

Janne Vilkkuna

ANCIENT SKIS OF CENTRAL FINLAND

Abstract

The article is on five new finds of single Bothnian type skis from Central Finland that have become available for study. Radiocarbon datings of two of the skis are 1300 ± 100 BP and 1100 ± 100 BP. One of the skis displays a ring-chain ornament that has not been previously found in Finland. The ski type was probably in use in Finland at the end of the Iron Age and the beginning of historically recorded times.

The find circumstances of the skis show that they were placed deliberately in bogs with the intention of preventing their further use. The ski type probably belonged to the so-called Lapps, who preceded the permanent settlement of the region.

Janne Vilkkuna, Museum of Central Finland, Ruusu puisto, SF - 40600 Jyväskylä 60.

New Finds

Recently five ancient skis of a type that earlier had gone unnoticed have come under study from the museums of Central Finland: one each from the local museums of Kinnula and Saarijärvi, two from the local museum of Konnevesi, and one from the Museum of Central Finland, Jyväskylä (Fig. 1). The last mentioned was found in Sumiainen. Of the pair found in Konnevesi one has been lost but the information given in the main catalogue and a photograph are in evidence of it.

These skis, and the earlier finds linked to them, are of special interest because of the type of ski and its decoration and dating, on the one hand, and their find locations, on the other. The skis belong to the same type which Gösta BERG (1950: 20) calls the Bothnic type, Ernst MANKER (1971: 91) type C with four variations according to the bottom of the ski, and Niilo VALONEN (1980: 41) the kyröläis-lappalainen (Finn.)-type. In the type in question both skis are of equal length, rather short (appr. 100–150 cm) and wide (appr. 10 cm), with a raised, concave foot space and tapered at both ends. There may or may not be a groove on the under-side of the ski. Typical of this type are often the lines

carved along both edges with a more intricate pattern at the points where the lines cross (figs. 2–6).

All of the pine skis under study have been found either at the margin of the shoreline or in alluvial soils. Another common feature is that only a single ski was found without its pair. These skis have clearly been in daily use: there are signs of wear and repair on them. Only the ski from Saarijärvi has been discarded because of a broken foot space.

A summary listing of the skis is given in table 1.

Earlier finds of the Bothnic ski type are located in the following communes of Central Finland: three in Kinnula, one in Petäjävesi, one in Saarijärvi (according to the main catal. of the National Museum this specimen is from Viilsuo of Summasjärvi, and not from the parish village as stated by ITKONEN 1934, 6–7), and one in Toivakka. Judging by these earlier finds, the type has been common elsewhere in Central and Northern Finland also (ITKONEN 1931–1949). In this connection the type cannot be defined with certainty on the basis of the available literature alone without first-hand inspection of the actual skis. A considerable number of the Bothnic ski type has also been found in Northern

Museum No.	NME 10755:2/ Kin 270 ¹⁾ (Figs 2 & 7)	NME 10755:1/ KSM 380:36 (Fig. 3)	NME 10808/ Konn 751 ²⁾ (Fig. 4)	Konn 751 ³⁾ (Fig. 5)	NME 10778/ Saarij 1386 (Fig. 6)
Find location	Kinnula	Sumiainen	Konnevesi	Konnevesi	Saarijärvi
Length	1010 mm	1105 mm	1230 mm/ orig. c. 1350 mm	970 mm/ orig. c. 1400 mm	1110 mm/ orig. c. 1250 mm
Width	125 mm	113 mm	134 mm	90 mm/ orig. c. 120 mm	160 mm
Groove under-side	?	yes	no	no knowledge	yes
Ornament	yes	yes	no	yes	no
¹⁴ C-dating	1300±100 BP	1110±100BP	no	no	no
Nature of find location	swamp on shore of Kinnula Bay	Tankojoki River	Lake Ala-Tankonen	Lake Ala-Tankonen	shore of Lake Pyhäjärvi

¹⁾ Main catalogue No. of National Museum, Ethnological collections (NME)/ Local museums

²⁾ severely water-worn

³⁾ based on catalogue data & photo/local museum Konnevesi

Table 1.

Scandinavia (BERG 1950a and 1950b; LINDHOLM 1979).

Datings

Recent ¹⁴C-datings have indicated that the earlier pollen-datings have not been quite reliable, and therefore radiocarbon and dendrochronological datings, whenever possible, should be used.

The Saarijärvi ski, found in Viilsuo, Summasjärvi, is the only one of this Bothnic type from Central Finland as represented by the skis under discussion here, which has been radiocarbon-dated. The result was (Hel-1077) 1460±130BP, AD 490.

In general, ancient, ornamented Finnish skis have been dated to the Late Iron Age and the Middle Ages according to the ¹⁴C-datings (HIRVILUOTO 1957, VALONEN 1970 & 1972). Basing his opinion on the date marked on the ski from Lycksele, Sweden, Auvo HIRSIJÄRVI (1961) has suggested that the so-called ornamental ski from Kemijärvi dates to the transition from the Middle Ages to modern times in the 16th century. However, a radiocarbon dating of 1270±100 BP (AD 680) (HUURRE 1983:341) has been obtained of the ski. In Sweden, the ¹⁴C-datings indicate that the Bothnic type belongs to the period from 1500 BC to 1000 AD

(BERG 1970, MANKER 1971: 90, LUNDHOLM 1979: 251).

The radiocarbon dating of the skis of Kinnula and Sumiainen (Figs 2 & 3) was carried out at the Radiocarbon Dating Laboratory of the University of Helsinki, with the following results:

Kinnula NM 10755:2Hel-1536 1300±100 BP AD 650
Sumiainen NM 19755:1Hel-1539 1110±100 BP AD 840

In all probability, the skis are dated to the 7th and 8th centuries. However, it should be kept in mind that the dating can indicate only the time during which that part of the tree was growing from which the wood for the skis was taken. Assuming that the skis were made of freshly felled wood, the error in dating can be no more than a hundred years. In spite of this, the ornaments of the Kinnula ski would indicate it to be considerably later than the 7th century. The fact that these broad, short skis could quite possibly have been made of dry, dead, standing timber can neither be totally ruled out.

Ornaments

Of the five investigated skis, the ones from Kinnula and Sumiainen, as well as the one from Konnevesi (which is lost) are decorated with ornaments. The other Konnevesi ski is so badly

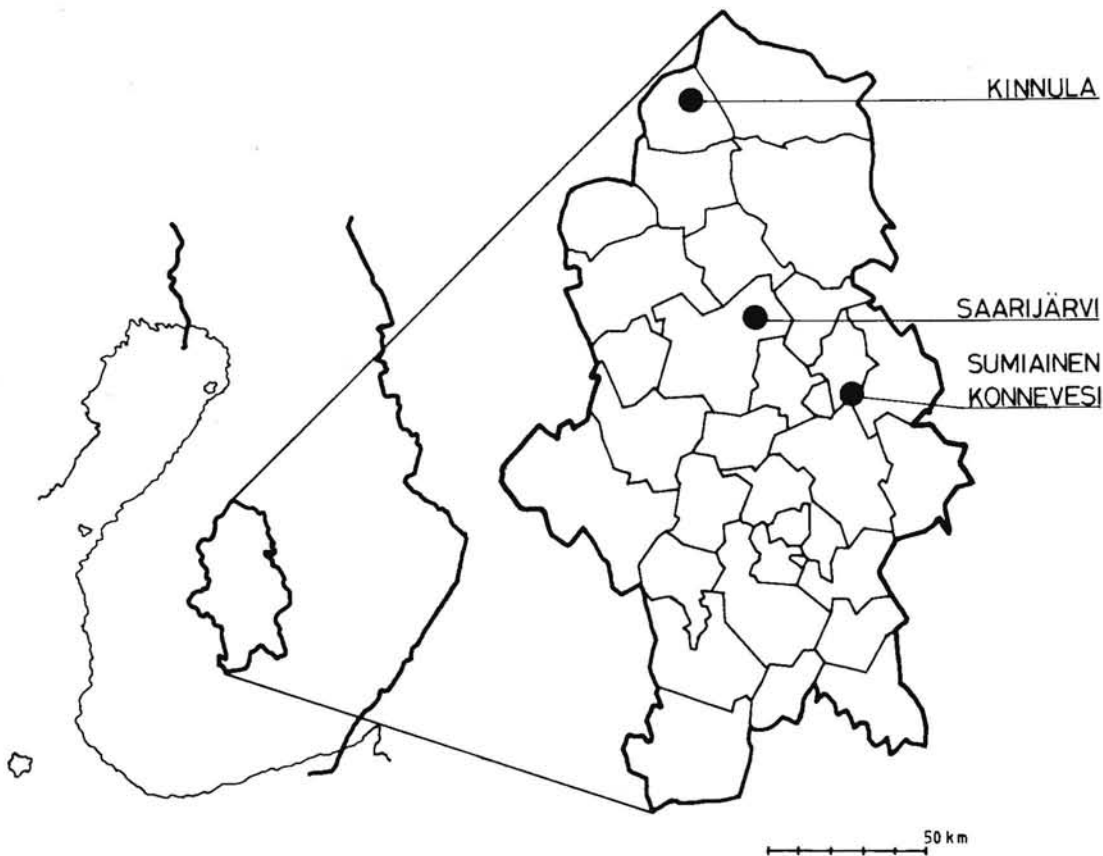


Fig. 1. Locations of the administrative district of Central Finland divided into communes, and the communes and find locations of the ancient skis discussed. Drawing by L. Matilainen 1983. Museum of Central Finland.

damaged by water that it is not possible to say with certainty if it had been decorated or not.

The type of the ornaments in all three skis is similar. Lengthwise along the edges of the skis there are lines, single and in pairs, (Finn. 'rikko'), numbering from 6 to 8. The lines have been chiselled by supporting the tool against the edge of the ski. The line-ornament is common among the numerous Bothnic type skis that have been found, as well as other ski types. This same type of ornament has been common in the folk skis of recorded history as long as they have been made. The decorative lines form 6 to 7 points at which they cross and where the ornaments are situated.

In the other Konnevesi ski there are ornaments immediately in the front and the back of the foot space, but in the photograph their pattern is not quite distinctly observable (fig. 5). In the Sumiainen ski the zigzag ornament made by

carving triangular dents one after another is situated right next to the field in front of the foot space (fig. 3). The zigzag pattern is so common and so simple a pattern in all kinds of folk artefacts that there is hardly any need to look for counterparts, and therefore it cannot be dated on that basis. It may be noted, however, that there is a zigzag pattern on the tip of the ancient skis found in Toivakka and Summasjärvi-Viilsuo in Saarijärvi (ITKONEN 1942: fig 2, 1934: fig. 7), and the same pattern has been carved on the ends of the foot space of the Laitila and Kiuruvesi skis (HIRVILUOTO 1957, APPELGREN-KIVALO 1911: fig. 4-5), as well as in the centre of the braided band ornament of the Kemijärvi ski (ITKONEN 1935: fig. 2).

The edges of the concave foot space of the Sumiainen ski end in a notch making a distinct cut-off line (fig. 3). It is possible that this has a purely functional meaning, but there is some re-

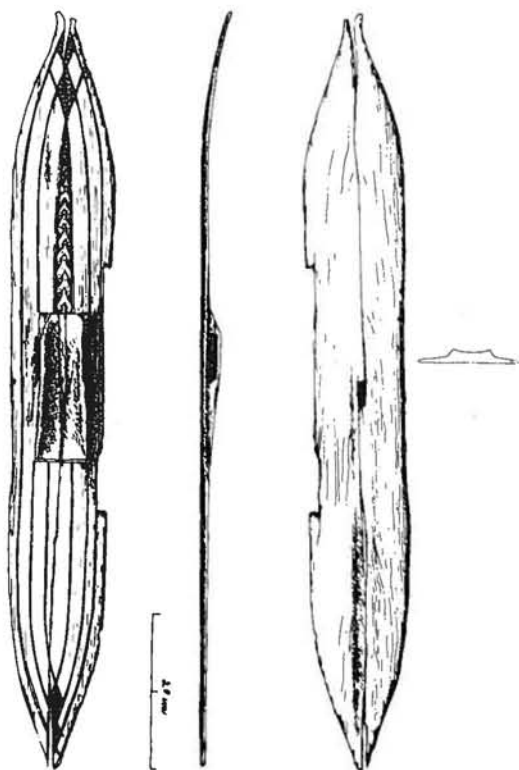


Fig. 2. The ancient ski from Kinnula. Drawing by J. Markkanen 1981. Museum of Central Finland.

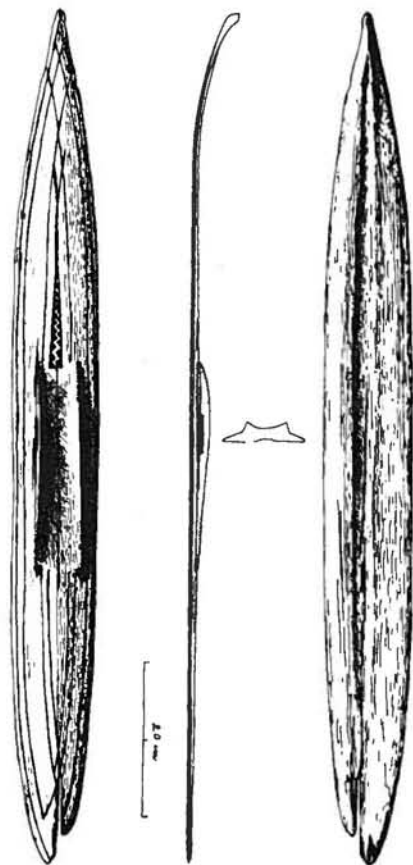


Fig. 3. The ancient ski from Sumiainen. Drawing by J. Markkanen 1981. Museum of Central Finland.

semblance to the ornaments on the edges of the foot space of the Kiuruvesi and Laitila skis. In the Kinnula ski the foot space is trimmed with crosswise lines, and in front of it there are chiseled triangular dents.

The linear ornaments of the Kinnula ski are composed of 8 pairs of which the ones closest to the edge have almost completely been faded away by wear. The pairs of lines form seven fields on which there are decorative designs on all three lying in front of the foot space and on two of the centremost ones behind the foot space. The designs on these fields are composed of lined squares with a lozenge-like carved denture in each square (fig. 2). The checkered decoration is seen in the Kemijärvi ski of the Bothnic type (ITKONEN 1935: fig. 2, HIRSJÄRVI 1961). A checkered-like loopcross is found in the corresponding fields of the skis found in

Lycksele, Råneå and Byske in Northern Sweden (BERG 1950: fig. 61, 69 and 72).

The most interesting ornament of the Kinnula ski is the ring-chain decoration composed of two interlocking ring-chains in the first field in front of the foot space (fig. 7). The rings are decorated by indented dots. The ornament has been made by carving the outlines leaving the background lower from which the ornament itself stands out.

The ring-chain ornament in skis has not been known in Finland earlier or elsewhere, for that matter. The closest counterparts for the ornament itself are found in the other Nordic countries. Presumably, the ring-chain ornament originated already in the Roman Empire, and was in use even long after the Roman Iron Age (KARLSSON 1976: 141–142, see also LEXOW 1918). Among the Scandinavian peoples of the



Fig. 4. The surviving ancient ski from Konnevesi. Photo by P. Helin 1982. Photo archives of the Museum of Central Finland.



Fig. 5. The lost ancient ski from Konnevesi. Photo archives of the Museum of Central Finland (central files).

British Isles it is said to have been introduced by Gaut Björnson who chiseled the design on several stone crosses on the Isle of Man, and it was also used on Viking stone crosses in Cumberland (KERMODE 1907: pl. XXX-XXXVI, XXXVIII, XLI-XLII, XLVII-XLVIII, L, LII-LIV). The Ring-chain ornament has also been used on bone slabs (trial-pieces, O'MEADHRA 1979: pl 10 30AB) of the Viking Period in Dublin, and on a wooden game-board from the 10th century (GRAHAM-CAMPBELL & KIDD 1980: fig. 39). In all of the above-mentioned cases the ring-chain is in triplicate.

In Scandinavia the ring-chain is found on stones, baptismal fonts, wooden chests, furniture, building structures, etc. of the Viking Period and the Romanesque era (WILSON & KLINDT-JENSEN 1966: pl XLIV; SVENSSON 1972: fig. 8:6; BLINDHEIM 1965: fig. 57, 79 and 160; KARLSSON 1976). In the double

form, as in the Kinnula ski, the ring-chain is to be found at least in the pulpit of the Tyldal church in Norway, in the Telemark chest, and in the Edåsa chest and the Söderköping steelyard in Sweden. In Nordic folk-art the ring-chain has survived even after the Romanesque era. It is known in Uppland in Sweden, in wooden boxes and the heddle wheel of the loom in modern times (UPPLAND 1926).

If the radiocarbon dating of the Kinnula ski (1300 ± 100 BP) and the supporting dating of the Kemijärvi ski (1270 ± 100 BP) actually indicate the time when the skis were made, this result sheds new light on the history of the ring-chain ornament in Europe and especially the Nordic area. In this connection it cannot be resolved whether the ornament was known in Scandinavia as a loan from elsewhere already in the Merovingian Period or whether it had come about independently.



Fig. 6. The ancient ski from Häkkilä, Saarijärvi. Note the chopped foot space. Photo National Board of Antiquities/Ritva Bäckman.

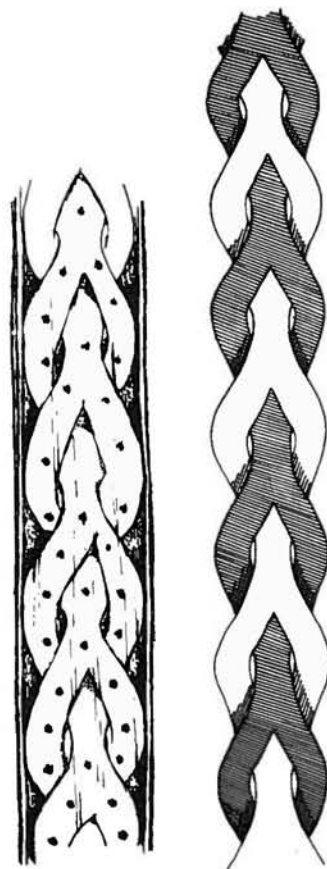


Fig. 7. Ring-chain ornament of the ancient ski from Kinnula, and its structural principle. Drawing by J. Markkanen 1981. Museum of Central Finland.

Skiing

Of the five ancient skis from Central Finland under discussion, four can be measured and concluded to be back-weighted. The lost Konnevesi ski is to such an extent fragmentary that it cannot be concluded whether it was front- or back-weighted. Assuming that the ski is narrower on the instep in relation to the foot space, the ski from Kinnula, the Konnevesi specimen still existing, and the Saarijärvi ski are right-foot skis, and the Sumiainen ski is a left-foot ski.

Exact copies of the Kinnula and Sumiainen skis were made for this investigation, and they were used as a pair for skiing. Similarly, two copies of the Saarijärvi ski were made to constitute a pair of skis. Since no toe-straps have remained intact in any of the Finnish ski-finds, the strap used in the skiing experiments were simple

leather ones and the leather boots made somewhat like a moccasin with an upward toe part. When skiing either one or two poles were used experimentally. The Kinnula and Sumiainen ski-copies were tarred, and the Saarijärvi specimens were left unfinished.

The skiing experiments were somewhat hindered by the fact that there was no certainty regarding the straps and boots used at the time. They did indicate, however, that the toe-strap was apparently situated closer to the ankle, in those times, and that the raised foot space would thus fit the instep and the edges of the concave foot space would support the foot sideways.

This type of ski is suitable for use in soft snow which, in fact, is a prerequisite for them. They are very convenient for skiing even in difficult forest terrain, but on hardcrusted snow they hold hardly at all sideways as, for instance, in

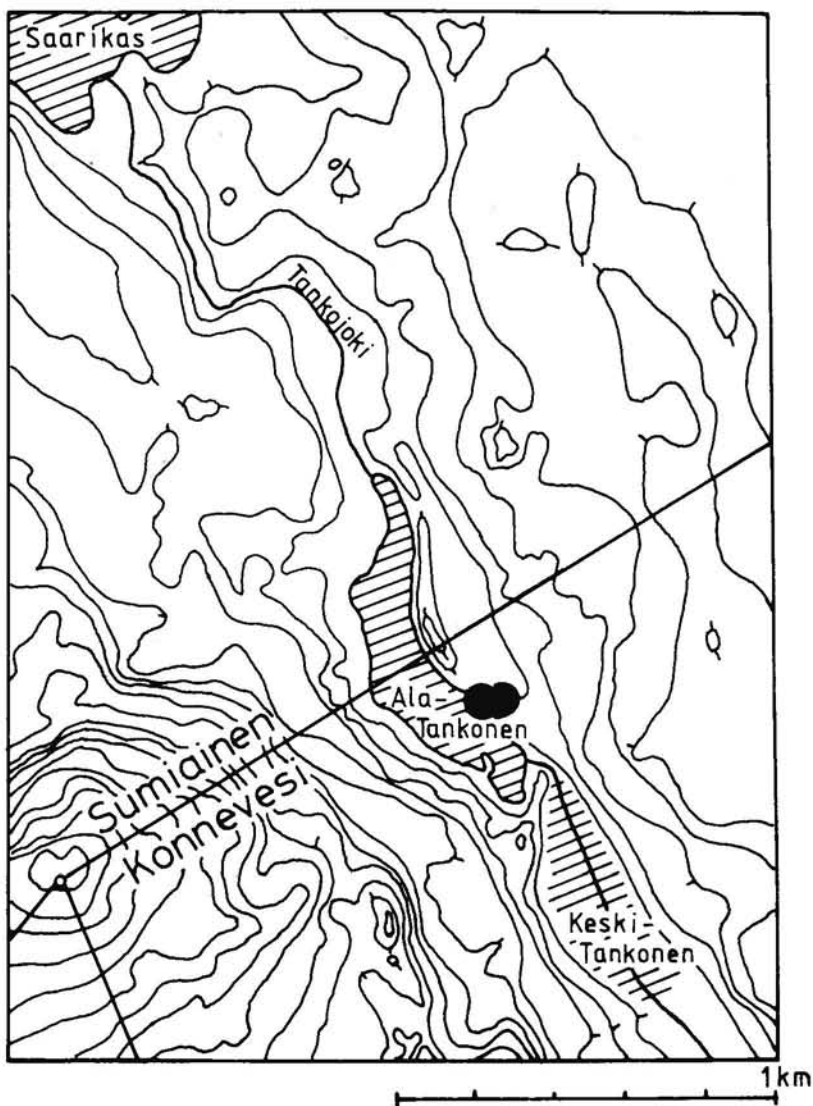


Fig. 8. Find locations of three ancient skis in Sumiainen and Konnevesi (black spots). The exact site of the Sumiainen ski is not known, only that it was situated somewhere in the Tankojoki River-bed. Contour lines at 5 metres. Drawing by L. Matilainen 1983. Museum of Central Finland.

climbing up or sliding down a slanting slope. Skiing in unbeaten deep snow on these skis resembles something between walking and modern skiing, but on beaten tracks one can demonstrate true skiing. In deep snow (appr. 70 cm) these skis carry very well.

On the condition that the skier has sturdy toe-straps, it can be assumed that this type of ski is excellent for use in deep snow and forest terrain; in other words, in conditions that the ancient hunter was accustomed to meet.

Find locations

All of the Central Finnish skis under discussion have been found in marginal low-water, in the alluvial soils or in marsh-land. The Saarijärvi ski was found in the village of Häkklä in the low-water shoreline of Lake Pyhäjärvi. The skis of Sumiainen and Konnevesi were found when the ponds along the Tankojoki River were drained in the beginning of the 1930s. The Konnevesi skis were found in the alluvial shore of

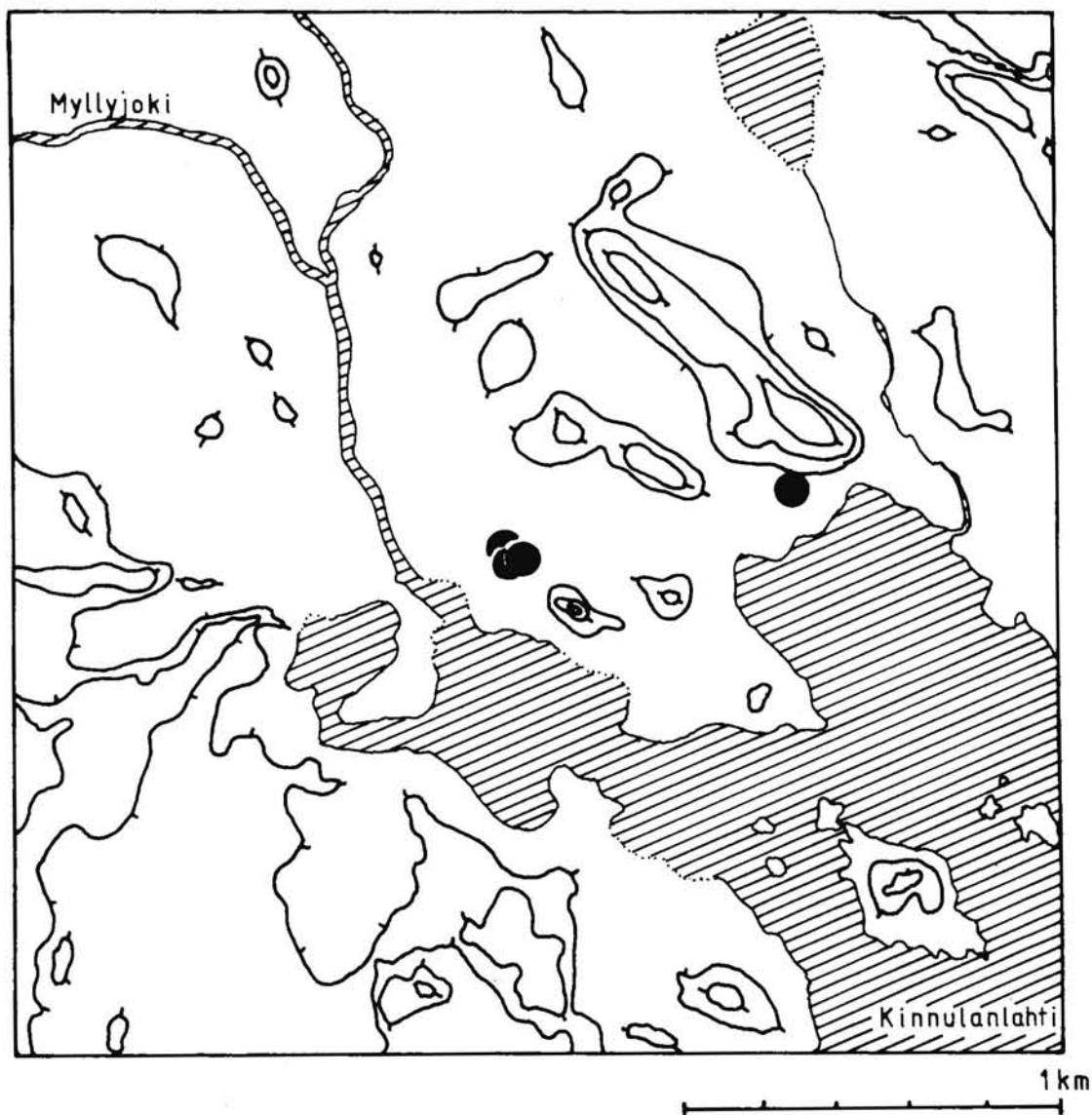


Fig. 9. Find locations of four ancient skis in Bay of Kinnula, Kinnula (black spots). Contour lines at 5 metres; first 5 m range rising from the lake is practically marshland. Drawing by L. Matilainen 1983. Museum of Central Finland.

Lake Ala-Tankonen appr. 15 metres apart (fig. 8). The Sumiainen ski-find borders on the Tankojoki River, apparently on the stretch between Lake Ala-Tankonen and Lake Saarikas.

The Kinnula ski emerged from the open alluvial shore of the estuary of the Isojoki River in Kinnula Bay on an excavation site for peat-moss (fig. 9). On the same spot, the so-called Haavikonieniemi, two ancient skis were found in ditch-digging (NME 7405 & NME 7923:1 verif., and

ITKONEN 1932: 54 and 1937: 73–74) at an earlier date. Additionally, in digging a ditch appr. 600 m ENE of the above mentioned site another ancient ski was found (NME 7595:1; Kalle Lahti, oral comm. Kinnula 1982; ITKONEN 1935: 5–7).

There are extensive descriptions in earlier research papers including examinations of the typological and chronological relations between different types of skis. Where the skis were

found and how they have come to be there are points of interest that have received scant, if any, attention. It has been suggested that the ski finds relate to the breaking of a ski after which the skier has discarded it. This explanation holds no logic: however badly the ski is broken, the skier does not discard it but tries instead to mend it in order to continue to his destination. In any case, he would start to carve a new ski only under very exceptional conditions. Moreover, the skis that have been found are often intact, or they show signs of repair.

It is remarkable that the skis are generally found not in pairs but as single ones. Furthermore, there are not even any remnants left on them either of leather or with the toe-straps although these would have been preserved quite likely e.g. in bogs.

The concentration of the seven ancient skis from Kinnula and Sumiainen-Konnevesi in so small an area of Central Finland cannot be explained by chance skiing accidents or the loss of skis. The only logical explanation that throws light on numerous other finds is that the skis have been deliberately thrown into alluvial soil, without toe-straps and pairless as well. They were not placed in a chance location in alluvial soil, but in a place that met the requirements of their maker, and the same place has been used repeatedly. Evidently, this has taken place in the time of open water, for if the skis had been simply left on the snow in a frozen swamp they would have been exposed to rapid decay, at least partially.

Therefore, the skis have been deposited in marshland with a prefixed aim. It is therefore obvious that this was done because of a custom based on some belief the nature of which will probably never come to light. The fact that the toe-straps have been removed, and the skis have no pairs would seem to indicate that the purpose was to prevent their further use for skiing. Whether the idea was to prevent the skis themselves from following a living or dead soul, or a living or dead person from using them, can only be surmised.

The above hypothesis gains support from certain ski finds showing that the toe-strap part of the foot space has been quite distinctly chopped off with an axe. This is the case in the skis from Saarijärvi and Kemijärvi, and also the Glommersträsk ski from Sweden, which has been given the illogical explanation by LUNDHOLM (1979: 202) that after the ski was worn down altogether, the toe-strap was removed for further use. Even if the toe-strap were totally re-

moved from the worn ski, the lacings would still have to be undone before fitting the strap into place again on a new ski.

These skis are not especially decorated skis made for the sole purpose of placing them in water which is quite clearly proven by the distinctly visible signs of wear and repair. They are simply quite ordinary, every-day means of transport.

The Bothnic Type of Ski in Central Finland

It has so far become clear that, in addition to the five ancient skis of the Bothnic type, there are also earlier finds consisting of six other Bothnic skis, and further finds have been discovered in other parts of Finland and Sweden.

The Bothnic skis of Central Finland appear to be dated to the end of the Iron Age and the Middle Ages. By whom were these skis used? The prehistory of Central Finland in the Iron Age and the Middle Ages has been but little studied. Scattered finds in Central Finland dating to the beginning of the Iron Age are known, but the finds accumulate toward the end of the Iron Age indicating the beginnings of more permanent settlement (ÄYRÄPÄÄ 1935, HUURRE 1972).

Close to the location of the Saarijärvi ski find, a penannular brooch of the Viking Period with rolled ends was found (HUURRE 1972: 53). In Kinnula a hoard of women's brooches and ornament from c. 1000 AD has been found (LUHO 1966). There is very little knowledge of the living conditions in the Middle Ages in Central Finland. However, it is quite clear the peasants and the nobility of the cultural areas of Häme were in the habit of using this region as their privileged hunting and fishing grounds where each household had its own private grounds adjacent to those of other households of the same village and parish. The ownership of these hunting grounds was catalogued by the Crown in the mid-16th century in order to evaluate possible future settlement of the wilderness. At that time, the uninhabited tracts were already being settled permanently by settlers from Häme and Savo.

The owner of the land where the Kinnula skis were found cannot be determined with certainty from the catalogues, but the hunting grounds in the southern parts of Kivijärvi to which even the northern parts perhaps also belonged were owned by the peasants of Jämsä, Padasjoki and Sääksmäki in Häme (MARKKANEN 1983: 141). Similarly, the Häkkilä tract of Pyhäjärvi,

Saarijärvi, belonged to a peasant from Sääksmäki parish in Häme, and the waterways of the Tankojoki River in Sumiainen, Konnevesi, respectively, to a peasant of Janakkala parish in Häme (KALLIO 1972: 83, JOKIPII 1978: 35). The Bothnic type ski finds of Central Finland cannot be easily explained by the Häme hunters or their predecessors. The ownership and exploration of the hunting grounds could rather have been an outcome of the culture represented by the ancient skis.

Folklore has retained many tales of and explanations for place-names that describe how the region was inhabited by Lapps before the arrival of the Häme and Savo tribesmen. Also in the light of prehistoric finds, Central Finland appears to have been settled already from the Stone Age to the Iron Age (VILKUNA 1982), and many of these finds can hardly be explained by hunting in the Iron Age and the Middle Ages only (eg. LUHO 1966, PÄLSI 1934). These early settlers of the region were the very ones called the Lapps. The only documented 'de facto' information of the Lapps of this part of the country is dated to 1390 (HAUSEN 1890:197). The nationality of these so-called Lapps of the inner parts of Southern Finland has not yet been solved, but they do not necessarily belong to the Saame. The traditional belief is that new settlers drove the Lapps away from the land used by them, but according to Kustaa VILKUNA (1971: 215–216) it is quite probable that they were assimilated into the settlerpopulation; by fleeing they could not have quickly enough found free hunting and fishing grounds, imperative to their complicated annual life cycle.

The assumption that the Bothnic type of ancient ski belongs to the so-called Lapps appears to be supported by not only their re-

gional distribution but also by the small size of the foot space, and the short length of the ski. The hunters of Häme of the Iron Age and the Middle Ages could hardly have been carried by skis of such length (LEHTOSALO-HILANDER 1982: 37). Apparently the users of these skis have been shorter in stature, perhaps like those Merovingian people whose remains have been discovered in the Leväluhta bog in Isokyrö (PESONEN 1943).

In this connection the question how and where the Bothnic type of ski originated remains open. On the whole, it can be stated that the earliest facts about skis have been gleaned from the drawings carved in the rocks on the shore of the White Sea in the USSR dating back 4500–3500 years (SAVVATEJEV 1983). There are many ski terms common to Finnish and Lappic, the chronological order of which is by no means self-evident. Many of them are obviously loans from Lappic to Finnish (T. ITKONEN 1957:131).

Historical sources reveal how trade was transacted with the Lapps, how they were taxed, and how owning them became an actual sphere of competition. Very often they have been considered to be passive, unfortunate nomads to be subjugated. In so far as the ancient Bothnic ski finds of Central Finland, and numerous other finds of the Pre- and Early-metal Periods and the Iron Age can be attributed to the so-called Lapps, the preceding notion has been proved false. A passive, exploited primitive people could not have had the time, the ability nor the opportunity to adhere to contemporary styles of ornaments nor to create objects like the Kinnula ski which quite clearly speaks of the cultural level of its maker and user.

REFERENCES

- APPELGREN-KIVALO, HJ. 1911: Muinaisajan suk-sista. *Suomen Museo* 1911.
- BERG, G. 1950a: *Finds of Skis from Prehistoric Time in Swedish Bogs and Marshes*. Stockholm.
- 1950b: Nya fynd av förhistoriska skidor i Sverige. *På Skidor* 1951.
- 1970: Skidor. *Kulturhistoriskt lexikon för Nordisk Medeltid* XV.
- BLINDHEIM, M. 1965: *Norwegian Romanesque Decorative Sculpture 1090 – 1210*. London.
- GRAHAM-CAMPBELL, J. & KIDD, D. 1980: *The Vikings*. British Museum.
- HAUSEN, R. 1890: *Registrum ecclesiae aboensis* eller Åbo domkyrkas svartbok. Helsingfors.
- HIRSIJÄRVI, A. 1961: Kemijärven korusuksen ajoitus. *Suomen Museo* 1961.
- HIRVILUOTO, A-L. 1957: Laitilan suksilöytö. *Osmo* 1956.
- HUURRE, M. 1972: Vanhan Saarijärven esihistoria. *Vanhan Saarijärven historia* (by R. Kallio), Jyväskylä.
- 1983: Pohjois-Pohjanmaan ja Lapin esihistoria. *Pohjois-Pohjanmaan ja Lapin historia* I. Kuusamo.

- ITKONEN, T. 1957: *Suomen kielen suksisanastoa*. Helsinki.
- ITKONEN, T.I. 1931, 1932, 1935, 1937, 1938, 1942, 1947 and 1949: Muinaissuksia ja -jalaksia I–VIII. *Suomen Museo* 1930, 1931–32, 1934, 1936, 1938, 1941, 1946 and 1949.
- JOKIPII, M. 1978: Sumiaisten asutus ja vaiheet vuoteen 1842. *Sumiaisten kirja* (ed. M. Jokipii). Jyväskylä.
- KALLIO, R. 1972: *Vanhan Saarijärven historia*. Jyväskylä.
- KARLSSON, L. 1976: Romanskt träornamentik i Sverige. *Acta Universitatis Stockholmiensis, Studies in History of Art XXVII*.
- KERMODE, P.M.C. 1907: *Manx Crosses*. London.
- LEHTOSALO-HILANDER, P-L. 1982: Luistari I. *Suomen Muinaismuistoyhdistyksen Aikakauskirja* 82:1.
- LEXOW, E. 1918: Ringkedjen. *Bergens museums aarbok* 1917–1918.
- LUHO, V. 1966: Kinnulan ketjulaite. *Suomen Museo* – 1966.
- 1967: Riemenschneider. *Finskt Museum* 1966.
- LINDHOLM, K. 1979: En skida från Glommerstråk, Lappland. *Fornvännen* 1979/4.
- MANKER, E. 1971: Fennoskandias Fornskidor. *Fornvännen* 1971.
- MARKKANEN, E. 1983: *Vanhan Viitasaaren historia*. Saarijärvi.
- O'MEADHRA, U. 1979: Early Christian, Viking and Romanesque Art. *Theses and Papers in North-European Archaeology* 7.
- PESONEN, N. 1943: Über die aus dem 6.–7. Jahrhundert n. Chr. stammenden Knochenfunde der Opferquelle Levänluhta. *Sitzungsberichte der Finnischen Akademie der Wissenschaften* 1939.
- PÄLSI, S. 1934: Keuruun suolöydön tuohet. *Suomen Muinaismuistoyhdistyksen Aikakauskirja* XL.
- SAVVATEJEV, J. 1983: Karjalan muinaisia lylynlykijöitä. *Punalippu* 1/1983.
- SVENSSON, S. 1972: *Nordisk folkkonst*. Lund.
- UPPLAND 1926: *Uppland i Nordiska Museet och Upplandsmuseet i Uppsala* 1926. Stockholm.
- VALONEN, N. 1970: Nauhaornamentiikka eräkäviän miljöössä. *Suomen Museo* 1970.
- 1972: Euran suksilöytö. *Satakunta ja satakuntalaisia* II.
- 1980: Varhaisia lappalais-suomalaisia kosketuksia. *Ethnologia Fennica* 10.
- VILKUNA, J. 1982: Konginkankaan Pyhäsalon varhaismetallikautinen hautaröykkiö. *Keski-Suomi* 17.
- VILKUNA, K. 1971: Mikä oli lapinkylä ja sen funktio. *Kalevalaseuran Vuosikirja* 51.