Swarthy) breaks loose, and his flames devour men on their road to hell. Other giants, the World Serpent who lives in the sea, and the deceiving god Loki in a ship made of nails, advance upon the world of the gods in a mighty battle that makes the mountains crumble and sets the sky on fire. Eventually, in stanza 57, the sun turns black, and the world sinks into the ocean; the stars are strewn from the sky; steam rises, and flames rise as high as the sky.

In this sequence, the 'reddening of the gods' home' is in no way at the centre of the cosmic catastrophe. Instead stanzas 47-57 detail some aspects of what may well be natural events, and then they recount the cosmic battle between supernatural beings. As has been argued elsewhere, stanzas 47 to 52 may relay a volcanic eruption sequence in mythological language.[53] This argumentation rests on a theory suggested in the early 20th century by Bertha Phillpotts who proposed that aspects of the Ragnarok myth are linked directly to the experience of volcanic events in Iceland.[54] This theory would contradict any connection to the ad 536 Event, or its consequences in contemporaneous Scandinavian society. If the descriptions of a darkened sun and a sky phenomenon that turns the sky red are associated with the ad 536 Event, then it seems that stanzas 40-41 stand alone as an ancient reminiscence from mainland Scandinavia in an otherwise Icelandic poem.

An additional problem with the interpretation of the moon's thief, and the wolf that reddens the gods' home with blood, is that there is another mythic complex associated with this, which already offers an explanation of this as a sky phenomenon. In Icelandic folklore there exists a term for when the sun has a sundog in front and behind it called 'í úlfarkreppu' (lit: in wolf-crisis). This seems to be derived from Snorri Sturluson's story in *Edda* about the two wolves Hati and Sköll, who chase the sun and moon, and who are believed to be identical with the wolves mentioned in stanzas 40-41 in the Sibyl's Prophecy.[55] As such, it is possible to satisfactorily explain the sky phenomenon completely within an Icelandic context, with reference to a common celestial phenomenon, namely 'sundogs', where optical illusion creates smaller suns in front and behind the sun. When one of these wolves 'reddens the gods' home', it is possible to simply interpret that as the sunset. This would mean that the sky phenomenon in stanzas 40-41 describes the dusk and a solar phenomenon as harbingers of the actual catastrophe that is relayed as a cosmic battle between the supernatural species. This is particularly

[53] Nordvig 2013.
[54] Phillpotts 1905; Nordal 1927.
[55] Sigurðsson 2014, 193-194.

underlined by the fact that it is first in stanza 57 that the sun turns black and the stars disappear from the sky. The reason given for that is the cosmic battle, which may or may not contain allusions to a volcanic eruption.

The Great Winter and volcanic eruptions in Iceland

The above conclusion, however, leaves out attention to the additional information in stanza 41, which relates that the rays of the sun become weak and a prolonged winter occurs. This is further detailed by Snorri Sturluson in his version of Ragnarok in *Edda*,[56] where it is termed the 'fimbulvetr' (Great Winter). When contemplating the origin of the idea of a great winter that lasts for three seasons rather than one, it is important to remember that the idea in itself must be terrifying and not too foreign in an agrarian society in Northern Europe, especially in the North Atlantic. The fertile period is shorter both in Scandinavia and in Iceland, and it is therefore perhaps not even necessary for the inhabitants of that region to envision that scenario without actually having experienced it. Nordic mythology is in many ways preoccupied with frost and cold, and it is not impossible that the idea of the lack of summer was conjured without any actual precursors, simply out of fantasy – recall, however, that by current evidence the ad 536 Event appears to have been a rapid-onset but also prolonged period of unusual cold rather than a single episode. It is therefore possible that certain natural events have inspired this idea, although it would seem more appropriate to look for these events closer to the period of the composing of the Sibyl's Prophecy, and not least Snorri Sturluson's *Edda,* the period from ad 900 to ad 1220.

One event is a ready candidate for inspiration: the ad 934-40 Eldgjá eruption,[57] which may have been bigger and more impactful than the well-known ad 1783-84 Skaftáreldar eruption. The ad 1783-84 eruption is perhaps the best-known Icelandic eruption, and its impact on the European region has been researched in great detail.[58] Approximately 20% of the Icelandic population died from famine and pollution from this eruption,[59] and an estimated 100,000 Europeans were killed by air pollution, too.[60] Temperatures in Europe dropped the following summer as a result of the sulphurous clouds, and it was reported that the vegetation turned grey in Scotland.[61] Consequently, there were strong religious doomsday expressions inspired reactions to this phenomenon, especially in England. In the period from ad 934-40 it is believed that the ca. 75km-long Eldgjá fissure opened very close to the Skaftáreldar fissure.[62] This eruption was at times explosive, but also produced voluminous effusive basaltic lava fields. Massive discharges volcanic ejecta and of glacial meltwater (*jökulhlaups*) accompanied the eruption. The Eldgjá fires are suggested to have substantially changed the landscapes of southern Iceland. It was a massive eruption, and it is indicated to have affected agricultural production as far away as the Middle East and China, causing famine and illness there.[63] In Iceland there are no

[56] Price and Gräslund 2012, 435.
[57] Stothers 1998.
[58] Witze and Kanipe 2014.
[59] Vasey 1996.
[60] Grattan, Durand, and Taylor 2003; Grattan, Michnowicz, and Rabartin 2007.
[61] Payne, Edwards, and Blackford 2013.
[62] Larsen 2000; Thordarson et al 2001.
[63] Stothers 1999; Fei and Zhou 2006.

written sources that detail this eruption. There is a story in *Landnámabók,* the Book of Settlements, which explains that a man who had settled near Höfðabrekka, at the place that was affected by the Eldgjá lava flow was forced to move.[64] Another indication of the eruption's severity is the curious detail that medieval Icelandic historical records claim that the Nordic colonization of Iceland ended abruptly in ad 930.[65] The historical records give no further explanation for why people stopped coming to Iceland, only that at that point Iceland was fully settled. The time roughly coincides with the Eldgjá eruption, but there is of course no certainty of any connection – however, an eruption lasting a little more than half a decade, impacting large parts of the world, would with some certainty have deterred most would-be settlers from going to Iceland in the years after ad 934. Approximately two generations later, in ad 1065, the Icelandic poet Arnórr Jarlaskáld composed *Þorfinnsdrápa* (Thorfinn's Poem), and paraphrased stanza 57 from the Sibyl's Prophecy: 'Björt verðr sól at svartri, søkkr fold í mar døkkvan...' (The bright sun will turn black, earth will sink in the dark sea [24]).[66] This seems to attest to a composition date for the Sibyl's Prophecy that is earlier than ad 1065, but it also indicates prevalence in Icelandic culture of an idea about a phenomenon that darkens the sun's rays, and the ground sinking into the sea. The idea, however, seems to be constricted to the Icelandic material. Even though Saxo's *History of Denmark* borrows heavily from the *Sibyl's Prophecy*,[67] and even relates an extended narrative about a prolonged winter comparable to the Great Winter, caused by an evil king named Snio (Snow),[68] this idea is not expressed there, or in any other known form in mainland Scandinavia.

The Ragnarok sequence in the *Sibyl's Prophecy*

The initial stanzas relaying the sky phenomena in the Sibyl's Prophecy (40-41) do not represent any climactic high or ending result to which we come through a natural process. To the contrary, they are wedged right in the middle of a sequence of ominous forewarnings stretching from stanza 33 to 46, building towards the moment in stanza 47, when Loki breaks loose, and Surtr unleashes his fire upon the world. At this point, the catastrophe reaches climax with the mighty battle of the Nordic gods and giants, the evil forces invading the world and creating chaos. This chaos is described as a sea in uproar (50), Surtr's fire-sword shining brighter than the sun (52), mountains crumbling (52), and the sky being torn asunder (52). Added to this image is the battle between opposing key figures in Nordic mythology, gods and monsters (53-56), and finally the world sinks as the sun darkens, the stars fall from the sky, and the flames of the battle reach the sky (57). In this prolonged sequence, the details relating to the ad 536 Event seem minute and inconsequential. The rest of the sequence can be interpreted as a mythologized volcanic event with a build-up phase of initial tremors and early emissions (47-51), an explosive eruption (52), and ensuing catastrophe (53-57).[69] For this interpretation to work, it would require much more intimate knowledge of volcanic activity than what can be experienced by inhabitants of the Scandinavian peninsula; it would require an Icelandic experience of

[64] *Landnámabók* 1968, pp. 328-333.
[65] *Íslendingabók* 1968, pp. 1.
[66] McKinnell 2008, 6-7.
[67] Skovgaard-Petersen 1987, 187-190.
[68] Saxo 2005, ch. 8,11.
[69] Nordvig 2013; 2015.

volcanic eruptions. If that were the case the imagery of Ragnarok came into existence after ad 870, when the first Vikings settled in Iceland.

The key advantage of the preferred interpretation given here is a temporal and geographic proximity of the ad 536 Event and the subsequent decades of troubled climates in the Nordic area in particular. The literary sources may provide, despite all their caveats, insight into the symbolic and emotional transformations during this time. The archaeological evidence allows us to capture the extent of the economic, socio- and geo-political changes. Through the dating of sites and features, the archaeological evidence also allows us to circumscribe the temporal duration of this accelerated change, to frame this 'event'. In summary, the two disciplines each offer distinct and complementary advantages when investigating these past moments of crisis (cf. Table 1).

This section has focused on the central arguments in favour of the hypothesis that the *Sibyl's Prophecy* originates in the Migration Age in association with the ad 536 Event, that, and that the meteorological phenomena mentioned in stanzas 40-41 in the poem are associated with observations that mainland Scandinavians have made around the ad 536 Event. The idea of a Migration Age origin of the *Sibyl's Prophecy* has been entertained, especially with respect to the myth of Baldr's death, which indeed seems to have ties to the period. It cannot be fully ruled out that the Sibyl's Prophecy at least in part preserves narrative features from the Migration Age, and therefore possibly also the ad 536 Event. However, other sources of inspiration and origin have also been considered, and in this narrative analysis it is concluded that there are other sources of origin to the sky phenomena and prolonged winter mentioned in the Sibyl's Prophecy, which are more convincing than whatever occurred in the ad 536 Event.

WRITING EVENTS

As a narrative of catastrophic events in history the Ragnarok myth is open to interpretation. At present, it cannot be decided conclusively whether the idea that this complex myth relates directly to actual experiences or whether it rather represents an entirely fictive apocalyptic drama with Christian overtones. Millennial narratives abounded in the Christian writing and art of the Early Middle Ages.[70] We cannot resolve whether there are direct relations with particular environmental events and particular narrative elements in Nordic mythology, but note that this has been suggested also for the figure of the Fenriz Wolf which may stand – perhaps amongst other things – for late Holocene earthquake activity in the Nordic region.[71] Instead, we have here highlighted salient linkages between the rhythms of historical change, their incorporation into quasi-contemporaneous narratives and their eventual narrative echoes in contemporary academic discourse where the suggestions of event-like catastrophic cultural changes makes for powerful but inevitably contested interpretations. As narrative transformations, often several times removed, of difficult-to-comprehend environmental processes and events, such geomyths should first and foremost be interpreted as literature rather than as expressions of actual events. Careful triangulation between different data sources, however, does provide enhanced insights about the material as well as social-

[70] Palmer 2014; Höfchen, Limberg, and Zuschlag 2014.
[71] Mörner 2007.

psychological dimensions of past environmental changes and their societal consequences. Together they make for richer analysis and description of at least this particular episode.

Today, the debate about climate change and climate catastrophe has clear secular *and* religious overtones of apocalypse.[72] An increased awareness of the powerful emotive narrative qualities of this way of writing history would allow us to better bring such historical and archaeological, literary and material sources into play as a resource in contemporary debates. As cultural expression of the experiences, hopes and fears of those living in such 'perilous times'[73] literature can be a powerful and important component of coping with the present and for thinking about the future, as the literary historian Eva Horn has ably demonstrated.[74] Storytellers today – and most likely also in the Migration and Viking Ages – have always been more interested in human consequences such as war, incest, cannibalism, sex, than in the minutiae of describing nature. Whilst avoiding the trap of fatalism, narrating past events as either geomyths, as histories or archaeologies of crisis and social change or, for that matter, narrating future events as climate fictions of possible events perhaps allows us to more readily come to terms with the punctuated nature of social change itself and the opportunities such episodes offer for genuine societal transformations.[75] The kind of geo-cultural heritage we have discussed here provides a multidisciplinary resource that can be drawn on in contemporary debate.

[72] Hoggett 2011; Methmann and Rothe 2012; Skirmshire 2014.
[73] Rigby 2015.
[74] Horn 2014.
[75] cf. Birkmann et al. 2010.

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