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Birgit Arrhenius: Helgö in the shadow of the dust veil 536-37

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Neil Price, referee

2012-11-29

*“Hard it is in the world”:  
Helgö and the Migration Period ‘catastrophe hypothesis’*

### Comments to Birgit Arrhenius

Prof. Arrhenius begins her paper with reference to a sequence of researchers working with the problematic ‘dust veil’ event(s) of 536 CE and, arguably, the following years: Bo Gräslund, whose 2007 article largely returned this topic to the Scandinavian archaeological agenda; Daniel Löwenborg, who took up these ideas in 2012 in the context of the Mälars Valley; and Ulf Näsman, whose referee comments to Löwenborg were substantially critical of the ‘536-hypothesis’ (Gräslund was Löwenborg’s second, unsurprisingly more positive, referee). Before proceeding I should declare an interest here, as earlier in 2012 I published a joint *Antiquity* paper with Bo Gräslund, in which we not only briefly recapped his 2007 work on geomythology for an English-speaking audience, but also presented a range of new scientific and archaeological interpretations that had developed since then. In the present context it seems important to declare clearly that I am among those who find the early sixth-century climate disaster (I use the word advisedly, see below) to be highly relevant for our understanding of this period.

I shall comment below on the specific content of Prof. Arrhenius’ paper, but before doing so there are two general points that need to be made because they concern the entire premise of her article in the context of wider controversies around this subject.

The first can be quickly stated, namely that the *existence* of severe weather phenomena in and after 536 is now universally accepted. While natural scientists disagree as to their cause (briefly: volcanic eruption, comet and/or meteorite impact, singly or in combination), the fact of the dust veil and the solar darkness of these years is uncontroversial. At present, the scholarly consensus seems to be leaning towards a series of different climate impacts, perhaps of differing nature and location, occurring within a short space of time; as each of them projected material into the atmosphere, together they could have built a ‘perfect storm’ of climate effects (the data are summarized in Gräslund & Price 2012). Prof. Arrhenius therefore need not worry about a “presumed” dust veil: it was very real.

The second comment concerns the nature of the model that is under discussion, the idea of a ‘catastrophe’ resulting from these climate events. In fairness to all correspondents, I think that the notion of a climate disaster as *total* explanatory factor is not really present in either Löwenborg’s or the present paper (nor, I hope, in Gräslund’s and my work). In the past, this kind of one-size-fits-all hypothesis has been the bane of research connected with the 536 events, and indeed tends to appear whenever earthquakes, eruptions, tsunamis and so on affect the material record, or more generally in cases of human impact on the ecology; in the arena of popular science, this has most recently been put forward by Jared Diamond with *Collapse* (2005). There have been many nuanced academic rejections of this approach, together with an emphasis on multi-scalar cultural resilience and recovery (see references and discussion in Gräslund & Price 2012, where the problem is dubbed the ‘Then It Was Destroyed By The Volcano’ Syndrome). In practice, whether concerning natural disasters or social action, it is actually very rare to find archaeologists now arguing that single causative roots give rise to complex cultural transformations. Prof. Arrhenius avoids this kind of generalization, and I have no concerns with the paper on that score.

With this in mind, although I take many of Ulf Näsman’s points, I feel that his strongly worded arguments against *catastrophe* are essentially a matter of degree and emphasis: clearly something very serious really did happen to the societies of the North around this time, and equally clearly it had many components and causes. It is surely obvious that social transformation followed a long trajectory that began a very considerable time before 536 and continued thereafter, but this does not necessarily mitigate against the dust veil having a very grave impact indeed, and perhaps even a fundamentally catalytic role. Most significantly, the various proxy data recovered across the spectrum of the geosciences (see above) indicate

what can *only* have been a major regression of the agrarian economy, so widespread as to make a purely socio-cultural motor unlikely. Furthermore, the sheer specificity of the archaeologically-visible markers that occur roughly at this time (the chronologies are notoriously difficult to pin down, of course) suggest a high degree of consistency in their cause. These matters are impossible to prove at present, and may remain so, but I do not feel that they can be so casually dismissed. Not least, if one looks beyond the North it has long been obvious that the dust veil had an unquestionably severe impact on a range of contemporary cultures (e.g. Gunn 2000) and there is no reason why this would be any the less among the far more ecologically vulnerable societies of Scandinavia.

Prof. Näsman eloquently sets out his stall as a self-styled ‘catastrophe denier’, and I certainly am *not* of the ‘Destroyed by the Volcano’ school, but there is a great deal of space between us. Before moving to the specifics of Prof. Arrhenius paper, one can ultimately pose a simple question: if the dust veil of 536 really is a convincing ‘origin’ for the *Fimbulwinter* myth of the worlds’ end – as even Prof. Näsman agrees – then doesn’t this imply that it was sufficiently catastrophic to merit such an apocalyptic memory?

Now, more directly to Prof. Arrhenius’ article. One may first observe that if the dust veil really had any visible effects in Scandinavia, then Helgö of all places ought reasonably to be somewhere they could be detected in the archaeological record; this paper is therefore very much to be welcomed.

If we take the material together, it can be seen that much of Prof. Arrhenius’ data is clear evidence for profound and apparently sudden *change*: a transformation of social behaviour (the abandonment of the valuable and recyclable casting debris); of spatial activity (the move of ritual activity indoors); of mortuary behaviour and sacral conception (the shift of burial location); and presumably ritual, or at least expensively conspicuous, deposition (the gold hoards).

In themselves, there is no reason why these changes need have the same, or a single, cause. In principle they could also have occurred over some period of time, for different reasons, albeit rapid as individual actions. The key factor comes with the dating of the jewellery forms in the moulds, as this provides a rare opportunity to gain a precise chronological fix in material of this kind. As Prof. Näsman also cautions, for much of the archaeological data taken up in the context of 536 there is a dating range that spans decades at best and often a large stretch of the Iron Age; tight sequences within the material are seldom possible to find. However, with the Helgö moulds we have an unusual exception: as far as we can tell, the deep layer of debris has a *terminus post quem* of the early 530s, which is very exact indeed.

Since most of the changes outlined in the paper seem spatially closely connected, and also linked by a general theme of ritual or spiritual adjustment, it is by no means far-fetched to suggest that they occurred at roughly the same time. If that time appears to have been the early 530s, then the link that Prof. Arrhenius makes to the dust veil is entirely logical. In effect, she is also arguing that the island became somehow less ‘holy’ during this period, or at least holy in a different way. This too has specific parallels within the other work being done on the possible effects of the dust veil, focusing on religious transformation and the abandonment of certain ideological packages in favour of others (e.g. Anders Andrén’s work on the solar imagery of the Gotland picture stones, and Lotte Hedeager’s discussion of broader intersections of changing beliefs, politics and identity).

That said, there are also three minor aspects of Prof. Arrhenius’ arguments that I am not convinced have any specific connection to the 536 event(s). The first of these is the significance she attaches to Helgö’s astronomical alignments in relation to observation of the dust veil’s effects: if the sun went dark for over a year, it would have been obvious everywhere. I am also wary of seeing the abandonment of the Baltic-style log houses as indicative of immigrants suddenly returning home under a vaporous sky (or for that matter that they represent immigrants at all – there are many other explanations). My third objection concerns the “dusty weather” as an inhibitor of outdoor ritual, as even at its worst the solar darkness would have simply resembled a tough winter. But these are peripheral matters by comparison with the rest.

To conclude, I feel it important to stress that Prof. Arrhenius does *not* argue for the dust veil as the only possible cause of the “something extraordinary” that seems to have taken place on Helgö. With that proper care notwithstanding, and with that tantalizing date from the latest jewellery moulds in mind, the

context of the years without summer is – in my opinion - defensible. There is also one final, suggestive piece of data: when these changes were taking place, the Helgö people were suddenly no longer willing to give up their bread in the form of offerings, other than to the dead. Perhaps they had food in the next life, but here in Miðgarðr one wonders if we should remember the words of *Völuspá* 45, at the onset of the Mighty Winter: *hard it is in the world*.

## References

- Andrén, A. 2012. Från solnedgång till solnedgång. En tolkning av de tidiga gotländska bildstenarna. *Gotländskt Arkiv* 84: 49-58.
- Diamond, J. 2005. *Collapse: how societies choose to fail or survive*. London: Allan Lane.
- Gräslund, B. 2008. Fimbulvintern, Ragnarök och klimatkrisen år 536-537 e.Kr. *Saga och Sed*, 2007: 93-123.
- Gräslund, B. & Price, N. 2012. Twilight of the gods? The ‘dust veil event’ of AD 536 in critical perspective. *Antiquity* 86: 428-443.
- Gunn, J.D. (ed.) 2000. *The years without summer: tracing AD 536 and its aftermath*. Oxford: BAR.
- Hedeager, L. 2011. *Iron Age myth and materiality: an archaeology of Scandinavia AD 400-1000*. London: Routledge.
- Löwenborg, D. 2012. An Iron Age shock doctrine. The 536-7 AD event as a trigger of large-scale social change in the Mälaren valley area. *Journal of Archaeology and Ancient History* 4.
- Näsman, U. 2012. Comments to Löwenborg 2012. *Journal of Archaeology and Ancient History* 4.

## Frands Herschend, referee

2013-02-19

Comments on

*Helgö in the shadow of of the dust veil 536-37*

Since the dust veil following the eruption in 536 AD of El Salvador's Ilopango explains the cooling that marked the following decade must now be considered a fact, it is up to archaeology to analyse the effects of these events, both in the source material and in terms of social change. This is especially important in a climatically speaking peripheral area such as Central Scandinavia, where local impact may have been considerable. Having been unable themselves to predict a dust veil or even suggest it, archaeologists may be expected to have some difficulties understanding their source material in relation to the cooling. Finding indications that may prove the existence of a dust veil is in other words an important task, and the reason Arrhenius' article is important, although brief.

The central idea, the abrupt termination of the bronze casting in Building Group 3, is a most interesting indication and forms a contrast to other places such as Bäckby, Magnus, B. 2008. The metal workshop at Bäckby, Västerås, Västmanland – a Helgö in miniature. *Excavations at Helgö XVII*. (red.) Clarke, H. & Lamm, K. Stockholm. s. 221–237, where new excavations failed to bring more moulds to light, [http://www.kmmd.se/PageFiles/332/KM%20Rapport%202012\\_52.pdf](http://www.kmmd.se/PageFiles/332/KM%20Rapport%202012_52.pdf) .

The same was the case at Kärrbolandet, south of Västerås

[http://www.kmmd.se/PageFiles/332/KM%20Rapport%202011\\_21.pdf](http://www.kmmd.se/PageFiles/332/KM%20Rapport%202011_21.pdf) where comparatively modest quantities of Vendel Period mould fragments were nevertheless found. Another typical place with just a few fragments of moulds is Säby in Uppsala: [Äldre järnålder i Danmarks socken: sex boplatser vid Säby: särskild arkeologisk undersökning, Danmark 162, 168, 170, 180, 190 & 193, Danmarks socken, Uppsala kommun, Uppland](#)

Although it is not commonly known, bronze casting do seem to normally result in just a few remains and the argument about the wasted material in Building Group 3 would in my opinion benefit from references to more common find contexts outside Helgö.

Although it may well lead to a far too large expansion of the arguments, one might well stress that a temporary demographic catastrophe such as the one probably caused by the Fimbulwinter or a

devastating world war, may well lead to the radical social change that we observe if we compare the beginning of the 6<sup>th</sup> century CE with its later part. A change of regime rather than a wish to sacrifice what gold is at our disposal (instead of just burying it in view of uncertain times), would seem the more important result of a demographic setback and famine.

Arrhenius' discussion is rather tentative and she is cautious in her concluding remarks. That is understandable, given the complexity of the problem, and the fact that it is difficult to know what drawbacks mean in the long-term perspective. The workshop at Building Group 3 nevertheless represents an anomaly well worth putting into a wider context.

The manuscript needs language revision.

Frands Herschend

## Birgit Arrhenius, Comments to the referees

I am very grateful to the referees having taken time to read and comment on my paper. I hope I have completed the omissions and I have also added some details in the descriptions to give a more complete picture of Helgö,

Of course, the question about the impact of a catastrophe is the question of the site's resilience. For Helgö's part, being a sanctuary, the dust veil could have been an advantage in some way. Among other things, the dust veil must have meant that the strategic position for Helgö, being a natural landing place in the middle of two straits leading to the inner and western part of the ancient Svealand with the centre in Uppsala did not work for some time. The darkening of the sky by a dust veil must have caused that distant navigation from the Baltic was not possible for a couple of years.

This is the reason why I have discussed the depot of vessels in hall IA, since this occurrence indicates that the traffic into Mälaren was re-opened around 550 AD.