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CLEAR EVIDENCE OF BLACK PAINTED TYPICAL COMB CERAMICS AT KIERIKKI

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There have been previous reports of ceramics possibly decorated with black and red paint in the archaeological record of the Finnish Neolithic (Edgren 1992; Torvinen 2000). While a number of Finnish archaeologists have seen such material in excavations or collections, very few published sources mention it, and it has not yet been systematically discussed. Our goals in presenting this clear finding of black paint on Comb Ware in a timely way, is to encourage a re-examination

of existing collections in the light of this new information, and to foster a debate on the occurrence of painted ceramics in Finnish prehistory in general.

Huurre (1983: 141) says that red and black paint are present in the Finnish archaeological record, but rare starting with Early Comb Ware, and more frequent starting with Sär-1 and Sär-2. Past finds of paint on Comb Ware, however, have been controversial and it has remained unclear



Figure 1: Black painted sherds. In both cases, the edge of the black paint coincides with a line of comb decorations.

Table 1: Radiocarbon dates from the 2006 excavation. All dates on charcoal.

Sample	Radiocarbon age (BP)	Cal BP range (2 sigma, 95% confidence)
Beta - 217711	4670 +/-40	5580-5520 and 3540-3360
Beta - 217712	5070 +/-50	5920-5660
Beta - 217713	2550 +/-40	2750-2690 and 2660-2480
Beta - 217714	4810 +/-50	5620-5460
Beta - 217715	4550 +/-40	5320-5050
Beta - 217716	5040 +/-50	5900-5640

up to now whether the ceramics were intentionally painted, or merely blackened by accidental burning. Traces of black, oxidized birch bark slip applied to the inside of vessels to waterproof them (Pesonen 1994) have also made the identification of black paint on Neolithic ceramics difficult.

Black and Red painted wares are a feature of numerous Neolithic cultures in Eastern and Central Europe (King & Underhill 2002), but they have never been clearly identified in the Finnish Neolithic. Recent excavation of a semi-subterranean house floor at Kierikki Kotikangas NE provides unequivocal evidence of black paint applied to the surface of typical comb ware vessels (so-called ‘Kierikki Black’, Fig. 1) in northern Finland as early as 5800 cal. BP (Colour photographs are available on <http://www oulu.fi/taida/ arkeologia/ labra/ research.html>). The elevation of the site, the presence of Typical Comb Ware

as well as the overall context of the Kierikki complex all suggest a date range of 5500–4800 cal. BP for the occupation. Six charcoal samples from the excavation were submitted to Beta Analytic for radiocarbon dating. They returned dates covering a range between 5900–2500 cal. BP, with five out of six dates older than 5000 cal. BP with 95 % confidence (Table 1).

The occupation is clearly a residential one, with a full range of Neolithic finds, including Russian flint, as well as anthropomorphic and animal clay figurines. The paint is usually bordered by a line of fine rectangular comb impressions. It seems to be applied near the rim (Fig. 2). While some paint is found on the outside surface of the rims, some sherds suggest its presence on inside surfaces as well. Figure 1 shows the placement of the black paint on 2 sherds that suggest painting of inside surfaces. When the black

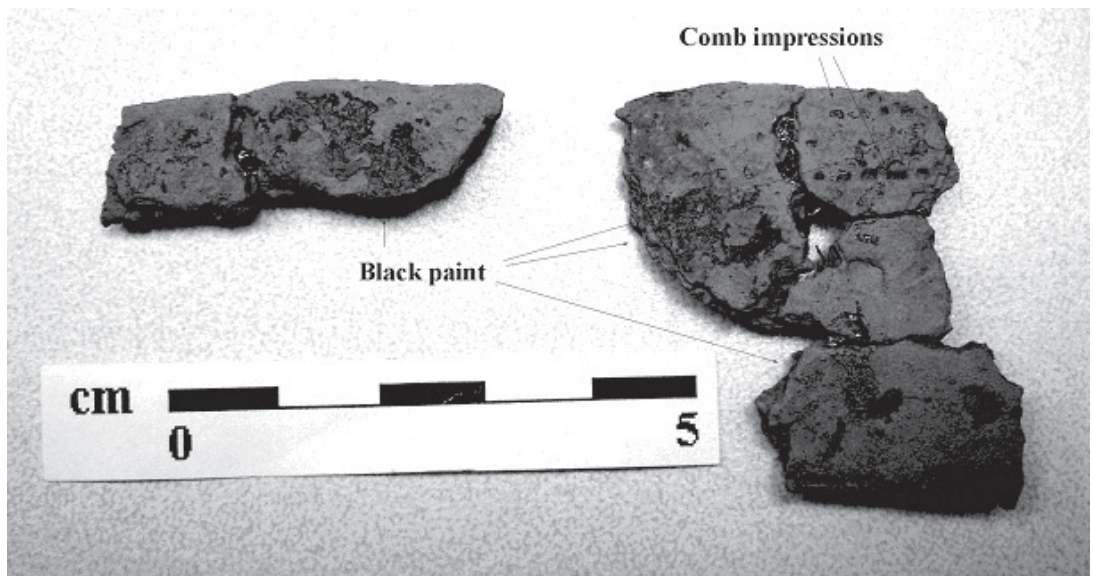


Figure 2: Traces of paint extend down from a rim, through two parallel lines of comb impressions.

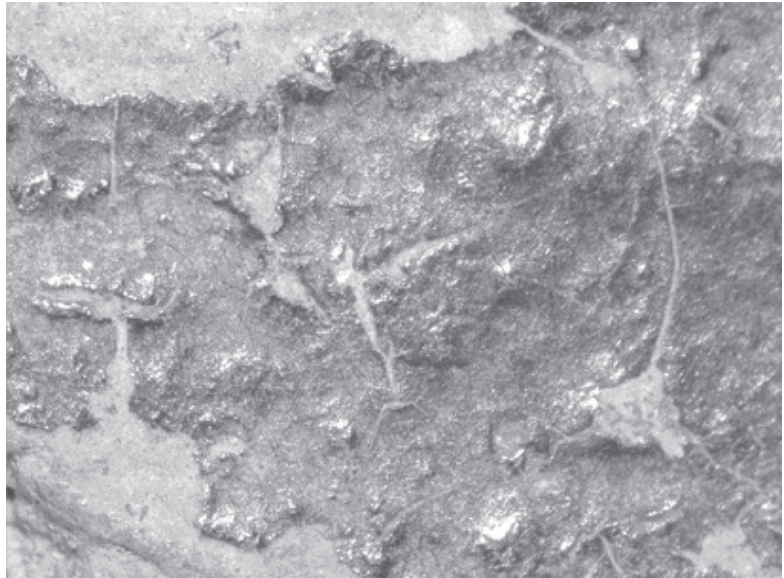


Figure 3: The paint layer at 12x magnification.

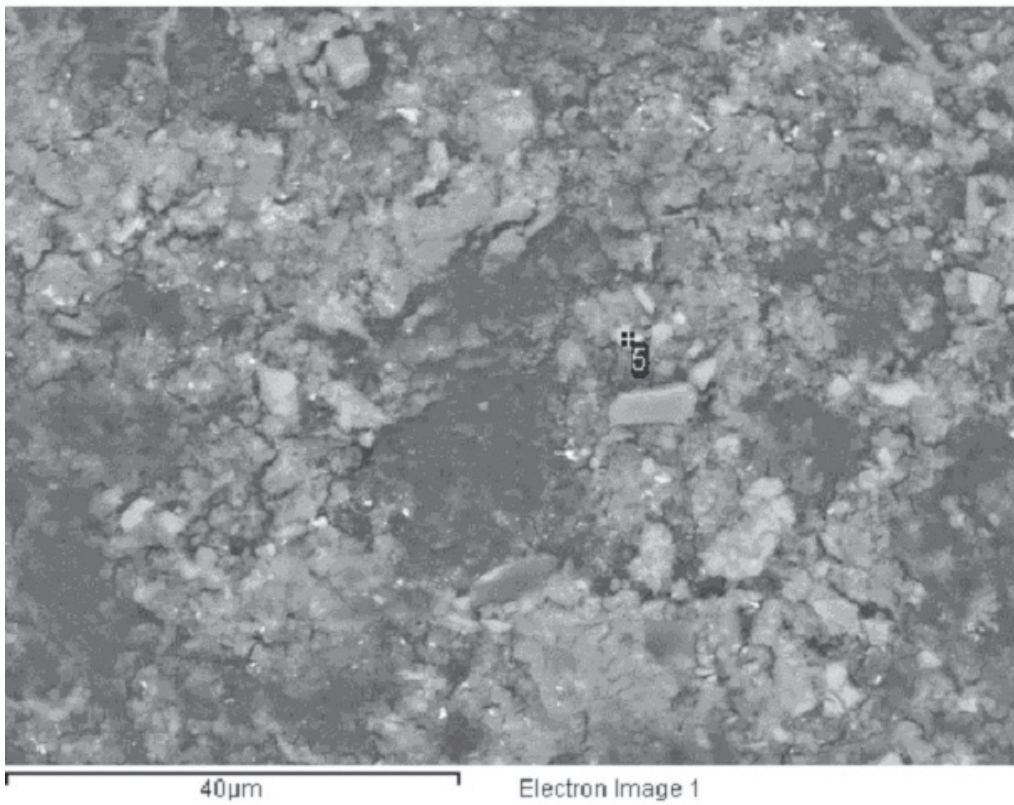


Figure 4: Electron backscatter image.

Table 2: Chemical composition of painted areas.

Element (K)	O	Al	Si	P	Ca	Fe	Cu	Ti	Zn	Na	Mg	Cl	K
Bright inclusion													
Weight %	39.53	8.28	5.66	1.11	0.23	42.94	1.09	--	1.17	--	--	--	--
Atomic %	64.60	8.03	5.27	0.94	0.15	20.10	0.45	--	0.47	--	--	--	--
Medium area													
Weight %	40.28	19.67	14.20	2.76	1.38	16.97	1.85	0.69	--	0.65	0.63	0.40	0.53
Atomic %	58.52	16.95	11.75	2.07	0.80	7.06	0.68	0.33	--	0.66	0.60	0.26	0.32
Dark area													
Weight %	74.64	9.42	1.63	--	4.78	3.25	6.28	--	--	--	--	--	--
Atomic %	87.22	6.53	1.08	--	2.23	1.09	1.85	--	--	--	--	--	--

painted surface is oriented up, both sherds are convex in two planes, suggesting that the inside surface is painted.

A very large (> 100 cm²) rim sherd shows that the paint is sometimes applied to the outside surface of the rim. Unfortunately, the inside surface of that sherd is completely exfoliated, making it impossible to determine whether the paint extends to the inside of the pot. In some places, the black paint extends from the rim through two lines of comb impressions to a third line of comb impressions 45 mm down. Another fragment of the same large sherd has black paint over lines of comb impressions forming a right angle, possibly one corner of a square. Here too, the black paint extends at least 45 mm down from the rim.

Some of the sherds show both areas of glossy black paint and black stained areas where paint has obviously degraded over time. These can provide a guide for discrimination of remains of paint as opposed to other black traces such as burn marks or oxidized birch bark slip. This can be useful on Typical Comb Ware sites where preservation of the black paint is not quite as good as at Kotikangas NE. The intact paint surface probably survived due to the fact that the site excavated in 2006 is on a relatively high elevation and on well drained, sandy, loose soil. It is at the top of a local height, with the ground sloping away in all directions. Our excavations in previous years, while taking place in nearby similar structures, were at lower elevations in less well drained contexts, which may have led to the deterioration and exfoliation of painted surfaces. No obvious painted ceramics were recovered in previous years, although we will now re-examine our collections in the light of this year's finds.

The paint itself is a glossy, mineral based, even layer that is clearly distinct from the ceramic sur-

face (Fig. 3). It fractures and flakes off the surface. The surviving components of the paint are unevenly distributed fragments of iron oxide, probably hematite. On the electron backscatter image (Fig. 4), the paint shows up as regions of different brightness with bright iron oxide inclusions. When a surface is bombarded by an electron beam in a scanning electron microscope, the proportion of backscattered electrons increases in relation to the atomic weight of the elements making up the surface. Areas composed of heavier elements, such as iron and titanium, show up brighter on a backscatter image, whereas areas characterized by lighter elements, such as calcium and potassium, show up as darker patches.

The iron composition of the painted ceramic surface varies from about 42 % for the brightest inclusions, to less than 5 % for the darkest regions (Table 2). Most of the surface is covered by a layer with around 15-20% iron content. The main trace elements are copper (about 1.5 % throughout) and titanium (about 0.5 %). The iron-based black pigment was probably originally mixed with an organic medium and applied to the ceramics before firing.

Interestingly, Neolithic painted ceramics are found in many regions as part of an archaeological complex that also includes anthropomorphic clay figurines and the earliest appearance of rectangular dwellings (King & Underhill 2002). Kotikangas NE has just such a complex. This year's excavation yielded painted ceramics associated with anthropomorphic and animal figurines in the context of a rectangular dwelling of substantial size.

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REFERENCES

- Edgren, T. 1992 Den förhistoriska tiden. *Finlands historia 1*, Schildts, Esbo.
- Huurre, M. 1983. *Pohjois-Pohjanmaan ja lapin esihistoria (Pohjois-Pohjanmaan ja Lapin historia 1)*. Pohjois-Pohjanmaan maakuntaliiton ja Lapin maakuntaliiton yhteinen historiatoimikunta, Oulu.
- King R. & Underhill, P.A. 2002. Congruent distribution of Neolithic painted pottery and ceramic figurines with Y-chromosome lineages. *Antiquity* 76: 707–14.
- Pesonen, P. 1994. Tervanpolton juurilla: koivutervan käyttö saviastian korjauksessa kivikaudella. *Tekniikan Waiheita* 1/1994: 4–7.
- Torvinen, M. 2000. Säräisniemi 1 ware. *Fennoscandia archaeologica* XVII: 3–35.