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TEXTILE-IMPRESSED POTTERY IN RUSSIA

Abstract

This article presents the main results of current Russian research concerning textile-impressed pottery. According to the author, this material is characteristic of the culture of Finnish tribes over a wide area from the mouth of the Kama River to Karelia from the tenth to the sixth century BC.

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The population that produced pottery with fabric impressions on the exterior (and sometimes on the inside as well) is of special importance for the early history of Finnic-speaking peoples in Russia. It is referred to in Russian archaeological literature as 'textile', 'net' or 'pseudo-net' pottery. Since this material bears both spun and 'speckled' impressions and patterns, I propose the term 'spun-speckled impressed pottery' (hence SSP). Its distribution in the Bronze Age and Early Iron Age covered a c. 800-kilometre-wide area from the Volga region to the Baltic (Fig. 1). C.F. Meinander (1954) refers in this connection to Early Metal Period tribes with a special culture, i.e. 'textile' pottery accompanied by bronze artefacts of specific forms, i.e. Mälär-type celts.

Most scholars link the textile impressions with the original spread of ceramic technology and its early tempering techniques. These techniques are thoroughly described by A. Bobrinsky (1978) and I.I. Chernaiy (1981). Where used, they produce pots where the surface is covered with fabric impressions of a spun and speckled appearance (Gorodtsov 1900).

The wide distribution of SSP in the northern and eastern regions of European Russia dates mainly to the end of the second millennium and the early first millennium BC (Bader 1970, Graudonis 1967, Gurina 1961). In its early stages, however, it occurred together with smooth-surfaced pottery.

This author was the first to systematize and outline the SSP complex on the basis of 240 burials in an area from the mouth of the Kama River to Karelia, the total number of sherds being c. 40,000. This material, compiled as a database, was statistically analysed with the EC-1036 computer at the Computing Centre of the Mari University.

The main measure of resemblance and difference among complexes and assemblages, computed on the basis of ornament, form, and surface technique, is Student's so-called t-test. The table values of Student's test depend on the number of features and objects compared (for example a value of 1.97 is obtained for all complexes of pseudo-net pottery from Late Bronze Age and Early Iron Age sites). At a probability level of 0.95 in the actual test, this value must be lower than or equal to the table value of complexes defined similar according to some definite feature. In the opposite case, a value higher than the tabular one will indicate differences among complexes/assemblages.

Similar calculations were carried out when complexes of materials were compared as a whole (i.e. according to a number of features). Patrushev (1989), writing on the origins of the Volga Finns, provides a more detailed account of the methods applied in the study of a larger body of archaeological material, and the results of the author's work with the same computer.

Of the total number of burials containing SSP,

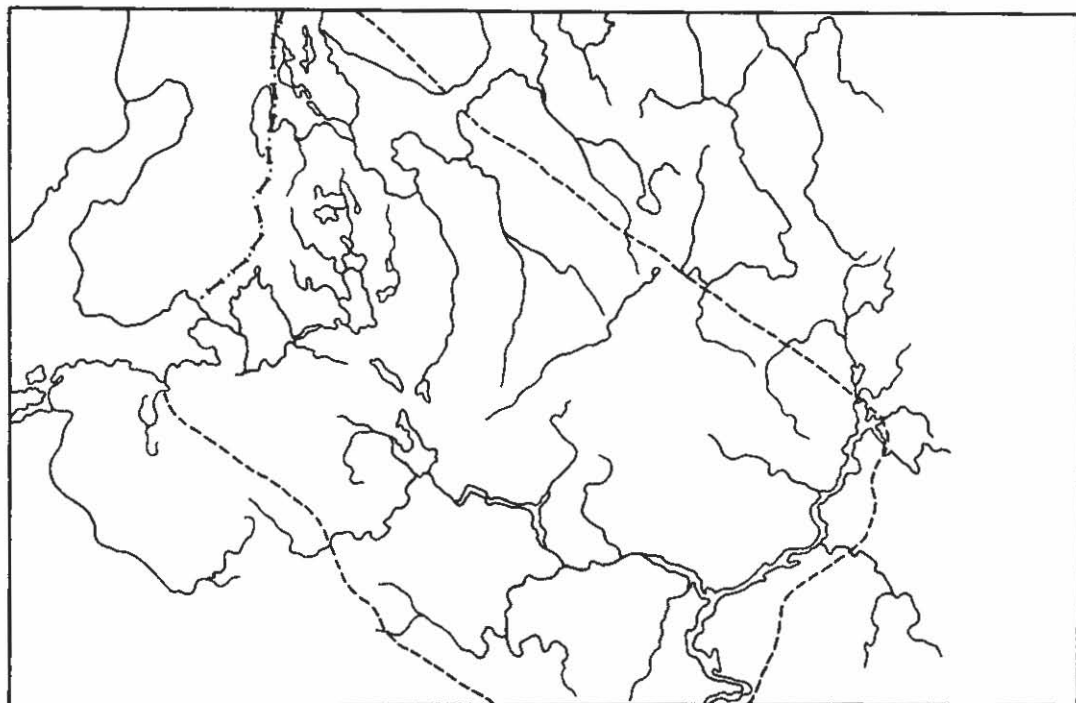


Fig. 1. The distribution of spun-speckled pottery.

those with numerous objects were chosen as standards or bases of comparison (Fig. 2). Complexes or assemblages with few objects were also considered in our description of the general characteristics of SSP in Russia.

The author's studies showed that the most common features of Russian Bronze Age SSP are as follows:

- 1) mostly pot-shaped vessel form, with a closed, straight and an open neck, smoothly or sometimes abruptly merging with a bulging body, also bowl or jar-shaped vessels with a flat or rounded bottom (Fig. 3);
- 2) mostly rounded and sometimes flat walls, with protrusions on the outside and inside walls, often with a collar in southern regions, or with a rolled rim in northern areas, sometimes with designs;
- 3) spun or speckled patterns (34 variants) on the whole vessel surface, or sometimes at locations below the neck (Fig. 4);
- 4) tempering material of sand, crushed stone or large pieces of quartzite;

5) ornaments in horizontal zones consisting of regular or round pits, buckles, sometimes cogged stamp impressions, wedge-shaped pits or impressions, cord imprints and the various combinations (Fig. 5).

The above attributes were still present in Early Iron Age pottery.

A certain conformity can be observed in the distribution of SSP at the end of the Bronze Age in Russia, i.e. in the Volga region from the mouth of the Kama to its northern boundaries. There are more or less concentrated groups in low-lying places at the mouths of the great rivers or on the shores of lakes. In the south-east it is accompanied by Prikazan pottery, constituting half of all ceramics at sites. The mouth of the Kama, the banks of the Volga near Kazan, the Mari Volga area from the mouth of the Iletto Bolshaya Kokshaga are areas with the greatest occurrence of SSP. The west of the Mari Volga area SSP is found at the Pozdnyakovo sites, being parallel with Pozdnyakovo pottery up to the end of the 2nd millennium BC. It was only at the beginning of the first millennium BC that it began to supplement the Pozdnyakovo ceramic el-

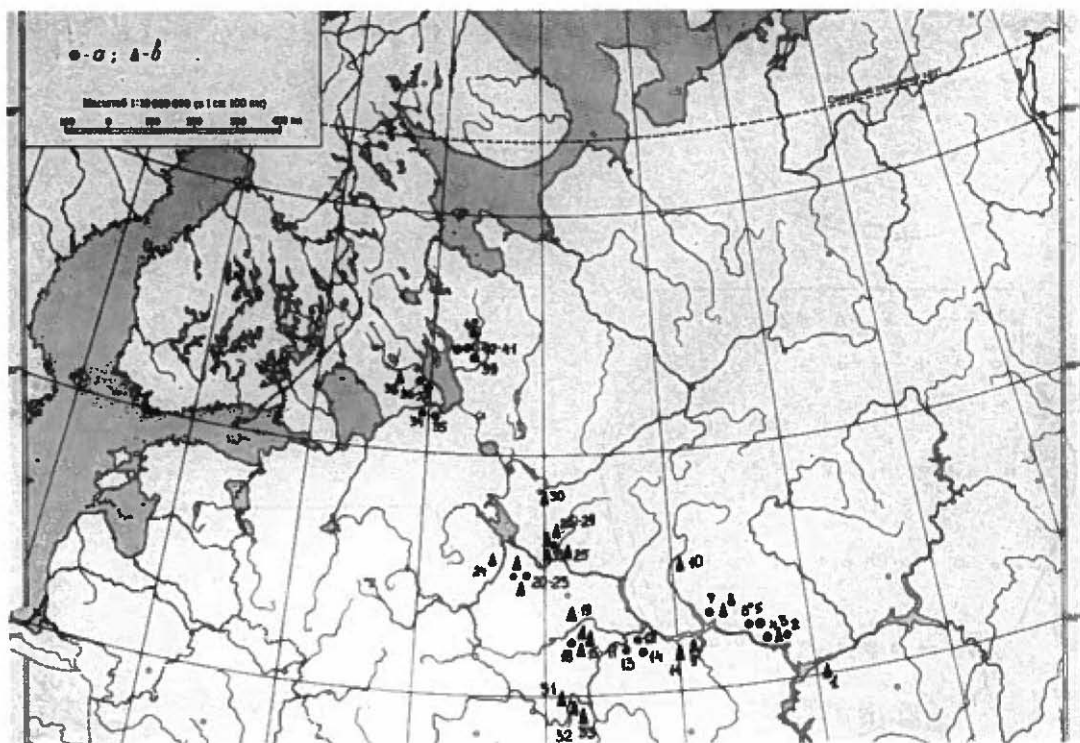


Fig. 2. Typical sites with assemblages of SSP. Analysed with computer methods.

- a. Bronze Age, b. Iron Age, 1. Kurgan, 2. Kazan site, 3. Kazanka I, 4. Zaimische III, 5. Kokhaisk IV, 6. Sosnovaya Griva, 7. Akhmilov, 8. Site of an ancient urban settlement near Ardi, 9. Vasilsursk II (ancient urban settlement), 10. Bogodorsk (ancient urban settlement), 11. Somovo I (ancient urban settlement), 12. Shava II, 13. Bezdvodninskoye, 14. Zhukovskoye II, 15. Yakimanovskoye (ancient village site), 16. Kondrakovo (ancient urban settlement), 17. Pirovo (ancient urban settlement), 18. Velokooyorsk, 19. Vasilkovo (ancient urban settlement), 20. Dikarikha, 21. Pleshchevo III, 22. Grekhov Ruchey (ancient urban settlement), 23. Kurgan site of ancient village, 24. Ancient urban settlement near Gorodishche, 25. Minsk (ancient urban settlement), 26. Peski, 27. Vatazha, 28. Stanok, 29. Boran, 30. Veksa 1, 31. The town of Tyukov, 32. Zhagora, 33. Shishkin (ancient urban settlement), 34. Izcadi, 35. Syaberskaya I, 36. Ust-Tomitsa II, 37. Picheva III, 38. Kudoma XI, 39. Somboma, 40. Okhtoma I, 41. Okhtoma III, 42. Kelka III,

ements. From the end of the 2nd millennium a number of areas with concentrations of SSP begin to appear, i.e. regions to the east of the mouth of the Oka near Nizhny Novgorod, the vicinity of Murom near the mouth of the Klyazma in Vladimir, and the Yaroslavl region near Lakes Pleshcheyevo and Somino. There are also certain specific areas in the Onega region, the lakes of Karelia and the Vologda region. Concentrations of sites in compact groups indicates the settlement of a population with this pottery in rather large groups in initially alien surroundings. The assimilation of the Pozdnyakovo population, the local tribes of the northern regions, the Prikazan-Ananyino groups of the Middle Volga region into the SSP population shows that this Finnic-speaking community had great vitality and economic potential.

The characteristics of the SSP assemblages present a similar picture (Fig.6; Patrushev 1989). Differences can to some extent be explained by the influence of prevailing local ceramics. The influence of SSP on the pottery of the Prikazan Culture resulted in the appearance of pottery with spun or speckled and mixed patterns on the surface below the neck, and a smooth surface around the neck decorated with Prikazan designs typical of the eastern regions of this culture. A similar phenomenon can be observed in the Mari and Tatar Volga areas. In the above-mentioned regions there are, with rare exceptions, no cases of designs with rows of buckles. Such designs are characteristic of the Pozdnyakovo Culture.

In the Bronze Age SSP material, buckles are the main element of ornament in the former territories of the Poznyakovo tribes in the Volga

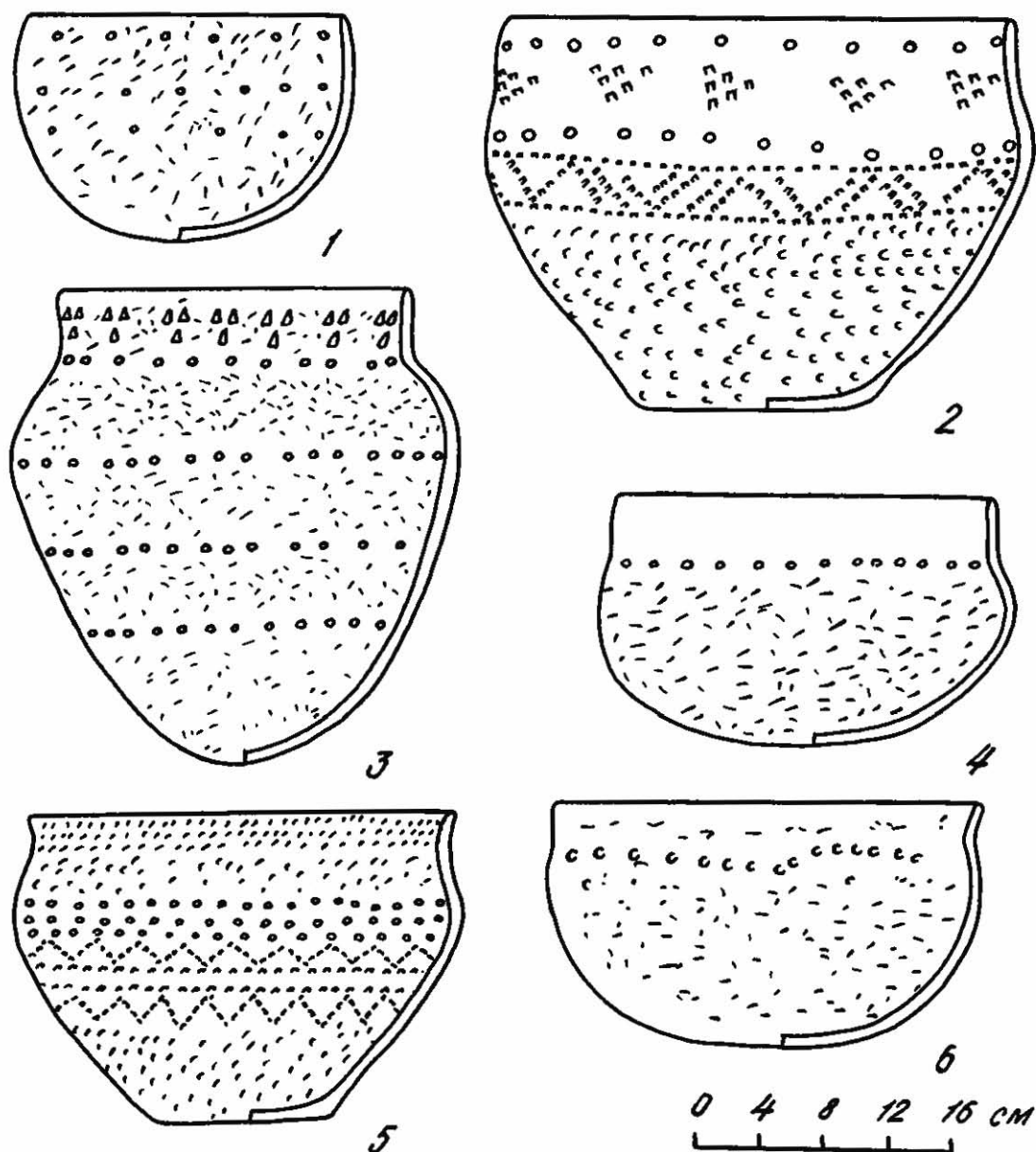
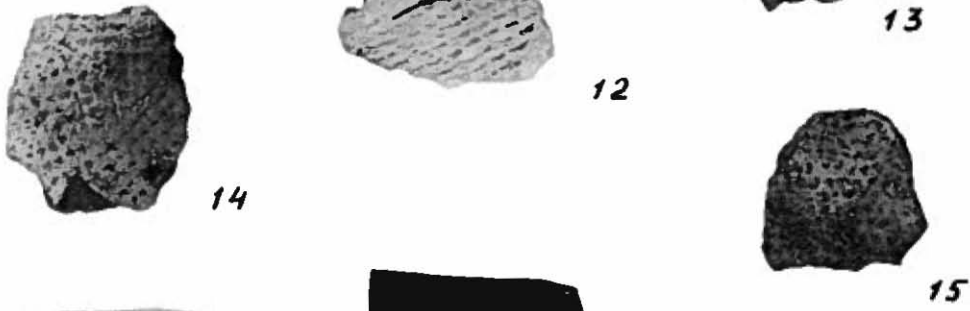
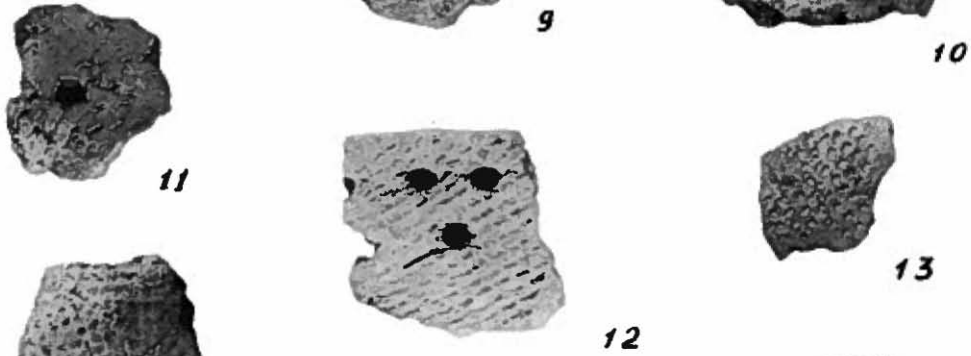
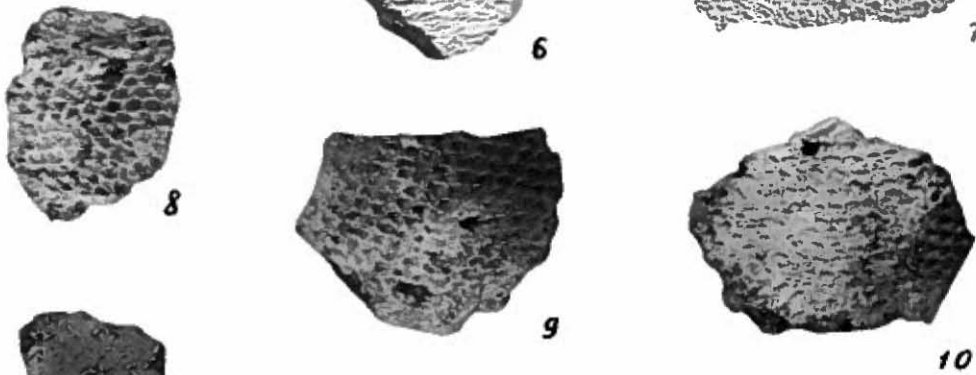
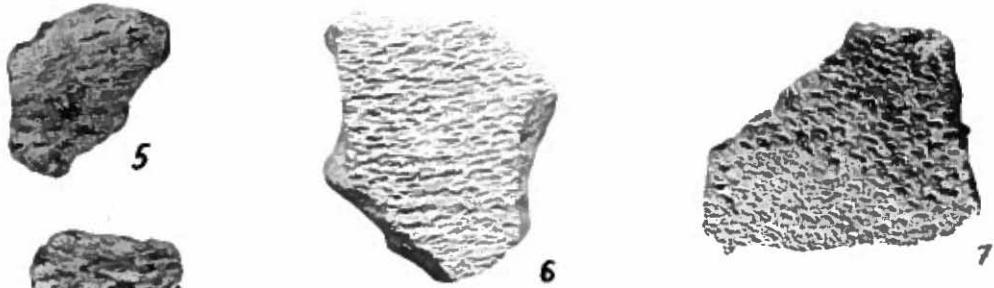
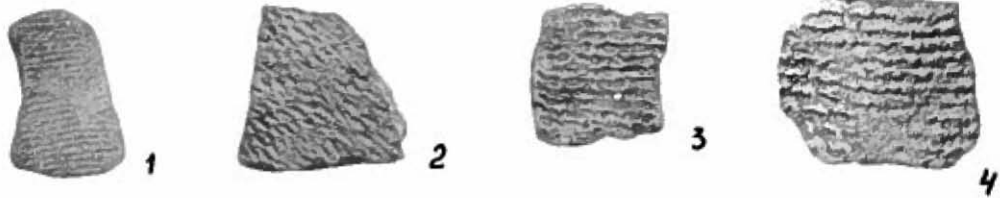


Fig. 3. Main shapes of SSP vessels
1. & 4. Mari-Lugovskaya I, 2. Dikarikha, 3. Polyaksey II cemetery, 5. Stanok II, 6. Minsk.

Fig. 4. Spun-speckled patterns on vessels.

1. Spun parallel – thin, 2. & 6. Spun disorganized, 3. Spun parallel – thin, 4. Furrows with torn edges and denticular imprints in a 'rain pattern', 5. Imitated cord impressions (smoothed denticular impressions), 7. Disorganized and bow-shaped spun impressions, 8. & 9. Oval, 10. Spun disorganized, spun parallel, thin, and wedge-shaped impressions, 11. Bow-shaped, 12. & 14. Parallel imprints of denticular stamps, 13. Wedge-shaped, 14. Prick-marks (termed 'prick-marks made with a bundle of cut grass' by the author), 16. & 17. 'Shaded' pottery.

1. & 3. Minsk, 2., 4., 6. Kurgan site of ancient village (near the present village of Gorkohovo), 5., 9., 10., 12., 15., 17. Okhtoma III, 7. Kelka III, 8., 11, 14. Kudoma XI, 13. Zhukovskoye IV, 16. Shava II



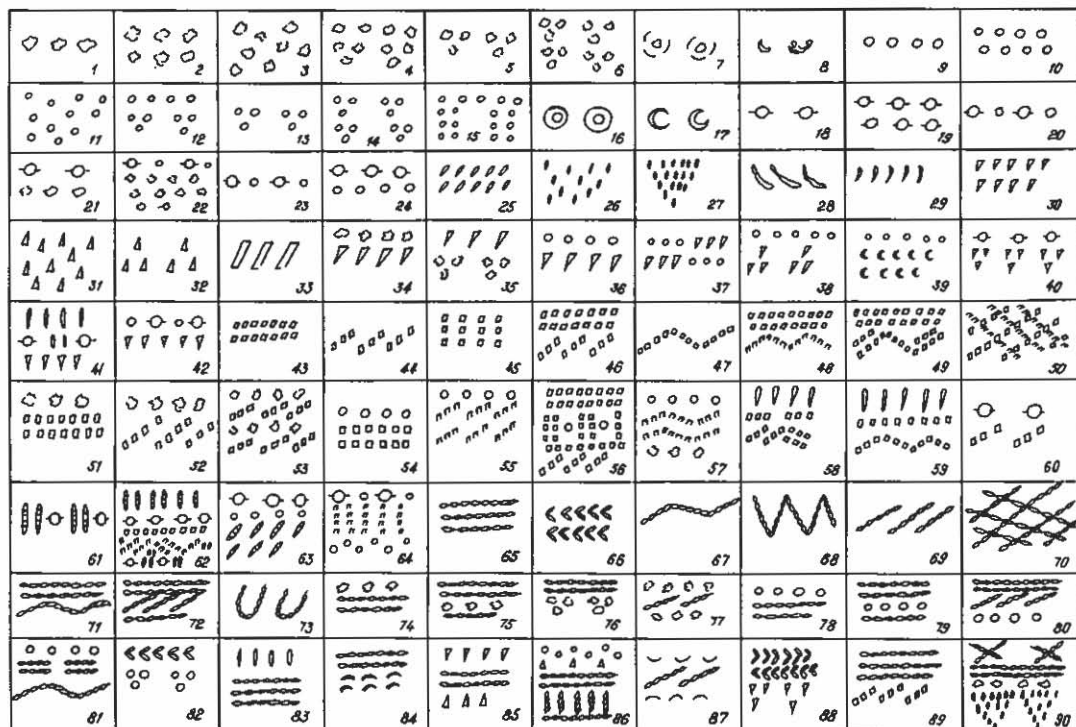


Fig. 5. Main patterns of spun-speckled pottery

region from Nizhny Novgorod to Yaroslavl (e.g. the Zhukovskoye IV site- 42.51%; the Bezvodnino site - 29.11%; Dikharaha - 17.15%; Pleshcheyevo III - 14.58%; Patrushev 1989). In the north-west regions the local Eneolithic, Fatyanovo, and Pozdnyakovo traditions influenced the pottery (Kosmenko 1988; Manyukhin 1989). A comparison of vessel forms and rims gives the same picture. For example a 'collar' at the edge of the neck, a feature typical of the Prikazan culture, is generally found only in pseudo-net pottery at sites in the Tatar and Mari-Volga regions (Zaimishche III - 16.66%, Kokhaisk 4 - 6.25%, Sosnovaya Griva - 1.44%). The rare 'collars' in pottery from the Nizhny Novgorod and Vladimir areas (0.48%) must be considered only as the influence of the pottery of eastern regions. At the western sites, such 'collars' are not found. Inclusions of crushed shell are found only in the region of the Prikazan tribes.

In pottery from Karelia and the Russian North archaeologists have observed bomb and turnip-shaped forms, vessels with a rounded or flat bottom, and high vessels with short rims and narrow necks, deriving from the forms of Fatyanovo pottery.

The other vessel form, i.e. rib-shaped with a wide neck abruptly turning into the body, is similar to Pozdnyakovo pottery. There are also non-profiled vessels with straight or slightly concave upper parts, in turn deriving from the ceramic forms of the Neolithic and Eneolithic (Kosmenko 1988).

The specific character of spun-speckled patterns on vessels from different regions is of great interest. Spun impressions, cord imitation and speckled impressions generally occur everywhere. Spun impressions are characteristic of the Mari Volga area, where their proportion is over 50%. Speckled impressions are typical of the northern regions. Arched and oval imprints made with a bunch of cut grass are typical of speckled patterns. In general, almost all the variants of the impressions occur everywhere, and their percentages have no clear limits. This clearly shows that in the territory of Russia there were common techniques of surface finish (and of pottery making in general).

This point is supported by the similarities of vessel form. The influence of local ceramics is suggested by distinctions in ornament as indicated by Student's test. Despite this, there is

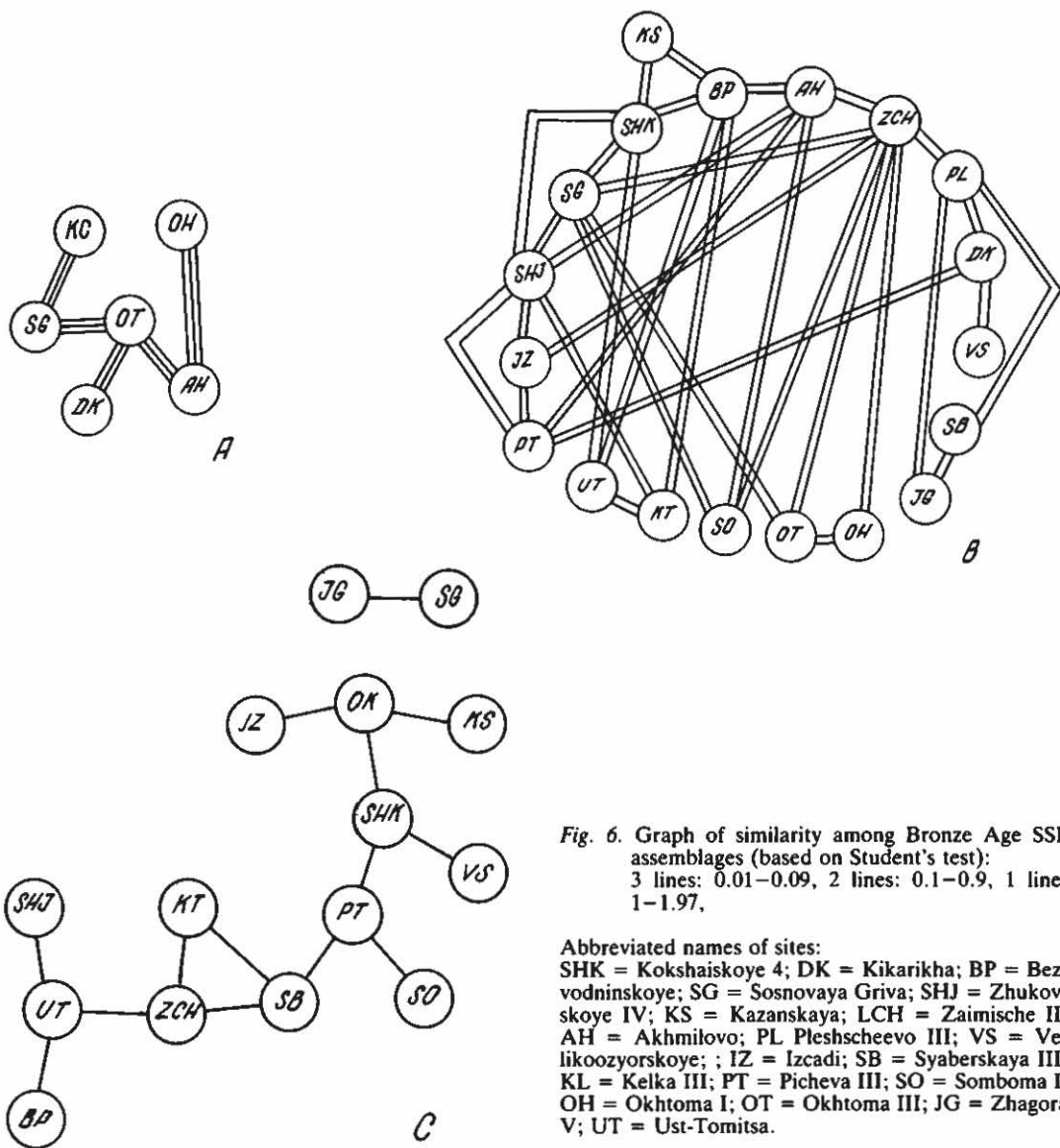


Fig. 6. Graph of similarity among Bronze Age SSP assemblages (based on Student's test): 3 lines: 0.01–0.09, 2 lines: 0.1–0.9, 1 line: 1–1.97.

Abbreviated names of sites:
 SHK = Kokshaiskoye 4; DK = Kikarikha; BP = Bezvodninskoye; SG = Sosnovaya Griva; SHJ = Zhukovskoye IV; KS = Kazanskaya; LCH = Zaimische II; AH = Akhmilovo; PL Pleshcheevo III; VS = Velikoozyorskoye; ; IZ = Izcadi; SB = Syaberskaya III; KL = Kelka III; PT = Picheva III; SO = Somboma I; OH = Okhtoma I; OT = Okhtoma III; JG = Zhagora V; UT = Ust-Tomitsa.

every reason to speak of a common stratum in the decoration of pseudo-net pottery.

Bronze Age SSP in Russia is thus a common cultural feature (Fig. 6), which does not permit a closer review of its development in various regions and cultural environments.

In spite of the above-mentioned influence of Prikazan and Pozdnyakovo pottery on certain elements in SSP, there are grounds for claiming any genetic ties between these groups, and we must take into account all the differences in the rest of the elements of material culture. The set

of lithic and metal artefacts of the Prikazan Culture (silicic scrapers of triangular shape, dagger-blade shaped knives, protracted triangular arrowheads with truncated bases, double-edged metal knives with rectangular hafts, bronze celts with two ears on the sides, celts with an ear on a wide surface, etc.) does not occur to the north of the Mari Volga region in the area of distribution of SSP. Only two stone adzes, the most typical artefacts of the 'net' pottery population, are known from the Prikazan sites.

Neither is there any single artefact form that

could suggest a genetic link between the SSP and the Pozdnyakovo population. It is also very difficult to solve in any way the problem of the role of other Bronze Age cultures in Russia in the formation of the Finnic-speaking population producing and using SSP. The results of pottery analysis permit in most cases a description of the cultures of the developed Bronze Age.

Ethnographic data, however, suggests that certain skills in the craft of pottery are preserved for 5 or 6 generations. In primitive societies, where the elements of culture were tradition-bound, these skills could be preserved for longer periods, even longer the 500 years. For this reason, it is possible to compare pottery assemblages and complexes of different periods. There are only rare parallels between SSP and Volosovo pottery (Krainov 1987), and it is difficult to demonstrate any specific genetic links. Such could be certain vessel forms of the developed and late stages of the Volosovo Culture, e.g. open or closed bowls, which in SSP assemblages account for 35.7 to 45.9 % of the material in the Vladimir and Yaroslavl Volga areas and 0.8% to 13.03% in other regions. Parallels between SSP and Volosovo pottery include circle ornament, arched pits, wedge-shaped and triangular patterns, crossing lines of cogged-stamp and string-shaped patterns, slanting lines, and zig-zag designs of cogged imprints (Figs. 5:8,16,17,29-31,44,47,50,58,63,70).

In Fatyanovo pottery (Krainov & Gadzyatskaya 1987) only low vessel forms with open necks can be compared to pot-shaped vessels with open necks and an abrupt turning of the body which are found in Bronze Age SSP assemblages, amounting to 5.2% in the eastern regions and 9.3 % in the west (except for Karelia where they are more numerous). The polished surface of Fatyanovo vessels is decorated with cogged designs, similar to the ornament of SSP. There are cord-shaped horizontal designs ending in wavy form, combined horizontal cord-shaped impressions and slanting cogged impressions, and disorganized wedge-shaped patterns or horizontal marks forming an 'ear', nets of cogged patterns, and triangular designs (Fig. 5:1,25-27,50,65,66,71,89) in Fatyanovo pottery. The structure of Fatyanovo pottery with fine sand as temper, and the refinement and measured proportions of its forms differ considerably from the rough SSP ware, and it is difficult to imagine any links between them.

Zig-zag, rhomboid, and triangular designs typical of the Balanovo Culture (Bader & Khalikov 1976) do not occur in SSP. It is only in the

late state of the Balanovo Culture that designs of triangular impressions, crossed slanting lines, zig-zags, horizontal cogged-stamp impressions, and buckles, borrowed from the Pozdnyakovo Culture (Fig. 5:30, 47, 49, 50) resemble some of the designs known from SSP.

It is also difficult to find parallels between SSP and Chirkovo pottery. The latter is characterized by vessel forms with rounded bases and cylindrical necks abruptly turning into the body, crushed-shell temper, a friable structure, and decoration with geometric designs of cogged stamps in the form of hatched zig-zags and triangles (Khalikov 1987).

The Seima-Turbino sites have no documented ceramic assemblages apart from individual burial vessels of the Abashevo type. This population, however, participated in the formation of the SSP-producing culture. This is indicated by the fact that the closest sources of Akozino-Mälartype celts are those of the Seima-Turbino type (Patrushev 1984).

It is possible to demonstrate certain parallels between SSP and Abashevo pottery. In the forms: bowl-, jar- and pot-shaped vessels, and flat and round-based specimens with an open neck joining the body smoothly or abruptly; in ornamentation: net patterns, horizontal lines, cogged-stamp impressions, and pits (Fig. 5:9,43, 47,50). In spite of this, Abashevo pottery with its crushed-shell temper, friable structure and smoothed surface cannot be the basis of the thick-walled SSP.

In view of the above evidence, the sources of SSP should be sought beyond the borders of the cultures of the developed and final Bronze Age in the forest regions from the mouth of the Kama to the Ivanovo-Vladimir Volga area.

It has been suggested that spun-speckled impressions in the pottery of the north-western regions of Russia were spread through the influence of the Corded Ware Cultures. In their discussion on the later destinies of the population of the Fatyanovo Culture, Krainov and Gadzyatskaya (1987) present a number of arguments in favour of Corded Ware elements in 'textile' pottery. Evidence of the participation of Corded Ware tribes in the formation of the 'textile' pottery of the Baltic region has been put forward by Ya. Graudonis (1967), and it is supported by physical anthropological data (Denisova 1973).

Some archaeologists have seen the sources of SSP in the late stages of Pit-and-Comb Ware (Bryusov 1950). V.P. Tretyakov (1975), however, regards such similarities as impossible because of the chronological gap between these

pottery traditions. He regards the Baltic region as a possible zone where such pottery evolved. I.A. Loze regarded the Pit-and-Comb Ware of the Abor type in the Baltic region as the basis of the new ware. A.V. Vasko (1983), however, denies the possibility of any genetic links between these groups, because of their different structures.

I.V. Gavrilova (1968) admits that Pit-and-Comb Ware was the main component of SSP, and feels that it is quite possible that it took part in the formation of the elements of Galich pottery and different variants of Fatyanovo and Pozdnyakovo Cultures. This view of its role in the formation of various cultures has points in common with the opinions of O.N. Bader (1970), N.N. Gurina (1961), P.N. Tretyakov (1966), and others.

Some archaeologists have noted local characteristics of pseudo-net pottery, especially in the Baltic region. At the same time, many scholars consider this pottery of the Baltics as alien to areas further east (Lyugas 1970, Moora 1956).

My views on the origins of SSP coincide with the opinions of scholars who feel that it has sources in the ceramic technology of Late Fatyanovo and Pit-and-Comb Ware. The cogged patterns on the outer surface of the later Pit-and-Comb Ware type resemble pseudo-net patterns. It must be added that such imprints, as well as the spun-speckled patterns, were used to thicken the clay. According to my observations, the origins and sources of SSP are clearly in the pottery of the Neolithic and Early Metal Period in the north-western part of Russia in Europe. Here, the ornamental technology includes many elements of the above patterns: triangular or wedge-shaped pits, irregular spun patterns and spun impressions made with a cord wound round a small stick; ornament of speckled impressions of wedge-shaped pits in a chess-board configuration in Early Neolithic pottery; bowl-shaped vessels with horizontal and wedge-shaped impressions of cogged stamps, designs of close wedges forming arched and oval patterns, and arched patterns of smoothed pits in Developed Neolithic pottery (Gurina 1961). In the Neolithic vessels were often covered with dense cogged-stamp imprints, imitating speckled impressions. At the same time, slate artefacts typical of the SSP-producing population came into use. The role of the SSP population grew in importance in the ethnic processes of the Early Metal Period.

In the Early Metal Period, the Finnic-speaking tribes began to consolidate, and ethnic features

appeared which were characteristic of all later Finnic-speaking peoples in the Volga area, the Baltic region, Karelia and Fennoscandia. At the same time, this vast community of Finnic speakers from the mouth of the Kama to Scandinavia (in the author's terms a 'Finnic-speaking superethnos') developed the ethnic basis for later Finnic-speaking peoples. Specific features of material culture divide this community into the Volga, Baltic, Karelian, and perhaps even the Fennoscandian Finns.

Of special interest is a new ethnic group that developed in the contact zone between the Prikazan-Ananyino tribes of the Finno-Perm population and the Finnic-speaking population with their spun-speckled pottery. In the burials and settlements of the period of transition from the Bronze Age to the Iron Age, distinct features of population groups appear. It is thus no wonder that in the 1960s and '70s some scholars (A. Smirnov, Trubnikova 1965, Gulyayev 1962) believed that these burials were linked with the Gorodets Culture. They had the mistaken idea that 'net' pottery (i.e. SSP) was a feature of the early Gorodets Culture, while others linked it with the Ananyino Culture (Khalikov, Arkhipov 1967). However, the clear differences of the material culture of this population with that of the Ananyino people made these scholars change their views. These burials were singled out by the author (Patrushev 1982, 1984, 1986, 1989) as a separate culture – the Akhmylovo Culture.

The Akhmylovo Culture first began to develop mainly along the banks of the Volga, and around the mouths of its main tributaries, the Kama, the Sura, the Vetluga, and the Sviyaga. This is at present the territory of the Mari Republic, part of the Chuvash Republic, the Tatar republics, and the Nizhegorodsky region. Because of the nearby and kindred SSP population Akhmylovo-type sites and antiquities later spread far to the north and north-west to the Kostroma Volga area and the Volgograd region. In the new areas, sites of both groups display both kinds of pottery: SSP of the western type and the smooth-surfaced ware of the eastern type.

This culture derives its name from the completely excavated Starshy Akhmylovo burial ground – the largest of all cemeteries known in the Finno-Ugrian community. The ethnic features of the whole of the Finnic-speaking population can be seen in this cemetery.

The south-eastern boundary of the Akhmylovo Culture is believed to have passed through the mouth area of the Kama.

The earliest eastern site is Kurgan in the Tatar Republic. A variety of pottery is present at the site: Prikazan, Ananyino, and pseudo-net pottery (9.6 %). Not all of the ceramic finds were stratigraphically divided. At this site, archaeologists discovered the remains of rectangular dwellings (12 x 4 metres and 10 x 4 metres) sunk into the ground to a depth of 30-40 cm (Starostin 1967). Outside, the walls were strengthened with posts. Inside the dwellings were the remains of hearths. At the Kazanka I site on the Volga near Kazan at the junction of the Volga and the Kazanka rivers SSP accounted for 71% of the ceramics. Also found at this site was a casting mould for a celt of the Akozino-Mälär type of the 7th century BC. It was found in a hut-floor structure measuring 13 x 6.5 metres. The foundation was sunk only 20 cm into the ground. Three hearths were found in longitudinal arrangement. Post holes on the lengthwise axis indicate that there was no ceiling, but had an overhead covering of two sloping surfaces.

A large number of Akhmylovo sites have been studied in the Mari Volga area, including ancient cities and villages.

Various archaeological materials were found at the Ardino site in the Mari Republic. This site is on a 68-metre-long east-west cape jutting out from the terrace of the Arda River. It is 20 to 36 metres wide, and 52 metres long. The elevation from the flooded area is 17-18 metres. Towards the east the site is fortified with a bank of earth 2 metres high, and a moat. Excavations were carried out in 1975 (Arkhipov, Patrushev 1979), and two cultural layers were discovered. The upper layer, in dark-grey humus and sandy loam, contains materials of the Mari Culture of the 10th-12th centuries. The grey humus and sandy loam continued to a depth of 75 cm. Numerous finds of ceramics included pottery of the Ananyino type (51.4%), and spun-speckled pottery (0.6%). Also found were a flint point with a triangular tip, an iron knife with an arched back, fragments of clay crucibles, a shoulder-blade bone of an animal incised with double broken lines, large fragments of two halves of casting moulds of thick grey sandstone for Ananyino-type spearheads. Similar bronze spearheads are typical of the 7th and 6th centuries BC.

The most interesting assemblage is from the Malakhay site on the right bank of the Volga in the Gornomari region of the Mari Republic. Malakhay is on a terrace rising 30-40 metres above the river with two rows of fortifications. Behind the banks is an unfortified settlement and below it is an ancient village on the second

terrace.

The author investigated large areas of the site, and these findings now permit a reconsideration of the cultural context of this site. It was originally attributed to the Gorodets Culture (A. Smirnov 1961, Tretyakov 1948, Smirnov & Trubnikov 1965, Khalikov & Arkhipov 1967). These scholars were, however, mistaken in identifying the pseudo-net pottery with the ceramics of the Gorodets Culture. The site represented various eras: the Late Bronze Age with Chirkovo pottery, the Early Middle Ages with ancient Mari pottery, and the Early Iron Age with pottery of the Ananyino type and pseudo-net ceramics found in the same layers. The Early Iron Age layer is a c. 80-centimetre-thick deposit of sandy loam.

An interesting feature is a dwelling of the Ananyino type. Stratigraphic observations and finds of charcoal-mixed soil indicate that it was sunk into the ground. It measures 12.4 x 3.4 metres with a sunk foundation pit, wooden walls, and a span roof supported by a beam and a wall. Inside the dwelling were two hearths, one of which was flanked with slabs of limestone and sandstone. A roofed entrance or porch at the south wall led into the dwelling. There was also a loft adjoining the north wall.

Apart from pottery, finds include crucibles for melting metal, grates, pestles, grinders, a stone slingshot, anvils of thick sandstone, various perforated objects of bone resembling the mouth-pieces of Mari wind-instruments, bone arrowheads, and a twisted plaque of bronze (*pronizka*) with triangular incisions and broken lines on its surface. This site dates from the 7th-6th centuries BC (Patrushev 1986). A radiocarbon dating of a sample from the layer of pseudo-net ceramics gave the result 830 ± 230 BC.

In the lower settlement a number of rectangular hut-floors 4.7-5.1 metres wide were investigated. Their length is unknown. The floors were sunk to a depth of 15-20 cm. Charcoal remains indicate walls of logs with posts at the corners and oval hearths inside the dwellings. One of these dwellings had an exit towards the river, and close by it was a round altar covered with slabs of sandstone.

Found near the hut-floors were sherds of pottery, flat-bottomed and pot-shaped crucibles, casting moulds, animal bones, a twin-vented tanged arrowhead of bronze with a side pin, a spiral temple ring or pendant of silver, a copper fitting plaque from a forehead ornament, a twin plaque, a tubular twisted plaque, and various bone objects. The age of these finds places the

village to approximately the same date as the ancient town.

Ananyino pottery and SSP material have also been found at the Vasilsursky II and Somovsky I sites on the Volga, and at the Belogorodsky site on the Vetluga in the Nizhegorodsky region. Further to the north, evidence of a similar type of culture can be seen in materials from the Kostroma Volga area, which Y.I. Goryunova (1963) considered as part of the Ural cultural sphere, or a border zone between the Ananyino Culture and the 'Early Dyakovo' Culture. Y.I. Goryunova is of the opinion that all the settlements of the Early Iron Age belong to a mixed group (e.g. Vatazhka, Shunga, Stanok, Boran, Minskoye). Large numbers of round-based vessels have been found at these sites, but at a site near Gorodische on the right bank of the Volga, opposite Kostroma, sherds were found with a thickening around the mouth as in Ananyino pottery.

Early Iron Age burials in the Kostroma Volga area contain large assemblages of SSP, numbering up to 14,000 fragments statistically analysed by computer. The largest assemblage is from the Vatazhka site (Gurina 1963). Vatazhka is dated to period from the middle to the end of the first millennium BC. However, a celt of the Akozino-Mälär type, cast in a mould found at the site, cannot be older than the second half of the 6th century BC. As celts of this type are attributed to the cultures with pseudo-net ceramics (Meinander 1954), the earliest possible date for the ceramic assemblage must be the second half of the 6th century BC. Moreover, ceramics from this site do not include features characteristic of any later period, and the pottery is mostly uniform. The latest date for the may be the 4th century BC.

Along with pseudo-net pottery, a number of smooth-surfaced and hatched vessels were found at the Vatazhka site. Similar materials have also been found at the sites of Stanok, Peski, and Boran, which have now been flooded by the Nizhegorodsky hydroelectric power station, north-west of the city of Kostroma. In assemblages of the same period, pottery with pseudo-net patterns amounts to 87.5 – 95.88% of all ceramics. It is accompanied by smooth-surfaced pottery with hatchings, which does not differ from pseudo-net ceramics in any other respects.

The youngest site in the Kostroma Volga area is Minskoye, which N.N. Gurina (1962) dates to a period from the second half of the first millennium BC to the 1st-3rd centuries A.D. The most interesting finds from the site are a twisted

torque of bronze of the 7th-6th centuries BC (Patrushev 1985), a spiral pendant, iron knives, a bone mattock, and a pestle.

In 1990–1991 this author excavated at the Minskoye site the remains of a dwelling measuring c. 18 metres by over four metres. In one part of this structure was an area covered with large pebbles. Among the stones were traces of metal-working: fragments of slag-covered vessels, copper drops, copper and iron slag, pieces of iron bloom etc. In the same corner of the dwelling charred grains of barley, wheat and millet were found in an area measuring 4.8 x 2.5 metres. A round pit, measuring c. 0.8 x 1.2 metres, contained a c.13-centimetre-thick layer of grains. This is the only known case of such a large find of grain in a settlement attributed to Finnic-speaking peoples. Some of the grain finds were given to Finnish scientists for study and analysis.

Pseudo-net pottery has also been found at 16 other sites in the Kostroma Volga area.

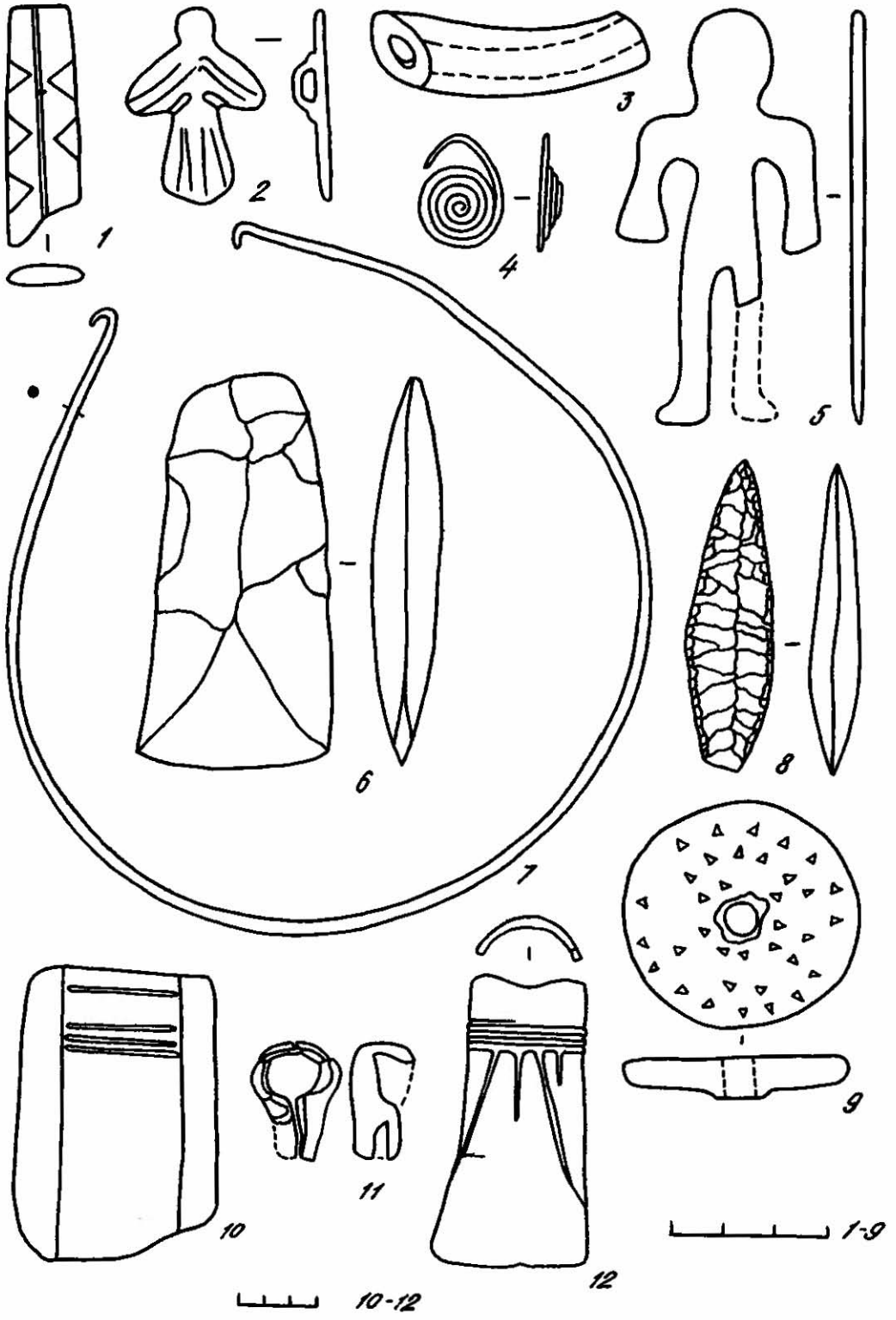
SSP material from Grehov Ruchey in the Yaroslavl region has been statistically analysed by computer (P. Tretyakov 1966). Here, this material amounts to 39.55% of all ceramics. The remainder was smooth-surfaced and undecorated ware. Similar pottery of the Early Iron Age has been found at a number of other sites.

The statistical analysis also included pseudo-net pottery from near Gorodische from over ten sites in the Tver region.

Materials excavated and studied by this author at the Vyoksa I site, from the 7th-6th centuries BC, reflect the features of similar assemblages from many sites in the Volgograd region. Found at this site were the remains of a dwelling similar in construction to contemporary structures in the Volga area.

The occupation layer contained fragments of crucibles, copper drops, copper slag, dozens of fragments of casting moulds, and various metal objects. The latter include fragments of a torque, a male figure of bronze plate, and a celt of the Akozino-Mälär type (Fig. 7).

The author has not yet been able to carry out an exhaustive study of SSP material in the north-western regions of Russia. Computer analysis has been extended to only small assemblages from sites in the St. Petersburg region (Izsadi, Ust-Tomitsa I) excavated by N.N. Gurina (1961) and in Karelia (Kelka III, Ohtoma I and III, Somboma I) which have been excavated by M.G. Kosmenko (1988). A total of 75 Karelian sites are known to include spun-speckled pottery. In addition, there are 85 corresponding sites in the Belozerye, Kargolpolye, Vo-



logodskaya, and Arkhangelsk regions (Manyukhin 1989). These regions are also represented by bronze celts of the Akozino-Mälär type from site near the village of Lukovets, and the Kinema and Kudoma XI sites (Fig. 7).

In the Early Iron Age spun-speckled pottery was characteristic of a large area in Russia from the mouth of the Kama in the Volga region to its north-western borders. Around this time a certain levelling of the main features of this material occurred. This is clearly shown by computations of similarity according to Student's test (Fig. 6). In the Bronze Age, most of the sites with spun-speckled pottery follow a definite pattern of locations – in compact groups along rivers, or on lake shores in the northern regions. Larger groups contain smaller entities or groups of 2-4 sites or settlements. In the Volga area such groups usually included a fortification surrounded by a few villages. The distance between groups varies from 15 to 30 kilometres.

From the middle of the first millennium BC the number of variants of spun-speckled patterns clearly decreases, and the proportion of non-decorated pottery increases. Of the 90 variants of ornament of the preceding period, only 12-14 remain in the later material. These are mostly various forms and combinations of pits and hollows. The rim is not decorated. The distribution of the later pottery group becomes smaller, bordering on the Upper Volga and Oka regions. Gorodets-type pottery with bast-mat impressions coincides with this later group. SSP material similar to the earlier group is well-known in Finland, Sweden, and Norway (Jørgensen & Olsen 1987, Gjessing 1942, Huurre 1983, Simonsen 1981, Carpelan 1970, Meinander 1954).

Finnish archaeologists have often written of the similarities between Sarsa-Tomitsa pottery and the pseudo-net ceramics of the Ladoga area and south-western Karelia (Meinander 1982; Huurre 1983).

Differences between pseudo-net pottery in various regions indicate the characteristics of ethnic communities, in cultural-historical or archaeological terms. According to D. Clarke (1968), similarity of complexes or assemblages within a community must be from 5 to 30%,

within an archaeological culture from 30 to 65%, and within a local variant or version of the culture from 65 to 100%. The analysis of pseudo-net pottery assemblages from various sites in Russia outlines and confirms the specific characteristics of archaeological cultures.

Available materials and data suggest the existence of a common Finnic-speaking ethnic base, represented by the population making and using spun-speckled pottery. As a whole, this pottery dates back to a period from the end of the second millennium BC to the first half of the first millennium BC.

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Fig. 7. Artefacts from SSP sites:

1. Fragment of a bronze ornament, Ardinskoye; 2. Bird-shaped plaque, Veksa I; 3. Linear-shaped mould fragment, Veksa I; 4. Bronze pendant, Minsk; 5. Anthropomorphic figure, Veksa I; 6. Adze, Veksa I; 7. Torque, Veksa I; 8. Arrowhead, Veksa I; 9. Spindle-whorl, Veksa I; 10. Mould fragment, Vatazhka (N.N. Gurina, 1961); 11. Fragment of a *lyachka*, Vatazhka (according to N.N. Gurina 1961); 12. Celt, Kudoma XI (M.G. Kosmenko, 1980).

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