POLLEN ANALYTICAL EVIDENCE FOR IRON AGE ORIGIN OF CUP-STONES IN THE KERIMÄKI AREA

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Introduction

Annually laminated lake sediments have been found in widely different types of lakes in various parts of the world (O'Sullivan 1983). In most lakes the quality of sedimenting material has a clear seasonal variation, but the retaining of this variation as a laminated structure requires very peaceful conditions at the sediment surface (Simola 1983). The development of freeze-coring technique (e.g. Huttunen and Meriläinen 1978) has enabled undisturbing sampling of soft lake muds that are typical for our lakes and has much increased the number of known laminated sediment sequences in Finland. Where present, and when verifiable as annual units, the laminations provide an absolute chronology for stratigraphic studies of the history of the lake and its surroundings. This is particularly valuable, as it is known that ^{14}C-dating of culturally influenced lake sediments may be hampered by the presence of old allochthonous organic material (Tolonen 1980).

During the past decade, investigations of the history of agriculture in various areas have been conducted with the following strategy: 1. Searching of a lake in which annually laminated (varved) sediment is deposited. 2. Sampling of the sediment by freeze-coring. 3. Photography and counting of the varves. 4. Pollen analysis of consecutive 1.0 cm subsamples from sediment surface downwards through the cultural levels.

Table 1. summarizes the results of the first studies of this kind in eastern Finland. In the province of Häme, similar studies have revealed signs of crop cultivation already in the Stone and Bronze Ages (M. Tolonen 1978, 1981, K. Tolonen 1980, Huttunen 1982).

This paper deals with the history of agriculture in the former area of the Kerimäki parish. The study was conducted in the years 1981–83, and financed by Enonkoski, Kerimäki and Punkaharju communes as part of preparations for the writing of a local history book.

Study area and results of pollen analysis

The island of Kerimäki is a 800 km^2 piece of land within the Saimaa lake complex, surrounded by the basins of Paasiselkä, Puruvesi, Pihlajavesi, Haukivesi and Enonvesi, and narrow straits that connect these to each other. The former parish of Kerimäki, which was established in 1643 (Pohjannoro 1978) covered the Kerimäki island, except for its SW part, and stretches of mainland to the north and south-east of the island.

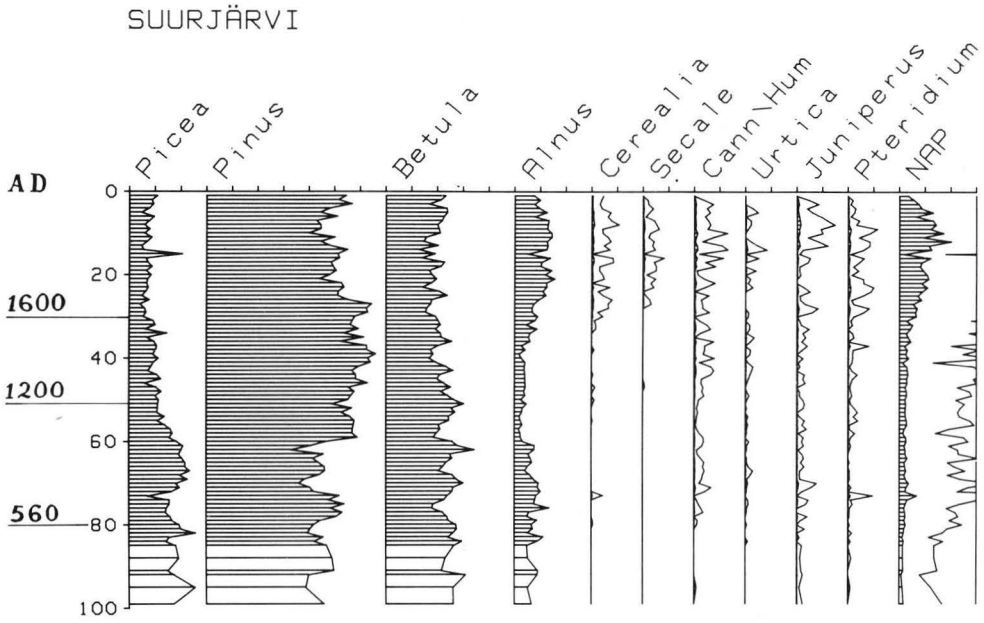

Fig. 1. Percentage pollen diagram 0–99 cm of Lake Suurijärvi. Time-scale on the left margin is based on varve-counting, only selected taxa are presented. There appears a distinct cultural phase between 80 and 72 cm, or AD 570–760, and a restart of cultivaltion about AD 1150. NAP = sum percentage of non-arboreal pollen.

Three lakes were selected for the pollen analyses:

1. Puutienlampi (62°4'N, 28°54'E) is a 2 ha, 13 m deep lake in the commune of Enonkoski, NW corner of Kerimäki island.
2. Suurijärvi (61°51'N, 29°05'E) is 8 km² in area and 32 m deep and lies a few kilometers south of the mediaeval centre of Kerimäki, the villages Herttuala, Tynkkylänmäki and Simpala.
3. Tervalampi (61°41'N, 29°22'E) is 11 m deep and 2 ha in area and lies in the mainland of Punkaharju, SE of Kerimäki island.

The lakes were sampled by freeze-coring in the late winter 1981 (they were selected from over 30 potential study sites that were visited).

The results of the pollen analyses of Suurijärvi and Tervalampi are shown in Figs 1 and 2, respectively (selected taxa only).

In the sediment of Suurijärvi, the first occurrence of cereal pollen, at 80 cm depth, dates back by varve-counting to AD 560. This first cultural period includes several indications of slash-and-burn agriculture in the area, viz. decline of the proportion of spruce (Picea) and increase in the numbers of herb and grass pollen and bracken (Pteridium) spores as well as increase in charcoal particles. However, this phase seems to end at around 700 AD (73 cm), and there are no more indicators of agriculture in the pollen flora before the 12th century. The new start is in accord with the historical records on the onset of settlement in this area (Gebhard 1890, Pärnänen 1947). We interprete the first agricultural phase as an unsuccessful attempt to colonize this area that occurred during the general expansion of Late Iron Age agriculture into interior Finland.

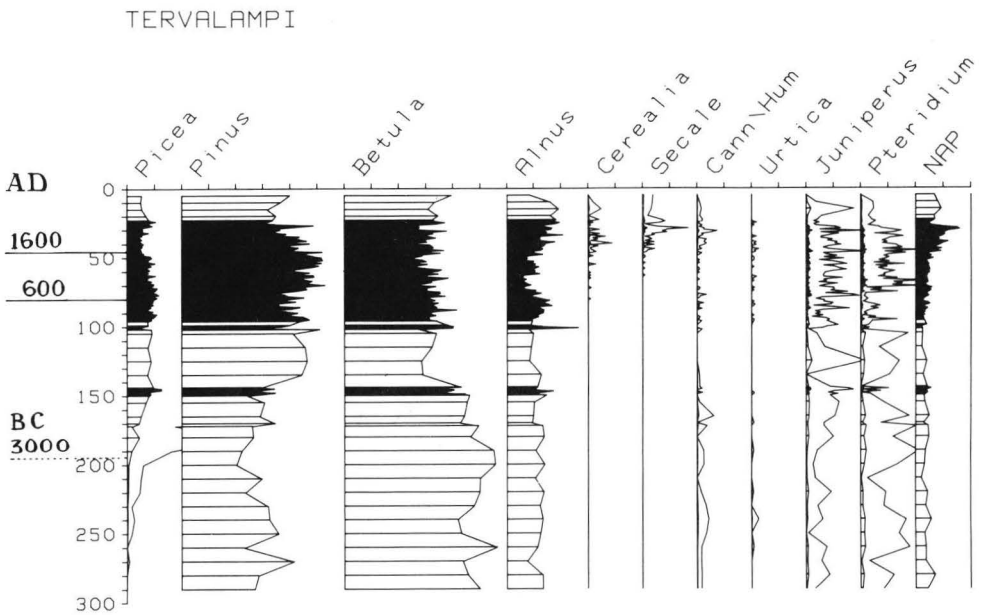

Fig. 2. Percentage pollen diagram of Lake Tervalampi (0–290 cm; selected taxa only). Dating of the cultural layers by varve-counting and that of the 195 cm level by the arrival of spruce (Picea). The influence of even the initial phase of agriculture upon the forest structure (e.g. decline of spruce) is clearly seen.

In the profile of Tervalampi the first cereal pollen likewise occur at around AD 600. From this level upwards, the cultural influence seems weak, but perhaps more continuous than in the Suurijärvi profile, until a clear intensification of slash-and-burn activity and agriculture in the 16th century. The counting of varves was rather difficult in the lower part of the Tervalampi profile; before the intensification of land use the lake was oligotrophic, and the sediment increment was in the order of 0.3 mm per year. The varve-dating is, however, controlled by the appearance of spruce in the profile at 190 cm, which is known to have happened in this area about 3000 BC (Tolonen et Ruuhijärvi 1976). Tervalampi is situated at the Second Salpausselkä ice-marginal formation, and its immediate surroundings are rather poor gravelly soils, but the site is less than 50 km away from the NW shore of Lake Ladoga where established agriculture already existed in the late Iron Age.

In the profile of Puutienlampi in Enonkoski (not shown here) the cultivation starts first around AD 1480, so it seems that the Iron Age expansion didn't reach to the northern parts of Kerimäki island. The cultivation at Puutienlampi appears much later than at the two lakes, Pakari and Pytärä that lie about 30 km northwest of this site on the mainland (Huttunen and Simola 1983 and Table 1).

Cup-stones in the Kerimäki area

Nearly 50 cup-stones have been found in the Kerimäki island and the adjacent village of Hummovaara in Kesälahti commune (Hautala 1960, 1965). The number of cups per stone ranges from 1 to 78, the average being 10.2.

Table 1. Sites in eastern Finland where the onset of agriculture has been traced by pollen analysis of varved sediments.

Lake	Commune	location	start of agriculture AD	reference
Hännisenlampi	Kitee	62°04'N 30°12'E	1420	Vuorinen 1978
Pytärälampi	Heinävesi	62°18'N 28°36'E	1320	Huttunen and Simola 1983
Pakarinlampi	Heinävesi	62°20'N 28°32'E	1400	Huttunen and Simola 1983
Laukunlampi	Liperi	62°40'N 29°11'E	1500	Simola et al. 1984b

The common explanation is that the cup-stones were used in sacrificing food etc. for the spirits of deceased family members in order to retain their benevolence. In the Kerimäki area the cup-stones typically occur in clusters, and often in close association with modern farms.

In SW Finland cup-stones often occur close to Iron Age cemeteries. The virtual lack of Iron Age archaeological finds in Kerimäki area, and the stones' close association with farms in villages that are known to be medieval or younger, has led historians to conclude that the cup-stones here were made in the 12th–13th century as the last survival of a long tradition, which by that time was already terminated by the influence of christianity in the southern parts of the country.

Our finding of an Iron Age cultural phase enables the connection of the Kerimäki stones to the same cultural period with the cup-stones in SW Finland and in the Karelian Isthmus. Moreover, there appears to be a simple geographic explanation for the close association of the cup-stones with younger dwellings: In the early Post-Glacial time the waterlevel was considerably higher than the present one (76 m a.s.l.) of Lake Saimaa; in the eastern part of Kerimäki island the highest shoreline of

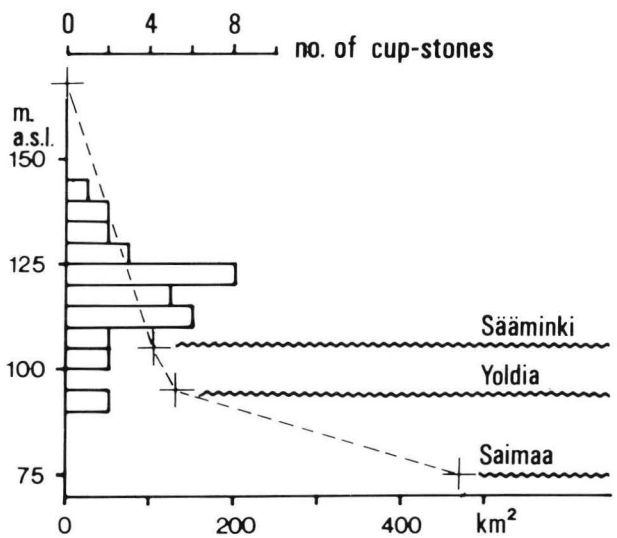

Fig. 3. Vertical distribution of cup-stones in the southern and western areas of Kerimäki island in relation to the highest shoreline of the Post-Glacial period. The broken line indicates the approximate height distribution of land in the area. It appears that the cup-stones lie on the supra-aquatic, or the most fertile hills.

Sääminki Ice Lake is about 106 m a.s.l., and in the western part that became free of ice somewhat later, the highest shoreline is that of the Yoldia Sea at 92–96 m a.s.l. (Ramsay 1931, Hellaakoski 1935). The supra-aquatic lands naturally have a fertile soil, as they have never been washed by waves. Also, as arable fields the high grounds are clearly preferable, because the incidence of summer frost is much higher in low-lying areas. The proportions of supra-aquatic and sub-aquatic land and the vertical distribution of cup-stones in the SW-half of Kerimäki island is illustrated in Fig. 3. (a map of the area showing the geographical distribution of the cup-stones is presented in Simola et al. 1984a). In this area only about a fourth of the land is supra-aquatic, and the cup-stones are very clearly concentrated on these hills. Our interpretation is that the supra-aquatic hilltops have been the natural choice of new settlers of all times. By pollen analysis it seems that there may indeed have been two different colonization periods, the first in the 6th and the second in the 12th century. A new reclaiming of deserted village sites might actually explain the lack of Iron Age cemetery finds in this area.

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