**[Supplementary material]**

**Gold-foil figures and human skulls in the royal hall at Aska, Hagebyhöga, Östergötland**

Martin Rundkvist1,\* [ORCID 0000-0003-2503-2394], Axel Löfving2, Rudolf Gustavsson3 [ORCID 0000-0001-8883-5958], Jens Heimdahl4 & Andreas Viberg5 [ORCID 0000-0001-6747-5404]

1 Instytut Archeologii, Uniwersytet Łódzki, Poland

2 Independent researcher, Uppsala, Sweden

3 Independent researcher, Mariehamn, Finland

4 The Archaeologists, National Historical Museums, Sweden

5 Guideline Geo AB (MALÅ /ABEM), Umeå, Sweden

\* Author for correspondence ✉ martin.rundkvist@uni.lodz.pl

*Received: 8 July 2022; Revised: 10 October 2022; Accepted: 31 October 2022*

**Other artefact finds from the Aska platform hall**

Identifiable first-millennium finds made in the same contexts as the foil figures themselves are as follows.

* Three pieces of decorative propeller-shaped iron mount(s) for a Vendel-Valsgärde-Sutton Hoo-type shield, covered with tinned copper-alloy sheet carrying embossed interlace decoration.
* Two domed wheel-turned bone gaming pieces. A third was found out of context. A ZooMS analysis at the University of York has identified the material as bone from a right whale, *Eubalaena* sp. (Samantha Presslee, *pers.comm*). The closest-living species in this genus is the North Atlantic right whale, *E. glacialis*, that ranges into the Skagerrak today.
* Three omega-shaped wrought-iron double spiral pendants of a kind known from horse gear, belt knives, a box fitting, a seeress’ wand and a cauldron chain (Rundkvist 2021: 20 f w. refs)—function unknown but unlikely to be mundane.
* A large simple iron latch lifter with remains of a wooden handle and a piece of fine iron chain found near the handle butt.

Less informative finds from the same contexts are an unadorned silver sheet finger ring, a small copper-alloy wire ring, another piece of fine iron chain, a knife, a slate whetstone, a slate spindle whorl, four clench nails, six tiny iron rings, seven earthenware sherds, three knapped flint chips and one knapped quartz chip.

Notable finds from contexts *without* foil figures are a small unadorned copper-alloy dress pin and a copper-alloy spiral bead.

The above-mentioned latch lifter and a large iron carpentry fitting with a T-shaped staple to fix it through a thick board were found deposited on top of backfilled postholes. Two large iron rings with identical staples, possibly door handles, were found in secondary contexts, apparently disturbed by modern refuse pits. Many clench nails occurred in the same positions. These finds suggest that when the hall was torn down, its iron fittings were collected in one place and then they were distributed among the hall’s postholes immediately after they were backfilled.

Helgö, Slöinge, Ströja and other hall sites have taught us to expect sherds of imported glass vessels. Yet no glass that can be morphologically dated to the first millennium has so far been found on the Aska platform. The only glass that might possibly date from the hall’s habitation phase are two little splinters of blue glass, weighing a total of only four grams.

**Meal waste**

Co-author Gustavsson has analysed the bones and co-author Heimdahl the soil samples. Their reports are appended to the archival reports on the excavations of 2020–21 (Rundkvist 2021: Rundkvist & Lindgren 2022). Their findings allow conclusions to be made about the diet in the great hall.

We have found no trace of a hearth through geophysical survey nor excavation. This may be because any hearths were on raised stone and clay plinths that were removed when the platform’s top was levelled after the demolition of the building. Excavated contexts on the platform yielded ample evidence for cooking in the form of bones from domestic animals, fish scales and charred grain. The high proportion of fragmented plant material, and the rounded edges of macroscopic bone fragments, indicate a long-lived floor layer. The spatial distribution of cooking indicators across the trenches suggests that one or more cooking hearths were placed centrally within the hall. The small proportion of charcoal-to-cereal remains in the soil samples may indicate that the hearth’s cooking surface was separate from the fire, probably a stone slab or a clay structure.

The most commonly eaten meat was young pork and suckling pig, indicating an expensive form of animal husbandry and elite cooking. The second most common was young lamb (and possibly some goat). Beef from mature animals was a distant third. Horse flesh was eaten only rarely. The same is seen for fish and fowl when considering the bones, but here preservation conditions and the gauge of our soil screens may be to blame. There is no sign of game. A proximal phalanx from a bear may come from a meal of bear paws or, less likely, from a bear skin. The phalanges commonly left inside the claws on a bear skin are the distal ones. For somewhat earlier elite meat consumption at Uppåkra in Scania, see Magnell *et al*. (2013).

The macroscopic plant remains consist almost entirely of edible species. Cereals dominate: hulled barley (*Hordeum vulgare ssp. vulgare*), bread wheat (*Triticum aestivum*) and possibly club wheat (*T. compactum*). The amount of wheat is unusually high in comparison to the overall regional pattern of the era, showing that again the food prepared within the hall was not common everyday fare (cf. Grabowski 2011). Some of the barley grains have been charred with their hulls still intact, which is common in malted grain. This may indicate brewing within the hall, as also seen at Uppåkra (Larsson 2015, 2018).

In addition to the barley and wheat, flax seeds and small amounts of oats and rye were found. It is hard to tell if these cereals were selected as plant food, or occurred among the grain as field weeds. The same is true for the edible weed white goosefoot (*Chenopodium album*). Small lumps of charred organic material were also seen and interpreted as burnt food, possibly bread.

**Cemeteries**

Aska hamlet is known for the two richest Viking Period burials in the province: an Early phase weapon burial found east of the hamlet in 1885 and a Middle phase jewellery burial found west of it in 1920 (Figure 1; Arne 1932). In 2006 a ploughed-out third cemetery was found through metal detecting immediately east of the platform mound. In 2020 the 1920 and 2006 sites were intensively metal detected. The 1920 site proved to consist of two discete metalwork scatters. Each site yielded a rich ploughed-out assemblage of uncremated Middle Viking Period jewellery (Rundkvist & Koskinen 2021a, b). In 2021, Emma Karlsson of the County Museum excavated a sole surviving burial at the 2006 site (Karlsson 2022). It was a west-east inhumation containing two tortoise brooches; one a type P27 heirloom made in the Early Viking Period, the other a type P51 of the Middle Viking Period. Very few finds from either cemetery are male-coded. During less than a century, *c*. AD 875–975, a large number of affluent women were buried at Aska, most of them inhumed, at least one with an orientation suggesting Christian ideas. Östergötland’s earliest known church stood only 700m south-west of Aska’s western cemeteries (Hedvall & Gustavson 2001).

**References**

Grabowski, R. 2011. Changes in cereal cultivation during the Iron Age in southern Sweden: a compilation and interpretation of the archaeobotanical material. *Vegetation History and Archaeobotany* 20, 479–94. https://doi.org/10.1007/s00334-011-0283-5

Hedvall, R. & H. Gustavson. 2001. Rundkyrkan i Klosterstad – en presentation av ett pågående projekt. *Fornvännen* 96: 145–52. Available at http://raa.diva-portal.org/smash/get/diva2:1226221/FULLTEXT01.pdf

Karlsson, E. 2022. En kvinnas grav i gränslandet mellan hedniskt och kristet. *Arkeologi i Östergötland* 2022: 38–41.

Larsson, M. 2015. *Agrarian plant economy at Uppåkra and the surrounding area: archaeobotanical studies of an Iron Age regional center* (Acta Archaeologica Lundensia, Series in Quarto 33). Lund: Lund University.

– 2018. Barley grain at Uppåkra, Sweden: evidence for selection in the Iron Age. *Vegetation History and Archaeobotany* 27: 419–35. https://doi.org/10.1007/s00334-017-0633-z

Magnell, O., A. Boëthius & J. Thilderqvist. 2013. Fest i Uppåkra. En studie av konsumtion och djurhållning baserad på djurben från ceremonihus och vapendeposition, in B. Hårdh & L. Larsson (ed.) *Folk, fä och fynd* (Uppåkrastudier 12): 85–132. Lund: Institutionen för arkeologi och antikens historia, Lund.

Rundkvist, M. (ed.). 2021. Excavations in 2020 on the platform mound at Aska in Hagebyhöga parish, Östergötland, Sweden. Archival report. Available at https://archive.org/details/aska-2020-report-platform-mound/Aska%202020%20platform%20mound%20report%20w%20finds%20conservation/

Rundkvist, M. & J.S. Koskinen. 2021a. Metal detector survey of the west cemeteries, Aska in Hagebyhöga, Östergötland. Archival report. Available at https://archive.org/details/aska-west-cemeteries-2020-report/Aska%202020%20West%20Cemeteries%20report%20w%20finds%20conservation/

– 2021b. Metal detector survey of the east cemetery, Aska in Hagebyhöga, Östergötland. Archival report. Available at https://archive.org/details/aska-east-cemetery-2020-report/Aska%202020%20East%20Cemetery%20report%20w%20finds%20conservation/

Rundkvist, M. & O. Lindgren. 2022. Excavations in 2021 on the platform mound at Aska in Hagebyhöga parish, Östergötland, Sweden. Archival report. Available at https://archive.org/details/aska-2021-report/Aska%202021%20report%20230512%20with%20finds%20conservation/