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TYPES OF LINEN FABRIC RECOVERED ARCHAEOLOGICALLY IN LATVIA AND THEIR UTILISATION

Linen fabrics are by no means uncommon as finds from archaeological excavation in Latvia, although they are much less frequent than finds of woollen textiles. Neither are they comparable in terms of the amount of information they provide, since the condition of preservation is markedly inferior. The samples of linen fabric that have been recovered are not only smaller, but in the majority of cases they are also very fragile and crumbly, visually unattractive, and have completely lost their original structure, so that it is not always possible to determine the main characteristics of the textile, namely the spin direction and thickness of the thread, or to establish the weave and density of the fabric. In many cases, all that remains of the fabric is an impression in a layer of corrosion products. Because of this, the samples have not always received the attention they deserve from archaeologists, and earlier were not even preserved in the process of artefact conservation. Thus, it is no surprise that in some cases not only is there no preserved indication regarding the find location and conditions, but in fact, when the material described in publications is sought out, some of the fragments are no longer to be found. The number of relatively large and well-preserved linen fabric fragments in the archaeological material from Latvia is quite limited.

This paper covers only samples of fabric woven from linen, excluding other uses of this material. So far, the oldest fragments of linen fabric date back only to the 7th-8th century, even though there is evidence of the use of this material considerably earlier. This study covers linen fabric samples from 7th-17th century sites across the whole area of present-day Latvia that are kept in the collections of the National History Museum of Latvia and the museums of Ventspils, Valmiera and Madona. Utilised in this paper is previously published material¹, as well as fabric fragments that have previously not been studied.

In the course of preparing this paper, the author examined and analysed 275 fragments of linen fabrics from various find locations. They derive mainly from burial sites, and most come from female burials, although they also occur

with male burials and in some cases with burials of children. Often, a single burial will have several fragments, and these may derive not from one fabric, but from two or three different fabrics, as has been observed in the case of Burial 4 at Jūrkalna Darvedži, a 14th century female burial (Fig. 1). In this case, the fabric fragments, measuring 3x5.5 and 5x6 cm, consisted of three layers of fabric that had become stuck tightly together: the upper fabric was woven in 2/2 twill, the middle fabric was plain-woven with a stitched seam, and the lower fabric was also plain-woven, but of different density. Finds of fragments of several different linen fabrics are also known from other burials. In these cases the fabrics have generally been found stuck to the front or back of ornaments, or less commonly have been found with weapons or tools placed in the grave. Most often, samples are preserved with dress-pins or brooches used for fastening the dress, and in some cases with neck-rings and bracelets (Fig. 2). In certain cases, linen fragments have been found between woollen fabrics or beneath the body. In rare cases small fabric fragments are preserved in hoards, most probably having been used for wrapping the deposited objects. So far, no linen fragments have been identified on settlement sites.

The oldest linen fabric fragments have been found in the part of south-eastern Latvia inhabited by the Latgallians and Sellonians, while sites in western Latvia have produced a greater number of medieval finds, dating from the 13th-17th century. A large proportion of 11th-13th century textiles have been found on the extensively excavated Liv sites concentrated along the River Daugava, and along the upper reaches of the Gauja in north-eastern Latvia.

Weaves

Almost all of the recovered linen fabric fragments are plain-woven, or woven in some variation of plain weave, and only a very small number of samples were found to be in a different weave, namely 2/2 twill. Single-ply thread has been used for practically all the linen fabrics, sometimes with threads placed double, and, with a single exception, they were all Z-spun. Only the small fabric fragments (measuring about 1x1.5 cm) from Burial 8 at Ikšķiles Zariņi have linen thread spun in opposed directions, used for the thread passing in one direction and woven in narrow bands that

¹ A. Zariņa, *Seno latgaļu apģērbs 7. – 13. gs*, Rīga 1970, p. 3. un 25. Table; A. Zariņa, *Lībiešu apģērbs 10. – 13. gs*, Rīga 1988, pp. 4-6. Table; I. Žeiere, *Arheoloģiskās liecības par apģērbu Latvijā 13.-18. gadsimtā*, Rīga 2008, pp.17-19.



Fig. 1. Three different linen textile fragments from Burial 4 at Jurkalnes Darvdeži. Photo: R. Kaniņš.



Fig. 2. The fragment of linen fabric corroded to the outside of a bracelet from Burial 9 at Kaunatas Veresauka. Photo: R. Kaniņš.

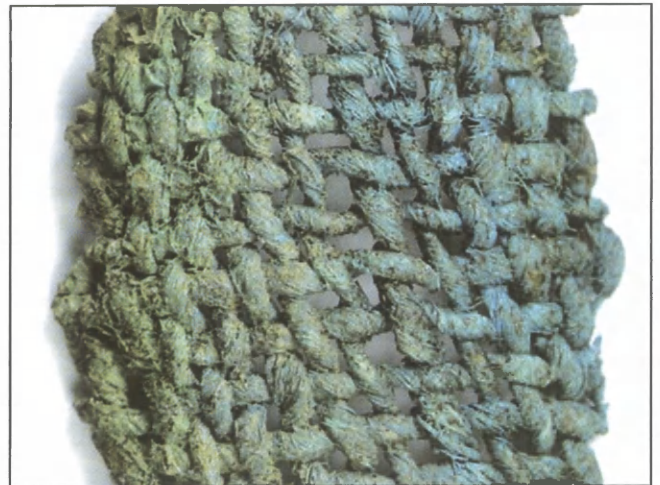


Fig. 3. Corroded linen fabric with threads spun in different directions woven in bands. Burial 8 at Ikškiles Zarīni. Photo: R. Kaniņš.

alternate every four threads (Fig. 3). The use of plied linen thread in fabrics has been observed in only two cases², and here the intention was to provide a decorative effect. Inclusion of bands of thread of different thickness and colour has been observed along the edge of a fabric fragment from Burial 7 at Vilces Kalnplāteri: in this case, two pairs of such threads had been woven in, separated by a distance of 1 cm. This early 17th century find is so far the only known

² Burial 7 at Vilces Kalnplāteri and Burial 63 at Doles Vampeniēsi II.

case where coloured thread is observable, in addition to linen thread in its natural colour or bleached.

The density, or number of woven threads per square centimetre, which is one of the main indicators of fabric quality, was in fact highest for the very oldest samples, dating from the 7th-9th century. Out of 33 finds from this period, in 23 cases the number of warp threads per cm² was 20-30, and only in 10 cases were there 15 threads per cm² or less. Among these, there are only two examples of fabrics with less than 10 warp threads per cm². In addition to this, the fabrics of this period characteristically have a significant excess of warp over weft threads, the former being

completely covered by the latter in the course of weaving, a characteristic feature of warp rib weaves. In these cases the number of warp threads is twice, or even three times greater than the number of weft threads: 24x6, 24x8, 30x10 threads per cm². Starting from the 10th century, the number of such fabrics gradually decreases, and fabrics showing a smaller difference between the warp and weft thread count, namely 14x10, 16x12 threads per cm², come to predominate, although a small difference in the number of threads is retained. However, such rib fabrics have not been found on the 11th-13th century sites in the area populated by the Livs. Practically all of the fabrics obtained here have a difference between warp and weft thread numbers of between two and four, or else the numbers of threads are the same, and in only three cases out of 60 finds is the number of threads in one direction six threads greater than in the other. Here, the most commonly occurring number of warp threads in linen fabrics was 10-16 per cm². More than 16 threads per cm² have been found only in six cases out of the 60 known finds. A similar level of quality is observable in the linen fabric samples of the 13th-17th century. The difference in the thread count for fabrics from this period generally does not exceed 2-4, and the most commonly recorded density of warp threads is 10-14 per cm². Fabrics with an equal number of threads in both directions have been found in almost the same number. For this period, only occasional examples of rib weaves can be identified, and the same is true of fabrics with 20 or more threads per cm.

A small number of samples have been found that exhibit variations of plain weave and these include rib weave, basket weave, half basket weave and other combinations. So far, only twelve such finds are known, all except one (Burial 31 at Užava) deriving from 11th-13th century sites in south-eastern Latvia. In these cases, the warp threads are generally placed double, while the weft threads are woven singly. In some cases – Burial 3 at Kauguru Beites and Burial 95 at Priekuļu Liepiņas – other thread patterns occur, forming grooves in the fabric (Fig. 4).

Equally rare are fabrics woven in a different weave – 2/2 twill. Some of these are in diagonal twill, one fragment from a 17th century hoard is in herringbone twill, and the most interesting examples are woven in diamond twill or in a combination of diamond twill, basket weave and with floats (Fig. 5). Most of these small fragments come from two burials at (11th-12th century) cemeteries in central Latvia: Kārļu Ainava and Taurenēs Lazdiņi. These were studied already in the 1920s and 30s, and although they have been published in several works³, the find context is not known.

³ V. Ģinters, *Latviešu tautas tērpa aizvēsture*, [in:] *Ievads latviešu tautas tērpu vēsturē*, Rīga 1936, pp. 61-62. Fig. 52-54; K. Ozols, *Senie latviešu audumi*, [in:] *Senatne un Māksla*, ed. F. Balodis, Rīga, Nr. II, 1939, pp.76-101; A. Dzērvītis, *Latvju audumu tūkstoš-gadu vecas tradīcijas*, [in:] *Senatne un Māksla* Nr. II, Rīga 1938, pp. 173-174, fig. 10-11.

It is possible that several fragments showing different characteristics actually derive from a single finely patterned fabric. Interestingly, similar linen fabrics are known from 19th century dress in south-eastern part of Latvia⁴. Similar finely patterned fabrics showing a combination of techniques are known from several burials of the 7th-8th century AD in South Germany.⁵

Preserved even less commonly than fabrics woven in other weaves are fragments of decorated linen fabrics. Although the literature contains several references to linen fabrics with simple embroidery⁶, at the present day only a couple of examples can be found. One comes from Burial 6 at Taurenēs Lazdiņi, an 11th century female burial. In this case the fabric has been preserved in several places beneath a woollen fabric. Six small and very poorly preserved fragments of rib weave were recovered, with a density of 18 warp and 5 weft threads per cm². The largest fragment measures 4.5x6 cm. Two of these fragments came from the edge of a garment with a simple selvedge, along which two thicker plied woollen threads had been threaded in a 2-mm-thick band of drawn threads, separated by 4-5 mm. The thread closer to the outside was blue, and the other red. The stitches, 6-7 cm long, passed over three and under three weft threads, the two bands being alternately arranged.

Another decorative plain-woven fabric whose function remains unclear has been found with a 12th century female burial, No. 63, at Doles Vampeniēši II. In this case, a linen fabric with regular bands of decoration has been preserved in the form of several fragments on various iron and bronze artefacts. It is saturated with corrosion products and preserved in a width of 3 cm in several layers over the objects. In one direction, 2-mm-wide bands of drawn threads have been created spaced at 7-mm intervals. In the empty bands in between, a decorative plied thread has been threaded with a needle, crossing the two opposed pairs of threads (Fig. 6). On the largest, 7-cm-long fragment, seven parallel bands of drawn thread are preserved. This is the only example of this kind of fabric decoration known in Latvia, made in the technique of drawn-thread work. A visually similar fabric fragment, dated to the 8th century AD, with crossed adjacent warp threads in regular horizontal bands is known from *Dolni Dunajovic* in the region of South Moravia, Czech Republic.⁷

⁴ CVVM 10826, 27204, 12757, 12768, 14049 un Dz.kr. 6554

⁵ K. Tidow, *Kleingemusterte Woll- und Leinengewebe aus Eisenzeit und dem Mittelalter – Herkunft, Herstellung und Verwertung*, [in:] *Textiles in European Archaeology Report from the 6th NESAT Symposium, 7-11th May 1996 in Borås*, ed. L. Bender Jørgensen, Ch. Rinaldo, Gotarc Series A, Vol. 1, Göteborg 1998, Fig. 1, pp. 133, 135.

⁶ A. Zarina, *Seno latgaļu apģērbs 7. – 13. gs...*, p. 152.

⁷ M. Kostelníková, *Eine kurzgefasste Übersicht über die Textilforschung in Mähren (Tschechoslowakei)*, [in:] *Textiles in Northern Archaeology. NESAT III Textile Symposium in York*, London 1990, ed. P. Walton and J.P. Wild, pp. 113-118, Fig. 14.4



Fig. 4. Linen fabric woven in half-basket weave with relief bands of grooves. Burial 95 at Priekuļu Liepīnas. Photo: R. Kaniņš.

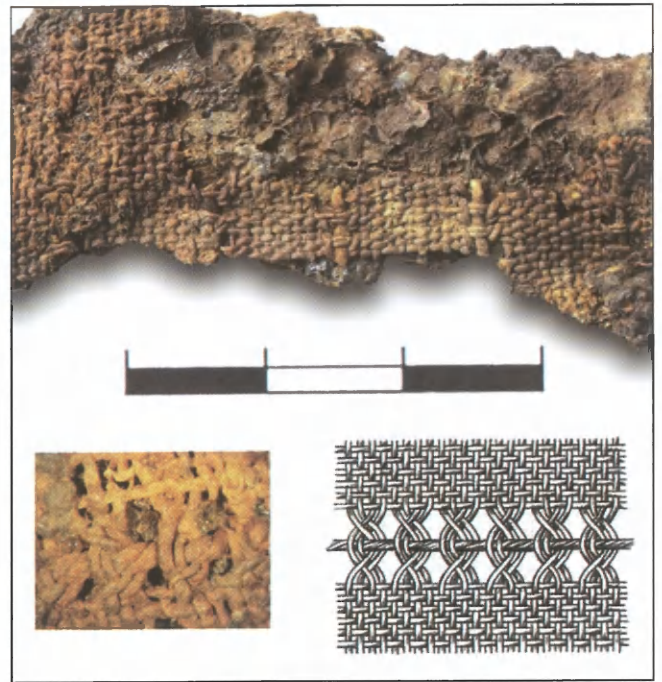


Fig. 6. Linen fabric with decorative bands made in drawn-threads work and scheme of the band preparation. Burial 63 at Doles Vampeņi II. Photo: R. Kaniņš, I. Tuņa, Drawing: Dz. Zemīte.

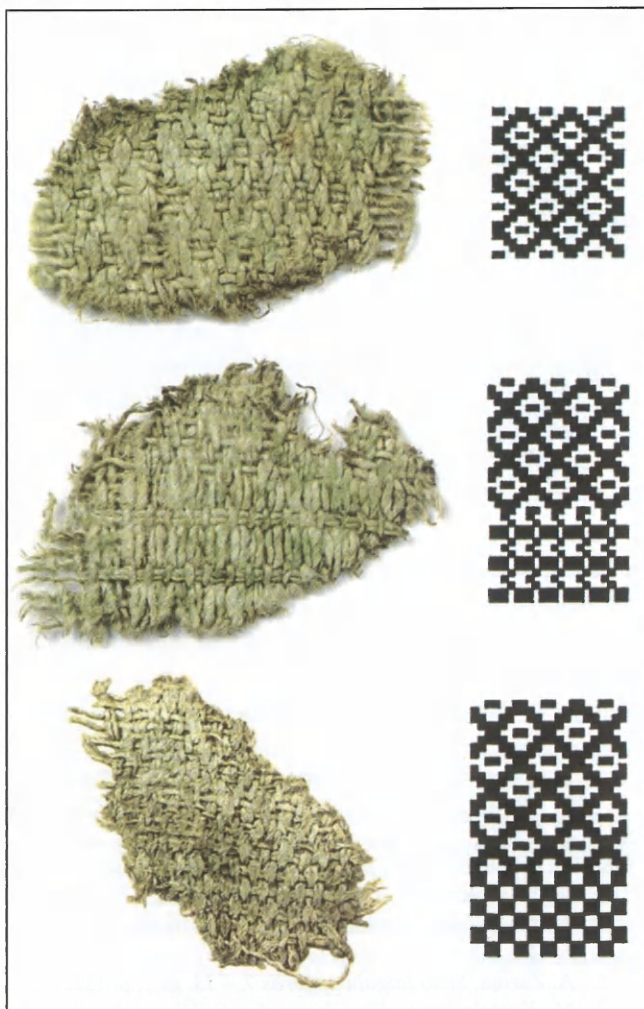


Fig. 5. Finely-patterned linen fabrics from Burial 6 in Kārlu Ainava. Photo by R. Kaniņš, Drawing: Dz. Zemīte.

The use of linen fabrics

The use of the fabrics discussed above can be precisely determined only in very rare cases: where characteristic details or particular kinds of evidence are preserved, indicating that the fragment derives from a certain garment. The majority of linen fabric fragments are too small for their application to be determined, but among them are also some interesting finds that clearly indicate the way they were used.

If we try to group the linen fabric samples discussed here in terms of their use, we may approximately distinguish two major groups: fabrics serving various everyday needs, and fabrics used specifically for dress. However, most commonly the mode of use of the fragments is no longer determinable, so they cannot be included in one or other of these groups. This is because of the minute size of the samples and their poor state of preservation, and also because of the limited information regarding the specific location of the find within the grave. This is actually more of a problem for the earliest finds, for which in many cases there is no preserved record. This is the case with the most interesting fabric samples, mentioned above, which were obtained in 1924 in the course of a small excavation at the cemetery of Ainava. All that remains are photographs of certain graves, and so it is nowadays impossible to say whether in fact the preserved fabrics come from a garment, and, if so, what kind of garment they derive from (shirt, skirt, shawl or maybe headgear), or whether they were used for some other purpose.

In many cases it has been found that linen fabrics had been laid out in the grave and had been used to cover the



Fig. 7. Linen fabric from inside of a scabbard chape from Krimulda. Photo: R. Kaniņš.



Fig. 8. Both sides of shirt seams from Burial 63 at Doles Vampenieši II. Photo: R. Kaniņš.

body. This is indicated by the fragmentary remains of identical fabrics found in various places beneath the body – at the head, in the region of the middle or at the feet. These are generally preserved directly on top of the boards of the base of the coffin or else on a spread of wood used in place of a coffin. Such remains have also been found above fragments of furs laid in the grave, or else covering the moss or ferns used in the fill of the grave. In some cases remains of such fabrics are preserved on the lower sides of artefacts placed in the grave, namely weapons, ornaments and tools.

It is not known whether the fabric was simply laid out in the grave, or whether the body was wrapped in it,

but similar fabric fragments have in many cases been found above grave goods and ornaments on the body, or covering the head. Likewise, such fragments have been found on the upper side of woollen shawls placed around the body or covering it, or on other items of the dress. In these cases the remains of linen fragments can be regarded as samples of the material used to cover the body. However, the fabrics found with ornaments cannot always be interpreted as deriving from the covering of the body. In particular, this can be said of the fabric samples associated with bracelets and finger-rings, since in these cases the arm position also has to be considered. The arms may have been placed on the chest or the middle in such a way that the ornaments partly came into contact with the shirt or with the fabric of other garments.

Here are also cases where linen fabrics have been used for wrapping or protecting particular objects. In at least four cases it has been observed in Latgallian and Liv 10th-12th century cremation graves that undamaged artefacts placed in the grave were wrapped in linen fabric. Such cases have been identified at the cemeteries of Pildas Nukši, Doles Vampenieši and Viesienes Mežāres.

In several cases, remains of linen fabrics have been found on the insides of sword scabbard chapes. In the course of restoration work on a scabbard chape from Krimulda (RDM I 1041), a 6-cm-wide and 17-cm-long fragment of plain-woven linen fabric was removed from it, with a density of 9-10 warp and 9 weft threads per cm² (Fig. 7).

Fragments of linen fabrics have in some cases been preserved in hoards together with coins that were wrapped in the fabric or in a bag made from such fabric. Linen fabric fragments are sometimes also found with separate components of weighing scales (Burial 5 at Dobeles Bālas),



Fig. 9. Sleeve ends of a shirt with leather trimmings before and after conservation and the end of another sleeve from Burial 16 at Pildas Nukši. Photo: R. Kaniņš.

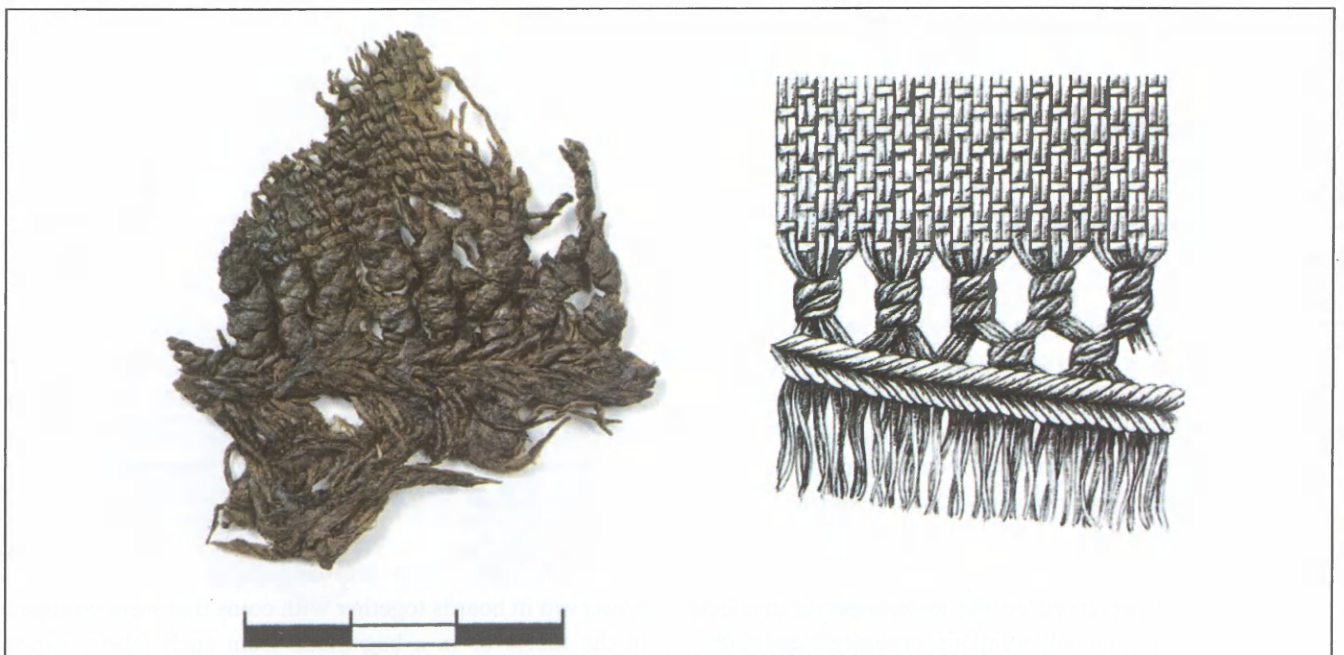


Fig. 10. Fragment of the end of a linen shawl from Grave 132 at Kapīnu Kristapīni. Photo: R. Kaniņš, Drawing: Dz. Zemīte.

and they could have come into contact with these in a similar way, although scales were generally placed in a special box.

In medieval material we can observe the use of linen fabrics for lining the inside of the woman's *vainags* or 'crown'. Here, the fabric was used to cover a base made of firmer material, such as birch or lime bark. Such cases are known from the cemeteries of Salaspils Mārtiņšala, Vilces Kalnplāteri and Puzes Lejaskrogs, although woollen fabrics were more commonly used for this purpose.

Much less commonly preserved are fragments of linen fabric that can definitely be connected with a particular item of dress. The most common garment for which linen fabrics have been used is the shirt. The remains of shirts have been found with burials of both sexes and all ages. There is very little evidence regarding other linen garments. It is not possible to fully reconstruct the cut or dimensions of the shirts worn in antiquity from the small fragments that have been recovered. The evidence regarding shirts is in general very meagre, but it is possible to reconstruct certain characteristic details: the form of closure, the neck opening and the way it was finished, the form of the sleeves and some other elements of the trimming. So far, no evidence has been found indicating sewn-on collars or seams at the shoulders, so it is assumed that the shirts were sewn in tunic form, with a T-shaped neck opening. The oldest preserved shirts in the ethnographic material, dating from the late 18th and early 19th century, were sewn in a similar way⁸. One of the largest fragments of a linen shirt comes from a 13th/14th century female burial at Kauguru Beites (Burial 3), where a fragment measuring 6 x 9 cm from the part with the neck opening has been found in the shoulder area beneath the neck-rings. On this fragment the edge has been folded back twice and sewn. Unfortunately, the fragment itself can no longer be found in Valmiera Museum, and all that remains is a poor quality photograph and a description of the fabric in the excavation report⁹.

More commonly encountered are fragments of the slit of the shirtfront, with edges folded back twice and sewn. The slit was closed by means of one or more brooches fastened at the neck, and the fabric samples are most commonly found on the pins or undersides of these brooches. The folded and sewn edges were very narrow, 3-7 mm in width, and the sewing was done using either thick, plied thread in fairly large oversewing stitches, or else with thinner thread and sewing with smaller, but visible stitching. Other recovered fragments with narrow twice-folded and overcast sewn edges can tentatively be identified as representing the finished edges of the shirt fabric.

We may also identify as shirt fabrics those samples preserved on the insides of the folds of woollen dress on the upper part of the body, and those found beneath belts or inside

bracelets. There is evidence of the character of the side seams of a shirt from a child burial at Doles Vampenesi I (Burial 81), where a fragment from a decorative side seam, 1.2 cm long and 3.5 cm wide, has been found at the middle of the body inside a woollen coat fragment (Fig. 8).

One of the most interesting examples showing the trimming of the shirt has been found on an 11th century male burial, No. 16, at Ņukši (CVVM 65273:7). Here, beneath the decorative bindings on both arms, the sleeve ends of the shirt were preserved, along with leather trimmings (Fig. 9). The plain-woven shirt fabric has a density of 16 warp and 14 weft threads per cm². A fragment of the side of the right sleeve measuring 4.5 x 5.5 cm is preserved, together with a decorative trapezoidal leather appliqué that had been positioned on the palm beneath the binding. It is 4.7 cm wide at the top and 6.5 cm wide at the bottom and the perforations for attaching it are preserved along both lateral edges. A similar piece of leather decoration, but in much worse condition, is known from Burial 1, a male burial, in Barrow V at Sēlpils Lejasdopeles. A fragment from the end of the other sleeve is also preserved, measuring 5 x 8 cm, with a vertical flat seam measuring 5-6 mm, and a twice-folded 5-mm-wide edge of the sleeve. A strip of leather about 9 mm wide that does not cover the fabric has been attached to it by means of 5-mm-long overcast stitches of double linen thread (Fig. 9).

In very rare cases it is possible to identify shawls woven of linen, which were very widespread in the ethnographic material, particularly in south-eastern Latvia. Although some publications do describe finds of linen shawls or trousers¹⁰ and, in these cases it has turned out that the finds in question were in fact woven from wool. One fragment that really can be identified as deriving from a shawl comes from Burial 132, a female burial, at Kapīņu Kristapiņi (Fig. 10). In this case, a small fragment from the end of a linen fabric has been found together with a tablet-woven band and fringe, although the precise find location is not known. This fabric, woven in half basket weave, has at the end a decorative band measuring 1-1.2 cm in width. This band consists of two stages, with alternately arranged groups of bound warp threads. In forming the binding, groups of eight warp threads were bound with several linen threads, the groups of bound threads of one row arranged alternately to those of the previous row. Next to this band, a narrow tablet-woven band of linen was woven on, leaving a short fringe.

A second find that can be regarded as a linen shawl comes from the north-western part of Latvia. Found with Burial 6 at Lībagu Sāraji were nine fragments showing the edge finish of a fabric – tablet-woven bands with small bronze rings woven into them, characteristic of the 13th-16th century woollen shawls from this particular region. Generally, however, wool

⁸ M. Slava, *Latviesu zemnieku kreklu tipi (18. gs. beigās – 19. gs. pirmā puse)*, „Arheoloģija un Etnogrāfija”, vol. III, Rīga 1961, pp. 84-85.

⁹ AA 333

¹⁰ F. Balodis, *Latvijas Arhaioloģija*, Rīga 1926, p. 89; A. Dzērvītis, *Šķiedru izstrādājumi*, [in:] *Mākslas Vēsture III Lietājamās mākslas*, Rīga, p. 142.

was used for the tablet-woven bands attached to these shawls, and this is so far the only known example of the use of linen.

The question of whether other garments, such as head-cloths, skirts, trousers and puttees were made from linen fabrics remains open. This is theoretically possible, but so far there is no evidence to prove it.

Conclusions

By bringing together the evidence from the seemingly uniform, small fragments of linen fabric it is possible to trace the development and distribution of the manufacturing traditions during a long period. This material includes surprising and very interesting samples, which can increase our knowledge of the mode of use of this material, and add to the very sparse evidence regarding ancient dress and the materials used to make it. Analysis of the linen fabrics indicates that the quality and weaves of the fabrics used for dress did not significantly change after the 11th/12th century, since there is practically no difference from those used for dress in the 18th/19th century.

Translated by Valdis Bērziņš

W artykule omówione zostały tkaniny lniane z okresu od VII do XVII w. pochodzące z wykopalisk prowadzonych na Łotwie. Chociaż najstarsze fragmenty tkanin lnianych datują się na okres VII i VIII wieku, istnieją dowody potwierdzające, że materiały te stosowane były znacznie wcześniej.

Prawie wszystkie fragmenty tkanin lnianych wykonane są w splotcie płóciennym lub jego odmianach – splotach rypsu i panamy, z nici o skręcie pojedynczym oraz, z jednym wyjątkiem, z przędzy w skręcie Z. Równie rzadkie są tkaniny wykonane w splotcie skośnym – istnieje kilka fragmentów tkanych w splotcie skośnym, w jodełkę i w splotcie rombowym lub czasami będących kombinacją tych splotów z innymi rodzajami splotów. W nielicznych wypadkach tkaniny lniane bywają zdobione.

W najstarszych próbkach, pochodzących z okresu od VII do IX wieku, liczba nici osnowy jest dwu lub

Excavation reports

- AA 169 E. Šnore, Pārskats par izrakumiem Ventspils apriņķa Jūrkalnes pag. Darvdedžos laikā no 1936. g. 4.-9. septembrim
- AA 333 I. Cimermane, Pārskats par izrakumiem Valmieras raj. Kauguru c. Beitēs 1962. g. 15.-26. aug.
- AA 377 Cimermane, Pārskats par izrakumiem Vilces Kalnplāteros 1966. g. 12.-17. Sept.

Abbreviations

- A; CVVM; RDM Dz. kr. – Collection numbers of National History Museum of Latvia
- AA – Excavation reports of Archaeological Department of National History Museum of Latvia

Streszczenie

nawet trzykrotnie większa niż liczba nici wątku: 24 x 6, 24 x 8, 30 x 10 nici na cm². Poczynając od X wieku różnica między liczbą nici osnowy i wątku zmniejsza się i wynosi: 14 x 10, 16 x 12 nici na cm². Podobne standardy jakościowe zaobserwować można w przypadku próbek tkanin lnianych pochodzących z XIII – XVII wieku.

Zastosowanie tych tkanin udało się precyzyjnie ustalić tylko w bardzo nielicznych wypadkach tam, gdzie zachowały się charakterystyczne szczegóły lub konkretne poszlaki. Najczęstszym elementem ubioru, w którym wykorzystywano len, była koszula. Materiał dotyczący koszul jest bardzo skromny, ale istnieje możliwość rekonstrukcji pewnych charakterystycznych detali. Nie można wykluczyć wykorzystywania lnu do wyrobu innych części odzieży, takich jak chusty, spodnice, spodnie, owijacze. Dotychczas nie znaleziono jednak dowodów na ich występowanie.