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ANATOMY OF A LATE IRON AGE INHUMATION BURIAL OF HIUKKA AT NIVANKYLÄ (ROVANIEMI, FINNISH LAPLAND)

Abstract

Written sources from the eighteenth century, describing what was clearly of an Iron Age burial discovered accidentally, led a group of archaeologists from the University of Oulu to make an excavation in 1978 at Nivankylä, the rural district of Rovaniemi in Finnish Lapland. The remains of a disturbed inhumation burial were found, probably those mentioned by the written sources. A calibrated radiocarbon date of around AD 1215 corresponds to that suggested by the sources mentioning an animal pendant. The study of the nearly complete skeleton, which is the earliest of its kind in northern Finland, has shown that we are dealing with a young adult female, probably only 145-150 cm tall, who may have suffered from anaemia and rickets and died at an age of about 18-22 years. The genetic probability values indicate her being more likely a Finn than a Saami (or a Swede). There are reasons to suppose that we are dealing with a find connected to a permanent settlement of the Rovaniemi region. Although south-western Finland has been seen as the main source of the origin of the early farming settlement, it seems that, in this case, we can see the south-east was also significant, recalling at the same time that the historical sources speak of the nearby Ylikylä as a densely inhabited Karelian village.

Keywords: Late Iron Age, skeletons, knives, animal pendants, female burials, paleopathology, ethnicity.

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INTRODUCTION

In connection with a project studying the protohistory and the earliest farming settlement of the Tornionjoki and Kemijoki valleys, the University of Oulu, Department of History carried out archaeological research in the rural district of Rovaniemi (Fig. 1) in 1978, 1979 and 1982. The excavations, led by lecturer Pentti Koivunen, were concentrated mainly at Ylikylä, with the primary goal of finding traces of the medieval settlement (Koivunen 1978:133-143; Paavola 1988:72-81; Paavola 1996). During preparations for the excavations, Koivunen paid attention to information about the nineteenth century discovery of an inhumation burial including some kind of an animal pendant on the Hiukka estate at Nivankylä. Excavations carried out on this estate led to the discovery of an inhumation burial and a horse grave in its vicinity. In a preliminary report made after the excavations it was suggested that the burial was prehistoric, datable to the Iron Age (Koivunen & Jarva 1979), and later Koivunen dated it to around AD 1000, basing this on the typology of the animal pendant (Koivunen 1985:66; see also Koivunen 1997:36). Lacking proper publication of the find (assigned to Eero Jarva), the find has not received the attention it merits, being very rare

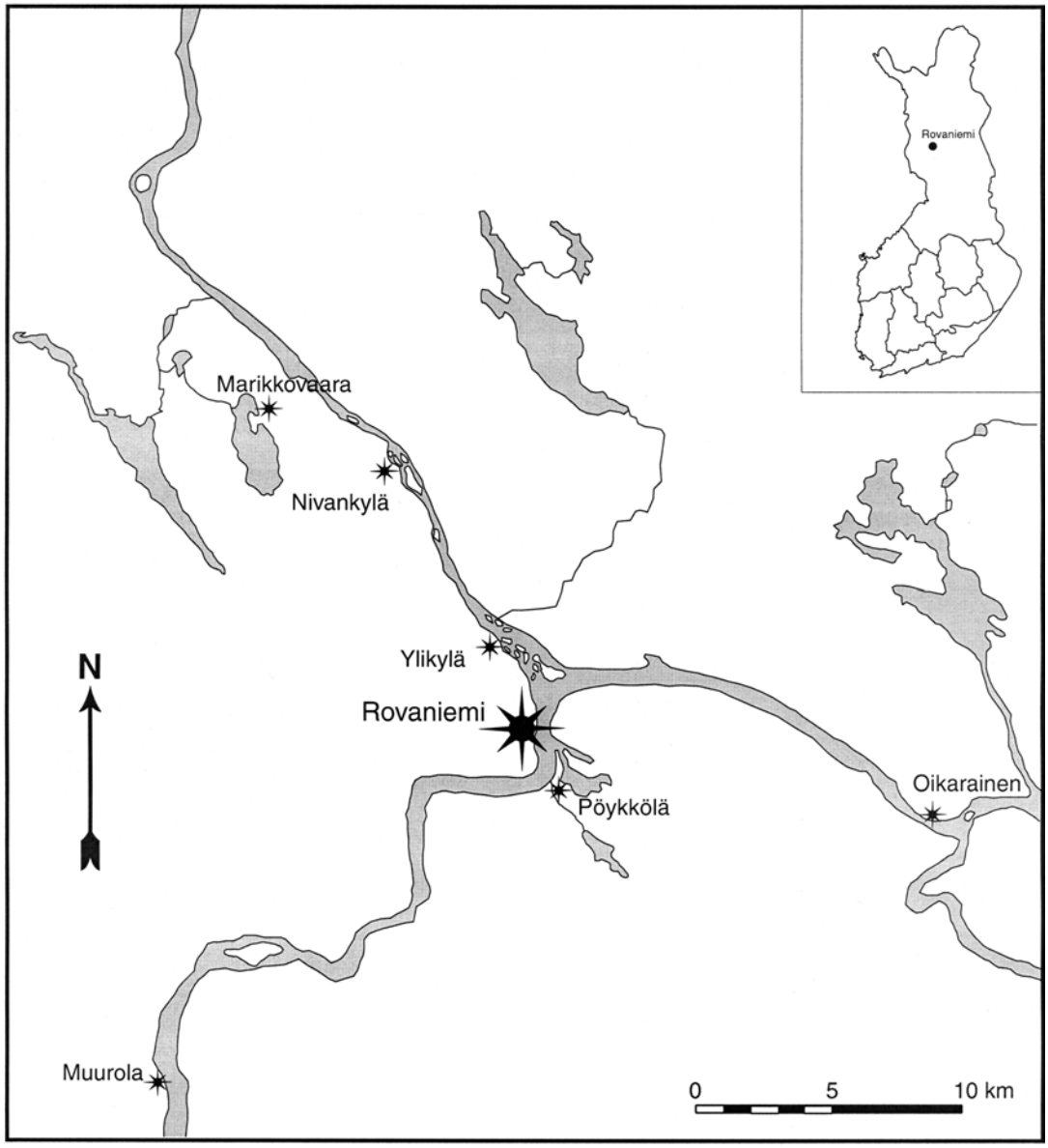

Fig. 1. The area of Rovaniemi with sites with Iron Age finds marked.

of its character in the north of Finland. In some relevant publications, the discovery has been totally ignored (see Huurre 1983:391, 503 Note 11), but in some the site has been interpreted unfoundedly as a "Lappish" (Saami) cemetery (Kotivuori & Torvinen 1992:83 n:o 167; see also Kotivuori 1996a:122). Accordingly, we try in this paper to offer more elements for evaluation of the Nivankylä burial discovery.

BACKGROUND TO THE EXCAVATION

The earliest account relating to the Nivankylä case is a manuscript written by Jacob Fellman in 1828 about the Rovaniemi parish:

"The Hjukka estate has a metal idol reminiscent of a Bull, discovered around the neck of a corpse. (Even a Gothic custom.) The owner, however, does not any more present it in belief that it

brings him much good. The description suggests that the corpse had been a mummy, but the finder does not show the place." (Fellman *sine anno*, 46-47)

Two years later, Fellman published a short mention of the find in a newspaper article dealing with the fabulous *Jatuli* people who lived in the north and have been in local traditions connected to the "Giants" (Sorvali 1992:550-553):

"- - in 1817 a mummy of extraordinary size was found on the Hiukka estate below an old enormously thick pine stump, the roots of which were still fresh, having around its neck fastened into a band reminiscent of silk an idol resembling a calf - an ancient Gothic custom. This idol is kept with greatest care by its present owner, who attaches superstitious belief in its magic power." (Fellman 1830)

A note regarding the Nivankylä find is in the catalogue of the National Museum in Helsinki, which mentions that it is among the finds added to the collection in 1856 and also that the copper fitting in the shape of a calf idol discovered on the Hiukka estate is not connected to the object in question, which is a silver buckle in the shape of a horseshoe, commonly said to come from the site of Oikarainen (Helsinki, National Museum 216: Aspelin 1875: Fig. 308; Appelgren 1881: 42, Fig. 57). The text has been written to the catalogue more than two decades later because it refers to J.R. Aspelin's *Alkeita* (Aspelin 1875) and *Muinaisjäännöksiä* (Aspelin 1877-1884). Aspelin had, indeed, continued the speculation regarding the connection between the two finds in 1875 (Aspelin 1875:175, 355).

Soon after that new information was added by Hjalmar Appelgren in his survey notes from 1879:

"There is a hill or a ridge growing pine situated three stone's throw towards WNW - It is above stony and a little lower sandy moor, between the stony part and fields. There is a corn drying-house having next to it six or seven graves from which the father of the present farmer dug field ashes some 40 years ago. A human head was found there and as though by the chest there was a copper chain to which a horse idol of brass was attached - disappeared - It was not dug any more, but the bones were haunting to the suitors who returned from their proposal tours- The graves were in a [- -] place 10 fathoms wide but the farmer could no more know from which grave the dead was found. - Those hollows were no more than 2-3 and 5 ells wide in diameter." (Appelgren 1879)

The farmer met by Appelgren in 1879 must have been Matti Heikinpoika Hiukka whose father, Heikki Matinpoika Hiukka, who was born in 1796 and died in 1855, was officially the farmer in the 1840-50s. This means that either there was in fact a second burial discovery around 1840 or the memory of Appelgren's informant failed; the latter alternative seems more probable considering that in 1817 Heikki Matinpoika was a youth of 20 or 21 years who must have had already many active working years behind him, whereas around 1840 he was rather reckoned as an old man.

In his publication on the antiquities of the eastern part of the Kemi jurisdictional district, Appelgren stated that the pendant recalled idols cast in human and animal shape among the Permian, adding, however, that the people who had seen the pendant described it as having been an image of a horse and hanging from a brass chain. Furthermore, he reported that he had visited the site situated a couple of "gunshots" from the farm house to west-Northwest with a beautiful and treeless view of the river (Appelgren 1881:35-36, 42; see also Aspelin 1875:175, 355). To a first approximation, this corresponded with the circumstances met by the research group in 1978. The old farm house could be identified in a burned ruin by Ounasjoki and Roosa Hiukka, the old lady of the house (83 years), indicated the place of the old drying-house in a slope between the forest and fields at a distance of about 300 meters northwest from it. The old lady recalled a tradition that there were Russian enemies buried here, and that, according to the old people, the site was haunted (Koivunen 1978:140-141). At least five low depressions were seen in the area indicated by the old lady around an old barn (Figs. 2 and 3), suggesting thus that the site of the discovery of a "mummy" in 1817 should be recognised here.

THE EXCAVATION

Excavations which led to the discovery of the burial in question were carried out on the Hiukka estate between 28 August and 8 September in 1978.

One excavation zone was opened in the abovementioned area of the former corn drying-house shown by Mrs Roosa Hiukka where shallow pits

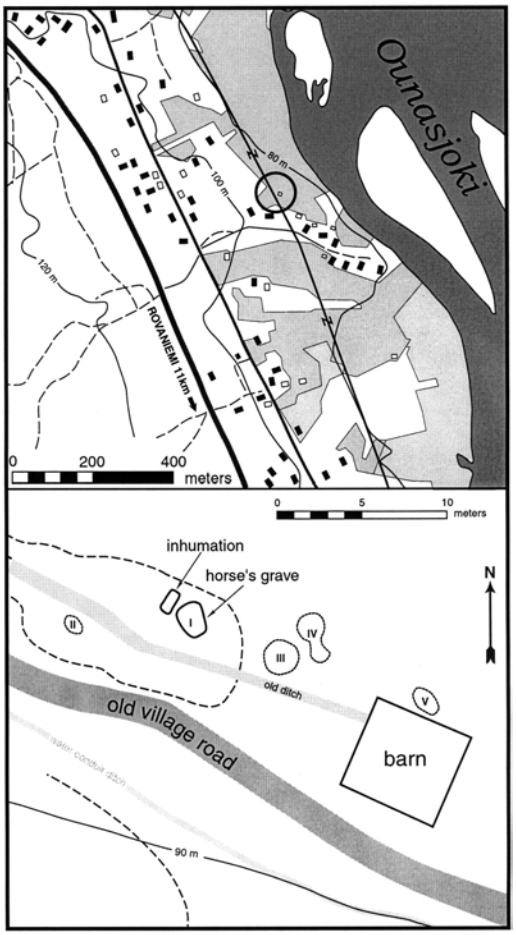

Fig. 2. Nivankylä area (above) and the burial site on the Hiukka estate (below).

had been seen. A narrow trial trench opened in the limits of the fields near a log barn showed that there were deep disturbances in the geological stratigraphy related to Pit I. A wider trench was opened there and the removal of a tilling soil layer revealed that there had been dug a roughly square pit more than two meters wide in the north-south direction. The excavation was continued in artificial layers until, at the depth of about 0.6 m, the remains of a partially damaged inhumation burial were found in the very west side of the trench.

The following stratigraphic sequence can be reconstructed on the basis of the documents at our disposal of the excavation of the burial (Figs. 4 and 5):

1. A layer composed of dark grey (ploughing) soil and reddish yellow sand with a maximum thickness of about 13 cm. It is possible that this layer is formed in excavating the nearby old ditch but perhaps a more probable solution is that it composed of soil remained in the surface in making the horse burial.

2. Ploughing soil layer, with a thickness varying between 13-20 cm.

3. Interface of a partial destruction cutting recognised in the southern half of the burial shaft. The most clear signs of the disturbance was that rests of the cranium were found near the upper ends of the femoral bones and the *os sacrum*, the left pelvis, parts of the mandible, teeth etc. were discovered scattered.

4. Filling of the destructive cutting in the burial composed mainly of very dark soil mixed with the above mentioned fragmentary bones.

5. Interface (horizontal and vertical outlines) of the burial shaft: it could be recognised on the level of about 88.40 m a.s.l. but no doubt it was originally cut from the original surface which probably was about 88.55-88.75 m; its bottom was quite level, around 88.06-88.07 m, the overall depth being thus about 70 cm. The length of the shaft on its bottom level was about 1.4 m, having a roughly trapezoidal form with a breadth of 0.6 m at north and 0.45 m at south.

6. The burial, discovered intact in the north part on the shaft only, indicating that the body had been lain in a crouched position with the legs bent at a 90° angle. Some dark, greasy, organic residue was met around the bones and some dark residue was also attached to the cranium in the right ear area. A slender iron knife including faint remains of wood was discovered above the left ankle of the corpse. Considering the length of the disturbed part of the burial trench it is possible that originally the upper half of the body would have been in a straight position. The bone remains in the disturbed part indicate that the corpse had had some copper or copper based object: analyses show the presence of copper in the upper end of the right humerus, in the right temporal bone (*processus mastoideus dexter*); copper was found also in a small piece of woven fabric discovered close to a rib fragment. No remains of a burial coffin were noticed in the excavation, but the use of such cannot be totally excluded.

The excavation of Pit I was continued, until at the depth of about 1.2, m the bones of a horse came to light. The finds from the filling soil of the

Fig. 3. The burial site of Hiukka at Nivankylä with a view to the Ounasjoki.

pit, including some other animal bones, carbon, fragments of wood and one iron nail, suggest that we are dealing with a recent historical peasant custom of burying dead horses and other domestic animals (on the subject, see Taavitsainen 1990:328-331). This conclusion is supported by a radiocarbon date according to which the grave is not earlier that the very recent centuries (Hel-2520: 210±100 BP).

In 1979 excavations at Nivankylä were resumed in order to check whether other shallow pits (II-IV) noted around the old barn were left by burials or some other ancient activity. It proved out that in some of them there were clear signs of very recent activity (pits IV and V) and at least one of them (II) was a natural depression in the surface, wheras pit III proved out to be rather some kind of a post hole feature, although earlier than the ploughing layer in this area. No more traces of burials were noted in the several trenches dug in the area, but recalling the fact that there was no visible sign before the excavations of the inhumation burial found in 1978, this negative testimony cannot be taken as categorical proof that a single burial only has been made in this area.

CHARACTERISTICS OF THE BURIAL

As noted above, there is no doubt that the grave had been disturbed sometime after the original interment, raising the question of whether this is the burial mentioned in the tradition to have been touched in 1817. Despite the disturbances the general layout of the original burial can be reconstructed rather confidently: we a dealing with an inhumation in a SSW-NNE oriented shaft with the body lying on its right side in a crouched position with the head in the SSW.

The form and the depth of the Nivankylä burial shaft is typical of Finnish Iron Age inhumation burials. As to its size, our grave is rather small in comparison with other Late Iron Age burials, especially compared with those discovered at Eura (Lehtosalo-Hilander 1982a:25-30; see also Uino 1997:55-62 and table 3:4), but for the sake of comparison it is noteworthy that coffins of the same size have been documented among the female burials of Perniö, Yliskylä (Appelgren-Kivalo 1907:29, 44). Considering that the corpse was probably less than 1.5 m tall, as will be demonstrated below, it seems possible that at the surface the size of the shaft was planned to meet it, but because such cuttings often tend to get narrower at a deeper level, the result was too short. This happens especially when the soil is frozen. To the extent that this interpretation is correct, it explains why the corpse was laid in a *hocker* position, which - in addition to the well known burial from the Neolithic Jettböle site on Ahvenanmaa - is very rare in Finnish prehistoric burials (see Uino

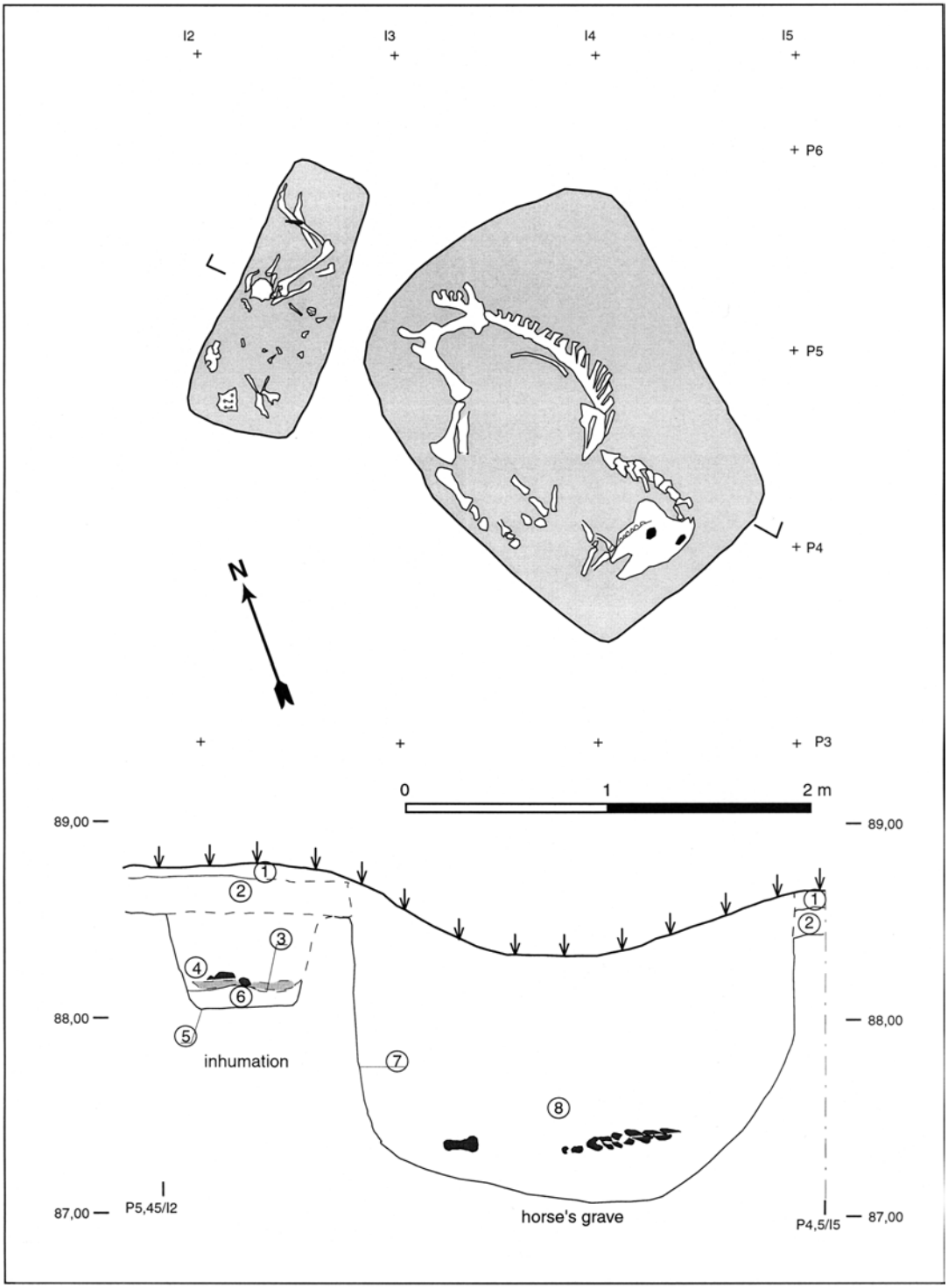

Fig. 4. Plan and stratigraphy of the inhumation burial and the horse grave at Nivankylä.

Fig. 5. Photograph of the inhumation burial.

1997:66). Such a practice is known, however, in a Crusade Period context in the case of a male burial with the head in SSW from Tuukkala Grave 5 in Mikkeli (Purhonen 1998:128, Fig. 136; see also Jäkärä 1997:56-57: Grave 37 at Kirkkomäki, Kaarina (Turku)). On the other hand, this interpretation could be connected to the "mummification" mentioned in the tradition regarding the 1817 find, supposing that this characterisation has risen from the presence of similar dark, slimy mass as found around the ankles of the dead: such a phenomenon in northern circumstances seems to be connected to burying during the cold season (see Paavola 1998:146-168).

The above interpretation would mean that the body was lain in the burial shaft without a coffin, the absence of which would not be strange in an Iron Age context in Finland (see Purhonen 1998:119-121). As regards the orientation of the Nivankylä burial, the SSW-NNE direction is quite common in the Luistari cemetery at Eura in all of its phases except the Merovingian period II (Lehtosalo-Hilander 1982a:19-21; see also Cleve 1978:19-20: Grave C1 at Köyliö). In Karelia, again, this kind of orientation is very rare (Uino 1997:67-68), especially during the Crusade Period (Saksa 1998: Table I). Thinking of the topographical circumstances it seems possible that in the case of Nivankylä the head could be in the SSW because the terrain sloped towards Ounasjoki in the NNE (for an analogous interpretation, see Schvindt 1893:186 Note 1; Uino 1997:67).

Furniture of the grave

The above-mentioned piece of woven fabric (Fig. 6) discovered close to a piece of rib and another very tiny piece found close to a piece of the vertebra may be part of the clothing of the deceased, but it is difficult to give a coherent description of it. It is made of uneven yarn spun counter-clockwise (Z-spun) of animal hair of varying thickness, probably wool. As far as can be measured, the density of the fabric is around 6-7 yarns/cm, which is a little loose compared with the Finnish Iron Age woven fabrics where normally the density is around 10 yarns/cm whereas the finest ones have nearly 40 yarns/cm (Lehtosalo-Hilander 1984a:8). The texture is markedly oblique in relation to the edge, and it seems probably that we are dealing with a piece of a diagonal-braided band. Braided bands are known in Finland especially from late Iron Age burials, but they are less common than tablet-woven bands (Sarkki 1979:48-61, 90; see also Kaukonen 1965:92; Sarkki 1982:38). It seems probable that the pres-

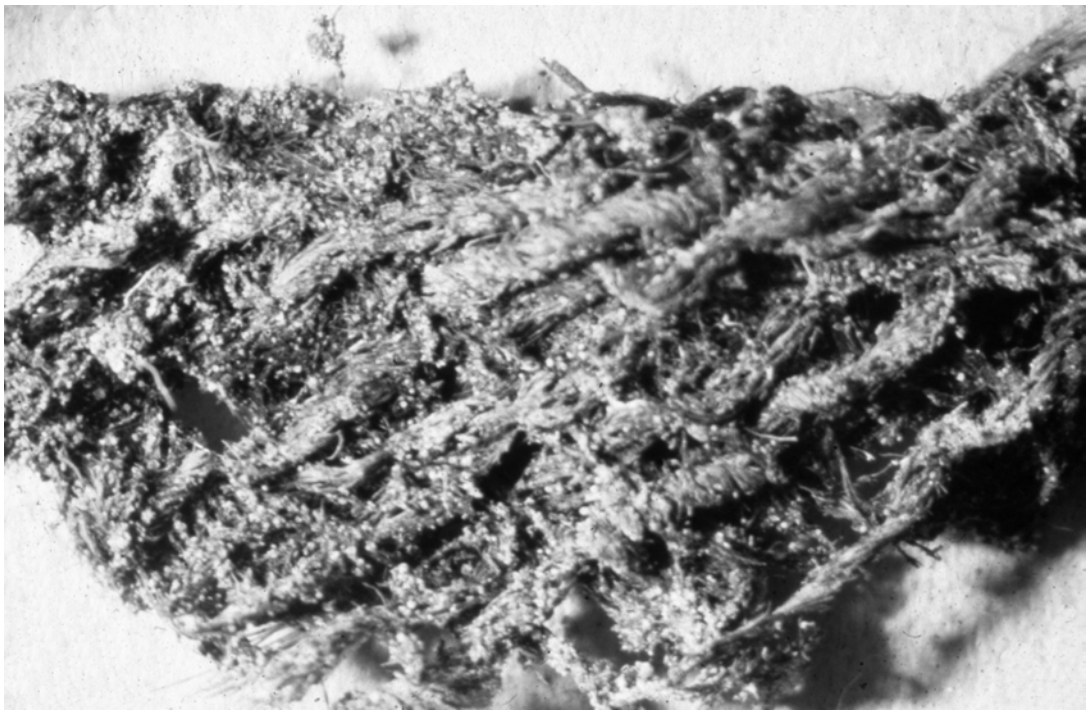

Fig. 6. Piece of woven fabric discovered in the burial (width ca. 2 cm).

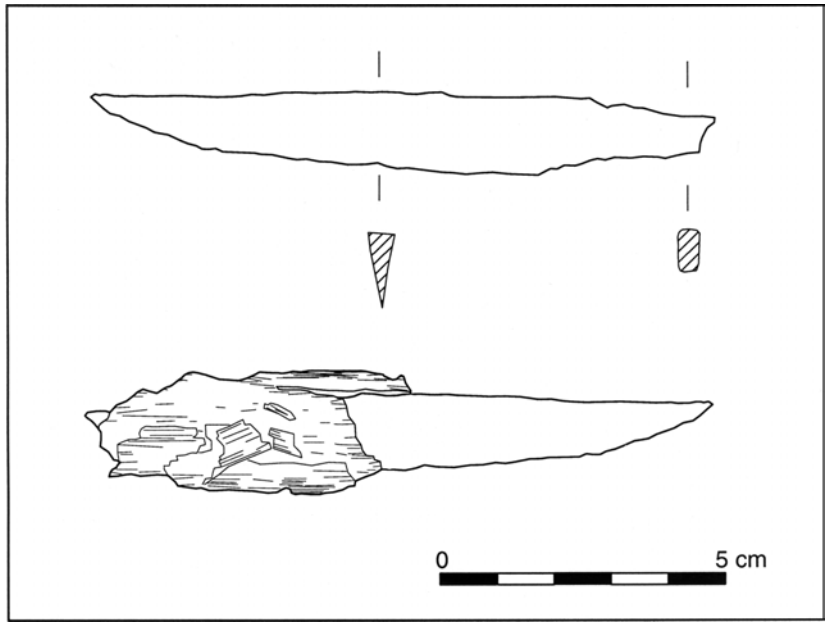

Fig. 7. Iron knife discovered above the ankles of the deceased.

ervation of the woollen fabric is due to presence of some copper or bronze object, e.g. the animal pendant mentioned in the tradition, recalling that according to Fellman it was "fastened into a band reminiscent of silk".

The knife (Fig. 7) discovered above the ankles of the corpse has a length of 10.9 cm of which the 1.3 cm wide straight-backed blade is about 9 cm and the tang is broken. Remains of wood are attached to the knife, maybe partly belonging to its handle but in part perhaps to its sheath. A sample of a rusted piece of wood has been identified as a conifer, probably pine. Moreover, some copper was noted in a piece of hair attached to the knife, as well as in some other connected analyses, perhaps indicating that copper or copper-based alloy have been used in its fittings.

The size and form of the Nivankylä knife - excluding the rather slender character of the blade - are common features among the finds from the Luistari cemetery at Eura where not even the position of the knife in the foot end of the grave is unusual (Lehtosalo-Hilander 1982b:43-51). At Eura, knives are most common in men's graves, but they appear often in women's and children's graves, too. Perhaps an analogy for the presence of copper in the Nivankylä knife can be found in a small knife from a Viking Age female burial at Eura (Lehtosalo-Hilander 1982a:92 No. 1704, Pl. 26). The size of the knife does not justify use of the historical name for the small knife, *junki*, as in the case of the knives from the late Iron Age hillfort of Kuhmoinen (Taavitsainen 1990:195, Pl. 7,6-8), but considering that its slenderness may be caused by wear, it is worth recalling that for example in the area of Rovaniemi poor, worn-out knives and women's knives were called by that name (Vilkuna 1964:87, Map 2).

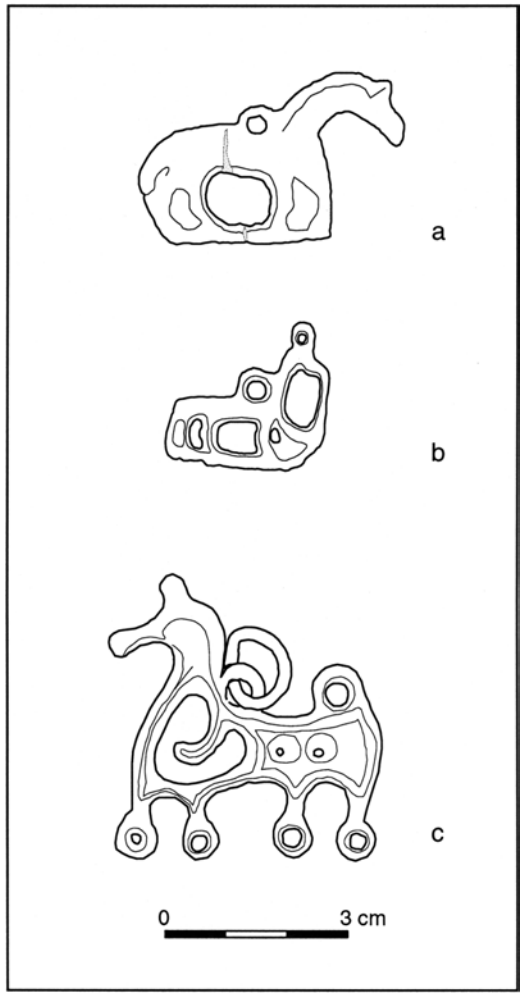

Fig. 8. Late Iron Age horse pendants: a. from Nousiainen (after Kivikoski 1973: Fig. 488), b. from Unna Saiva (after Serning 1956: Pl. 18,2) and c. from Suomussalmi (after Huurre 1983: 359).

The question of an animal pendant

What about the animal pendant mentioned by our informers from the 19th century? In the light of the archaeological evidence, this question receives new interest: as noted above, in several SEM (scanning electronic microscope) analyses, e.g. around the area of the upper vertebrae and the clavicles the presence of copper has been identified in the burial although such objects are missing. Thus, it is possible that originally there was some kind of pendant around the neck (Fellman) or the chest (Appelgren) of the deceased. Regarding the animal represented in the pendant discovered in 1817 its identification as a horse seems to be a little better grounded. However, to consider the bull or the calf suggested by Fellman, perhaps an object like the animal pendant from a Viking Period burial at Yläne (Kivikoski 1973:108, Fig. 793) in SW Finland could have raised such an interpretation; Appelgren (1881:35) again referred to two Iron Age Permian idols published by Aspelin, one of them classified as a horse of the "Smolensk" type (Makarov 1994:24, Fig. 10,2)

(rather reminiscent of either a hare or a dog) and the other one representing a horse (Aspelin 1877-1884: Figs. 642, 646), but such pendants are not encountered in Finland although the former is known among the "Lappish" offerings found at Ratasjaure in northern Sweden (Serning 1956:48, Pl. 2,7).

At least a couple of types of horse pendants can be involved in our case. There is a find of a flat horse pendant from Nousiainen (Fig. 8a) published by Kivikoski among finds from the Merovingian Period and characterised as "unique" (Kivikoski 1973:73, Fig. 488), but there is some stylistic resemblance with pendants composed of two divergent horse heads dated to the Viking/Crusade Period, e.g. a pendant from Vilusenharju (Meinander 1973:147, Fig. 2; Nallinmaa-Luoto 1978:111-113, Pl. 23; Autio 2000:75 no. 121). On the other hand, the Nousiainen pendant bears a marked similarity with a heterogeneous group of horse pendants known from Russia (see Rjabinin 1981: Type XI1; Saveljeva 1992:497, Fig. I,9; Autio 2000: 92 Fig. E) and northern Sweden (Serning 1956: Pl. 42,3 and 4: Gråträsk; Unna Saiva (Fig. 8b); Serning 1956: Pl. 18,2; Serning 1956: Pl. 8,9: Saivo; Makarov 1992:336-337, Figs. 2-3).

Another candidate for identification of the pendant discovered in 1817, again of the type regarded as an eastern element (see Rjabinin 1981: Type XIII2-3), is a flat, perforated horse figure, which is known from Suomussalmi (Fig. 8c) (Huurre 1983:359) and Ikaalinen (Kivikoski 1973: Pl. 125 Fig. 1133) and from Sakkola (Uino 1997:366 Fig. 56) in the ceded Karelia. Moreover in the nearby areas such a pendant has been found at Kuzomen in the Kola Peninsula, as well as among the Saami offerings of Unna Saiva in Sweden, where it is also known from Gotland (Söderberg 1932:32-33, Fig. 1; Serning 1956: Pl. 18,1). In the southeast, variants of this pendant have been met in Staraja Ladoga, Novgorod, in the Moscow and Kostroma areas, whereas in the south it is known from Inkeri, Estonia and Latvia (Uino 1997:366). The dates given to these finds range from the 11th to the 13th century AD. It seems possible that especially this type with its stylised character could have raised the alternative interpretation of a bull or a calf.

There is also a more numerous group of a one or two headed horse pendant called "plastic" known from Mikkeli, Nastola, Salla (Arponen 1992:37-38; Huurre 1993:24-25), Sodankylä and Inari (Hamari 1996:53) and from several sites in the ceded Karelia. Obviously, this pendant was made at least in Novgorod, but it is discovered widely in Russia and west up to Latvia (Rjabinin 1981: Type XX). Dated contexts are from the 12th to the 15th century AD (Uino 1997:366). Although this type of pendant is most numerously attested in Finland it cannot be taken as the most promising alternative for the one discovered at Nivankylä in 1817 because in this case a misinterpretation as a bull or calf would have been impossible.

It is commonly thought that especially the plastic animal pendants belong to the set of ornaments composed of shoulder brooches and chains and chain dividers in the late Iron Age female costume, although the documented burial contexts, however, are problematic (e.g. Kaukola Grave 5 and Räisälä Grave 3 (Schvindt 1893: 43, 55); also Köyliö Grave 1 (Cleve 1978:19-20, 120-121, Pl. 1 No. 6; see also the female burial tradition regarding the Salla find (Arponen 1992:36-38)). A female burial context is markedly suggested also in the case of the perforated horse pendant from Ikaalinen (Sarvas & Ranta 1994:48-56). Thus, it seems that the costume of the Hiukka body was a modest follower of the late Iron Age female mode in Fennoscandia, a conclusion further strengthened by the modest character of the woollen fabric discovered in the burial.

ANATOMY OF THE CORPSE

This is the best-preserved skeleton of this date from northern Finland. The grave had very obviously been disturbed, possibly when it was excavated the first time about one hundred years ago. When the grave was opened again, the skull was located on top of the pelvic region. Also, there is a deep gash in the forehead directly above and left of the nose made post-mortem either by a shovel or a trowel. As a result, the left half of the upper face is broken. Since many of the teeth were lost post-mortem, it is more than likely that many of the teeth fell off their sockets when the skull was lifted from its place and relocated on top of the pelvic region when the burial was being disturbed.

Bones of nearly all parts of the body were present, except those of the hands. The right foot

is better represented than the left foot. For instance, all of the metatarsals of the right foot but only the first metatarsal of the left foot were preserved.

The following bones or their parts were not recovered: the left ulna and the distal right ulna; the left radius and the distal right radius; the left and right patella; all bones of the left and right hand; the sternum; all metatarsals of the left foot except the first one; most of the tarsal phalanges.

Sex and Age determination

All aspects of this individual's skeletal anatomy indicate female sex. Her innominate bone exhibits rather open sciatic notches, a pre-auricular sulcus is present in each innominate, and the preserved portion of the right pubic ramus is definitely long in relation to the acetabular width and the ischial bone height. The skull is also very feminine. The facial skeleton is very gracile, the mastoid processes are very small, and the muscular markings are very weak. The overall size and gracility of the postcranial skeleton also indicate that these skeletal remains belonged to a female individual.

The age determination is based here on the developmental stage of dentition, the stage of the cranial suture closure, and the epiphyseal fusion of the postcranial skeleton.

All permanent teeth of this specimen had already fully erupted, but roots of the third molars had not yet fully developed. This finding indicates that this specimen was at least 16 years old at the time of her death (Schwartz 1995: Table 7-2). The degree of dental attrition indicates that this specimen was a young adult (between 17-25).

The basilar part of the occipital bone had recently completed its fusion with the sphenoid bone. This basilar suture (the spheno-occipital synchondrosis) closure begins at about 17 years (Schwartz 1995:193) and the central tendency for completed closure is 23 years (Krogman & Iscan 1986:108). It was, however, completely closed in 97% of 19-year-old American males who died in the Korean War, and the youngest age it has been found to close in females is 13 (Bennett 1993: Table 29). This disagreement of findings may indicate different criteria for considering this suture fully closed. Because this suture is still incompletely closed in so many specimens with fully erupted third molars, it is more likely that this closure generally occurs when an individual is at least 18 and more likely over 20. For this reason, the recently completed basilar suture closure of this specimen indicates that she was more likely a little over 20 than less than 20 at the time of her death.

The cranial vault sutures had not yet started to unite. This closure starts commonly at the middle of the sagittal suture when an individual is about 20 (Montagu 1960: Fig. 17; Krogman & Iscan 1986: Table 4.6). Although the commencement of the fusion can be either delayed or it can start prematurely, this finding suggests that this individual was probably not much older than about 20 at the time of her death.

The postcranial anatomy indicates that this female individual was already fully-grown, or nearly so, when she died. The distal epiphyses of the femur had just united with the diaphysis as evidenced by a so-called epiphyseal "gap". There are also possible signs of a recent fusion in the distal end of the right tibia, which is somewhat surprising because both the proximal and distal femoral epiphyses generally unite with their respective diaphyses before the distal tibial epiphyses. Both proximal tibiae had broken, making it impossible to determine whether their epiphyses had fused. In any event, it is quite clear that the lower limb bones of this individual had just or nearly reached their final lengths. This occurs in modern western males when they are about 18 (Bennett 1993: Table 31) and a year or two earlier in females (France & Horn 1992:85). This individual's skeletal age, as based on her lower limbs, was about 16 (13-19) by the modern western female standards. This skeletal age of 16 is several years younger than the skeletal age of around 20 based on her cranial anatomy, indicating that her postcranial development was delayed possibly due to poor diet. According to Eveleth and Tanner (1990:146), the development of the postcranial anatomy is more likely affected by nutritional status than the dental development. Under-nutrition slows down growth and postpones the age when a certain skeletal age is attained.

The proximal ends of both humeri are missing and the ends of the preserved parts of the proximal shafts have broken off and eroded away. As a result, it is possible that the epiphyses of the prox-

imal humeri had not yet fused with their diaphyses and have, therefore, been lost. These epiphyses are the last long bone epiphyses to close (Krogman & Iscan 1986: Figure 3.15; France & Horn 1992:85; Bennett 1993: Table 31).

Both ischial tuberosities had united. This usually occurs in males when an individual is 20 or 21, but it has even been observed to occur as early as 16 or as late as 23 (France & Horn 1992:85; Bennett 1993: Table 33). Because females mature a year or two earlier than males (France & Horn 1992:85), this specimen was probably older than 18-20 when she died. Neither iliac crest had preserved and the superior parts of both ilia had badly eroded. It is, therefore, impossible to check whether the iliac crests had yet fused.

The epiphyseal plates of the vertebrae had apparently fused based on an examination of vertebral bodies of five sufficiently well preserved vertebral bodies. This fusion occurred in the mid-20th century American males at the age of 21, as an average, but seldom before they were about 18 (Bennett 1993: Table 35). Because females mature about one or two years earlier than males (France & Horn 1992:85) and an average medieval period individual probably reached his/her final stature later than modern individuals due to poorer diet, the individual being studied was probably at least 18 at the time of her death. It is somewhat uncommon that the epiphyseal plates of this individual's vertebrae had already fused, but there is evidence of recent fusion of the long bone epiphyses.

The sacral segments were in the process of fusion. The first sacral segment had not yet fused with the second sacral segment, which was already fused with the third segment, which in turn was partially fused with the fourth segment. The fifth segment had not been preserved. In average Euro-American males, according to Bennett (1993: Table 41), the second sacral segment fuses with the third at the age of 18 years (fused in 64% of 20 year olds), the third segment with the fourth at 19 years (fused in 80% of 21 year olds), and the first with the second at between 23-24 years, but not younger than about 18. The fusion of the first sacral segment is very unreliable, however, because it may not fuse before an individual is over 33 years old. The stage of the sacral segment fusion indicates that this individual's skeletal age was between 18 and 21 by the recent Euro-American male standards (16-20 by the recent female standards) when she died. Considering her possibly delayed skeletal maturation, her actual age was more likely 20 than 16.

To summarise, this individual was about 18-22 when she died. Her growth may have been somewhat delayed, possibly due to her poor dietary status. She most likely attained her postcranial skeletal maturity somewhat later than most females today.

Stature and body build

The stature is estimated from the long bone lengths only by using regression equations, because an insufficient number of vertebrae were well-enough preserved to apply more accurate anatomical methods of stature estimation. Both femoral and tibial lengths were used. The right femur is represented by a plaster cast because the original had been sacrificed for carbon-14 dating. The maximum length of the right femur estimated from this plaster cast is 376 mm and the physiological length 372 mm, but it is uncertain whether the length of the cast is completely accurate. The left femur's maximum length was 386 mm and the physiological length 384 mm. The tibial length had to be estimated because both the proximal and the distal end of the left tibia and the proximal end of the right tibia were broken off from their shafts, and it was not possible to attach these broken pieces to the shafts accurately due to badly eroded adjoining parts. The maximum length of the more complete tibia, the right tibia, was estimated from the measured distance (276 mm) between the distal articular surface and the proximal margin of tibial tuberosity using a least-squares regression formula (Holliday 1995: Table 5, regression #2). This regression provided an estimated maximum tibial length of 312 mm. This estimation is accurate because the measured portion of the bone is 88.5% of its estimated maximum length and it coincides with where the broken off proximal end is reconstructed to have been in this particular tibia.

This individual's stature was estimated from the average maximum length of both femorae (281 mm) and the estimated length of the right tibia (312 mm) by using regression equations published by Telkkä (1950), Boldsen (1984), Sjøvold (1990) and Jantz (1992), and three still unpub-

lished equations (Niskanen n.d.). Niskanen's equations are based on a combination of Telkkä's (1950) and Boldsen's (1984) mean stature, femoral and tibial length values. These yet unpublished equations designed for estimation of stature of the Fennoscandians independent of sex are as follows:

1) Stature (cm) = 2.9639356 (Fem.1 - 44.32) + 163.273
2) Stature (cm) = 3.7959641 (Tib.1 - 35.189) + 163.273
3) Stature (cm) = 1.6643728 [(Fem.1+Tib.1) – 79.509] + 163.273

The equations in question are not least-squares regression equations, which tend to underestimate statures of tall individuals and overestimate statures of short individuals. They are related to reduced-major axis family of regression equations (see Sjøvold 1990), where the regression slope is equal to the ratio of femoral length dispersion to the stature dispersion. In Niskanen's equations, a deviation of the long bone length from the average is assumed to have an allometric relationship to differences in stature. For example, one centimeter differences in the femoral length from the average equals 2.96 cm difference from the average stature.

This individual was most likely only about 145-150 cm tall. The average non-Saami Fennoscandian women of the medieval period were about 10 cm taller than this individual. For example, women who lived in Tuukkala, southern Savo, during the Crusader period had an average skeletal length of 157 cm measured in grave (Lehtosalo-Hilander 1988:217), whereas the skeletal length of the medieval Danish women from the city of Viborg in central Jutland was 158.26 cm (Boldsen 1984: Table 1). According to Boldsen (1984:306), the length of an undisturbed skeleton in grave corresponds to the actual living stature if the skeleton is measured correctly.

Medieval Norwegian women had maximum femoral and tibial lengths of 417.4 mm and 338.2 mm (Schreiner 1935:222, 226), respectively. These long bone lengths indicate an average stature 156.7 cm based on Niskanen's equation no. 3. The women from the medieval cemetery of Westerhus, Jämtland, Sweden, had average maximum femoral and tibial lengths of 424.3 mm and 338.6 mm (Gejvall 1960: Table 18), respectively, corresponding to an average stature of 157.9 cm. The Saami women of Finmark had similar statures if they had similar long bone length-sture ratios to that of the specimen being studied because their maximum femoral and tibial lengths of 384.2 mm (vs. 381 mm) and 304.9 mm (vs. 312 mm), respectively (Schreiner 1935: Tab. 162 and 165), are very similar to those of this individual. The medieval period women from Makita, Estonia, had average maximum femoral and tibial lengths of 413.7 mm (8) and 344.8 mm (6), respectively (Heapost 1993: Tab. 6), indicating that they were as tall as the medieval non-Saami Fennoscandian women.

To summarize, this individual was very short for a Finnish or a Scandinavian woman, but not short for a Saami woman. An individual's stature, however, cannot be consider an indicator of ethnic affinities due to its high variability within all populations. For example, the two shortest women from the above-mentioned Tuukkala burial ground were 142 cm and 148 cm tall, respectively, although the average was 157 cm. Also, a reexamination of probably female specimens from Leväluhta by one of the writers (Niskanen) indicates that this sample was highly variable in stat-

Method	Femoral	Tibial	Fem. + Tib.
Telkkä (1950)	148.1	151.2	149.7
Boldsen (1984)	147.1	150.4	148.8
Sjøvold (1990)	150.2	153.2	151.7
Jantz (1992)	148.8	149.7	149.3
Niskanen (n.d.)	144.8	148.1	146.3

Table 1. Stature estimations.

Fig. 9. Photograph of the skull from norma verticalis. Note the area of dense pitting in the middle of the right parietal bone.

ure and that the average statures were probably greater than those given by Formisto (1993:108-115).

Joints of this individual were absolutely rather small, but average in relation to the small overall size. For example, the femoral head diameter is 40 mm, whereas the average for European women is about 42 mm. This conclusion of absolutely but not relatively small joint size is based on an application of a least-squares regression equation developed by using the femoral lengths and femoral head diameters (computed from the femoral head circumstances) of the female specimens from Westerhus (data is from Gejvall 1960) as an input. The estimated femoral head diameter of the specimen being studied is 40.5 mm, as computed by using the following regression equation: femoral head diameter = 0.05493 x physiological femoral length + 19.369 (r = 0.655). The difference of the measured and predicted femoral head diameters is only 0.5 mm, which indicates that this specimen had average joint sizes in comparison to the long bone lengths.

This individual was quite muscular, especially for such a young woman. The humeral shafts were angular in shape and the insertion areas of the deltoid and the pectoralis major muscles are thick in comparison to the minimum humeral shaft circumferences indicating that muscles of her shoulder girdle were strong. The radial tuberosity is large and exceptionally prominent for a woman, indicating strong biceps muscle. It is very obvious that she did a great deal of physical work involving the use of her arm and shoulder girdle muscles. This could involve rowing a boat, carrying firewood, water etc.

She obviously also walked, ran and climbed hills a lot, as indicated by the shapes of the proximal shafts of both the femur and the tibia. The femoral shaft is medio-laterally thick (30.2 mm) in relation to its antero-posterior dimension (20.5 mm) measured directly below the lesser trochanter. This is mainly due to enlarged insertion of the gluteus maximus muscle and enlarged origins of the vastus lateralis muscle spreading the shaft medio-laterally. The tibial shaft is thick antero-posteriorly (29.0 mm) in relation to its medio-lateral thickness (20.5 mm) at the level of the nutrient foramen. This is due to enlargement of the tibial tuberosity, which provides insertion for the patellar tendon through which the vastus lateralis muscle extends the leg.

Pathological conditions

There is a 25 x 20 mm area of dense pitting in the middle of the right parietal (Fig. 9). This type of lesion is known as porotic hyperostosis, and it may suggest that this individual had anaemia. The orbital roofs are not well enough preserved to determine whether this individual also has cribra orbitalia, the pitting of the orbital roofs, which is also commonly associated with anaemia (see Roberts & Manchester 1995; Larsen 1997; Aufderheide & Rodrígues-Martín 1998 about skeletal indicators of anaemia). Iron deficiency anaemia, as indicated by these cranial lesions, has always been common. For example, according to Stuart-Macadam (1991:102), 30.6% (230/752) of the Roman-Period British skeletal remains at Poundbury, Dorset, in England had skeletal indicators of anaemia.

The teeth of this individual were checked for enamel hypoplasia, which would provide evidence of nutritional stress during the period of

enamel formation (Roberts & Manchester 1995; Aufderheide & Rodrígues-Martín 1998; Larsen 1999). No enamel hypoplasia was, however, noticed. This lack of evidence is not conclusive because many of the incisors, where this condition would show clearly, were lost post-mortem, and the enamel had chipped off from many others.

This individual may have had rickets, as indicated by bowing of the femoral shafts medially (Fig. 10). Rickets is a result of vitamin D deficiency. About 90% of the body's vitamin D requirement is produced in the skin by the action of ultraviolet radiation on the skin (Roberts & Manchester 1995). For this reason, rickets is more common in northern latitudes where there is less ultraviolet radiation for vitamin D production (Krantz 1980) and in the urban setting of the industrial period (Roberts & Manchester 1995).

This individual's pelvic bones were examined for evidence of rickets and nutritional stress because rickets can result in reduced anterior-posterior diameter of the pelvic inlet (Aufderheide & Rodrígues-Martín 1998:308; Larsen 1999:20). The reconstruction of the pelvic inlet shape by eye indicates that this individual had relatively large antero-posterior diameter of the pelvic inlet shape.

According to Larsen (1999:20), the sciatic notch width tends to be larger than the average in those individuals who have suffered from poor nutrition and/or rickets. This individual had rather narrow sciatic notches for a woman. This evidence indicates that if this individual had rickets or was poorly fed, her condition was not severe enough to affect the growth and development of her pelvic region.

The long bones of this specimen were x-rayed to see if there were any Harris lines, also known as the growth arrest lines indicating nutritional stress during childhood. These transverse lines were not detected in the long bones' radiographs. This does not, however, mean that the individual in question did not suffer from under- or malnutrition during her childhood because only about 25% of these lines detected in bones of still growing individuals persist into adulthood due to the bone remodelling processes (Aufderheide & Rodrígues-Martín 1998:423).

To summarize the paleopathological analysis, this individual possibly suffered from iron deficiency anaemia and may have had a mild case of rickets. Neither of these conditions was life threatening, but they may have influenced her quality of life adversely.

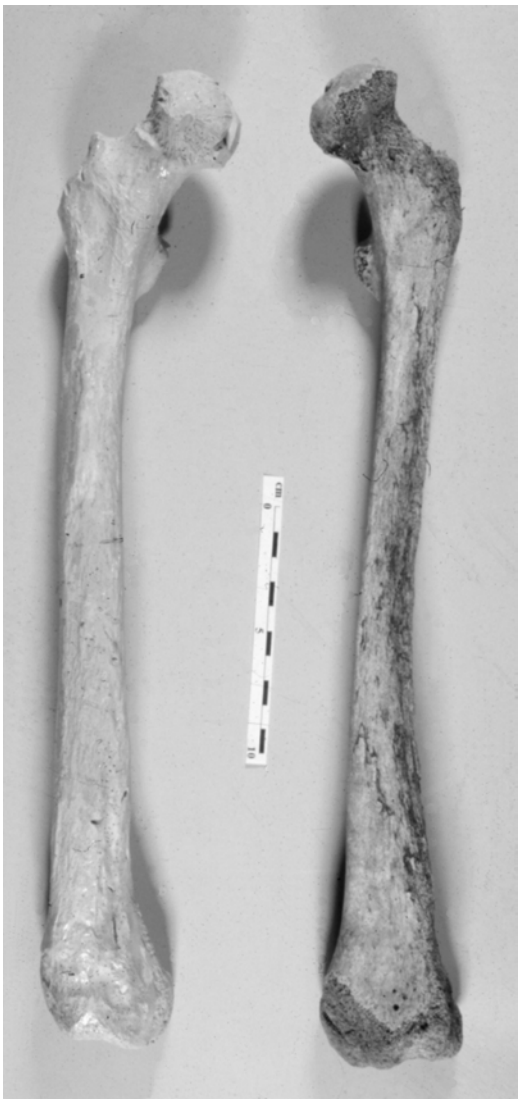

Fig. 10. Photograph of the right and the left femur. Note bowing of the femoral shafts medially. The right femur is represented by a plaster cast.

Genetic affinities

Genetic affinities of skeletal specimens are traditionally determined in light of morphological characteristics. These characteristics are generally divided into two categories: non-metric and metric traits. In this case, these affinities are deter-

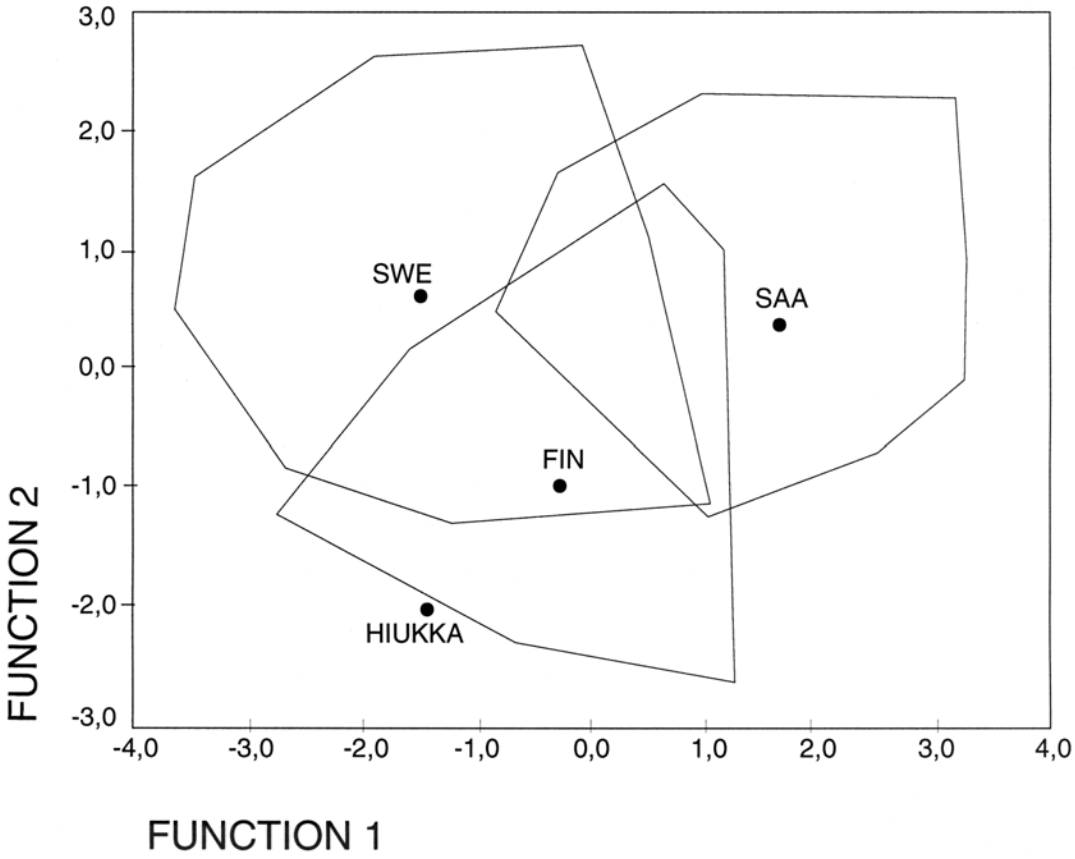

Fig. 11. A bi-plot of the two discriminant function scores, which explain 100% of the total variance exhibited by eleven cranial measurements used in discriminant function analysis. Sample centroids are marked (SWE = Swedish; SAA = Saami; FIN = Finnish) and lines are drawn to connect the most extreme cases of each sample to exhibit the amount of between- and within-sample skull shape variation, as well as the position of the specimen being studied (HIUKKA) in relation to the reference samples.

mined by a craniometric comparison because there is insufficient non-metric cranial data of the Finns contemporary to this specimen and also because the discrete nature of the non-metric morphological traits are not as suitable for assessing genetic affinities of single individuals as are the metric traits.

Of the non-metric cranial traits of this individual, strongly shovelled incisors should be mentioned, however. This individual even has a tubercle at the base of the crown on its lingual surface. This tubercle and associated strong shovelling of the incisors is seldom observed in modern Europeans although it is common in the East Asian and Native American populations. However, the strongly shovel-shaped incisors were common among Paleolithic period Europeans (Verneau 1906: fig. 23). Also, the overall craniofacial configuration of this individual was distinctly European. Furthermore, there is simply no skeletal evidence that there ever was a population movement from Siberia into Fennoscandia during the prehistoric times. Therefore, the shovel-shaped incisors do not necessarily indicate that the specimen in question has Asiatic affinities.

This specimen's cranial measurements were compared with those of thirty-seven Swedish females from Westerhus cemetery (Gejvall 1960), forty Norwegian Saami females from Finmark (Schreiner 1931) and thirty-six 17th century females from Oulu, Finland measured by Niskanen. The measurement battery is, however, limited

because the incomplete and somewhat distorted nature of this specimen prevented the taking of many measurements. As a result, it was only possible to perform the analyses using the 11 craniofacial measurements listed in Table 2. To receive reliable results, one should use a measurement battery composed of at least 35 measurements distributed evenly around the cranial anatomy (Niskanen 1994:180-188).

Examination of the raw measurement scores reveals that this individual's craniofacial configuration is very atypical for the Saami women. The Saami tend to have relatively broad, short and low braincases, short and broad faces, and relatively very low eye sockets (see Niskanen 1994). This individual had a relatively narrow, long and exceptionally tall braincase, and relatively taller eye sockets. This specimen's craniofacial anatomy would have been less atypical for the Finnish or other non-Saami Fennoscandian women.

The fit of this specimen's craniofacial configuration in the craniofacial variation exhibited by the three reference samples was examined with the help of the discriminant function analysis of SPSS. This analysis computes linear combinations (discriminant function coefficients) from variables included in analysis and uses them as the basis for classifying cases into one of the groups. This program also computes probabilities of group membership. These probability values do not prove that a certain case (specimen) belongs to a certain group, but indicate how well it fits within the variation exhibited by the reference groups.

All craniofacial measurements were standardised according to the braincase's length, width and height dimensions before the discriminant analysis. At first each of these three size dimensions of the braincase were divided by their female mean values from Howells (1989: Table 1). The results of divisions were averaged and all 11 dimensions included were divided by this value representing the braincase size. Values size-standardised in this way were then converted to Z-scores by dividing the deviation of each size-standardised value from the mean of this value by this value's standard deviation.

Two discriminant function scores were obtained because there were three reference populations. These two scores together explain 100% of the total variance. A bivariate plot (Fig. 11) of these scores shows the statistical distribution of each reference sample (SWE = Swedish; SAA = Saami; FIN = Finnish) and the specimen being studied (HIUKKA) in relation to each other. The sample centroids are marked and lines are drawn to connect the most extreme individuals of each reference sample to exhibits limits of craniometric variation exhibited by these samples, as well as the degree of craniometric overlap between them.

1. M-1 = Glabello-occipital length
2. M-8 = Maximum cranial breadth
3. M-9 = Minimum frontal breadth
4. M-11 = Biauricular breadth
5. M-17 = Basion-bregma height
6. M-45 = Bizygomatic breadth
7. M-48 = Nasion-prosthion height
8. M-51 = Orbital breadth
9. M-52 = Orbital height
10. M-54 = Nasal breadth
11. M-55 = Nasal height

Table 2. Cranial measurements.

An examination of this bi-plot reveals that there is considerable overlap between each reference sample in the skull shape – especially between the Swedes and the Finns – and that the specimen being studied is clearly outside the variation exhibited by the Saami from Finmark, noticeably but not markedly outside the variation exhibited by the Swedes, and slightly outside the variation exhibited by the 17th century women from Oulu. There is a possibility that this specimen would fit better within the range of craniofacial variation exhibited by the Karelians of the White Sea region than that of the Finns from Oulu. This hypothesis of this specimen's possible Karelian affinities is based on a comparison of the average cranial measurement values of the Karelian and Finnish males published by Khartanovich (1993: Table 1), which indicate that the Karelian male skulls differ from the Finnish male skulls due to their exceptionally tall braincases. As already mentioned, this specimen has a very tall braincase. It was impossible to test this hypothesis using the discriminant function analysis used above because Khartanovich did not provide measurement values of females in his article.

An examination of probabilities of group membership provides similar conclusions of genetic affinities because the specimen being studied has quite low probabilities of belonging to the Swedish sample (probability 0.09985), nearly zero probability of belonging to the Finmark Saami sample (probability 0.000145), but a high probability of belonging to the Oulu Finnish sample (probability 0.89871). These probability values indicate that it is much more probable that this specimen was a Finn than a Swede or a Saami, and that it is quite unlikely that this specimen belonged to the same breeding population as the Saami of the northernmost Fennoscandia.

The above finding, however, does not prove that this specimen could not have been a Saami for four reasons. First, there is more craniofacial variation within the Northern and Central European ethnic groups than between them (Niskanen 1994:130-143). Second, eleven cranial measurements are not enough to provide highly accurate assessment of population affinities (see Niskanen 1994:180-188). Third, small reference sample sizes (36-40 specimens per sample) used in this study hardly encompass all of the variation exhibited by the populations in question although a sample size of 25 or more specimens is large enough to provide reasonably good estimations of inter-population distances (Niskanen 1994:51-53). Fourth, the Saami populations are somatotypically quite different from each other (Niskanen 2000) and, therefore, presumably also craniofacially different. Therefore, it is at least theoretically possible that the craniofacial configuration exhibited by this specimen would have been less atypical among the Saami of southern Finnish Lapland than among the more northern Saami. Unfortunately, there are no skeletal remains of the southern Saami for comparison. Also, it should not be forgotten that the ethnic group membership is based more on an individuals' feeling of belonging than on actual genetic affinities. Therefore, an individual who has closer genetic affinities to the Finns than to the Saami may consider himself/herself a Saami.

DATE OF DEATH

As noted above, the tradition regarding an animal pendant find in 1817 together with the iron knife led soon to the conclusion that the Nivankylä burial should be dated to the late Iron Age. In light of the discussion of the animal pendants discovered in Finland and in the nearby areas, it seems that the most probable date would be in the range of the Crusade Period. This archaeological-historical conclusion is corroborated extremely well with a radiocarbon dating carried out from the right femur of the skeleton which resulted in a date of 830±100 BP (Hel-2337). Calibration of this result gives cal AD 1215, with a range between 1000 and 1300 (one sigma cal AD 1045 - 1153, two sigma cal AD 1000 - 1300 (99%). University of Washington, Quaternary Isotope Lab., Radiocarbon Calibration Program 1987. Rev. 2.0).

THE HIUKKA BURIAL IN ITS LATE IRON AGE CONTEXT

The picture obtainable of the settlement and culture regarding the latest Iron Age in Northern Finland is quite imperfect because conclusions are based largely on so-called isolated finds. There are only a few datable contextualized remains which could support a model of stationary or nomadic settlement or about ethnicity of the populations in question. Some markedly Saami sites are known in Lapland, some of them datable to the Iron Age, too (Hamari 1998:69-72), but in the coastal area the situation is more problematic, including a couple of recently studied cooking pits with no other finds characterising the site from Länkimaa near Kemi on the northern coast of the Gulf of Bothnia (Ylimaunu 1999:6-7).

The quantity of graves, too, is meagre, but a little higher than that of settlement sites. A burial tradition typical of western Finland consisting of cremation and stone cairns can be followed on the coastal area of Bothnia to the middle Iron Age, the latest examples of which having been dated to the early 6th century. Among such burials both Kaakkuri in Oulu and Länkimaa in Kemi included objects typical of graves of the peasant settlements in southern Finland, and in the case of Kaakkuri at least some objects originate in the European continent (Mäkivuoti 1996:35-36, 39-40, 46, 56). The ethnicity of these burial groups, however, is not clear: maybe we are dealing with some Saami populations living on sea fishing who had adopted some features typical of peasant communities; according to an alternative hypothesis, the early and middle Iron Age burial culture in

northern Ostrobothnia represents the northernmost extent of the coastal peasant settlement (Ylimaunu 1999:3-5). Influence of the south and west Finnish settlement is best seen in some late Iron Age burials discovered near the eastern border at Suomussalmi. Especially some female graves furnished in the manner of the peasant culture seem to attest to some kind of stationary or temporary settlement. Such settlement situated along an important water route connecting the White Sea with the Gulf of Bothnia has been interpreted also as a station acting as an intermediary in fur trade, some kind of a desert station (Huurre 1992:86; Taskinen 1998:155).

The Hiukka burial at Nivankylä is the best-preserved - and in fact for the time being the only – inhumation burial of the late Iron Age date from northern Finland. Thus, information regarding actual late Iron Age cemeteries in Northern Finland is missing, whereas it is reckoned that altogether in Finland - including the Karelian isthmus - there are known more than 700 inhumation burials dated to the Crusade Period, partly in old graveyards beginning from the Merovingian or the Viking Period or partly in graveyards initiating in the Crusade Period. There are, moreover, some markedly early Christian burial grounds which contain mainly, but not only, unfurnished graves. Graves dated to the Crusade Period have been found in particular in the central peasant areas, Varsinais-Suomi, Satakunta, Häme, surroundings of Mikkeli and on the coasts of the Lake Ladoga. Only three burials have been known in the so-called wilderness area, all of which are below the 63rd parallel. As these burials include both male and female artefacts Purhonen has interpreted them to reflect settling of the wilderness, not merely temporary utilisation of it (see Purhonen 1998:115-120).

The Hiukka grave at Nivankylä is not the only find datable to the Crusade Period in the Rovaniemi area. The nearest one is 5 to 6 km to the NNW in Marikkovaara, consisting of a sword signed by Gicelin (Leppäaho 1964: Pl. 27; Geibig 1991:128 and Note 78) who is known to have worked somewhere in central Europe around 1200 (Tomanterä 1978:31-33). Kotivuori (1996b:121-125) has been prone to see especially Karelian connections in the Marikkovaara find, but it is obvious that other interpretations are equally acceptable. Karelian origin has also been suggested in the case of the Oikarainen horseshoe brooch mentioned above, but more probably its home should be sought in western Finland (Huurre 183:354; Lehtosalo-Hilander 1982b:101-102). Perhaps a Karelian - or eastern Finnish - connection is better substantiated in the case of a bronze chain holder from Pöykkölä which could belong to a female burial around the 12th century (Kotivuori 1996b:112-125). Probably a contemporary find is a fragment of a horseshoe-shaped brooch discovered in the Ylikylä excavation, of a type common in western Finland (Paavola 1996:155; Kotivuori 1996, 121; on brooches and other ornaments as indicators of cultural areas during the Crusade Period in Finland, see Taavitsainen 1994:400-403). Chronologically essentially earlier but spatially closer is the fire striking stone reported by Appelgren to have been discovered in the Hiukka estate on the Ounasjoki (Appelgren 1881:35; Kotivuori 1990:83; Kotivuori 1996b:411 Note 16), a find which in northern Finland is usually taken as a record from SW and western Finland (Pellinen 1999:24-38). Some other earlier Iron Age finds discovered on the Kemijoki and Ounasjoki courses can be regarded as south-western in origin (Kotivuori 1996b:112-119).

In addition to the proper archaeological evidence, one pollen sample has been taken and analysed from Rovaniemi for historical purposes. In the light of this sample, the change from a hunting form of life toward a sedentary one based more or less on farming began around AD 1250 (Hicks 1996:132-133; also Vuorela & Hicks 1995:249, Fig. 1; Vuorela 1999:349).

Considering the connection between language and ethnicity, place names can provide some clue. For example the name of the estate, *Hiukka*, may have relevant meaning in this case although it is not known prior to 1690s, because it means 'sand' (*hiekka* in standard Finnish) and appears in place names especially in Häme and western Finland, the area from which, according to Jouko Vahtola (1980:259-262; 1996:140-143), the earliest wave of the permanent peasant settlement of Rovaniemi came. Another interesting feature in the word *hiukka* is that in Satakunta it is connected with several sites with inhumation burials and several graveyards (Huhtala 1988:48-49). The basic part of the name of the village, *Niva*nkylä refers to small rapids in a stream and is typical to northern Finland (Mikkonen & Paikkala 1993:375), and

perhaps so could be regarded as a general indication of Finnish settlers like *rova* which, too, connotes waters (Vahtola 1996:138-139), but Nissilä (1975:186) mentions *niva* among the Karelian appellatives with a Lappish origin.

As regards place names referring to the Karelian origins, these are markedly few, although there is a tradition known since the 18th century according to which the Karelian village at Ylikylä was populated so densely that a cat could pass through all the village along the roofs (Paavola 1996:154-155; Kotivuori 1996b:125). Vahtola (1996:144-145) sees the emphasis of the Karelian element reflects rather the importance of the trade with "Viena" Karelia than the amount of the Karelian settlers.

No doubt the Saami represent the earliest stratum in the settlement history of Rovaniemi. It is possible that the abodes attributed to the Saami by the place names of the *lappi:lapi-* type in the local tradition are associated with the latest phase in the Saami settlement of the area. Close to Nivankylä, there is Lapinranta on the Ounasjoki opposite the Hiukka estate and even at Nivankylä there are place names given by Finnish settlers: Lapinautio and Lapinvaara (Vahtola 1996:135-138).

As noted above, there is no reason to regard the burial custom in the Hiukka grave as exceptional compared with burials known in southern Finland, especially those identified as pre-Christian: e.g. the absence of a wooden coffin seems to strengthen this type of conclusion (Purhonen 1998:119-121). Considering the animal pendant discovered in 1817, it is suggestive to think that it would indicate the above-mentioned Karelian influence because the Karelians must have had a role of mediator of eastern objects in northern Fennoscandia. Such a conclusion seems a little hasty since objects of eastern character appear as noted above also in Saami contexts, which, however, is not enough to justify the interpretation of Kotivuori that the Hiukka site was a "Lappish" graveyard (Kotivuori 1996a:122; *idem* 1996b: 412 Note 47). The anatomy of the deceased is decisively closer to the Finns and Swedes than to the Saami.

CONCLUSIONS

Although only one inhumation burial has been so far found at the site of the Hiukka estate at Nivankylä, it is not impossible that we dealing with a graveyard. It seems probable that at least partly the hollows seen by Appelgren in 1879 are identical with those studied in 1978 and 1979, but they proved not to be caused by burials. However, recalling that above the inhumation burial discovered in 1978 there was no depression in the surface and that the area has been cultivated by ploughing, it seems possible that other graves could still lie in the areas not touched by our trenches.

On the other hand, it seems quite sure that the burial excavated in 1978 is the same that was disturbed in 1817 according to the 19th century local tradition. This conclusion is supported by the fact that the discovered burial was clearly disturbed and contained traces of copper, the metal stated for the animal pendant found in 1817.

The Karelian character recognised in the animal pendant seems to be weakened by other factors pointing rather to other directions, the place names e.g. suggesting that the earliest permanent settlement of the Rovaniemi area came from SW Finland, which is not contradicted by the picture offered by the study of the skeleton. That we are dealing with a find belonging to a permanent settlement is suggested by the conclusion that the deceased was a young adult woman. The site itself can be considered to have been suitable as a permanent settlement by the late Iron Age and the early Middle Age; in addition to the traditional hunting and fishing resources, it had the advantage that the banks of the Ounasjoki offered cultivable land but together with the several low islets in the river they were fertilised by floods and thus potential for cattle raising, offering the natural hay fields which have been an important source of fodder in northern areas until the early 20th century and beneficent nature of which was praised by Fellman (1906:284-285) in the case of the nearby Ylikylä (on the subject, see Huikari 1993:327-333; Vahtola 1996:175-176).

Altogether in the light of archaeological finds, place names and the pollen analysis, it seems possible that Rovaniemi was a multiethnic community with several sources of livelihood in the late Iron Age and by the turn to the Middle Ages. Obviously, the Saami were able to preserve partly their old camp sites and catching and hunting territories but, in part, were obliged to give way to the Finnish settlers, comprising first the people coming from Häme and Satakunta and, later,

Karelians. The present evidence is not enough to give us a definite answer which of these ethnic elements is represented by the skeletal remains of the young woman discovered in the Hiukka estate at Nivankylä. Maybe such a question is wrongly posed: as far as she did not belong to the first generation of the settlers, she could even represent all of them.

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