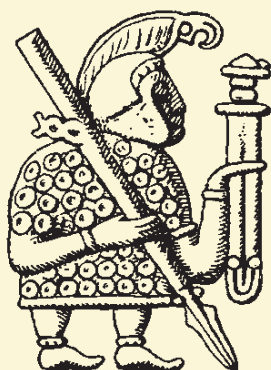


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Korta meddelanden

Fatally wounded: A Mesolithic skeleton from Väversunda parish, Östergötland, Sweden

By *Ann Westermarck and Caroline Ahlström Arcini*

In the late 1990s, several Stone Age graves were discovered at the site of Rävkillen (Fox Hill) in Väversunda parish, Östergötland, during cable trenching works (Zetterlund 1999; L2009:1497). After the first two graves had been identified, the trench was relocated in order to preserve them; however, a further three graves were subsequently uncovered along the new alignment. The graves contained the remains of two adult individuals and one child. The burials differed markedly in their characteristics: one adult was interred in a seated position, while the other adult was placed in a supine position with large boulders covering the legs, arms and head. The child's grave was so heavily disturbed that the original burial position could not be determined.

The seated individual was not accompanied by any grave goods, whereas a bone needle was recovered from the grave of the reclining individual. Burial in a seated position is characteristic of the Stone Age; however, during the Iron Age, individuals were also interred in positions other than supine. For instance, some burials are prone, while others are flexed or tightly crouched, in some cases suggesting that the body may have been bound. Establishing a secure chronology was therefore essential in determining whether the individuals were contemporaneous and to which periods they belonged. Radiocarbon (^{14}C) analyses of teeth from the adult individuals and a femur from the child revealed a substantial temporal separation of approximately 7,000 years. The seated individual has been dated to the Middle Mesolithic period (c. 7300–7000 BC), whereas the other two individuals date to the Roman Iron Age (c. 100 BC–AD 100).

This article primarily focuses on the Mesolithic-period individual.

The area in which the grave was discovered lies between Omberg to the west and Lake Tåkern and Dags mosse to the east–south-east. The shorelines around Lake Tåkern contain numerous remains dating to the Mesolithic and Neolithic periods (Browall 2003; 2020). The present grave is of particular significance, as it represents one of the oldest known graves in Östergötland. Other broadly contemporary graves have been identified at Alvastra, Västra Tollstad (Wilhelmsson & Ahlström 2009); Holmen, Svanhals 132 (Browall 2003); Hånger, Källstad 6 (Browall 2020); Kanaljorden, Motala (Kanaljorden 2021; Hinders & Hallgren 2021); and Strandvägen, Motala 290 (Gummesson & Molin 2016).

Finds of Mesolithic burial grounds, comprising isolated graves, small groups of burials, or scattered human remains, have been documented since the beginning of the twentieth century. The grave from Rävkillen now adds to this body of evidence (fig. 1). The investigated Mesolithic grave was located on a hill with a sandy subsoil. Immediately downslope, settlement remains were identified in the form of a cultural layer containing worked quartz and flint, including numerous micro flakes and micro flake cores of both materials. The grave itself consisted of a pit measuring approximately 0.9 × 0.7 m. Initially, only the skull was visible, and the upper part of the grave, including the cranium, had been damaged by ploughing. During cleaning, a relatively well-preserved skeleton of a seated individual was revealed. The arms were



Fig. 1. The red dot on the map indicates the location of Rävskullen. The other marked sites represent burial contexts dated to the Mesolithic period, including cemeteries with multiple skeletons, individual burials, and isolated human remains. The map was produced by Karl-Göran Sjögren, University of Gothenburg.

crossed over the chest, and the knees and feet were positioned close together, suggesting that the body may have been wrapped (fig. 2).

Prior to cleaning the skeleton, sufficient bone fragments displaying clear gender-indicating criteria were observed in both the skull and pelvis, indicating that the buried individual was male.

As the skeleton had been partially damaged by ploughing, it was decided to lift the skull and pelvis as block preparations, with surrounding sand retaining the bone fragments in situ. To ensure stability, these preparations were left to dry in the osteological laboratory prior to cleaning. Parts of the spine were likewise preserved



Fig. 2. The skeleton of the seated individual as exposed in situ during excavation. Photo: Ann Westermark, The Archaeologists, National historical museums.



Fig. 3. The third lumbar vertebra of the individual and the quartz-slotted bone point. The vertebra is shown from above (left) and from below (right), revealing the notch of the projectile. Below, a close-up of the bone point is shown; the red arrow indicates two small quartz fragments fixed with resin within the notch. Photo: Caroline Ahlström Arcini, The Archaeologists, National historical museums.

by the surrounding sand. Once the vertebrae had dried, the sand could be carefully removed using a soft brush. During this process, a remarkable discovery was made. When the brush reached the opening of the spinal canal at the third lumbar vertebra, a transverse obstruction was encountered (fig. 3). Closer examination revealed that this obstruction was a quartz-slotted bone point which, approximately 9,000 years ago, had passed through the abdomen and penetrated the spinal canal of the individual. The projectile appears not to have damaged the aorta but instead passed through the intestines before entering the spinal cord. At this point, the man would have lost strength in his legs and collapsed.

While damage to the spinal cord is not necessarily fatal, perforation of the intestines would have caused severe internal bleeding and allowed bacteria to enter the abdominal cavity, leading

to infection. It is difficult to determine how long the individual survived; death may have occurred shortly after the injury or after several days, depending on the availability of care. The absence of vital reactions in the bone adjacent to the embedded bone point indicates that survival did not exceed a few weeks. It is not possible to establish whether the arrow broke upon impact or during an attempt to remove it. The tip of the arrow is also broken, possibly as a result of penetrating the vertebra. The sharp, fragile edges of the stone insets would have caused extensive internal damage when tearing through the abdomen and intestines.

Osteological analysis indicates that the man died at an age of 30.9 ± 9.4 years. His dental health was excellent, with no evidence of caries or antemortem tooth loss. The humerus was intact, allowing estimation of stature. For com-

parability with other contemporary material, stature was calculated following Trotter and Gleser (1952). The individual's estimated height was approximately 174 cm, placing him among the taller individuals within Mesolithic populations (fig. 4).

The angle of entry of the quartz-slotted bone point suggests penetration from the front, slightly from below, on the right side. This raises questions regarding the circumstances of the injury. The man may have been shot while standing on elevated ground, with the attacker positioned lower, or he may have fallen and been struck at close range while lying on his back. Experimental studies indicate that such projectiles are capable of penetrating between 18 and 31 cm (Knutsson et al. 2024). Although this type of arrow is generally interpreted as a hunting weapon, this is the first documented case in which it has been found embedded in a human victim. The injury may therefore represent deliberate interpersonal violence, but an accidental shooting by a fellow hunter cannot be excluded.

Stone-slotted bone points occur in two main forms: with stone insets on both sides of the bone shaft, or, as in the case of Rävskullen, on only one side. A double-sided stone-slotted bone point was discovered at Dagsmossen Jussberg, Östergötland, and it is approximately 8,700 years old (Hinders & Hallgren 2021).

Future work on the project includes a planned CT scan of the affected vertebra, which may provide further insight into the individual's injuries and cause of death. Recent DNA analyses of Mesolithic burials have identified a pronounced genomic boundary, or 'great divide', extending from the Black Sea to the Baltic, with marked genetic differentiation between eastern and western hunter-gatherer populations (Allentoft et al. 2024). Determining to which of these groups the Rävskullen individual belonged is a key research question. The individual will therefore undergo ancient DNA analysis, and strontium isotope analysis will also be conducted to assess whether he was raised locally or migrated to the area during his lifetime.

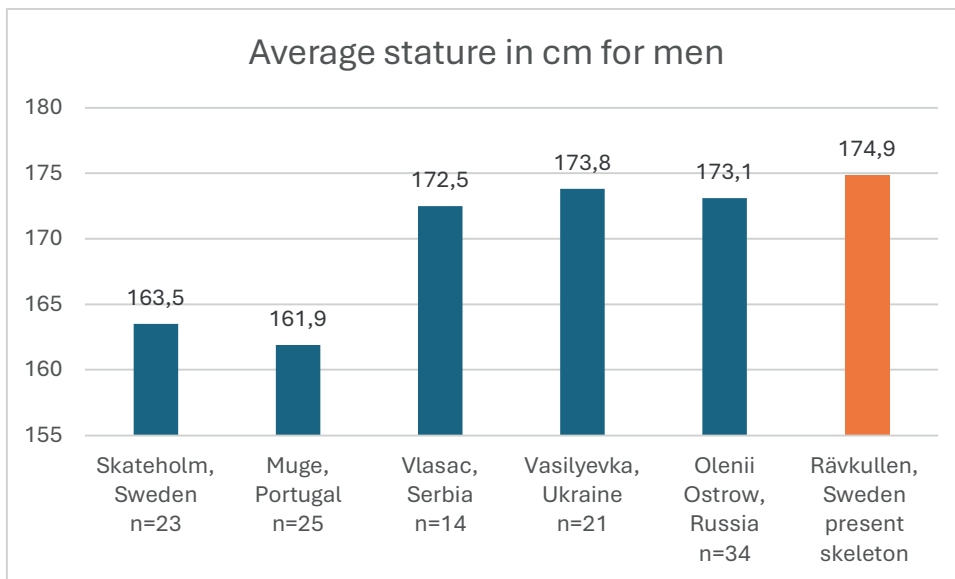


Fig. 4. Diagram showing the average male stature from five Mesolithic skeletal assemblages, compared with the estimated stature of the individual from Rävskullen. Comparative stature data are taken from Formicola & Giannecchini (1998).

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