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Textiles of the 17th and 18th Centuries from the Excavations at Tara Fortress, Siberia, Russia

Introduction

There were several key moments in the formation of the Russian Empire: one of these was the accession of Siberia. At the end of the 16th century, Russian expeditions travelled thousands of miles to the east of the Ural Mountains and reached the coast of the Pacific Ocean. In 1594, by order of the Russian Tsar Feodor I, Prince Andrew Yeletsky was sent to Siberia with a large army (about 2,500 men). To consolidate Russian influence in the region, Yeletsky was ordered to build a fortified city with a small fortress – Tara. Its purpose was to protect Russian lands in Western Siberia from steppe nomads. Other aims were to defeat Khan Kuchum, the previous ruler of Siberia, to conquer and take tribute from the Tatars, who lived on the banks of the Irtysh River, and to establish arable land in the new territory. Tara was a military, commercial, and diplomatic centre for Russia in the south of Western Siberia for almost two centuries.

During the entire 17th century, the fortress of Tara was constantly besieged by nomads – the Dzungars, Kalmyks and Kazakhs, who came from the steppes of Central Asia. For the whole of this century the population lived under the protection of two lines of fortifications – the *burg* and the castle. For this entire period, the size of Tara was confined within the walls that were built in 1594. As a result, the area of the fortress contains a huge cultural layer, *c.* 2.5-4 m thick. Tara fortress is now a small town, located 300 km north of Omsk, one of the regional centres of Western Siberia (Fig. 1). Archaeological excavations have been conducted there since 2007. Archaeologists of the Omsk branch of the Institute of Archaeology

and Ethnography of SB RAS work as part of the programme of historical and archaeological study of the culture of the first inhabitants of Siberia. The objective of this work is to study the historical plan of the fortress, the appearance of its inhabitants, the fortification systems and armaments of the fortress,

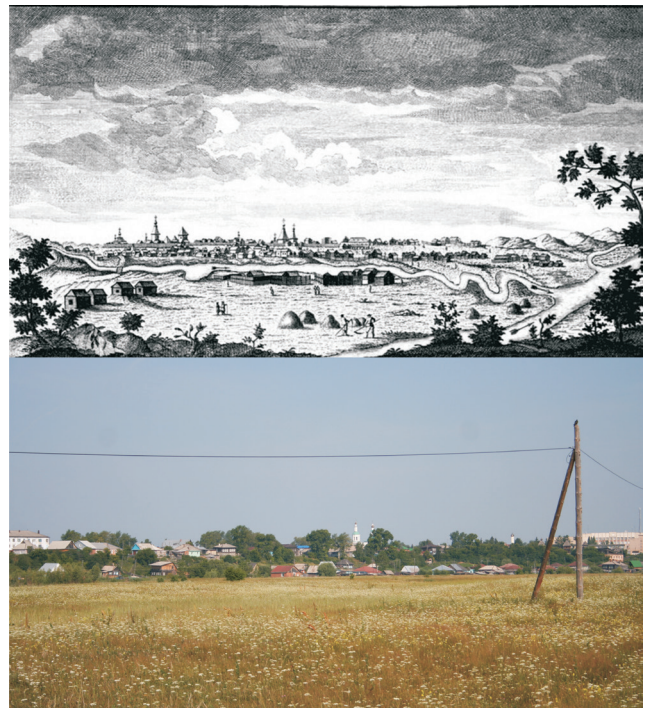


Fig. 1. Tara fortress at the beginning of the 18th century (Drawing: Lurcenius) and modern Tara (Photo: Authors).



Fig. 2. Wooden construction from the beginning of the 17th century (Photo: Authors).

as well as the correlation between the evidence from written documents and the archaeological materials regarding key events in Siberian history.

Specialists and students at Omsk State University, Tomsk State University and the Tara branch of Omsk State Pedagogical University have been working together in the study of Tara fortress. The general management of the excavations is carried out by Sergey F. Tataurov. The uniqueness of Tara as an archaeological site is the abovementioned thick cultural layer. The beginning of its formation dates back to the founding of the city of Tara. In the 1970s, the construction of several buildings (administration, post office, Palace of Culture) destroyed part of the earlier occupation levels, but the central part of the earlier settlement is still preserved (Fig. 2).

During the course of eight field seasons, about 1,000 m² of the territory of the fortress were excavated and many archaeological finds were recovered, including wooden objects (dishes, kitchen utensils, vessels, floats for nets and fishing rods, pine bark, children's toys), leather objects (shoes, belts, a cover for a weapon), woven and knitted items made from sheep wool and horsehair (fragments of clothes and stockings) and twisted and braided products made from plant fibres (ropes and one example of a shoe insole). The numerous woven, knitted and twisted and braided products that have been preserved are mainly from the lower layer, dating from the end of the 16th century to the first half of the 18th century. The recovery of the textile fragments, which vary in size from a few square

centimetres to several square decimetres, provides a unique opportunity to study the clothing of the city's inhabitants during this period. Approximately 200 fragments of textiles and ropes have been found so far; to date, 68 samples have been studied.

Methodology

The textile and rope fragments at Tara fortress were recovered during the excavation of a private estate. They were found at a depth of about 3 m from the surface and deeper (fourth and fifth building horizons: not later than the beginning of the 18th century), in the areas between the wooden buildings: all the complexes of the estate studied were damaged by fire, but outside the residential properties a large number of organic material objects were preserved. Of the 68 samples studied, 31 are woven, seven are knitted, and 30 are braided and twisted plant fibres.

The study of the samples was carried out in the laboratory of historical research at Surgut State Pedagogical University, using established methods (Glushkova *et al.* 2011): visual inspection; examination under the binocular microscope; sampling for chemical analysis to detect dyes; structural analysis (weave type, thread density in warp and weft, spin direction, twist angle and diameter of threads, thread evenness, *etc.*); searching for technological analogies and reconstructions of some of the textiles (physical modelling using an experimental method and woven reconstructions).



The use of the textiles

It was in the initial period after the fortress's foundation that the range of clothing items worn by the inhabitants of Russian Siberia was established. Ermak's earlier campaign (1581-1585), which led to the defeat of the Siberian khanate, showed that the Russians had no knowledge of the geographical and climatic conditions of this region. For this reason, there were a high number of cases of frostbite and death from hypothermia among the first Russians in Siberia. The clearest example of this is the campaign of Prince Semen Bolkhovsky in Western Siberia in 1583, when he and his 300 men were completely unprepared for the winter in Isker (the capital of Khan Kuchum) and died from hunger and cold. Because the Russian army were not prepared for the harsh Siberian conditions, military garrisons in Siberian towns and fortresses did not have a special uniform before the middle of the 18th century, when uniforms were gradually introduced (Alisov *et al.* 2014, 89).

There were two ways to obtain a textile in the fortress of Tara. The first was to produce it at home (in this case, the manufacturing technology of the archaeological textiles can be compared with the technology of textile production in the towns of the European part of Russia). The second was to buy it from merchants, who came with the caravans from the Bukhara khanate, located in Central Asia to the south of the Aral Sea. These merchants appeared in Tara with Chinese textiles, especially silk, and textiles from Bukhara, made of cotton.

The first Russians who lived in Siberia quickly understood that to survive during the cold Siberian winters it was vital to have warm clothing. One way of achieving this was to use items of clothing made from wool, primarily special clothes which were worn under the usual shirts, trousers and dresses, creating several layers of clothing. This also included the insulation of the legs using long wool socks and stockings (Fig. 3). These wool garments are highly visible among the clothing collection recovered from the excavations at Tara, but are not mentioned in written sources. However, in Siberian folklore, in the form of traditional riddles popular with young children, there are a lot of references to multiple layers of clothing: "grandfather sits dressed in a hundred coats", "there are one hundred pieces of clothing and all without fasteners".

Another method of ensuring clothing was warm was to use the materials and parts of the costume used by the indigenous population of Western Siberia. For the population of Tara this is primarily seen in the use of felt. Almost from the time of its foundation, Tara fortress became the centre of Russian trade in

Western Siberia with Central Asia. The first caravan came to Tara in the spring of 1595, six months after its construction. A very large range of felt products – hats, shoes, outerwear, rugs, blankets, *etc.* – were among the goods that were transported by Bukhara merchants. When peoples from Bukhara settled in Tara (at the beginning of the 17th century), felt began to be produced locally. This was facilitated by the fact that Siberian Tatars and immigrants from Central Asia engaged in sheep breeding, thereby ensuring the supply of raw material needed for this craft. The Russians began to make felt themselves in the 17th century. Using this technique they produced padded armour, which made it possible to withstand the Siberian cold on long military patrols.

The inhabitants of Tara also began to use special boots made from felted wool – *valenki* ('Shoes felted' 1959; Forrester 2007). It should be noted that this type of boots, worn by Siberian peoples, began to be used much earlier than in European Russia, where their widespread use only began in the 19th century (for the process of making *valenki*, see 'Technology for manufacturing boots' n.d.).

A few tools for the production of *valenki* and felt covers for shoes (*tver*) were found during the Tara excavations. There is an interesting story connected with the covers. The Russian emperor Peter the Great approved regulations relating to the uniforms for officers of certain ranks. One of the points in these regulations was the obligation to wear a specific type of footwear. But in Siberia, due to the low temperatures, it was possible to get frostbitten feet just in the time it took an officer to travel in a cab from his home to his place of service. So on top of his boots he wore warm felted covers, which were removed at the entrance to the room and put to dry (Bogomolov and Tataurov 2010, 91-96). In addition to the use of felt for padded armour and *valenki*, it is traditional for Russians to insert a felt lining into winter hats.

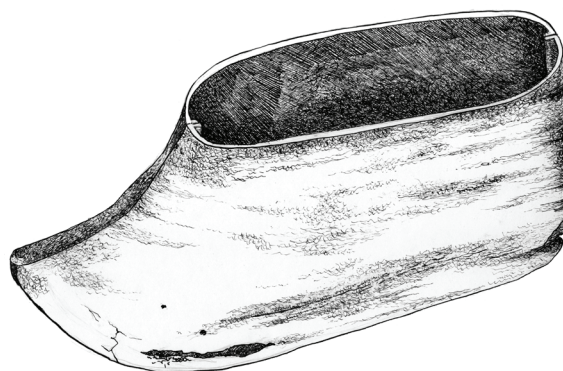


Fig. 3. Felted boots made from sheep wool (Drawing: Authors).



Description of the textiles

The information on the Tara textiles presented here represents a first overview of the material, which will be presented in detail once the rest of the collection has been fully studied. Based on the analysis of the textile samples studied to date, the textiles in Tara were made in two ways: either using a simple horizontal loom or by hand knitting. Both plain weave (Fig. 4) and 2/2 twill (Fig. 5) woven textiles are present. Twill fabrics are dominant in the collection.

Woven material

All the samples of 2/2 twill fabric have the same type of thread (0.8-1 mm, z-spun) and an even density in the warp and weft: from 7-8 to 10-11 threads per cm (the general characteristics of the different weaves are given in Table 1). These fabrics are made from wool of natural colours. Plain wool weaves are more varied. There are textiles with thin and uniform threads, but with different spinning directions (z- or s-spun; Fig. 6). There are also fragments of home-produced textiles made from coarse threads. Some of the fabrics are made with the same type of z-spun thread in warp and weft. One sample was a dense and fine fabric

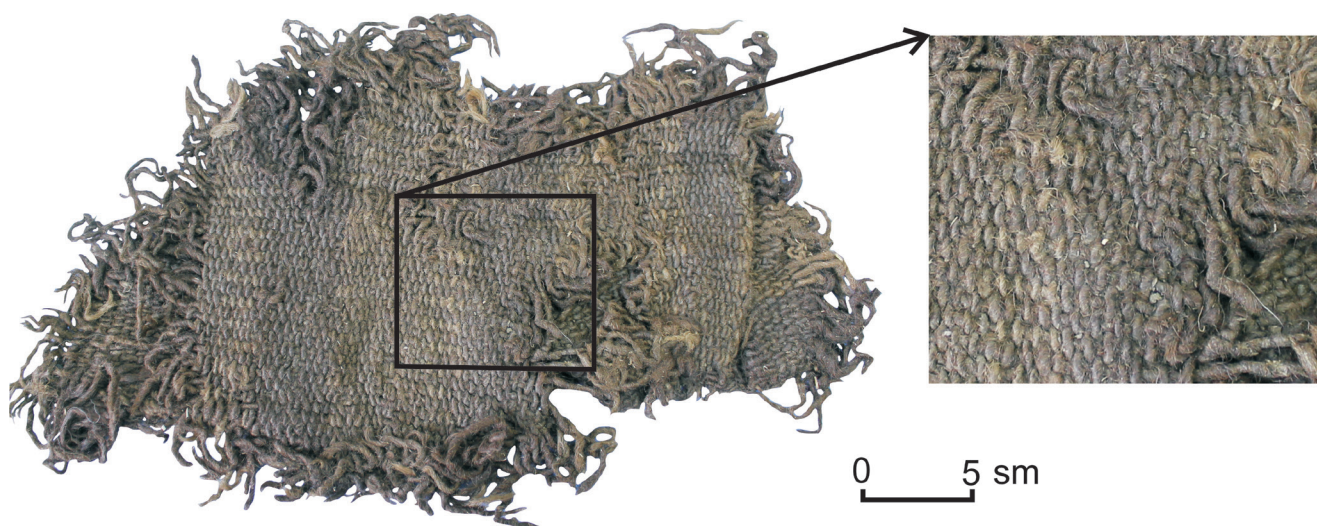


Fig. 4. Plain weave fabric (the scale is in cm) (Photo: Authors)

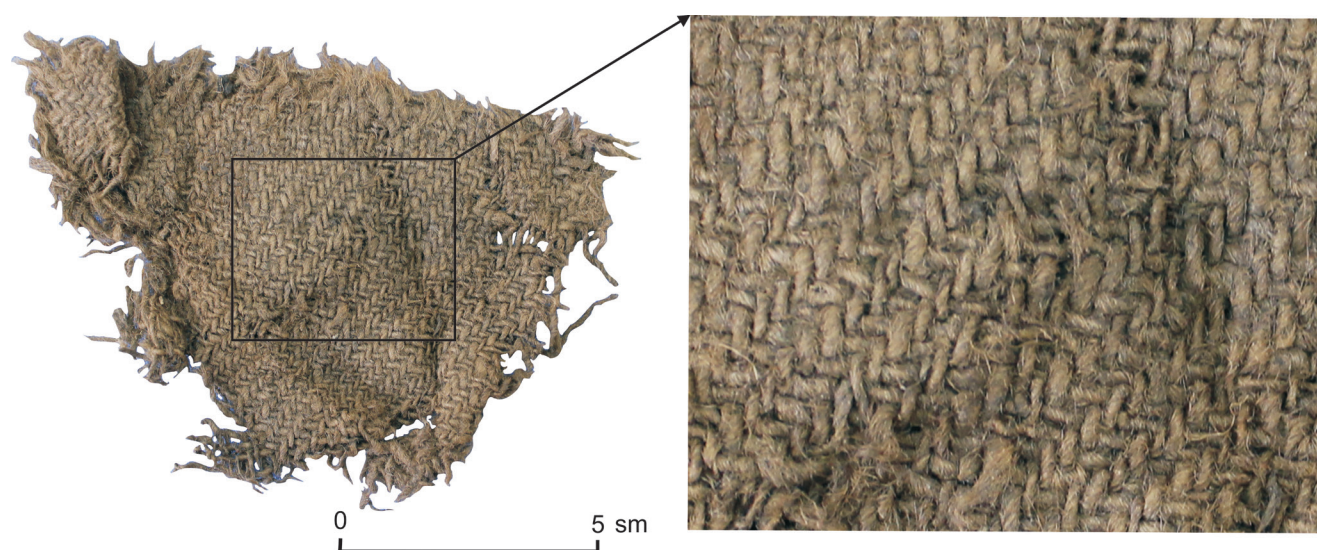


Fig. 5. 2/2 twill (the scale is in cm) (Photo: Authors).

woven from thin, s-spun thread. The fabric collection also includes a sample of plain weave with a warp rib structure (rep), using the same yarn in warp and weft (Fig. 7).

Knitted materials

The knitted materials are single-needle-knitted items made from an s-spun and a z-spun thread twisted together. The samples of knitted textiles have holes, cuts, etc. This makes it possible to identify more precisely the methods of manufacture while the well-preserved parts provide information on technological characteristics. Among the products are woollen stockings knitted with one needle (Fig. 8), as well as fragments cut from knitted fabric for use as foot-wraps (secondary use textiles).

Discussion

The materials demonstrate a clear variety of textile types, which are likely to correspond to different textile traditions:

First textile tradition

The first textile tradition involved the production of plain weave fabrics characterised by a uniform density in both warp and weft, mixing both z- and s-spun thread. This weaving technique, known in Russia from the 16th century (Nahlik 1963; Glushkova and Shulaeva 2013b), makes it possible to obtain a dense and uniform covering of fibres on both sides of the textile fabric, and it is a prerequisite for making warm and windproof clothing. Not surprisingly, this cloth was very popular in Siberia.

However, the manufacture of this material requires special conditions: a horizontal loom to obtain uniform

Weave	Warp			Weft		
	Spin direction	Thread diameter mm	Threads per cm	Spin direction	Thread diameter mm	Threads per cm
Plain weave	z (mainly)	0.6-0.7 to 1.5-2.2	10-11	s (mainly)	0.6-0.7 to 2.2	10-11
2/2 twill	z	0.8-1.0	7-8 to 10-11	z	0.5-0.7 to 1.0	5-9
Plain weave warp rep	z	0.8-1.0	10	z	0.7-1.0	5

Table 1. General characteristics of the textile samples.

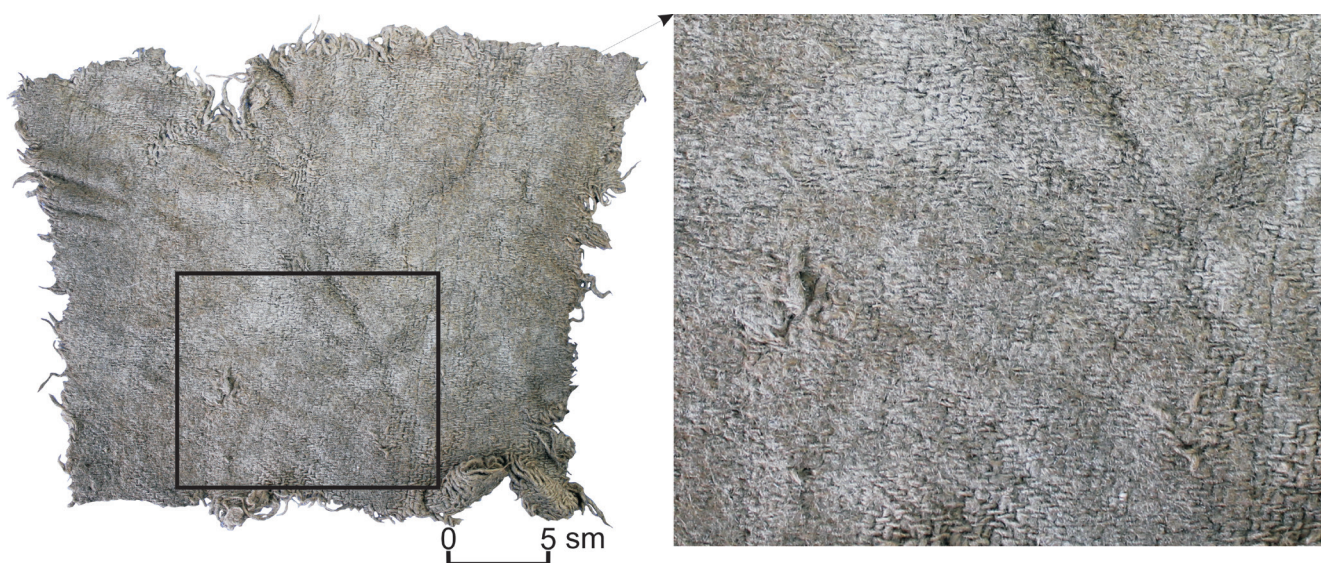


Fig. 6. Fabric weaves with s-spun thread in one thread system and z-spun thread in the other (the scale is in cm) (Photo: Authors).

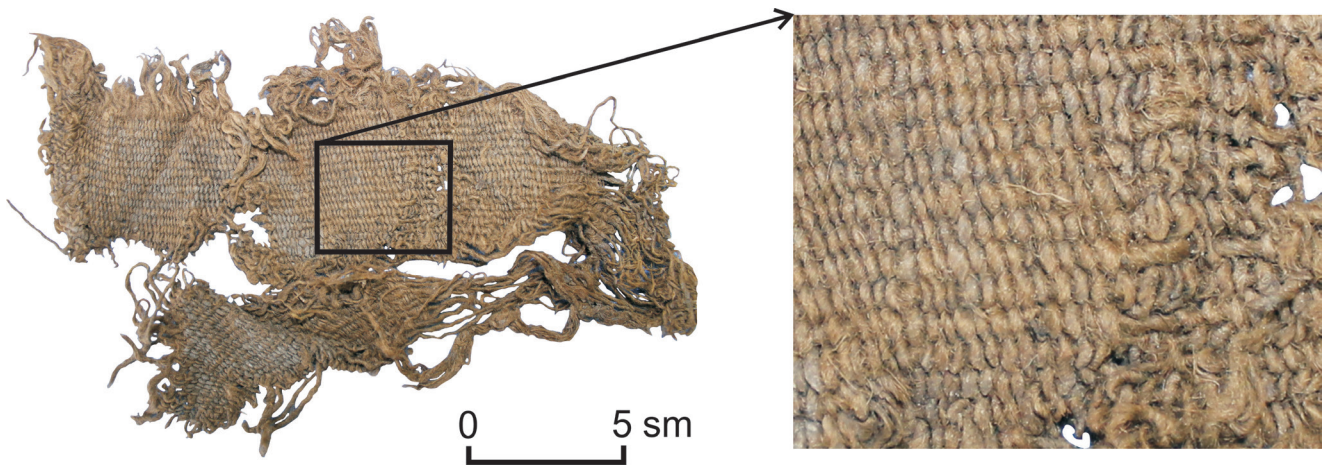


Fig. 7. Plain weave with warp rib structure (the scale is in cm) (Photo: Authors).

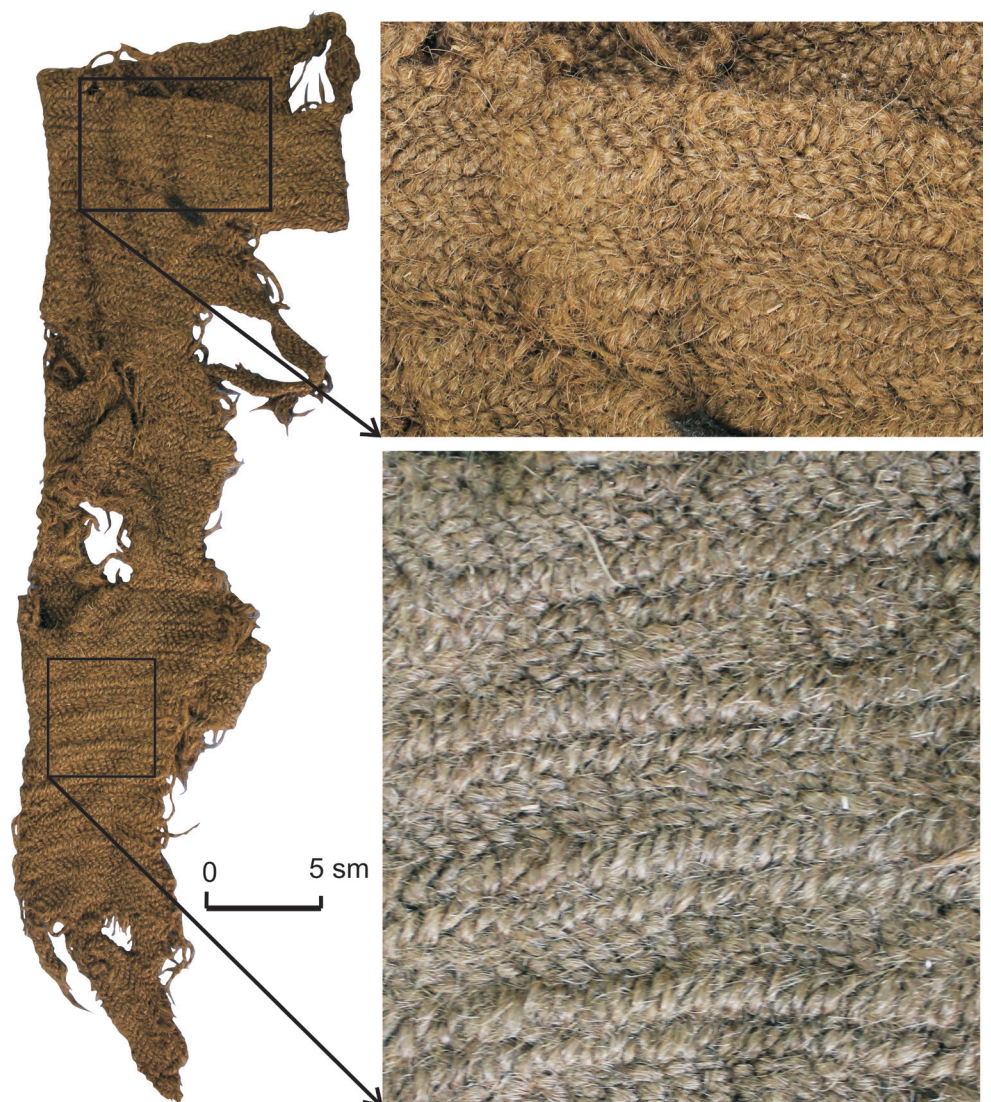
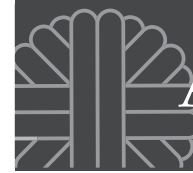


Fig. 8. Wool stockings knitted with one needle (the scale is in cm) (Photo: Authors).



density; separate spinning of the warp and the weft threads; arrangements for felting the fabric surface (a special room or a trough, tub and hot water) and, most importantly, skilled knowledge. Workshops were necessary for the production of fine fabrics of good quality, but these were absent in Tara. The tradition of making a thick cloth of low quality (*sermyagi*) had spread in Western Siberia by the end of the 17th century (Vilkov 1967, 85). We believe that low-quality textiles, such as the examples found in Tara, would not have been transported for trade, because they would only yield a small profit at high cost.

Second textile tradition

The second textile tradition involved the manufacture of plain weave textiles with threads spun in the same direction in warp and weft. This fabric category has several variants. The first of these is a simple wool fabric in a regular weave with the same z-spun thread in warp and weft. The fabrics of this type are usually quite thick with threads of home-production quality. One example is similar in appearance to a foot-wrap, and may be a fragment of this type of textile. The second variant also has z-spun thread in both the warp and the weft, but the fabric has a warp rib effect: the warp is twice the density of the weft or more. The third variant consists of very good quality textiles made using thin threads, spun in the same direction, in both warp and weft, with relatively high density in both thread systems. Most likely, these textiles were produced in handicraft centres in Siberia.

Third textile tradition

The third textile tradition involved the production of 2/2 twills. The twill weave of some fabrics has an error in the structure of the weave, which suggests that they were made by inexperienced craftspeople or using a simple device. Consistent technological characteristics of fabrics of this type (use of the same z-spun thread, even density 2/2 twill) suggest mass manufacture and the fairly simple conditions available within the peasant economy. Even density in the warp and weft (from 7-8 to 10-11 threads per cm) suggests that the loom used was probably a horizontal loom. Small differences in density indicate that different reeds were used. Fabrics of this kind were common in Russia and Siberia from the 16th to the 19th century, with no chronological differences in the technological characteristics (Novgorod, Mangazeya, Tobolsk, Staroturukhansk, archaeological sites of Tomsk-Narym area near the Ob River: see Nahlik 1963; Vizgalov *et al.* 2006; Matveev, Glushkova and Anoshko 2011; Glushkova and Shulaeva 2013a). Thus, the analysis of the technology of twill weave fabrics

provides information on the mass production and well-established textile traditions in the manufacture of a 2/2 twill.

The techniques and methods used for the manufacture of plain weave fabrics were varied. For fabrics with thin, uniform threads, high density in the warp and weft, and no weaving errors, a more advanced type of horizontal loom would have been used, according to the known textile traditions of Russia and Siberia (Nahlik, 1963; Glushkova, Shulaeva 2013b). Fabrics with thick and uneven threads, low and irregular thread density and frequent weaving errors suggest the use of rudimentary horizontal looms.

The knitted products made using a single needle and plied wool yarns of different fineness are very similar in structure, which may indicate that they were made using the same method of production.

It is noticeable that a large number of twisted and braided items made from plant fibre are present (ropes as well as a shoe insole), while fabrics made from this raw material are absent. This is probably primarily due to their more rapid decomposition in the soil after deposition, or to the re-use of plant fibre fabrics (secondary and then reuse as rags for household purposes) due to their good hygroscopic and wear properties.

Conclusion

The textiles recovered from the Tara excavations are quite varied with regard to the characteristics of the threads, structure and surface texture, but there are no high-quality imported fabrics among the samples, as known from historical collections of 17th century textiles (Glushkova and Shulaeva 2013b). At the same time, it is possible to identify different textile techniques. This is likely to indicate the production of textiles in different centres and in different territories, representing different technological weaving traditions. The present conclusion is that the higher-quality plain and twill weave textiles recovered from the Tara excavation were imported.

Fabrics well known in other territories of Siberia are also present in the Tara collection; for example, 2/2 woollen twill. This indicates that they were manufactured in different territories inhabited by the Russian population, using the same technology. We assume a local home production for thick cloth fabrics (*sermyagi*), as well as thick coarse striped fabrics (not discussed here).

The textiles from the archaeological excavations at Tara fortress enable us to conclude that the vast majority of fabrics manufactured in the 17th and the first half of the 18th century came here from the European part of Russia. Clothing was not supplied



for the non-military population, however. Due to the fact that until the middle of the 18th century Tara was a military and administrative centre, the local textile industry did not develop. At the end of the 18th century and during the 19th century, the population of Siberia began cultivating flax on a large scale (Alisov *et al.* 2014, 105). This made a significant contribution to the development of weaving in the villages of the region, which is reflected in the variety of local products, in the dress of the townspeople and the interior decoration of their homes.

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