

# Asbestos-ceramic

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**Asbestos-ceramic** (*ca* 1900 BC – 200 AD) refers to types of pottery manufactured with asbestos and clay with adiabatic behaviour in Finland, Karelia and Northern-Scandinavia. A further vessel-type does not contain any asbestos, but it has insulating properties and is therefore sometimes included under asbestos-ceramic.

The most probable origin of this style of ware is the shores of lake Saimaa in Finland which is the only place for richer easily accessible natural deposits of asbestos in its area of distribution. Finds from inland Finland are the oldest. In Finland real Asbestos-ware is known from *ca.* 3900–2800 BC to *ca.* 1800–1500 BC. In Northern-Scandinavia asbestos ware appears apparently from *ca.* 1500 BC to *ca.* 500 BC.

Asbestos ware is usually classified under Comb Ceramic ware. From the times of the earliest comb ware (*ca.* 5000 BC) in Finland asbestos was mixed with clay as an adhesive. At some point people started to make use of the characteristics of asbestos: its long fibres allowed large vessels with thin walls which made them lighter without compromising durability. Some of the vessels had 6 mm thick walls with a diameter of around 50 cm (Pöljä-style). The ware is divided into the following styles (Finland):

- early asbestos ware:
  - Pit-Comb ware with asbestos
  - Kaunissaari ware
- main styles:
  - Pöljä ware
  - Kierikki ware
- late asbestos ware:
  - Jysmä ware

There are two variants of asbestos-pottery depending on its asbestos amount. *Asbestos pottery* had an asbestos amount of 50–60%. It is usually found along evidence suggesting metal work, i.e. crucibles, moulds, slag, fused clay, artefacts of bronze and copper and stone sledge hammers. There are a few finds of pure copper artifacts among asbestos ceramic finds. These include a bracelet and a hatchet (Finland) and some pieces of copper (Sweden). Asbestos ceramic can also have been used as a heat-storage. The vessel patterns are identical to the Neolithic and Bronze Age Jōmon culture in Japan (Jōmon = rope pattern). The most common patterns, however, are the comb and pit decorations typical of North-Eastern Europe at the time (Finland).

The *asbestos ware* refers to vessels containing 90% asbestos and 10% clay, and can resist heat up to 900–1000 °C. The clay made the shaping of vessel possible, but the high amount of asbestos does not classify it as pottery in formal sense. It is believed that the asbestos ware was used in iron production such as spearheads, arrowheads and artefacts. The vessel is also drilled with many holes. The fact that the reduction of iron ore (FeO<sub>3</sub>) with abundant carbon generates large amount of carbon monoxide (CO) may suggest that the drilled holes were used to increase the influx of air (oxygen) required for proper glowing process. Iron ore is abundant in lakes e.g. in Finland.

Lastly, the *hair-temperature* pottery refers to ware made of fine, sorted clay tempered with *ca* 30% finely cut hair and chamotte with similar shape, size, surface treatment (including decoration) as the asbestos pottery. It does not generally contains asbestos, but some samples have small traces. Hair, when used as ceramic temper, leaves thin pores in the ware after firing. Its usage is unknown, but its adiabatic capacity suggest some kind of insulating usage (but not heat resistance).

The analysis made by University of Lund, Department of Quaternary Geology, on asbestos pottery was quite unexpected, since this part of Northern Europe, usually considered to be a step behind the rest of Europe, actually introduced iron production in the pre-Roman Iron Age.

The style seems to disappear around 200 AD in Finland but continues in Scandinavia. The disappearance is thought to be related to the transition to a semi-nomadic reindeer husbandry lifestyle.

## Source

- Hulthén, Birgitta, "*On Ceramic ware in Northern Scandinavia during the Neolithic, Bronze and Early Iron Age*" (1993).

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