

TEXTILES FROM AT-TAR CAVES —PART II-(4): CAVE 16, HILL C—

Hideo FUJII*, Kazuko SAKAMOTO**
and Mikizo ICHIHASHI***

1. Foreword

In relation to the textile specimens uncovered at Cave 16, Hill C, at-Tar Site Group Caves, it was extremely difficult for us to grasp their burial situation closer to their origin, since they had been discovered torn to tiny pieces, lying over a wide range of area in terrible confusion, just as with the other uncovered remains. To our good luck, however, a large number of textiles have come unearthed under rather a satisfactory condition at the south corner of Room 2, the deepest of all in Cave 16. In the corner, about 7 m higher than the desert surface, there is an opening which seems to have been made into a window-like way by scraping the marlstone, this cave's constituent, with its cracks skillfully utilized. When setting out with investigation, we were unable to get in and out through the opening without a ladder. Thus, there are no grounds for believing that this was an ordinary gateway.

Near the very opening, we successfully discovered burial goods including a great many textiles, with the progress of our gradual removal of the aeolian sand on top level. In giving rough explanation to our discovery of the burial goods in Cave 16, to begin with, we caught sight of a marlstone platform which had been secondarily leveled by filling the rugged spots with small gravel, after scraping the mother rock, marlstone, into nearly flat. On the leveled platform, there was a rush mat with checker design placed first, pile textiles were lain over the rush mat; various sorts of non-pile textiles lay scattered like covering over the pile textiles. Most of those various sorts of tattered non-pile textiles have been discovered, fallen over sandy gravel away from the marlstone platform, which is observed to have been used for laying a dead body. The non-pile textiles, torn to pieces, have been buried among the sand together with some human bones around the platform [*cf.* Ii 1986: pp. 1–21, Pls. 1–8]. We can thus derive suggestions as to the importance of these uncovered textiles in character from Textile 14 bearing a human image with a yellow crown on the head [*ibid.*: Pl. 6d], which was hidden among the littered pile textile tufts. As a matter of fact, heavy work was required in our analysis and identification of these textiles, since most of them had been found torn to pieces.

As a result of carefully examining these fragmentary textiles for identification, they have been classified as the ones made of the following materials:

Sheep fiber and other beast fiber textiles: Pile textiles 8

Non-pile textiles 36

Cotton: Non-pile textiles 5

Linen: Non-pile textiles 2 (One of them uses sheep thread in the weft thread of the pattern)

Rush mat: 1 (Grandrelle thread¹) of sheep fiber and camel fiber is used in the warp; sheep fiber and common goat fiber are used in the pattern weft) (Fujii and Sakamoto 1990: p. 59, Note 1)]

* Professor/Director, the Institute for Cultural Studies of Ancient Iraq (ICSAI), Kokushikan University, Tokyo

** Lecturer of the ICSAI and Visiting Specialist of the Ancient Orient Museum, Tokyo

*** Visiting Scholar of the ICSAI

The specimens duly classified as above have been successively reported in *Al-RĀFIDĀN* as given below:

- (1) Pile textiles (Textile 1–Textile 8), Vol. XI, 1990, pp. 45–65, Pls. 1–3
- (2) Rush mat (Textile 51), Vol. XII, 1991, pp. 157–165, Pls. 1–4

Among 43 non-pile textiles, those evidently discernible from each other have been classed into the following two for publication:

- (3) H-shape pattern group (Textile 9–Textile 13), Vol. XIV, 1993, pp. 109–133, Pls. 1–7
- (4) Human image group (Textile 14–Textile 16), Vol. XV, 1994, pp. 77–89, Pls. 1–10

Now the current volume is to deal with the other 35 non-pile textiles (28 sheep fiber and other beast fiber textiles; 5 cotton textiles; 2 linen textiles).

2. Identification

Textile 17	Checker fragment: Registered No. V-39-3 (Pl. 1a)
Textile 18	Fragment with slant pattern: Registered No. V-125-1 (Pl. 1c)
Textile 19	Fragments with tapestry-weave technique: Registered No. V-90-2 (Pl. 1b)
Textile 20	Fragment with additional thread selvage: Registered No. V-2-3 (Pl. 1d)
Textile 21	Fragment with decorative selvage: Registered No. V-86-1 (Pl. 2a)
Textile 22	Dull green fragment: Registered No. V-47-21 (Pl. 2c)
Textile 23	Deep yellow green fragment: Registered No. V-107-8 (Pl. 2d)
Textile 24	Belt-like fragment: Registered No. V-101-6 (Pl. 2b)
Textile 25	Belt-like fragment: Registered No. IV-W-8-⑥ (Pl. 3a)
Textile 26	Medium-thick fragment: Registered No. V-21-19
Textile 27	Small, deep red fragment: Registered No. V-75-2
Textile 28	Gauze-like fragment: Registered No. V-116-4
Textile 29	Textile with 'Tyrian purple' band pattern: Registered No. V-85-2 (Pl. 3b)
Textile 30	Fragment with horizontal stripe pattern: Registered No. V-39-10 (Pl. 3c)
Textile 31	Fragment with color gradated horizontal stripe pattern: Registered No. V-44-11 (Pl. 3d)
Textile 32	Fragment with color gradated horizontal stripe pattern: Registered No. V-41-10 (Pl. 4a)
Textile 33	Fragment with horizontal stripe pattern: Registered No. V-44-7 (Pl. 4b)
Textile 34	Fragment with two pieces sewn together: Registered No. V-39-11 (Pl. 4d)
Textile 35–1	Fragments with design of waveform, horizontal stripe pattern: Registered No. V-65-6 (Pl. 4c)
Textile 35–2	Fragments with various sorts of stripe patterns: Registered No. V-126-2a (Pl. 5a-d)
Textile 36	Fragments with horizontal plant pattern band: Registered No. V-88-1 (Pl. 6a-c)
Textile 37	Mottled fragment: Registered No. V-4-1
Textile 38	Fragment with warp alignment of 2·1/repeat: Registered No. V-21-13 (Pl. 7a)
Textile 39	Textile with horizontal band pattern: Registered No. V-95-1 (Pl. 7c, d)
Textile 40	Textile with geometric and floral pattern band: Registered No. V-65-10 (Pl. 8a-d)
Textile 41	Fragment with paired warps of different colors: Registered No. V-103-19 (Pl. 9a)
Textile 42	Gauze-like fragment with 'kermes' band pattern: Registered No. IV-W-53 (Pl. 9b, c)
Textile 43	Textile with horizontal band pattern: Registered No. V-2-1 (Pl. 10a, b)
Textile 44	Linen fragment with evidence of warp connecting method: Registered No. V-105-1 (Pl. 10c)
Textile 45	Linen cloth with sheep thread used for pattern weft: Registered No. V-71-1 (Pls. 11a, b)

	and 12a, b)
Textile 46	Cotton fragment: Registered No. V-47-2
Textile 47	Cotton fragment: Registered No. V-79-1 (Pl. 12c)
Textile 48	Cotton fragment: Registered No. V-47-9
Textile 49	Cotton fragment: Registered No. V-116-1
Textile 50	Cotton fragment: Registered No. V-65-8

(Note) The specimen for dyestuff analysis, No. V-73-4 (Textile 43), which was reported in 'Studies on Identification of the Natural Dyes on the Textiles from at-Tar Caves' (*Al-Rāfidān* Vol. XIV, 1993, pp. 141–148), belongs to the same fragments as the specimen, Registered No. V-2-1 (Textile 43) reported here in the current volume. And Specimen No. V-71-1, which was equal to Textile No. 15 in the 1993 report, has been arranged as Textile No. 45 in the current report.

3. Description: Weave and design

Textile 17 Checker fragment: Representative Specimen No. V-39-3

This is a checker fabric by using 2 different color threads, brownish gold and dark grayish brown, for both the warp and weft (Pl. 1a). Those two colors are rather uniform in thread density: that is, 13.0–14.0 in warp density and 10.0–11.0 in weft density. But the warps and the wefts vary in diameter from color to color. For example, the warp-directed brownish gold thread, composed of 6 threads each, has been finished into 4.0 mm in width, while the dark grayish brown thread, composed of 7 threads each, finished into 5.0 mm in width. And the weft-directed brownish gold thread, composed of 6 threads each, has been finished into 6.0 mm in length, while the dark grayish brown thread, composed of 6 threads each into 5.5 mm in length. In this way, therefore, there lies a little difference in finished dimension between the ones in warp direction and the ones in weft direction as to the colors. This is 1.0 mm in cloth thickness, which may be slightly thicker than the other fabrics with checker patterns included.

Textile 18 Fragment with slant pattern: Representative Specimen No. V-125-1

This specimen uses dull reddish yellow thread for the warp, and on the ground, it uses the same dull reddish yellow paired weft. At a part of the cloth, we see deep red pattern weft filled in weft-faced way by tapestry-weave technique at an angle of 70° to the warp direction (Pl. 1c). As for this sort of slant pattern representation, there is another example Textile 4–1 from Cave C12 [Fujii, Sakamoto and Ichihashi 1989: p. 126, Pl. 36b] which has a triangle pattern by tapestry-weave technique, just like that of Textile 18. In Textile 4–1, we see a slit of 4.5 cm in length, which was made along a side of the dark purple triangle, again stitched into closure by another thread. Besides, the pile specimen IV-MK-1382 from Cave 17, Hill C contains design-making and weave technique to which Textile 18 can be referred for information. The pile specimen has triangle patterns positioned at its four corners. These triangle patterns placed at four corners are represented with deep red pile tufts, and their triangle grounds, which the tufts are based on, are also woven with the deep red threads. And their slant sides are woven in staircase way by dovetailed tapestry-weave technique [Sakamoto 1993: p. 43, Fig. 4: The characteristics of the knotted pile fragments in Fujii and Sakamoto 1993].

Textile 19 Fragments with tapestry-weave technique: Representative Specimen No. V-90-2

This is composed of three pieces of pattern-including small fragments. The warp is colored dark grayish brown, while the individual paired wefts are dull yellow and dark wine each (Pl. 1b). We see the weft's returning points confirmed, which is estimated to be the trace of a pattern part done with the use of

tapestry-weave technique. It can be observed here that dark wine paired wefts were woven onto the dull yellow paired weft's ground by tapestry-weave technique.

Textile 20 Fragment with additional thread selvage: Representative Specimen No. V-2-3

This is a specimen by using paired wefts densely interworked with warps. It has Type 3 selvage and 4·6·4 cord alignment (Pl. 1d). Reinforcement around the selvage has been attained with the use of a set of 3-threads each, the same as the weft in quality, as additional thread (Fig. 1). Such sort of technique as seen in this textile whose selvage has been carefully protected can be often traced among the large textiles with H-shape patterns along the selvages of which we see oblong patterns (Textile 9 from Cave C16), [Fujii, Sakamoto and Ichihashi 1993: p. 111 Figs. 2 and 3, Pl. 2a, b].

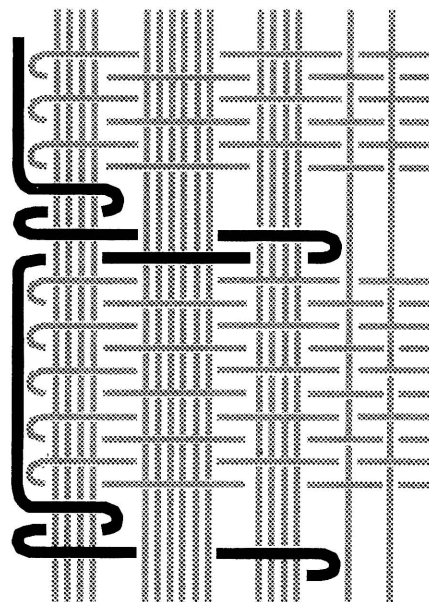


Fig. 1 Additional thread of 3-parallel wefts (Textile 20, Specimen V-2-3).

Textile 21 Fragments with decorative selvage: Representative Specimen No. V-86-1

This is of 2 pieces of fragments which constitute stripe pattern of two colors, deep yellowish red and deep yellowish green (Pl. 2a). It is composed of weft-faced, variation of plain weave. The dull reddish yellow color used for the wefts is also used for the warps, and the warps and the wefts are nearly the same in diameter. Thus, it is estimated from the above that the part woven with the dull reddish yellow wefts is the ground of this textile. All the colored wefts in pairs are interlaced with warps. And, at some places of the wefts' working with selvage warps, the wefts' turning-back is taken with the use of tapestry-weave technique, instead of their interlacing with selvage warps, thereby resulting in small slits. Furthermore, at other places, we see indented geometric motifs by color weft with the use of tapestry-weave technique, and other indented geometric motifs are placed alternate with the former by other color thread woven toward inside from the cloth end. In these cases, a decorative selvage has been effected by interworking different color threads with the selvage warps (Fig. 2). Such selvage-making technique as the above has seldom been seen in the at-Tar Caves. Different from the above example, another decorative selvage technique, which is dovetailed tapestry-weave technique, has been discovered in Textile 2 from Cave 12, Hill-C [Fujii, Sakamoto and Ichihashi 1989: p. 116, Fig. 6 (Type 4), p. 119, Fig. 9, p. 121, p. 125].

Textile 22 Dull green fragment: Representative Specimen No. V-47-21

This is composed of 2 pieces with dull green warps and wefts of 0.30–0.45 mm in diameter (Pl. 2c). However, the warp and the weft differ in twist direction and twist number: the warp is S-twist and 6.0–8.0/cm in twist number while the weft is Z-twist and 4.0–5.0/cm in twist number. And there is a big difference of density between them, *i.e.*, 11.0/cm in warp density; 40.0/cm in weft density.

Textile 23 Deep yellow green fragment: Representative Specimen No. V-107-8

This is very similar to Textile 22 in the use of its color threads (Pl. 2d). And both of them approximate to each other in cloth thickness, too, showing 0.73/mm in Textile 22 and 0.84/mm in Textile 23. Nevertheless, we cannot classify them into a single specimen, since they are different in twist direction, twist number, warp density and weft density, as shown below:

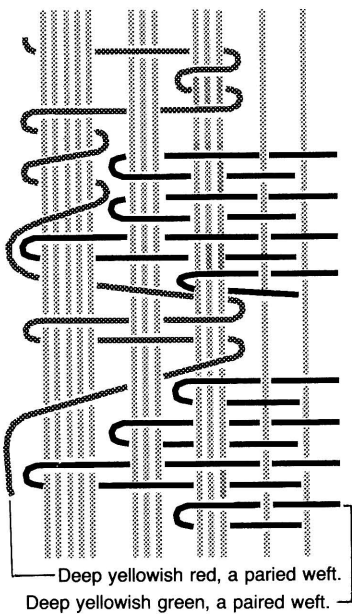


Fig. 2 Decorative selvage (Textile 21, Specimen V-86-1).

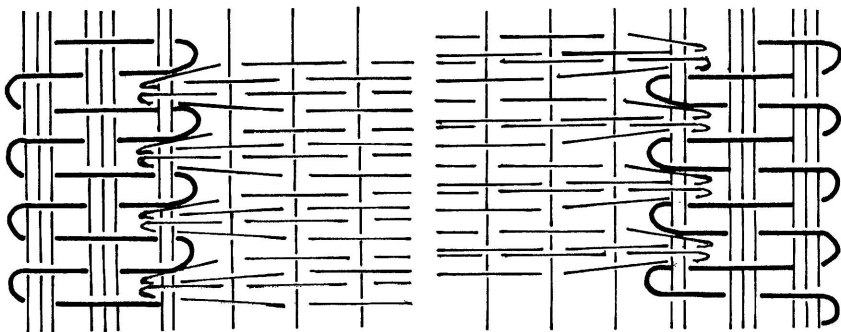


Fig. 3 Selvages of the textile with a flower and tree design band (Textile 2, Cave 12, Hill C).

	V-47-21 (Plain weave, weft faced)		V-107-8 (Plain weave, balanced)	
	Warp	Weft	Warp	Weft
Diameter (mm)	0.30–0.40	0.30–0.45	0.35–0.50	0.40–0.80
Twist, twist No.(/cm)	—S 6.0–8.0	—Z 4.0–5.0	—Z 5.0–7.0	—Z 2.0–4.0
Density (/cm)	11.0	40.0	13.0	9.0

Textile 24 Belt-like fragment: Representative Specimen No. V-101-6

This is a belt-like fragment of 5.0 cm in weft direction with selvages on both sides (Pl. 2b). Plied yarns ($\text{—}\frac{Z}{2}\text{—s}$), a thick two-ply warp and a thick two-ply weft each, are used for weaving the warp-faced cloth. The yarns are 1.50–2.30 mm in warp diameter; 1.30–2.00 mm in weft diameter; 7.0–8.0/cm in warp density; 4.0/cm in weft density. Type 1 selvage. There is a slit, which has been caused by wefts' returning each other, traceable at one-third of the whole belt width. The slit's existent length in warp direction is about 12 cm. There remains a stitching-thread ($\frac{Z}{2}\text{—s}$) at one corner of the slit. Moreover, the cloth has several parts of two stitches each finished up with plied yarns which seem to have come from goat hair or the like. Deduced from the above, the slit is presumed to have been made for the purpose of buckling the belt with or hanging something from it. Type 1 selvage; Cord 2 only.

Textile 25 Belt-like fragment: Representative Specimen No. IV-W-8-⑥

This is a belt-like textile fitted with selvages on both sides, with maximum size of 5.5 cm between the two (Pl. 3a). Compared with Textile 24, this is a weft-faced fabric woven with a single warp and a single weft each. They are fine threads of 1.00–1.50 mm warp and 0.55–1.20 mm weft in diameter; 5.0/cm warp and 15.0/cm weft in density. We notice a vacancy of about 6 cm in warp direction severed from the main at the part of one-fourth of the whole belt width. Judging from the situation in Textile 24, the vacancy has resulted from the cut-off of wefts' turning points, where the past existence of slit is presumable. Still remaining at an interval of 3.3 cm apart are the two openings (1.5 mm in warp direction; 4.0 mm in weft direction), with which the belt seems to have been buckled. But we cannot observe the parts of wefts' turning along the openings. Type 1 selvage; cord: 2 only.

Textile 26 Medium-thick fragment: Representative Specimen No. V-21-19

Five pieces of plain weave medium-thick, patternless tiny fragments have been identified into this specimen, V-21-19. Its ground contains some parts of paired wefts. The weft twisting is rather loose. Type 2 selvage; cord: 2 only. Generally, Type 2 selvage has been frequently used for making rather thick fabrics [Fujii, Sakamoto and Ichihashi 1989: p. 116, Fig. 6]. It was probably intended for the use of bag, rather than for that of clothing, which is estimated from the medium-thick cloth of rather high weft density.

Textile 27 Small, deep red fragment: Representative Specimen No. V-75-2

This is a specimen from 2 small fragmentary pieces of weft-faced plain weave woven with deep red threads. It is medium-thick, 1.31 mm in cloth thickness. This seems to be from part of some sort of pattern, about which it is unknown to us.

Textile 28 Gauze-like fragment: Representative Specimen No. V-116-4

This is a gauze-like thin cloth by using the threads of uniform thickness and warp and weft of loose weave density. Type 1 selvage. With care taken to the thin cloth left behind, there is the possibility of the fabric having been woven for the use of summer clothing.

Textile 29 Textile with Tyrian purple band pattern: Representative Specimen No. V-85-2

This specimen contains 2 small pieces of plain weave, weft-faced fragments (Pl. 3b). One of them has a selvage, the wefts used for weaving the dark red part have the same color with the warps, and the warps and the wefts are nearly identical in diameter. Seen from the evidence that the wefts' dark blue part is spacious enough and that the dark red dye has been analyzed as precious Tyrian purple [Kimura, Sakamoto and Fujii, 1993: pp. 142–144], we regard the part woven with the dark blue wefts as ground, while the part dyed with Tyrian purple as pattern. It is probable that the part woven with dark red thread is a part of band pattern. Since we can notice the returning points of dark red weft and dark blue weft at a single piece apart from the specimen with selvage, pattern of Textile 29, which is 0.97–1.03/mm in thickness, proves to have been woven by tapestry-weave technique. Type 2 selvage; cord alignment of 3·2.

Textile 30 Fragment with horizontal stripe pattern: Representative Specimen No. V-30-10

This specimen has 2 pieces of plain weave fabrics with horizontal stripe pattern (Pl. 3c). The wefts, 46–56.0/cm in weft density, are densely filled in. The individual wefts used here are about the size as the ones used for the textiles of good quality (0.30–0.40/mm in diameter). The wefts used for weaving dark reddish brown part are colored the same with the warps, and these warps and wefts are nearly the same in diameter. We see ample space taken for the dark reddish brown part, from which this is estimated to be the ground of the textile. The brownish gold part, the deep reddish orange part and the dull green part, where only one weft thread survives, are the ones distinctly recognizable as patterns each. For all the one of weft-faced type, this is rather a thin cloth of 0.95–1.08/mm in cloth thickness.

Textile 31 Fragment with color gradated horizontal stripe pattern: Representative Specimen No. V-44-11

This is a fragmentary textile of gradated color pattern (Pl. 3d). And the specimen with selvage, V-39-8, can also be identified into Textile 31. Judging from the use of dark grayish brown warps for both the fragments, the diameters of warp and weft, the density of warp and weft, and the weft color, it is concluded that V-44-11 and V-39-8 come from the same cloth. V-44-11 has color gradation of turning from brownish gold ground to dark grayish pattern part. This portion seems to be stripe pattern. V-39-8 has Type 2

selvage with the cord alignment of 4·4·4.

Textile 32 Fragment with color gradated horizontal stripe pattern: Representative Specimen No. V-41-10

This is a weft-faced fabric with wefts interworked more densely with warps. Color gradation technique is displayed at the ground turning from dull reddish yellow up to dark grayish brown (Pl. 4a). As far as this fragment is concerned, color change of 1.2 cm in total length is seen here, with 3 times' repetition of the technique. It is thus observed that this fabric contains a part of horizontal stripe pattern with color gradation.

Textile 33 Fragment with horizontal stripe pattern: Representative Specimen No. V-44-7

This consists of 5 fragments with horizontal stripe pattern by using 3 different colors of wefts (Pl. 4b). It is a weft-faced plain weave. And the horizontal stripe pattern with the use of black, dark yellowish green and deep reddish orange threads has been woven on the dull reddish yellow ground. The color wefts are irregular in diameter, varying from 0.20 to 0.55 mm. Both the ground and the pattern show the warp density of 7.0/cm and the weft density of 24.0–28.0/cm. It has the cloth thickness of 1.20/mm.

Textile 34 Fragment with two pieces sewn together: Representative Specimen No. V-39-11; Returned to its origin, Iraq

This is a specimen that two pieces of the identical quality were joined together by sewing (Pl. 4d). The ground is composed of interlacing dull reddish yellow warp with dull reddish yellow paired weft, while the pattern of about 2.5 cm long has been woven with dark grayish brown paired weft each. Two pieces of these patterns have been sewn up into one here. The thread used for their sewing is the same as the ground warp in color, and a 4-ply yarn of 0.90–1.20 mm in diameter has been used. One of the fragments has Type 3 selvage; cord alignment of 3·3·3·3. A paired weft is used for additional thread around the selvage (Fig. 4). Judging from the above, it is highly possible that this was of horizontal stripe pattern.

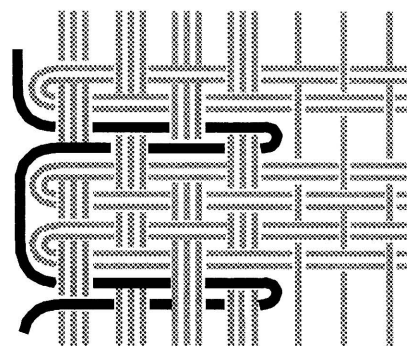


Fig. 4 Type 3 selvage, a paired weft is used for additional thread (Textile 34, Specimen V-39-11).

Textile 35-1 Fragment with a set of waveform, horizontal stripe patterns: Representative Specimen No. V-65-6

This is a fragment which contains wave tips of black waveform patterns on the dull reddish yellow pattern woven by tapestry-weave technique, which are facing each other with a four-column setting of vivid yellowish red horizontal stripe pattern divided by black threads, placed in the middle (length: 4.5 cm) between them (Pl. 4c). Paired wefts are filled in the ground and the pattern in high density. The waveform pattern bands are irregular in length: some are 1.2 cm long while others, 1.8 cm long. And the four-column setting of horizontal stripe pattern is not uniform in column length. The waveform pattern bands are symmetrically arranged with the vivid yellowish red horizontal stripe pattern inserted in-between.

Textile 35-2 Fragments with various sorts of stripe patterns: Representative Specimen No. V-126-2a

This is composed of considerable number of fragments. On both the ground and the pattern, paired wefts are interlaced with a single warp each, and the pattern wefts are high in density. Identifying work of these

fragments is as follows: A green pattern of at least 3 cm long positioned about 1 cm inside of the rope-like finish (V-44-2: Pl. 5b); furthermore, there is a green pattern at an edge of the brownish gold, selvaged fragments (V-126-2b, -2c). We understand that the green pattern was probably woven in a band-like way since the fragment -2b and the fragment -2c are placed contrary to each other, seen from the evidence that the turning direction of -2b selvage weft is different from that of -2c selvage weft. Its cord finish has been done with 2 or 3 warps plied into a cord. Judging from the specimen (V-44-1: Pl. 5a) whose selvage has reddish brown pattern wefts (10R 3/5) of about 2 cm long still remaining, it seems likely that some band pattern used to exist there. About 3 mm away from the band pattern, 2 black paired wefts still remain, and about 3 mm farther, we also see 2 black paired wefts (V-44-1). As for V-126-2a (Pl. 5c), along the black paired wefts, which seem to be a residual from tapestry-weave, there are 3 mm long of dull reddish yellow paired wefts and 6 deep red paired wefts. Moreover, there continues a weave-part of about 5.5 cm in length by using brownish gold ground paired wefts. It is thus presumed from the above that there once existed a set of a stripe band pattern woven with black, dull reddish yellow and deep red wefts on the ground.

Similarity among the four fragmentary specimens (V-44-2b, V-126-2d, V-47-3, V-41-19, V-95-4), all of which seem to constitute pattern, is that green, pale purple, dull reddish yellow and brownish gold wefts are weaving pattern by tapestry-weave technique. All of them are too small, so that their types or shapes are beyond our comprehension. The selvage made by hand has caused irregularity in the formation of its cord number and composition method. In principle, 3·4 alignment is its cord number, but sometimes 4·3 (Fig. 5).

Textile 35-1 and Textile 35-2 are similar in ground color (brownish gold: 9YR 5.5/8), but these fragmentary specimens (Textile 35-2) have not been defined as identical with V-65-6. This is partly because they are somewhat different in weave structure, thread thickness and density, and partly because such waveform patterns and 4-column vivid yellowish red horizontal stripe patterns divided by black threads as are traceable in V-65-6 are absent from the fragments belonging to Textile 35-2.

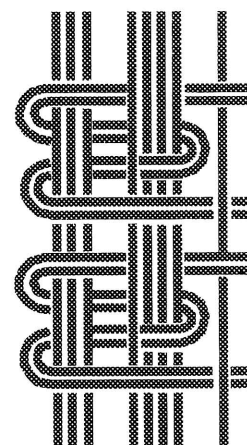


Fig. 5 Type 2 selvage (Textile 35-2, Specimen V-126-2c: cord 3 and 4, and sometimes 4 and 3).

Textile 36 Fragments with horizontal plant pattern band: Representative Specimen No. V-88-1; Returned to its origin, Iraq

This is observed to contain a plant pattern, which is very unique in pattern representation method (Pl. 6a). For the reason, we have returned it to the Iraqi Museum. Plain weave is taken on both the ground and the pattern. There are some parts with paired wefts taken on the dark reddish brown ground along the dull reddish yellow pattern. The dull reddish yellow thread, the same color as the warp thread, is used for the pattern weft. It has plant patterns by tapestry-weave technique in high density.

In the meantime, specimens IV-W-32-3 (Pl. 6c) and V-47-8 (Pl. 6b) use paired wefts on both the grounds and the patterns.

Textile 37 Fragment with mottled pattern: Representative Specimen No. V-4-1

This is a weft-faced plain weave cloth with the use of deep reddish orange warp and weft threads. There are several stripe lines of brown paired wefts worked in. We see no other specimens which can be identified into this cloth, which makes it impossible to solve the whole aspect of this textile.

Textile 38 Fragment with warp alignment of 2·1/repeat: Representative Specimen No. V-21-13

This is a single fragment by using S-twist warps, 0.40–0.70/mm in diameter, and 6.0/cm in warp density, which is rather loose in texture (Pl. 7a). On the other hand, here are a little thicker Z-twist wefts, 0.60–0.80/mm in diameter and 20.0–22.0/cm in weft density, which have been interlaced in weft-faced way. The warp alignment of 2·1/repeat is peculiar among the at-Tar textiles. This sort of warp alignment can be referred to the other resembling example that variation of plain weave (warp 2·1/repeat, weft 2) is taken on the pattern in using tapestry-weave technique on the twill ground (IV-OH-2, Cave 7, Hill-C: Fig. 6, Pl. 7b). The example is that gradated pattern has been woven on the 1/2 twill ground, next to which wave-pattern band (warp 2·1/repeat, weft 2) is evidenced continuously [Fujii ed. 1980: p. 278, Specimen 196].

It is probable that V-21-13 is from a pattern woven with tapestry-weave technique (warp 2·1/repeat, weft 1) on the 2/1 twill ground, accordingly. For such technique will not be required if it is a fragment with monochrome band. Dyestuff analysis proves that the deep purplish red used for the wefts is kermes [Kimura, Sakamoto and Fujii 1993: pp. 142–143].

Textile 39 Textile with horizontal band pattern: Representative Specimen No. V-95-1

This is a textile with a reddish brown band pattern of about 3 cm in length woven. It is such a fragmentary pattern that we cannot define whether it is part of an H-shape pattern or not. We cannot recognize it to be H-shape pattern unless a bit of 'notched part' or the like is found out among its fragments. In fact, there are many small pieces which can be identified as belonging to this specimen. But no notched part has been discovered yet. Reddish brown (10R 2/3) is the main color of the patterns uncovered so far, some parts of which have been discolored (V-95-1: Pl. 7d). It is probable that their original color used to be reddish purple or so (V-87-2). An H-shape pattern is usually colored reddish purple. And the pattern length of 5 cm or so is a typical example of all the H-shape patterns that have ever been uncovered. Such sort of 3 cm in pattern length as seen in Textile 39 is a stranger to us [Fujii, Sakamoto and Ichihashi 1993: pp. 126–127, Table 2]. Quite naturally, therefore, we presume Textile 39 to be cloth with band pattern, rather than a cloth with H-shape pattern.

There is almost the same in number of wefts used per centimeter for ground and pattern making. We see paired wefts (28–32/cm × 2) on the ground, whereas on the pattern, we see a single weft each densely filled in (54–60/cm). At the border between ground and pattern, there are some weft filling portions by using 2 picks of paired wefts each along the pattern (Pl. 7c), without warp crossing technique (V-101-2, V-87-2, V-65-3). On the other hand, in order to weave H-shape pattern, it is usual that by way of warp crossing conducted near the pattern first, 4–6 picks of paired ground wefts are interworked with paired warps (2·2·2·2/repetition) or warps (2·1·1·2/repetition), by which the resultant appearance of a little disturbance along the pattern caused by the warp crossing has been minimized (shifting zone), and then a single pattern weft is densely worked in the above warps. The shifting zone devised like this way has helped to make the pattern outline much clearer [Fujii, Sakamoto and Ichihashi 1993: p. 112, Fig. 4, p. 115, Fig. 6a, b]. V-101-2, V-87-2, and V-65-3 have no such warp crossing technique near the pattern as

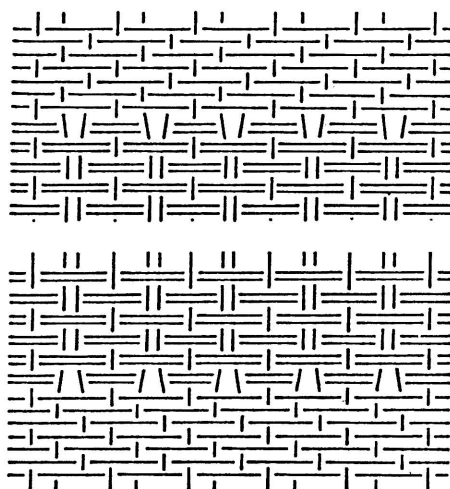


Fig. 6 Pattern part (warp 2·1/repeat, weft 2), 1/2 twill ground (Specimen IV-OH-2, Cave 7, Hill C).

mentioned above, but they have 2 picks of paired wefts evidenced along the pattern band. According to our observation, this is the technique corresponding to the shifting zone used in weaving H-shape pattern, and it is the technique devised to prevent the pattern border from losing its shape.

The selvage (V-72-5, V-75-5) is of Type 3 [Fujii, Sakamoto and Ichihashi, 1989: p. 116, Fig. 6] with its cord alignment of 3·4·4 in number. Additional thread of a set of 3-threads, just the same as the wefts, is used to cover the selvage wefts. In result, the selvage portion has been made rather thick. And two-ply cord is used for the warp finish (V-58-1).

Textile 40 Textile with geometric and floral pattern band: Representative Specimen No. V-65-10

This is a fragmentary specimen which contains a part turning from thin plain weave ground to tapestry-weave pattern (Pl. 8a, c). The ground, which consists of 18.0–20.0/cm in warp density and 16.0–18.0/cm in weft density, is plain weave of low density (V-73-2, V-65-10: Pl. 8c), and dark reddish brown thread is used for the warp. At the part to change ground into pattern, warp crossing (Type A) is done first of all, and then there comes a shifting zone where 6 picks of ground paired wefts are interlaced with the resultant paired warps, and finally it comes to the pattern making with a single pattern weft densely interworked with the paired warps. Here, a geometric pattern has been arranged by non-horizontal weft weaving technique ('Nagashi-Ori' in Japanese). The pieces which are to be identified into this cloth are too small to exactly grasp the whole information of the pattern. It is certain, however, that several sorts of patterns have been woven by tapestry-weave technique. The wefts (0.20–0.45 mm in diameter) are used for the pattern making to meet the need of individual patterns. Many of the colored threads are 50.0–60.0/cm in weft density. For example, V-125-2 (Pl. 8b) and V-126-4 (Pl. 8d) are so laid out that dotted patterns are arranged in parallel, in the center of which there are floral patterns, all of which seem to have continued in a band-like way.

One of the examples closely resembling the floral patterns seen in Pl. 8b and 8d can be given in the 'daisy' floral pattern in Specimen 98 (C-05-V-3-2) coming from Cave D7, Hill A [Fujii ed. 1976: p. 174, Pl. 98]. There is a possibility that the pattern band of this kind may have been allocated around the lower part of a sleeve, as seen in the examples of the Hatra sculptures [Refer to Fujii, Sakamoto and Ichihashi 1989: Pl. 34c] and some others. It may be said that the pattern represents a dynastic symbol mark handed down from generation to generation in Mesopotamia.

In this way, some information relative to the specific quality inherent in Textile 40 seems to be acquired by virtue of the floral pattern evidenced in Specimen 98 (C-05-V-3-2) from Cave D7 to be investigated furthermore. We can cite IV-MK-1362-①, ②, which is the discovery from the neighboring Cave C-17, as another specimen resembling Textile 40 in pattern structure and weave technique. Its ground is of thin plain weave checker. By way of warp crossing near the pattern, as evidenced in Textile 40, next we see the shifting zone composed of warp 2 and ground weft 2, and on the pattern, we see various kinds of patterns (warp 2, weft 1) woven by tapestry-weave technique. As with Textile 40, there are continuous dotted patterns with floral pattern placed in the middle. And the geometric patterns, which are very similar to those in V-65-10 (Pl. 8c), are arranged by 'nagashi-ori' weave technique. The whole band pattern is placed in weft direction. It also proves that the tapestry-weave patterns are very similar to each other in cloth thickness. That is, Textile 40 is 1.06 mm (V-65-10), 0.97 mm (V-125-2) and 0.90 mm (V-126-4), while IV-MK-1362-①, ② is 0.92 mm in pattern thickness, respectively. Such similarity between the above two may be attributed to the fact that they are the discoveries from the neighboring caves, C-16 and C-17. Textile 40 has Type 2 selvage and the cord alignment of 3·3 (V-126-4).

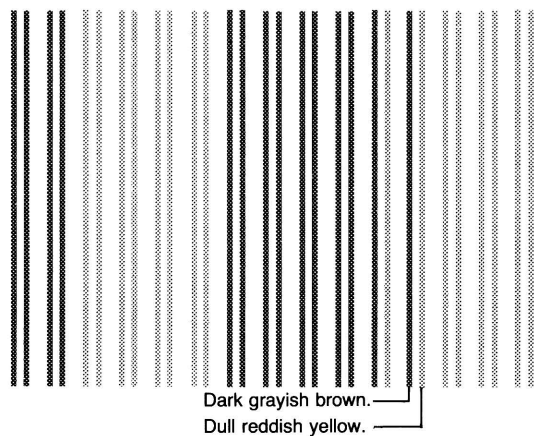


Fig. 7 Paired warps of different colors (Textile 41, Specimen V-103-19, Cave 16).

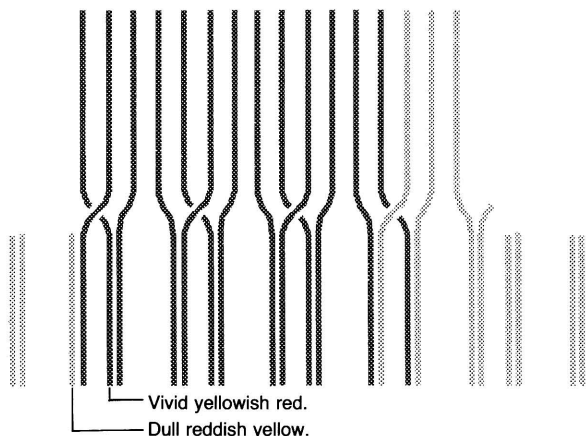


Fig. 8 Paired warps of different colors (Specimen IV-MK-1362-1-3d, Cave 17).

Textile 41 Fragment with paired warps of different colors: Representative Specimen No. V-103-19 This is a single fragment of 2.6×2.0 cm in dimensions (Pl. 9a). A set of four alignments of paired warps colored dark grayish brown and dull reddish yellow each is interlaced with a single weft. It is observed to have been a fragment from tapestry-weave pattern in that we see the return point of weft and the ‘nagashi-ori’ weave technique in part. Six different colors are used for the pattern wefts, some of which measuring 0.15–0.32 mm in diameter and 68.0–70.0/cm in density, from which elaborate weave technique can be suggested. In observing it more closely, however, we find, at a certain part turning from 4 alignments of dark grayish brown paired warps into other 4 alignments of dull reddish yellow paired warps, two sets of two colors of dark grayish brown and dull reddish yellow paired warps placed side by side between them, which are interlaced with a single weft each (Fig. 7).

For further comprehension of the above evidence, we would like to examine Specimen IV-MK-1362-1-3d (Fig. 8) coming from the neighboring Cave 17. This is of plain weave ground of low weft density, where checker pattern has been woven with the use of 2 colors, dull reddish yellow and vivid yellowish red, for both the warp and weft threads. And it has floral, geometric, dotted patterns, etc. by tapestry-weave technique with the use of several colors of wefts in high density. At the part turning from ground to pattern, warp crossing (Type A) is done near the pattern first; by way of shifting zone, the pattern has a single weft interworked with paired warps each in high density, just as mentioned in Textile 40. Our observation of the paired warps inside the pattern making is that two sets of paired warps of different colors are seen among the groups of individual colors of paired warps (several sets of dull reddish yellow warps; 5 sets of vivid yellowish red warps). It has resulted from the fact that the color threads were odd number 13 when weaving checker pattern on the ground, as well as from the warp crossing positioned. From the above, it is presumed that the evidence of different colors of paired warps seen on the pattern of Textile 41 is partly because odd number warping of the dull reddish yellow threads was once made on the ground which has been missing, thus defying solution.

Textile 42 Gauze-like fragment with ‘Kermes’ band Pattern: Representative Specimen No. IV-W-53 Here, a deep red pattern composed of warp 2 and weft 1 (V-41-15: Pl. 9c) is woven on a gauze-like plain weave, thin, dark blue cloth (IV-W-53: Pl. 9b). The pattern has a deep red single weft each interworked with paired warps in high density. It seems to have once aimed at brightness of the pattern color representation by covering the warps like this way. It is because the two are common in warp diameter, twist direction, twist No., direction and color that we have identified them into a single cloth. How on

earth was the deep red pattern (V-41-15: Pl. 9c) worked on the dark blue paired warps' ground (IV-W-53: Pl. 9b)? We would like to refer to Textile 16 (IV-OH-368-10) coming from Cave C-12 for a reference to solve the above question [Fujii, Sakamoto and Ichihashi 1989: pp. 144–146, Fig. 28, Pl. 32].

Textile 16, Cave C-12 is a specimen which contains a weft-faced horizontal stripe pattern (warp 2, weft 1) arranged in 3 rows by using deep purplish red pattern weft on the well-balanced gauze-like thin plain weave ground which is woven with fine, dark blue green warps and fine wefts. At the part turning from ground to pattern, warp crossing (2·2·2·2/repeat) is done first; shifting zone composed of 3 or 5 picks of a single ground weft comes next; there finally appears a pattern where a slender pattern weft is densely interworked with paired warps each. The presumption is that such warp crossing and shifting zone techniques were taken to weave a pattern of high density in a thin cloth for preventing the pattern structure from going out of shape.

Deduced from the above example, therefore, we think that in weaving V-41-15 on IV-W-35 from Cave C-16, the ancient weaver made a shifting zone along the pattern by way of warp crossing technique. To our regret, however, there are no such evidences on the surviving IV-W-53. The characteristic common to both Textile 42, Cave C-16 and Textile 16, Cave C-12 lies in their formation of the pattern cloth of about 0.7–0.8/mm in thickness by using bright deep red wefts densely onto the plain weave thin ground. For further information, their data are listed below:

	Textile 42, Cave C-16	Textile 16, Cave C-12 (IV-OH-368-10)
Diameter, warp/mm	0.20–0.35	0.20–0.35
weft/mm	0.18–0.30 (IV-W-53)	0.30–0.40 (ground)
	0.18–0.30 (IV-41-15)	0.12–0.30 (pattern)
Density warp/cm	18.0–21.0	22.0–24.0
weft/cm	15.0–16.0 (IV-W-53)	17.0–19.0 (ground)
	64.0 (IV-41-15)	72.0–76.0 (pattern)
Thickness/mm	0.45 (IV-W-53)	0.48–0.56 (ground)
	0.81 (IV-41-15)	0.61–0.69 (pattern)
Dyestuff	kermes [Kimura, Sakamoto and Fujii 1993: pp. 142–143]	un-researched

Probably, the above two were woven for the use of summer outerwear.

Textile 43 Textile with horizontal band pattern: Representative Specimen No. V-2-1

In this specimen, we see both its ground and pattern made into weft-faced plain weave. Compared with the ground weft diameter of 0.50–0.70/mm, the pattern wefts, 0.25–0.35/mm in diameter, are very fine. And the fine pattern wefts are densely interlaced here, 50.0–66.0/cm in weft density, while the ground wefts are 24.0–28.0/cm in weft density. We see paired wefts used at some places. The pattern surviving to our time is 15 cm in maximum width in weft direction and 8.0 cm in maximum length in warp direction.

V-2-1 (Pl. 10b) has no notched part at the edge of the horizontal band pattern. For this reason, we cannot define it as part of an H-shape pattern, deduced from the remaining fragment. Such warp crossing technique and shifting zone traceable at the portion turning from ground to pattern, as is often the case with the textiles with H-shape patterns, cannot be evidenced here, either. The wefts' dyestuff analysis of the fragmentary specimen V-73-4 (Dyestuff test No.: T-43) proves that the wefts were spun by the mixtures of the loose fiber dyed with kermes, the loose fiber dyed with indigo and the loose fiber dyed with yellow natural dye (not yet defined) [Kimura, Sakamoto and Fujii 1993: p. 144, p. 147].

Textile 44 Linen fragment with the evidence of warp-connecting method: Representative Specimen No. V-105-1

This specimen, which uses linen for both the warp and the weft, is a balanced plain weave with the warp diameter of 0.35–1.10 mm, weft diameter of 0.35–0.90 mm; warp density of 9.0–11.0/cm and weft density of 9.0–12.0/cm. Also, this item is characterized by the fact that its warp and weft threads have been dyed gold.

The evidence that threads were connected together by twisting, looping and making a knot has suggested to us the warp direction of this textile (Pl. 10c).

There are also some portions of those connections coming loose. Japan has traditionally adopted such linen thread connecting-method as given below: When the weft thread A (the thread in use) is added to the weft thread B (a new thread), the ends of the threads A and B are softened first, and then twisted together; with the twisted ends directed toward the thread B, all the three are finally made into one (Fig. 9 ①–④). In this way, no knot has been made for connecting the weft threads, accordingly. On the other hand, the warp threads' connecting-method requires some other devices. This is partly because tension runs through the warp threads which are fixed at both beams of the loom, and partly because the back-and-forth work of the reed will easily be liable to the loosening in warp threads' connection, if the same connecting-method as taken to the weft threads is applied to the warp threads.

Thus, to cope with that, the warp threads' connecting-method is so devised that the ends of the threads A and B are softened first, and then twisted together; with the twisted ends directed toward the thread B, the three threads are twisted into one, and then a loop is formed just after the twisted threads of the thread B, through which the two twisted threads (A and B) are passed to make a knot (Fig. 9 ①–⑤).

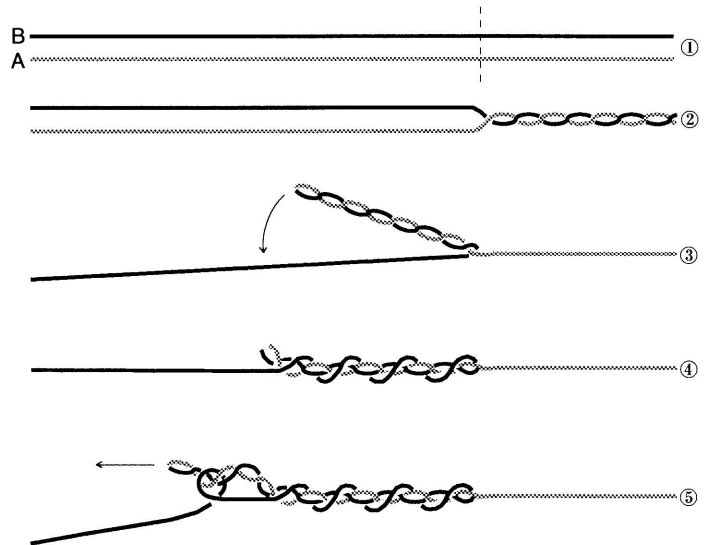


Fig. 9 Warp-connecting method [cf.: see Kago 1975: p. 151].

Textile 45 Linen cloth with sheep fiber used for pattern weft: Representative Specimen No. V-71-1

This is of a linen ground and a band pattern has been finished by using reddish purple color wool as pattern weft (Pl. 11a). Such linen-wool combined weave as seen in Textile 45 has often been found among the textiles coming from the Nile valley. But this is the only linen-wool combined fabric of all the discoveries from the at-Tar area.

Its ground is 0.23–0.60/mm in warp diameter, 18.0–24.0/cm in warp density, 0.20–0.55/mm in weft diameter, 13.0–14.0/cm in weft density and 0.67–0.75/mm in ground thickness. It is a linen fabric of plain weave, comparatively smooth feel, composed of threads of high uniformity in spinning. It has been suggested from the fabric how advanced the spinning technique of those days was.

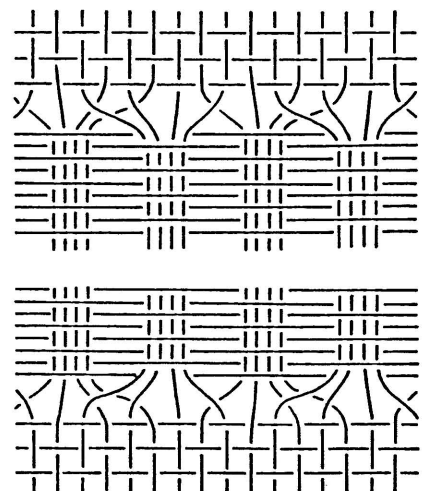


Fig. 10 Warp crossing by means of a set of 4-warps each along the pattern (Textile 45, Specimen V-71-1).

Its patterns of several lengths have been woven in band-like way. The one of about 6 cm in length is the longest of all (V-71-1: Fig. 10, Pl. 12b). The one of 2 cm in length contains parallel bands of the same length with an interval of about 1 cm between them, and then about 5 mm apart, it has 2 parallel lines with the use of 2 wefts (V-59-6: Pl. 12a). The representation method of the band pattern is that a set of 4-warps each, which has been made by crossing warps in a particular way just before getting into the pattern, is interlaced with a single dark wine wool weft each in high density [Fujii, Sakamoto and Ichihashi 1989: p. 113, Fig. 3c], thus resulting in the formation of band pattern in vertical rib-effect. This is the technique belonging to the warp crossing Type C, which may be deemed as variation of Type A and Type B [Fujii, Sakamoto and Ichihashi 1989: p. 113, Fig. 3A, 3B]. The use of this technique brings about a decrease in number of warp and weft interlacing on the pattern, so that it has a softening effect produced in the finished texture. And at the same time, it may be said that this has aimed at producing vertical rib-effect, too. It seems likely that very frequent use of this sort of technique for this specimen was because application of wefts in high density there could lead to clear representation of the band-like pattern. Moreover, when very bulky wool wefts are interlaced with less bulky linen warps, the wool wefts which are floating in ribbing way are liable to frazzle. Furthermore, this specimen has a little disorder caused along the pattern due to the absence of the shifting zone [Fujii, Sakamoto and Ichihashi 1993: p. 115, Fig. 6] which is composed of several picks of paired ground wefts along the pattern after warp crossing, as is often evidenced in weaving H-shape pattern. This has also caused the pattern wefts to be liable to frazzle. Thus, we see almost all the wool wefts getting off the warps in this specimen. When pattern is woven by adopting linen warps and wool wefts, the use of warp crossing technique near the pattern has also been evidenced in coptic fabrics.

V-95-6 has selvage portions on both the ground and the pattern. And the selvage is of Type 1 which means simple turning-back of weft threads. It has a fringed warp finish (V-95-6: Pl. 11b). According to dyestuff analysis, kermes is used for the pattern weft threads [Kimura, Sakamoto and Fujii 1993: pp. 142–143]. Both the warp and the weft of the linen thread have been dyed into dull reddish yellow. The linen fiber analysis, which was made by Mr. Hiroshi Ishii and Mr. Hideo Hosoi, the Technical Department of Tosco Co., Ltd. as well as Tosco Research Laboratory has been reported in the current volum pp. 195–198.

Cotton textiles

Five cotton textiles have been uncovered in all. The following table specifies the comparative studies of their weave structures. According to the table, it shows that one textile has S-twisted warps and Z-twisted wefts, and the other four use Z-twisted warps and wefts.

Textile	No. 46 (V-47-2)	No. 47 (V-79-1)	No. 48 (V-47-9)	No. 49 (V-116-1)	No. 50 (V-65-8)
Size (cm):	5.3×12.5	13.0×25.0	6.8×3.2	38.6×24.6	10.1×5.2
Structure:	plain weave	plain weave	plain weave	plain weave	plain weave
Thickness (mm):	0.82	0.53–0.64	0.58	0.49–0.54	0.76
Raw material:	cotton	cotton	cotton	cotton	cotton
Color:	brownish gold	dull reddish yellow	pale reddish yellow	pale reddish yellow	dark brown
Diameter (mm): warp	0.30–0.80	0.30–0.50	0.32–0.40	0.25–0.50	0.30–0.40
weft	0.40–0.80	0.30–0.50	0.30–0.50	0.25–0.50	0.30–0.40
Twist, Twist No (1 cm) warp	Z 5.0–6.0	Z 8.0–10.0	S 8.0–10.0	Z 8.0	Z 10.0–12.0
weft	Z 5.0–7.0	Z 8.0–10.0	Z 8.0–10.0	Z 8.0	Z 10.0–12.0
Density warp	13.0–15.0	11.0–13.0	16.0–17.0	16.0–18.0	18.0–20.0
weft	10.0	14.0–19.0	11.0–12.0	15.0–17.0	15.0
Selvage				Type 1	

Note: S-twist is only one (warp); the others are Z-twist.

No. 47 (V-79-1) has the contact portions, which mean the severed cloth ends of two non-selvage fragments rolled in, are sewn together (Pl. 12c).

Sewing thread: color (2.5Y 7.5/6: dull reddish yellow), diameter: 0.9–1.0 twist, twist No. $\begin{array}{c} \text{---Z} \\ \text{---Z} \\ \text{---Z} \end{array} \gg \text{---S4.0}$

4. Discussion

The thirty-five non-pile textiles from Cave 16 reported in this volume were all so fragmentary that, at first glance, it seemed impossible for us to analyze and identify these fragments into a single textile each. With the progress of work, for all that, it has been observed that some similarity and relativity lie between these textiles and the textiles uncovered at their nearby caves, Cave C-12 and Cave C-17. By way of presentation of the latter's distinctive qualities, we were thus able to investigate the qualities inherent in the 35 items to a considerable degree.

(1) **Materials:** In speaking of their materials unearthed so far, there are two linen textiles and five cotton textiles in a mass, besides twenty-eight textiles woven with sheep fiber and other beast fiber. Such uncovered conditions as the above are the most unusual of all that have ever been reported.

The two linen textiles examined here are unique in that both of them are of S-twist threads. This will lend a special interest when thinking over the fact that the spiral structure of linen and ramie fibers is S-twist in direction. The fiber analysis proves that both items are made of linen whose raw material is flax, but not ramie whose raw material is boehmeria, which has been attempted by Technical Department, TOSCO Co. Ltd. as stated in the volume. These two items are regarded as the ones of high quality finished into uniform textures, with their warp and weft holding similar values in diameter and twist count in each textile. As shown in the optical microscopic photo, they are colored gold/dull reddish yellow. In view of the evidence that the dye has been partially penetrated into the depth of the fiber, there is high possibility of the two items having been dyed at the stage of yarns. Moreover, as regards Textile 45, we see sheep thread dyed with kermes woven onto the pattern weft and its resultant pattern woven in band-like way. Thus, vertical rib-effect will be formed on the band pattern by using a set of 4-linen warps interlaced with a single sheep weft, both of which are different in material. This is a textile which we would like to compare with a coptic textile for the good of pattern structure and weave technique. In the meantime, there is no pattern portion in Textile 44, but the warp-connecting method observed here draws our attention.

Now comes up the question of whether or not there was natural vegetation of flax, linen's raw material, in some oases areas around the at-Tar Caves in those days. It is thought that flax, which is native to the Gulf area, Egypt and Mesopotamia, is an annual plant, later coming to be grown by sowing. (Boehmeria, on the other hand, which is ramie's raw material, is a perennial plant cropped 4–5 times a year for ramie production.)

It was in April 1989 that the Iraqi Directorate General of Antiquities and Heritage (Director General: Dr. Muayad Said Damerji, Excavator: Mr. Muzahim Mahmud Hussein) excavated a sarcophagus placed in the second tomb-chamber (Room 49), 5 m below the floor in N.W. Palace of Assurnasirpall II, dating back to the 9th century B.C., in Nimrud [Damerji 1991: pp. 9–16]. At that time, the Iraqi team uncovered two female bodies and some textiles in the sarcophagus. The textiles have been identified as the ones of linen and Indian cotton make, according to the reports made by Fibers & Textiles Laboratories, TORAY Industries, Inc. as mentioned separately in the volume pp. 199–206. The analysis proves that the linen is slightly smaller than the at-Tar specimens in fiber diameter. We can draw a number of inferences from the

above fact. One of them might be that growth of flax is subject to variation of climate and soil ingredient, since Iraq geographically differs from north, middle to south. No matter what answer may come, it is very significant that linen use as clothing in the New Assyrian period has thus been identified. Deduced from the above, therefore, it follows that these two at-Tar textiles were woven by way of flax cultivation and its fiber processing work done at some places near here, or they were woven by using the yarn which had been transported from some other places inside or outside Mesopotamia, or the textiles themselves were brought into the at-Tar area from some other places inside or outside Mesopotamia as final products.

In addition, the cotton textiles unearthed during our current work, are of Z-twist for both warp and weft, except for an item whose S-twist warps are interlaced with Z-twist wefts. It is commonly evidenced that the outside view of cotton fibers has their natural spiral directions equally halved with Z-twist and S-twist in ratio. What matters here in this connection is whether or not the cotton fiber of twisting by hand is anything to do with the fiber's natural spiral direction, or this phenomenon has any connection with regional or racial differences with which it has occurred. It is taken as a matter of course that the evidence that the majority of the at-Tar specimens uncovered so far are Z-twist with the mixture of S-twist thread would afford very interesting problems. Such being the situation, further analysis of the uncovered at-Tar specimens must be pushed forward in response to the analytical result that the Nimrud item contains Indian cotton, as already mentioned above.

(2) Design: In summarizing the textile designs woven with sheep fiber and the other few beast fibers so far recorded in this report, we notice that horizontal stripe and horizontal band designs are rather outstanding. Horizontal stripe is mainly seen in Textile No. 30~Textile No. 35-2 including waveform, weft stripe pattern with wave running, while horizontal band including plant pattern is mainly found in Textiles, No. 29, No. 36, No. 38~No. 43, and No. 45 (linen ground). Textile 40 has the horizontal band on which geometric, dotted and floral patterns are woven together. The design drawn on Textile 40 closely resembles the motif on IV-MK-1362-1 from Cave C-17 which has a pattern band woven on the checker ground. And the warp arrangement on Textile 41 has been clarified by means of comparative studies between that and IV-MK-1362-1, with attention directed to the shifting method from checker ground to pattern.

Besides, at Cave C-17, we have uncovered a human image pattern, Item 4 (Specimen No. IV-MK-1360), which is common to the human image pattern (Textile 14: Registered No. V-132, Textile 15: Registered No. V-35, Textile 16: Registered No. V-44-10) from Cave C-16 in motif representation [Fujii, Sakamoto and Ichihashi, 1994: pp. 82-83, Pls. 1-4]. Cave C-17 has also yielded a specimen with H-shape pattern (Registered No. IV-MK-455). Deduced from the fact that 5 textiles bearing H-shape pattern or the like have been confirmed at Cave 16 [Fujii, Sakamoto and Ichihashi 1993: pp. 109-133, Pls. 1-7], it is certain that coexistence of human image pattern and H-shape pattern can be traced here. We may recognize from the above, therefore, that there is a close relation between the burial goods in Cave C-16 and those in Cave C-17. At the time of our investigation work, however, the terrace which should have been connecting both the neighboring caves was already found nearly gone into decay.

Meanwhile, the technique of weaving pattern band on the gauze-like ground on Textile 42 can be extracted from its comparison with that on Textile 16 coming from Cave C-12. The decorative selvage on Textile 21 contains rather complicated weaving method, different from Textile 2, from Cave C-12 (textile with a flower and tree design band) whose dovetailed tapestry-weave technique is uniform. But both are similar in intention to try to devise decorative selvage. The slant pattern on Textile 18 is common to that on Textile 4-1 from Cave 12 in tapestry-weave technique. It also looks like the dovetailed tapestry-weave technique by which slant patterns were woven on the corner grounds of the pile textile IV-MK-1382 from Cave 17. In addition, Cave C-12 has yielded Textile 3 with tree design band which is inserted between

wave-form patterns above and below [Fujii, Sakamoto and Ichihashi 1989: p. 124, Fig. 13, pp. 124–125, Pl. 28a]. The pattern and weave structure evidenced here are more complicated than those of Textile 36 from Cave C-16, but some relation between the two is recognizable in the tree-branch/plant design motif.

As for waveform pattern, Textile 35-1 from Cave C-16 has such waveform patterns as horizontal stripe pattern inserted in-between. But Textile 2 (*ibid.*: p. 119, Fig. 8, p. 123, Fig. 12, Pl. 27a, b) and Textile 3 from Cave C-12 have the waveform patterns with flower and tree design bands and gradated pattern bands allocated in the middle.

Furthermore, Textile 4-1 and Textile 15 (*ibid.*: p. 134, Fig. 20, Pl. 32a) are good examples of horizontal band pattern among the ones unearthed at Cave C-12. They can be compared with Textile 39 and Textile 43 from Cave C-16. Also, Cave C-12 has uncovered Textile 14 (large cloth with H-shape and square pattern) together with Textile 12 (fragment with gamma pattern) from its slender corridor (*ibid.*: pp. 129–134, Figs. 14, 16, Pls. 29, 31). It is thus presumed from this Cave C-16, where, as already mentioned, fragments with H-shape pattern have been unearthed, once had relations as to the burial textiles not only with its terrace-connecting Cave C-17 but also with another adjacent Cave C-12.

In the next report, where the burial textiles from Cave C-17 are to be reported, we would like to sum up the cultural complex inherent in the Hill-C textile goods by means of the individual qualities of the burial textiles which have been discovered from the three caves, C-12, C-16 and C-17, Hill-C. In addition, we expect that this will eventually enable us to establish a comparison between the textiles from Hill-C and the ones from Hill-A.

List of Data on Non-pile Textiles from Cave 16, Hill C

Explanatory notes

The following textile data indicate the analyses based on the research method specified in Chapter I, Textiles from at-Tar Caves Part 1: Cave 12, Hill C [*Al-Rāfidān* Vol. X, pp. 110–112]:

1. The Textile number (*e.g.*: Textile 17) indicates an identified series of fragmentary specimens, of which the representative one is best-preserved and most characteristics. And each fragmentary specimen has its own registered number given at the time of its excavation.
2. 'Size' is determined by "the maximum length of warp direction \times the maximum width of weft direction".
3. 'Thickness' is given by "Peacock dial thickness gauge, H 0.01–10 mm (OZAKI MFG. Co., Ltd.)".
4. The color of all the textiles is chiefly given to its representative specimen in accordance with 'Jacal color cards 220', following the ones shown in the revised Munsell Table. But, markedly discolored representative specimens are replaced by some other better preserved ones from among fragmentary specimens for naming, if available.
5. 'Thickness, diameter, twist count and thread density' are shown with their minimum-maximum values. 'Diameter' shows the thread diameter measured with the 25-fold magnifier (Monocular 8 \times 30, Asahi Pentax).
6. The weft density in the case of two or more wefts used at one shed is indicated as follows: It is shown by the number of shed and the weft number which is passed at a single opening operation. For example, the data description is: (12–14) \times 2/cm; the figures in the parentheses show the the minimum-maximum values at the spots where the frequencies of shed are measured, ' \times 2' means paired weft; ' \times 3' means three wefts. And the multiplied value is equivalent to the actual number. In the case of double or more warp threads in parallel, the warp density is indicated as the ones mentioned above.
7. The thread number of selvage cord is so arranged as to start from the selvage edge in regular order.
8. When a selvage or an edge is observed in the fragmentary specimen, its detail and specimen No. are additionally written.
9. The figures and photos shown here all accord with the warp direction, and the textiles with edges and pile knots clearly identified are positioned with their weave finish up and weave start down in warp direction.
10. The description of 'raw material' of beast fibers entered in the report has conformed to the analytical results of Fibers & Textiles Laboratories, Toray Industries, Inc.
11. The raw material marked with the asterisk * is from the analytical result given by Fibers & Textiles Laboratories, Toray Industries, Inc. (see pp. 187–193, Pls. 1–4 of this volume), while the raw material without any mark on is from our determination based on some analytical data hitherto given by Fibers & Textiles Laboratories, Toray Industries, Inc. [1990: pp. 69–79, Pls. 1–13; 1991: pp. 163–165, Pls. 3–4; 1993: pp. 149–150, Pls. 1–2] and some others.
12. The dyestuff analytical results of reddish purple color line obtained here come from Dr. Mitsuo Kimura, Professor of Mie University.

Textile 17: Checker fragment

Representative specimen:	Registered No. V-39-3			
Size (cm):	4.9×4.4			
Structure:	Plain weave: warp 1, weft 1, balanced			
Design:	Checker pattern			
Thickness (mm):	1.00			
	Warp (1)	Warp (2)	Weft (1)	Weft (2)
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	9YR 5.5/8 (brownish gold)	5YR 2/1.5 (dark grayish brown)	9YR 5.5/8 (brownish gold)	5YR 2/1.5 (dark grayish brown)
Diameter (mm):	0.25–0.35	0.40–0.55	0.40–0.70	0.60–0.80
Twist, Twist No. (/cm):	—S (8.0–10.0)	—S (6.0–8.0)	—S (4.0–5.0)	—S (5.0–6.0)
Density:	13.0–14.0	13.0–14.0	10.0–11.0	10.0–11.0
Fragmentary specimens:	V-39-3 V-21-8 V-90-15			

Textile 18: Fragment with slant pattern

Representative specimen:	Registered No. V-125-1		
Size (cm):	12.7×9.2		
Structure:	Ground Variation of plain weave: warp 1, weft 2. Design Plain weave, warp 1, weft 1, weft-faced, tapestry-weave technique		
Design:	Slant pattern		
Thickness:	Ground 1.12		
	Pattern 1.38		
	Warp	Weft (ground)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep
Color:	2.5Y 7.5/6 (dull reddish yellow)	2.5Y 7.5/6 (dull reddish yellow)	4R 3.5/10 (deep red)
Diameter (mm):	0.45–0.75	0.45–0.70	0.45–0.6
Twist, Twist No.:	—S (3.0–4.0)	—Z (3.0–4.0)	—Z (3.0–4.0)
Density (/cm):	8.0	(12.0–13.0)×2	28.0–36.0

Textile 19: Fragment with tapestry-weave technique

Representative specimen:	Registered No. V-90-2		
Size (cm):	6.1×2.3		
Structure:	Ground Variation of plain weave: warp 1, weft 2, weft-faced Design Variation of plain weave: warp 1, weft 2, weft-faced, tapestry-weave technique		
Design:	Stripe pattern (0.7 cm in width)		
Thickness (mm):	Ground 1.50		
	Pattern 1.52		
	Warp	Weft (ground)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep
Color:	5YR 2/1.5 (dark grayish brown)	5.5Y 7/5 (dull yellow)	7.5RP 2.4/5 (dark wine)
Diameter (mm):	0.55–0.65	0.40–0.60	0.40–0.50
Twist, Twist No. (/cm):	—S (10.0)	—S (3.0–5.0)	—S (2.0–3.0)
Density (/cm):	8.0–9.0	(15.0–18.0)×2	(14.0–16.0)×2
Fragmentary specimens:	V-90-2 V-6-1 V-87-8		

Textile 20: Fragment with additional thread selvage

Representative specimen:	Registered No. V-2-3	
Size (cm):	6.2×3.8	
Structure:	Ground Variation of plain weave: warp 1, weft 2, weft-faced	
Thickness (mm):	Ground 1.15	
	Warp	Weft (ground)
Raw material:	*Sheep	*Sheep

Color:	5YR 2/1.5 (dark grayish brown)	2.5Y 7.5/6 (dull reddish yellow)
Diameter (mm):	0.30–0.45	0.35–0.60
Twist, Twist No. (/cm):	—S (8.0–10.0)	—S (3.0–5.0)
Density (/cm):	8.0–10.0	(16.0–17.0) × 2
Selvage:	Type 3; Cord 4·6·4, additional thread of 3-parallel wefts (V-2-3)	
Fragmentary specimen:	*V-2-3	

Textile 21: Fragments with decorative selvage

Representative specimen:	Registered No. V-86-1			
Size (cm):	11.4 × 6.4			
Structure:	Ground Variation of plain weave: warp 1, weft 2. weft-faced Design Variation of plain weave: warp 1, weft 2. weft-faced			
Design:	Decorative pattern			
Thickness (mm):	Ground Immeasurable Pattern 1.05–1.15			
	Warp	Weft (ground)	Weft (pattern)	Weft (pattern) V-68-5
Raw material:	*Sheep	Sheep	*Sheep	Sheep
Color:	2.5Y 7.5/6 (dull reddish yellow)	2.5Y 7.5/6 (dull reddish yellow)	7R 4/10 (deep yellowish red)	5GY 5/8 (deep yellowish green)
Diameter (mm):	0.35–0.45	0.25–0.30	0.25–0.40	0.25–0.48
Twist, Twist No. (/cm):	—S (8.0–10.0)	—S (2.0)	—S (3.0–4.0)	—S (5.0–6.0)
Density (/cm):	8.0–9.0	(18.0–20.0) × 2	(18.0–20.0) × 2	(19.0–20.0) × 2
Selvage:	Type 4; Cord 5·3·3 (V-86-1, V-68-5)			
Fragmentary specimens:	*V-86-1 V-68-5			

Textile 22: Dull green fragment

Representative specimen:	Registered No. V-47-21	
Size (cm):	1.8 × 1.8	
Structure:	Plain weave: warp 1, weft 1, weft-faced	
Thickness (mm):	0.73	
	Warp	Weft
Raw material:	Sheep	Sheep
Color:	5G 5/4 (dull green)	5G 5/4 (dull green)
Diameter (mm):	0.30–0.40	0.30–0.45
Twist, Twist No. (/cm):	—S (6.0–8.0)	—Z (4.0–5.0)
Density (/cm):	11.0	40.0
Dyestuff:	The dyestuff (dull green) analysis is now in progress.	
Fragmentary specimens:	V-47-21 V-41-17	

Textile 23: Deep yellow green fragment

Representative specimen:	Registered No. V-107-8	
Size (cm):	3.5 × 4.3	
Structure:	Plain weave: warp 1, weft 1, balanced	
Thickness (mm):	0.84	
	Warp	Weft
Raw material:	Sheep	Sheep
Color:	5GY 5/8 (deep yellow green)	5GY 5/8 (deep yellow green)
Diameter (mm):	0.35–0.50	0.40–0.80
Twist, Twist No. (/cm):	—Z (5.0–7.0)	—Z (2.0–4.0)
Density (/cm):	13.0	9.0
Dyestuff:	The dyestuff (deep yellow green) analysis is now in progress.	
Fragmentary specimens:	V-107-8 V-90-19	

Textile 24: Belt-like fragment

Representative specimen:	Registered No. V-101-6	
Size (cm):	23.0×5.0	
Structure:	Plain weave: warp 1, weft 1, warp-faced	
Thickness (mm):	2.00	
	Warp	Weft
Raw material:	*Sheep	Sheep
Color:	2.5Y 7.5/6 (dull reddish yellow)	2.5Y 7.5/6 (dull reddish yellow)
Diameter (mm):	1.50–2.30	1.30–2.00
Twist, Twist No. (/cm):	$\text{---}\frac{Z}{Z}\text{---}S, \left(\frac{3}{3}\text{---}3\right)$	$\text{---}\frac{Z}{Z}\text{---}S, \left(\frac{3}{3}\text{---}3\right)$
Density (/cm):	7.0–8.0	4.0
Selvage:	Type 1; Cord 2 (V-101-6)	
Others:	*The cloth has several parts of two stitches each finished up with plied yarns (5YR 2.4/4: dark brown) which seem to have come from normal goat.	
Fragmentary specimens:	*V-101-6 *V-107-4 V-51-6 V-75-11	

Textile 25: Belt-like fragment

Representative specimen:	Registered No. IV-W-8-⑥	
Size (cm):	13.7×5.9	
Structure:	Plain weave: warp 1, weft 1, weft-faced	
Thickness (mm):	2.44	
	Warp	Weft
Raw material:	Sheep	*Sheep
Color:	10R 4.5/10 (deep reddish orange)	9YR 5.5/8 (brownish gold)
Diameter (mm):	1.00–1.50	0.55–1.20
Twist, Twist No. (/cm):	—Z (2.0–4.0)	—Z (3.0–4.0)
Density (/cm):	5.0	15.0
Selvage:	Type 1; Cord 2 (IV-W-8-⑥)	
Fragmentary specimens:	*IV-W-8-⑥ IV-W-8-⑤	

Textile 26: Medium-thick fragment

Representative specimen:	Registered No. V-21-19	
Size (cm):	3.5×3.2	
Structure:	Plain weave; warp 1, weft 1, balanced	
Thickness (mm):	1.21	
	Warp	Weft
Raw material:	Sheep	Sheep
Color:	2.5Y 7.5/6 (dull reddish yellow)	2.5Y 7.5/6 (dull reddish yellow)
Diameter (mm):	0.45–0.90	0.60–1.0
Twist, Twist No. (/cm):	—S (4.0–7.0)	—S (1.0–2.0)
Density (/cm):	9.0–10.0	12.0–13.0
Selvage:	Type 2; Cord 2 (V-41-13)	
Fragmentary specimens:	V-21-19 V-41-13 V-44-9 V-127-8 V-127-10	

Textile 27: Small, deep red fragment

Representative specimen:	Registered No. V-75-2	
Size (cm):	4.4×3.5	
Structure:	Plain weave: warp 1, weft 1, weft-faced	
Thickness (mm):	1.31	
	Warp	Weft
Raw material:	Sheep	Sheep
Color:	9YR 5.5/8	4R 3.5/10

	(brownish gold)	(deep red)
Diameter (mm):	0.35–0.50	0.35–0.65
Twist, Twist No. (/cm):	—S (8.0–10.0)	—S (5.0–6.0)
Density (/cm):	8.0	30.0–32.0
Fragmentary specimens:	V-75-2 V-103-12	

Textile 28: Gauze-like fragment

Representative specimen:	Registered No. V-116-4	
Size (cm):	15.7×8.1	
Structure:	Plain weave: warp 1, weft 1, balanced	
Thickness (mm):	0.66	
	Warp	Weft
Raw material:	Sheep	Sheep
Color:	2.5Y 7.5/6	2.5Y 7.5/6
	(dull reddish yellow)	(dull reddish yellow)
Diameter (mm):	0.38–0.50	0.30–0.50
Twist, Twist No. (/cm):	—S (12.0–15.0)	—S (5.0–8.0)
Density (/cm):	14.0–15.0	15.0–16.0
Selvage:	Type 1 (V-116-4)	
Fragmentary specimens:	V-116-4 V-68-3 V-21-16	

Textile 29: Textile with ‘Tyrian purple’ band pattern

Representative specimen:	Registered No. V-85-2		
Size (cm):	5.3×3.6		
Structure:	Ground Plain weave: warp 1, weft 1, weft-faced		
	Design Plain weave: warp 1, weft 1, weft-faced, tapestry-weave technique		
Design:	Band pattern		
Thickness (mm):	Ground	1.03	
	Pattern	0.97–1.00	
	Warp	Weft (ground)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep
Color:	4R 2.4/5	3PB 1.5/4	4R 2.4/5
	(dark red)	(dark blue)	(dark red)
Diameter (mm):	0.30–0.45	0.30–0.45	0.30–0.45
Twist, Twist No. (/cm):	—S (10.0)	—Z (5.0)	—Z (5.0)
Density (/cm):	13.0	44.0–48.0	28.0
Selvage:	Type 2; Cord 3·2 (V-85-2)		
Dyestuff:	Tyrian purple (dark red) V-85-2 (warp and pattern weft)		
Fragmentary specimens:	V-85-2 V-90-13		

Textile 30: Fragment with horizontal stripe pattern

Representative specimen:	Registered No. V-39-10			
Size (cm):	10.5×5.2			
Structure:	Ground Plain weave: warp 1, weft 1, weft-faced			
	Design Plain weave: warp 1, weft 1, weft-faced			
Design:	Horizontal stripe pattern			
Thickness (mm):	Ground	0.95		
	Pattern	0.95–1.08		
	Warp	Weft (ground)	Weft (pattern)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	10R 2/3	10R 2/3	9YR 5.5/8	10R 4.5/16
	(dark reddish brown)	(dark reddish brown)	(brownish gold)	(deep reddish orange)
Diameter (mm):	0.25–0.40	0.30–0.40	0.30–0.40	0.30–0.40
Twist, Twist No. (/cm):	—S (10.0)	—S (5.0–7.0)	—S (5.0–7.0)	—S (5.0–7.0)
Density (/cm):	10.0	46.0–56.0	46.0–56.0	46.0–56.0

	Weft (pattern)
Raw material:	Sheep
Color:	5G 5/4 (dull green)
Diameter (mm):	immeasurable (one thread only)
Twist, Twist No. (/cm):	immeasurable
Density (/cm):	immeasurable
Fragmentary specimens:	V-39-10 V-127-12

Textile 31: Fragment with color gradated horizontal stripe pattern

Representative specimen:	Registered No. V-44-11			
Size (cm):	4.6×2.0			
Structure:	Ground Plain weave: warp 1, weft 1, weft-faced			
	Design Plain weave: warp 1, weft 1. weft-faced, color gradation			
Design:	Color gradated horizontal stripe pattern			
Thickness (mm):	Ground immeasurable			
	Pattern 1.12			
	Warp	Weft (ground)	Weft (pattern)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	5YR 2/1.5 (dark grayish brown)	9YR 5.5/8 (brownish gold)	5YR 2/1.5 (dark grayish brown)	5YR 5/10 (deep orange)
		Color gradation		
Diameter (mm):	0.30–0.48	0.40–0.65	0.40–0.60	0.30–0.50
Twist, Twist No. (/cm):	—S (9.0–10.0)	—S (3.0–5.0)	—S (5.0–7.0)	—S (4.0–6.0)
Density (/cm):	9.0–10.0	28.0–29.0	9.0–11.0	28.0–29.0
Selvage:	Type 2; Cord 4·4·4 (V-39-8)			
Fragmentary specimens:	V-44-11 V-39-8			

Textile 32: Fragment with color gradated horizontal stripe pattern


Representative specimen:	Registered No. V-41-10		
Size (cm):	7.5×2.1		
Structure:	Ground Plain weave: warp 1, weft 1, weft-faced		
	Design Plain weave: warp 1, weft 1, weft-faced, color gradation		
Design:	Color gradated horizontal stripe pattern		
Thickness (mm):	Ground immeasurable		
	Pattern 1.16		
	Warp	Weft (ground)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep
Color:	2.5Y 7.5/6 (dull reddish yellow)	2.5Y 7.5/6 (dull reddish yellow)	5YR 2/1.5 (dark grayish brown)
		Color gradation	
Diameter (mm):	0.40–0.65	0.40–0.60	0.40–0.60
Twist, Twist No. (/cm):	—S (8.0-10.0)	—S (4.0–5.0)	S (4.0–5.0)
Density (/cm):	9.0	38.0	38.0
Others:	Color gradation, 4.0 cm		
Fragmentary specimens:	V-41-10 V-44-18		

Textile 33: Fragment with horizontal stripe pattern

Representative specimen:	Registered No. V-44-7
Size (cm):	5.4×5.4
Structure:	Ground Plain weave: warp 1, weft 1, weft-faced
	Design Plain weave: warp 1, weft 1, weft-faced
Design:	Horizontal stripe pattern

Thickness:	Ground immesurable			
	Pattern	1.20		
	Warp	Weft (ground)	Weft (pattern)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	2.5Y 7.5/6	2.5Y 7.5/6	N1	10GY 3/4
	(dull reddish yellow)	(dull reddish yellow)	(black)	(dark yellowish green)
Diameter (mm):	0.40–0.55	0.20–0.55	0.30–0.40	0.25–0.40
Twist, Twist No. (/cm):	—S (7.0–10.0)	—S (3.0–4.0)	—S (2.0–3.0)	—S (2.0–4.0)
Density (/cm):	7.0	24.0–28.0	24.0–28.0	24.0–28.0
	Weft (pattern)			
Raw material:	Sheep			
Color:	10R 4.5/10			
	(deep reddish orange)			
Diameter (mm):	0.40–0.55			
Twist, Twist No. (/cm):	—S (2.0–3.0)			
Density (/cm):	immeasurable			
Dyestuff:	The dyestuff (deep reddish orange) analysis is now in progress.			
Fragmentary specimens:	V-44-7	V-9-1	V-41-11	V-47-27 V-58-9

Textile 34: Fragment with two pieces sewn together

Representative specimen:	Registered No. V-39-11		
Size (cm):	11.1×3.8		
Structure:	Ground Variation of plain weave: warp 1, weft 2, weft-faced		
	Design Variation of plain weave: warp 1, weft 2, weft-faced		
Design:	Horizontal stripe pattern		
Thickness (mm):	Ground	1.11–1.15	
	Pattern	immeasurable	
	Warp	Weft (ground)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep
Color:	2.5Y 7.5/6	2.5Y 7.5/6	5YR 2/1.5
	(dull reddish yellow)	(dull reddish yellow)	(dark grayish brown)
Diamter (mm):	0.35–0.45	0.25–0.40	0.25–0.40
Twist, Twist No. (/cm):	—S (10.0)	—S (2.0–4.0)	—S (5.0–6.0)
Density (/cm):	9.0–10.0	18.0×2	20.0×2
Selvage:	Type 3; Cord 3·3·3·3, a paired weft is used for additional thread (V-39-11)		
Others:	Sewing thread: diameter 0.90–1.20, twist, twist no,  Z (3.0)		
Fragmentary specimens:	V-39-11	V-21-3	V-47-17 V-75-14

Textile 35–1: Fragment with a set of waveform, horizontal stripe patterns

Representative specimen:	Registered No. V-65-6			
Size (cm):	10.2×6.7			
Structure:	Ground Variation of plain weave: warp 1, weft 2, weft-faced			
	Design Variation of plain weave: warp 1, weft 2, weft-faced			
Design:	waveform, horizontal stripe pattern, tapestry-weave technique			
Thickness (mm):	Ground	1.36		
	Pattern	1.52		
	Warp	Weft (ground)	Weft (patten)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	2.5Y 7.5/6	9YR 5.5/8	N1	2.5Y 7.5/6
	(dull reddish yellow)	(brownish gold)	(black)	(dull reddish yellow)
Diameter (mm):	0.40–0.66	0.22–0.35	0.25–0.40	0.25–0.40
Twist, Twist No. (/cm):	—S (7.0–8.0)	—S (6.0–8.0)	—S (4.0–6.0)	—S (5.0–7.0)
Density (/cm):	7.0–8.0	(28.0–32.0)×2	(28.0–32.0)×2	(28.0–32.0)×2
	Weft (pattern)			
Raw material:	Sheep			

Color:	7R 5/14 (vivid yellowish red)
Diameter (mm):	0.25–0.40
Twist, Twist No. (/cm):	—S (4.0–6.0)
Density (/cm):	(28.0–32.0)×2
Fragmentary specimens:	V-65-6 V-68-14 V-44-3

Textile 35–2: Fragments with various sorts of stripe patterns

Representative specimen:	Registered No. V-126-2a			
Size (cm):	7.1×3.8			
Structure:	Ground Variation of plain weave: warp 1, weft 2, weft-faced			
Design:	Variation of plain weave: warp 1, weft 2, weft-faced			
Design:	Various sorts of stripe patterns including floral patterns, tapestry-weave technique			
Thickness (mm):	Ground 1.1			
	Pattern 1.36			
	Warp	Weft (ground)	Weft (pattern)	Weft (pattern)
Raw material:	Sheep	Sheep	Goat hair?	Sheep
Color:	2.5Y 7.5/6 (dull reddish yellow)	9YR 5.5/8 (brownish gold)	N1 (black)	2.5Y 7.5/6 (dull reddish yellow)
Diameter (mm):	0.45–0.65	0.25–0.40	0.30–0.45	0.20–0.35
Twist, Twist No. (/cm):	—S (9.0–10.0)	—S (5.0–10.0)	—S (3.0–4.0)	—S (4.0–5.0)
Density (/cm):	8.0–9.0	24.0×2	immeasurable	33.0×2
	Weft	Weft (pattern)	Weft (pattern)	
		—V-44-1—	—V-44-2—	
Raw material:	Sheep	Sheep	Sheep	
Color:	4R 3.5/10 (deep red)	10R 3/5 (reddish brown)	10G 2.4/3 (dark bluish green)	
Diameter (mm):	0.15–0.20	0.55	0.40	
Twist, Twist No. (/cm):	—S (5.0–10.0)	—S (4.0)	—S (6.0)	
Density (/cm):	immeasurable	26×2	34	
Selvage:	Type 2; Cord 3·4, but sometimes 4·3 (V-126-2b, -2c, V-44-1)			
Edge:	Weave finish, warp 2 or 3 (1 cord) $\overline{\text{—S—}}\text{—Z}$ (diam. 3.0 mm) V-44-2, V-127-18			
Others:	*Sewing thread (Sheep): 5YR 2.4/4 (dark brown), diam. (1.90–2.00), Twist, Twist No. ($\overline{\text{—Z(3)—}}\text{—S(2)}$)			
Fragmentary specimens:	*V-126-2a V-126-2b V-126-2c V-126-2d V-41-4 V-41-10 V-41-24 V-44-1 V-44-2 V-44-26 V-47-3 V-47-5 V-47-26 V-58-19 V-73-9 V-74-2 V-75-18 V-103-3 V-116-6 V-126-6 V-127-18 V-95-4 V-37-9 V-41-19			

Textile 36: Fragment with horizontal plant pattern band

Representative specimen:	Registered No. V-88-1		
Size (cm):	14.9×13.7		
Structure:	Ground Plain weave: warp 1, weft 1.		
Design:	Plain weave: warp 1, weft 1, weft-faced		
Design:	Horizontal plant pattern, tapstry-weave technique		
Thickness (mm):	Ground 1.31		
	Pattern 1.50		
	Warp	Weft (ground)	Weft (pattern)
Raw material:	*Sheep	*Sheep	Sheep
Color:	2.5Y 7.5/6 (dull reddish yellow)	10R 2/3 (dark reddish brown)	2.5Y 7.5/6 (dull reddish yellow)
Diameter (mm):	0.40–0.55	0.20–0.35	0.45–0.55
Twist, Twist No. (/cm):	—S (7.0–8.0)	—S (5.0–6.0)	—S (5.0–6.0)
Density (/cm):	7.5–8.0	28.0–30.0	24.0–32.0
Others:	Specimens IV-W-32-3, V-47-8 use paired wefts on both grounds and the patterns, diam.: ground (26.0–32.0)×2, pattern (22.0–30.0)×2		
Fragmentary specimens:	V-88-1 *IV-W-32-3 V-47-8 V-41-22 V-44-4 V-58-21 V-68-2 V-71-3 V-75-13 V-87-5		

Textile 40: Textile with geometric and floral pattern band

Representative specimen:	Registered No. V-65-10			
Size (cm):	5.8×3.2			
Structure:	Ground Plain weave: warp 1, weft 1, balanced			
Design:	Design Variation of plain weave: warp 2, weft 1, weft-faced			
Thickness (mm):	Geometric and floral patterns, tapestry-weave technique			
	Ground 0.60 (V-73-2)			
	Pattern 1.06 (V-65-10) 0.97 (V-125-2) 0.90 (V-126-4)			
	Warp	Weft (pattern)	Weft (pattern)	Weft (pattern)
Raw material:	*Sheep	Sheep	Sheep	Sheep
Color:	10R 2/3	10R 2/3	10R 5.5/6	4R 4.5/14
	(dark reddish brown)	(dark reddish brown)	(light reddish brown)	(vivid red)
Diameter (mm):	0.28–0.35	0.35–0.40	0.40–0.45	0.40–0.45
Twist, Twist No. (/cm):	—S (8.0–10.0)	—S (2.0–3.0)	—S (2.0)	—S (3.0–4.0)
Density (/cm):	18.0–20.0	16.0–18.0	22.0	40.0
	Weft (pattern)			
Raw material:	Sheep			
Color:	2.5Y 7.5/6			
	(dull reddish yellow)			
Diameter (mm):	0.20–0.30			
Twist, Twist No. (/cm)	—S (4.0–5.0)			
Density (/cm):	54.0–60.0			
	Weft (pattern) V-125-2	Weft (pattern) V-125-2	Weft (pattern) V-125-2	Weft (pattern) V-125-2
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	10R 3/5	4R 5/6	9R 4/10	5GY 6/4
	(reddish brown)	(dark rose)	(deep yellowish red)	(leaf)
Diameter (mm):	0.18–0.25	0.20–0.30	0.18–0.25	0.15–0.20
Twist, Twist No. (/cm):	—S (7.0–8.0)	—S (8.0–10.0)	—S (7.0–8.0)	—S (7.0–8.0)
Density (/cm):	55.0–60.0	52.0–60.0	50.0–60.0	55.0–65.0
Selvage:	Type 2; Cord 3·3 (V-126-4)			
Fragmentary specimens:	V-65-10 V-21-12 V-39-1 V-41-20 V-47-10 V-47-16 V-58-14 V-58-22 *V-73-2 V-75-10			
	V-90-7 V-103-11 V-125-2 V-126-4 V-127-14			

Textile 41: Fragment with paired warps of different colors

Representative specimen:	Registered No. V-103-19			
Size (cm):	2.6×2.0			
Structure:	Design Variation of plain weave: warp 2, weft 1, weft-faced			
Design:	Some patterns woven by tapestry-weave technique			
Thickness (mm):	Pattern 0.72			
	Warp (1)	Warp (2)	Weft (pattern)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	2.5Y 7.5/6	5YR 2/1.5	5B 2/4	5GY 6/4
	(dull reddish yellow)	(dark grayish brown)	(dark grayish blue)	(leaf)
Diameter (mm):	0.20–0.25	0.20–0.30	immeasurable	0.18–0.25
Twist, Twist No. (/cm):	—S (10.0–12.0)	—S (8.0–10.0)	immeasurable	—S (6.0–8.0)
Density (/cm):	22.0	22.0	immeasurable	68.0–70.0
	Weft (pattern)	Weft (pattern)	Weft (pattern)	Weft (pattern)
Raw material:	Sheep	Sheep	Sheep	Sheep
Color:	5YR 2/1.5	2.5Y 7/10	9YR 6.5/11	7R 4.5/12
	(dark grayish brown)	(gold)	(gold)	(strong yellowish red)
Diameter (mm):	0.18–0.22	0.15–0.32	0.20–0.30	0.20–0.30
Twist, Twist No. (/cm):	—S (6.0–8.0)	—S (5.0–6.0)	—S (5.0–6.0)	—S (5.0–6.0)
Density (/cm):	68.0–70.0	68.0–70.0	68.0–70.0	68.0–70.0
Fragmentary specimen:	V-103-19			

Textile 42: Gauze-like fragment with ‘Kermes’ band pattern

Representative specimen:	Registered No. IV-W-53		
Size (cm):	8.4×12.8, 3.2×6.2 (pattern) V-41-15		
Structure:	Ground Plain weave: warp 1, weft 1, balanced		
	Design Variation of plain weave: warp 2, weft 1, weft-faced (V-41-15)		
Design:	‘Kermes’ band pattern		
Thickness (mm):	Ground 0.45		
	Pattern 0.81 (V-41-15)		
	Warp	Weft (ground)	Weft (pattern) V-41-15
Raw material:	*Sheep	Sheep	*Sheep
Color:	3PB 1.5/4 (dark blue)	3PB 1.5/4 (dark blue)	4R 3.5/10 (deep red)
Diameter (mm):	0.20–0.35	0.18–0.30	0.18–0.30
Twist, Twist No. (/cm):	—S (9.0–10.0)	—S (6.0)	—Z (6.0–12.0)
Density (/cm):	18.0–21.0	15.0–16.0	64
Selvage:	Type 1; Cord 2 (IV-W-53)		
Dyestuff:	Kermes (weft thread of V-41-15)		
Fragmentary specimens:	*IV-W-53 V-21-11 V-39-4 *V-41-15 V-122-4		

Textile 43: Textile with horizontal band pattern

Representative specimen:	Registered No. V-2-1							
Size (cm):	20.7×16.0							
Structure:	Ground Plain weave: warp 1, weft 1, weft-faced							
	Design Plain weave: warp 1, weft 1, weft-faced							
Design:	Horizontal band pattern (8.0 cm in maximum length in warp direction)							
Thickness (mm):	Ground 0.85–1.01							
	Pattern 1.13–1.64							
	Warp	Weft (ground)		Weft (pattern)				
Raw material:	Sheep	Sheep		Sheep				
Color:	2.5Y 7.5/6 (dull reddish yellow)	2.5Y 7.5/6 (dull reddish yellow)		10R 2/3 (dark reddish brown)				
Diameter (mm):	0.30–0.40	0.50–0.70		0.25–0.35				
Twist, Twist No. (/cm):	—S (8.0–10.0)	—S (1.0–2.0)		—S (6.0–8.0)				
Density (/cm):	9.0–12.0	24.0–28.0		44.0, 50.0–66.0 (IV-W-32-②)				
Selvage:	Type 3; Cord 3·4·3 (V-21-1), additional thread of 3-parallel wefts							
Dyestuff:	Wefts (V-73-4) were spun by the mixtures of the loose fiber dyed with kermes, the loose fiber dyed with indigo and the loose fiber dyed with natural dye (not yet defined).							
Fragmentary specimens:	V-2-1	IV-H-1-8	IV-W-24	IV-W-32-②	IV-W-51	IV-W-66-②	IV-W-68	V-21-1
	V-39-7	V-41-5	V-44-21	V-47-29	V-73-4	V-75-20	V-87-6	V-106-1
	V-122-7	V-126-5	V-127-2					V-118-1

Textile 44: Linen fragment with the evidence of warp-connecting method

Representative specimen:	Registered No. V-105-1	
Size (cm):	14.1×9.5	
Structure:	Ground Plain weave: warp 1, weft 1, balanced	
Thickness:	Ground 0.92	
	Warp	Weft
Raw material:	Linen	Linen
Color:	2.5Y 7/10 (gold)	2.5Y 7/10 (gold)
Diameter (mm):	0.35–1.10	0.35–0.90
Twist, Twist No. (/cm):	—S (4.0–5.0)	—S (4.0–5.0)
Density (/cm):	9.0–11.0	9.0–12.0
Others:	Warp and weft threads have been dyed gold.	
Fragmentary specimens:	V-105-1 V-95-2 V-103-10 V-107-6	

Textile 45: Linen cloth with sheep thread used for pattern weft

Representative specimen:	Registered No. V-71-1		
Size:	9.4×9.8		
Structure:	Ground Plain weave; warp 1, weft 1, balanced		
	Design Variation of plain weave; warp 4, weft 1, weft-faced		
Design:	Band pattern in vertical rib-effect		
Thickness (mm):	Ground 0.67–0.75		
	Pattern 1.15–1.25		
	Warp	Weft (ground)	Weft (pattern)
Raw material:	Linen	Linen	Sheep
Color:	2.5Y 7.5/6	2.5Y 7.5/6	7.5RP 2.4/5
	(dull reddish yellow)	(dull reddish yellow)	(dark wine)
Diameter (mm):	0.23–0.60	0.20–0.55	0.25–0.35
Twist, Twist No. (/cm):	—S (4.0–6.0)	—S (5.0–6.0)	—Z (3.0–4.0)
Density (/cm):	18.0–24.0	13.0–14.0	56.0–62.0
Selvage:	Type 1, V-95-6		
Edge:	Warp finish: Fringe (length in warp direction: 18.5 cm)		
Dyestuff:	Kermes (pattern weft) V-95-6		
Fragmentary specimens:	V-71-1	IV-W-23-②	V-41-2 V-47-14 V-58-6 V-65-5 V-72-3 V-73-5 V-90-12
	V-95-6		

Textile 46–50: See pp. 158–159

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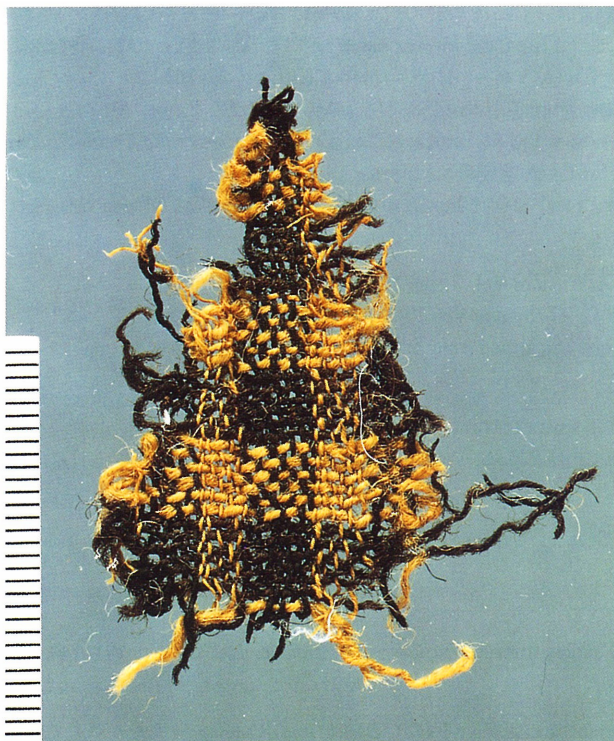
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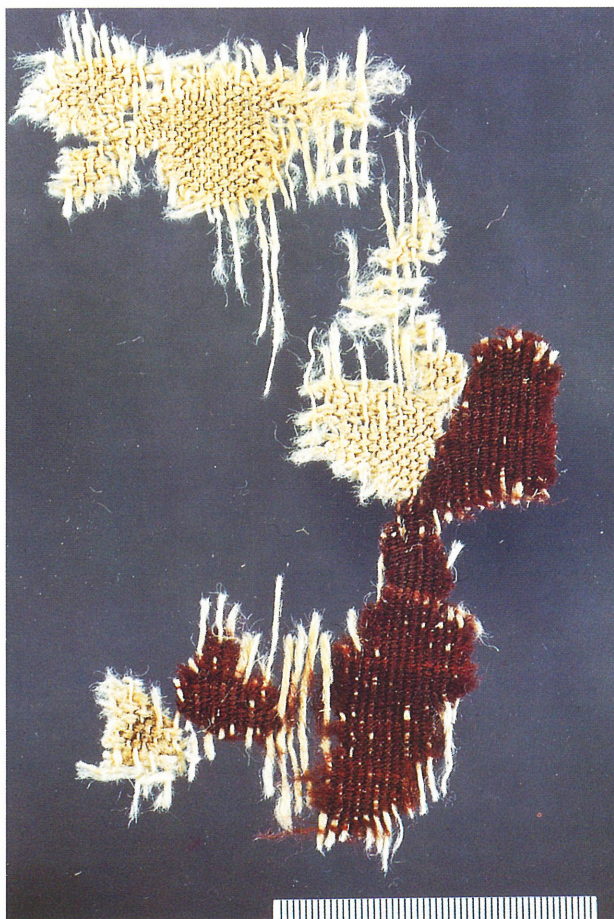
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a. Checker fragment (Textile 17).



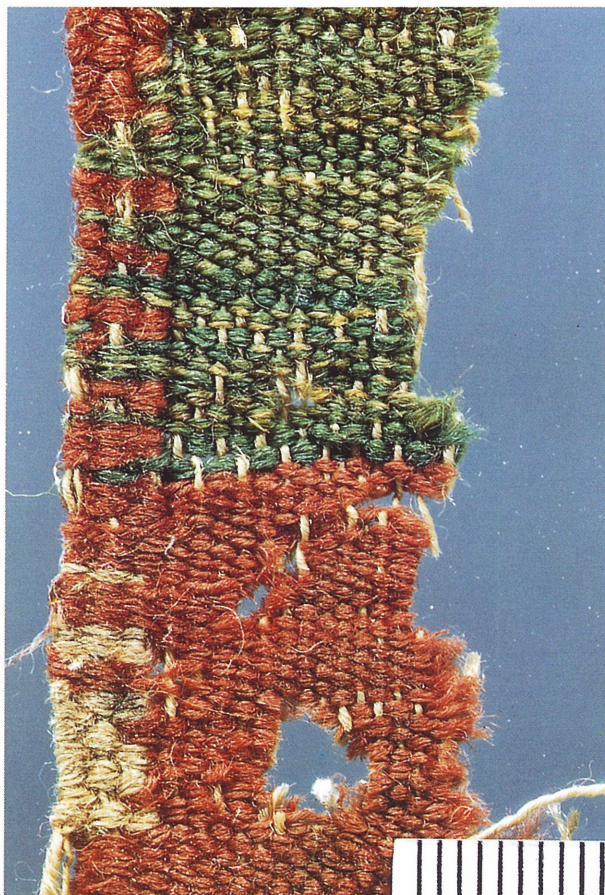
b. Fragment with tapestry-weave technique (Textile 19).



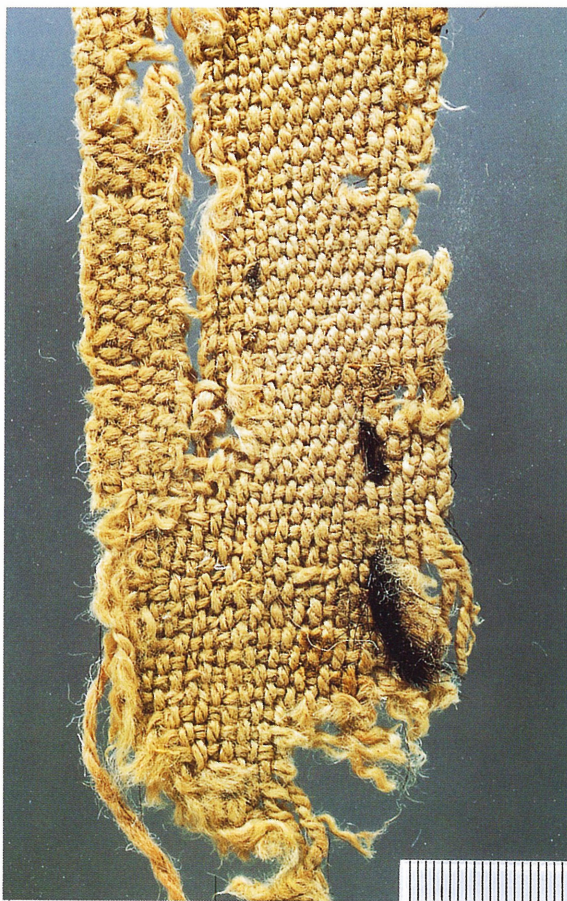
c. Fragment with slant pattern (Textile 18).



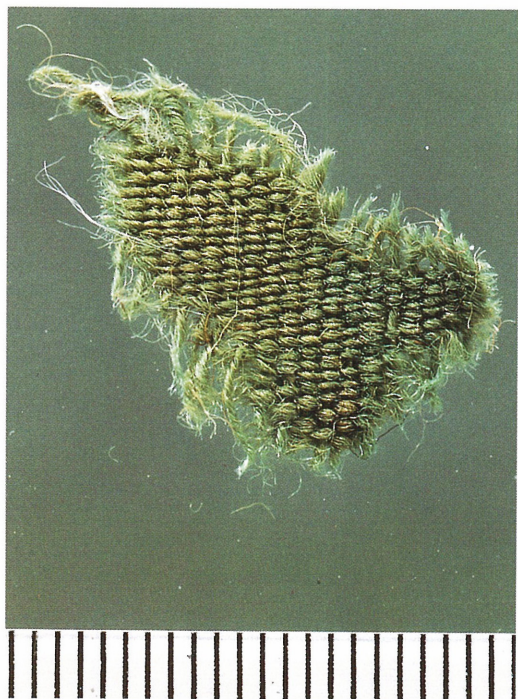
d. Fragment with selvege, Type 3, cord 4-6-4 (Textile 20).



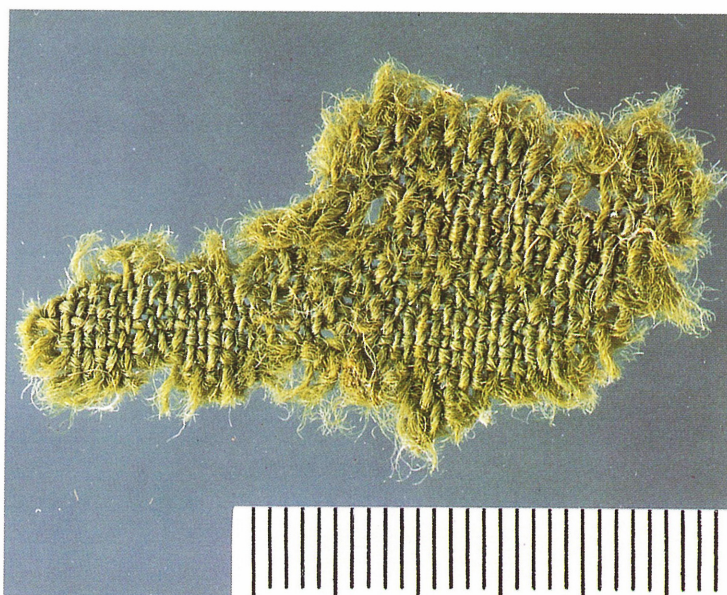
a. Fragment with decorative selvage (Textile 21).



b. Belt-like fragment (Textile 24).



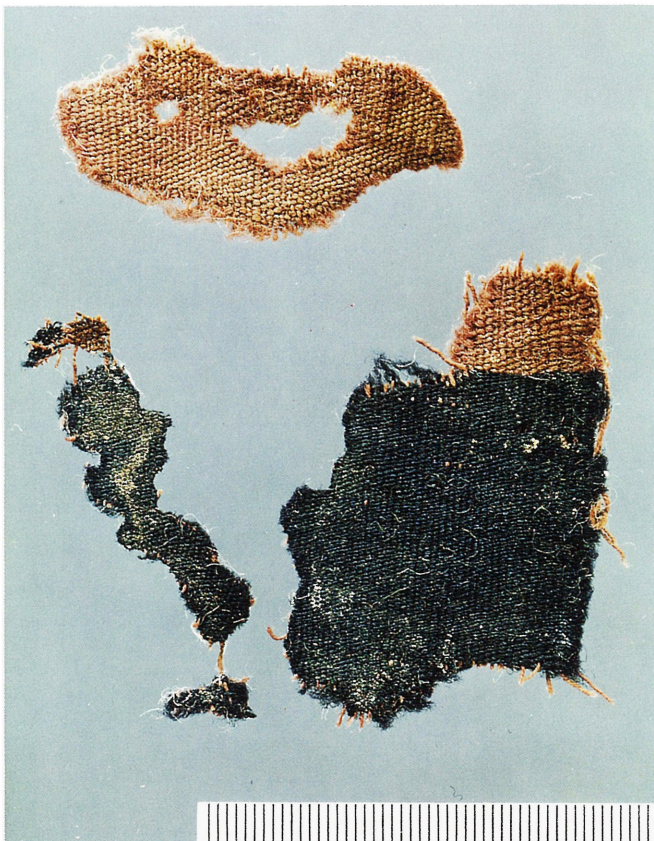
c. Dull green fragment (Textile 22).



d. Deep yellow-green fragment (Textile 23).



a. Belt-like fragment (Textile 25).



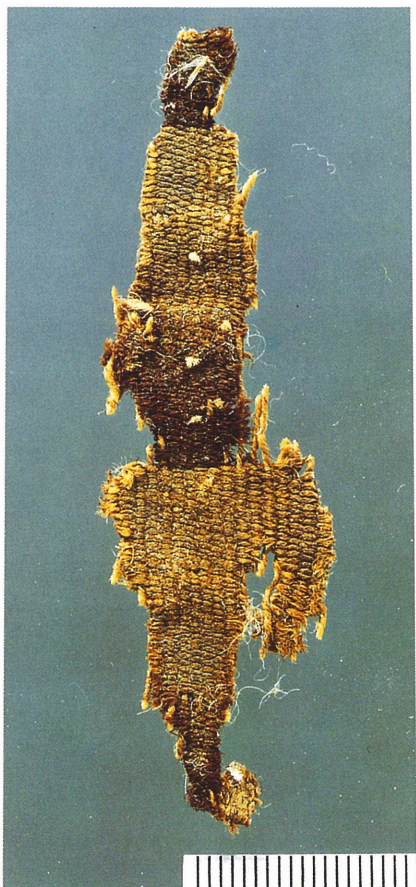
b. Textile with 'Tyrian purple' band pattern (Textile 29).



c. Fragment with horizontal stripe pattern (Textile 30).



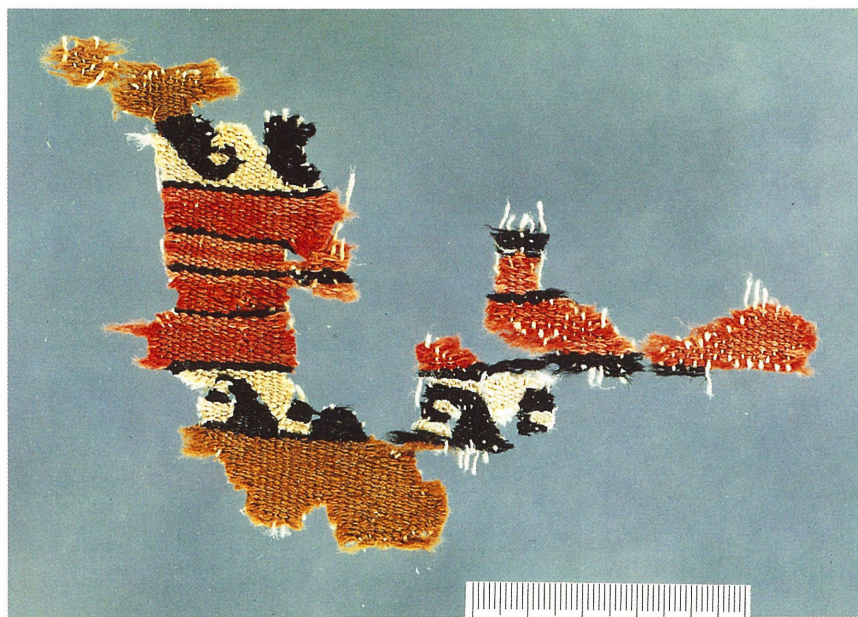
d. Fragment with color gradated horizontal stripe pattern (Textile 31).



a. Fragment with color gradated horizontal stripe pattern (Textile 32).



b. Fragment with horizontal stripe pattern (Textile 33).



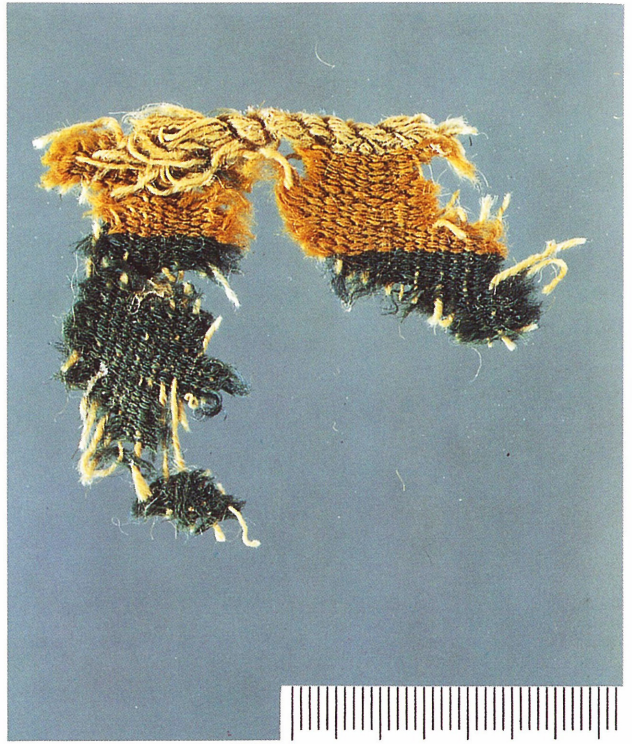
c. Fragment with a set of waveform, horizontal stripe pattern (Textile 35-1).



d. Fragment with two pieces sewn together (Textile 34).



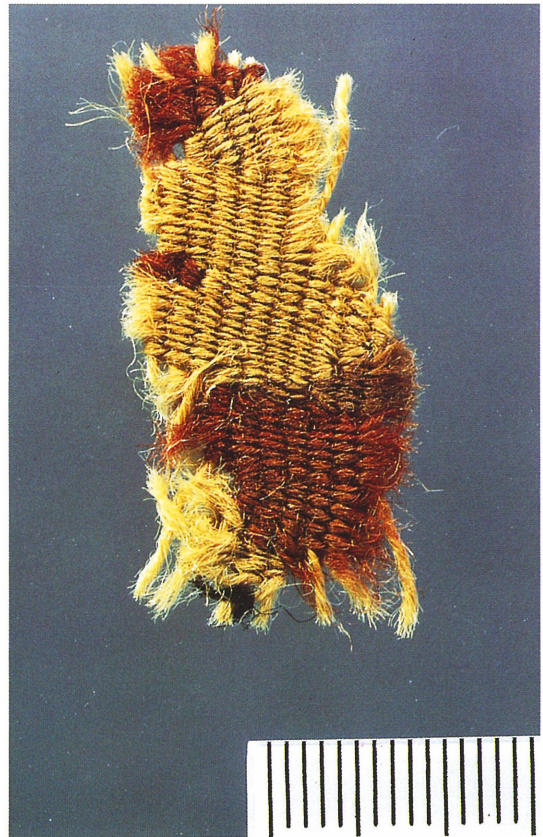
a. Fragment with various sorts of stripe pattern
(Textile 35-2, Specimen V-44-1).



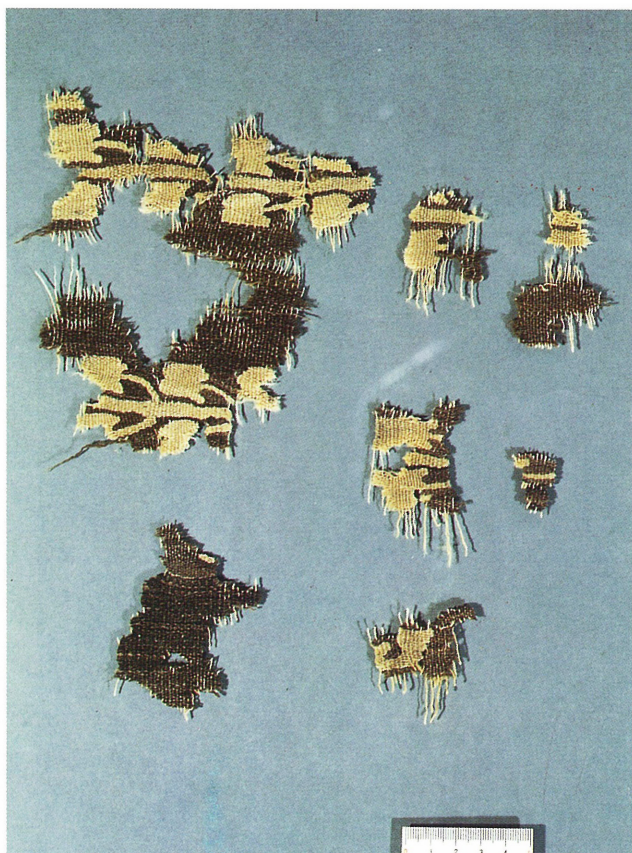
b. Fragment with various sorts of stripe pattern
(Textile 35-2, Specimen V-44-2).



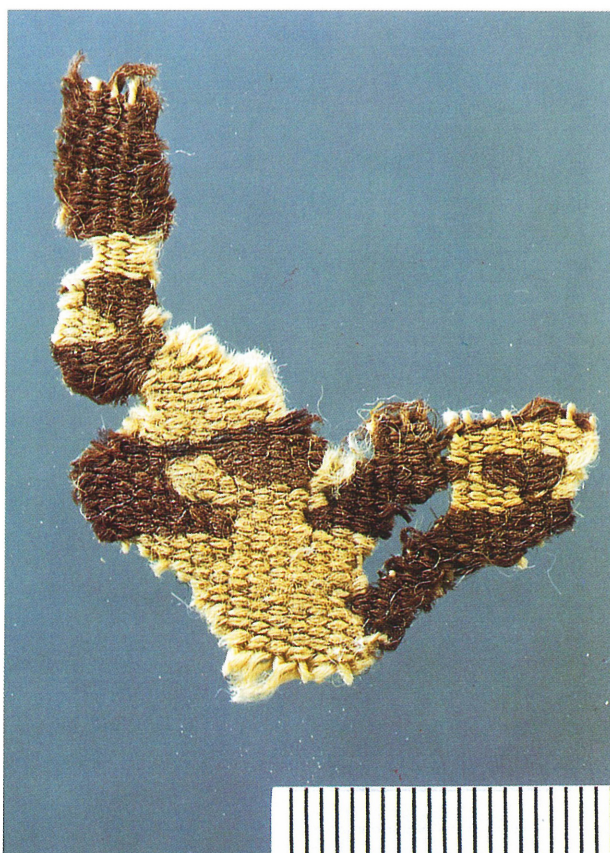
c. Fragment with various sorts of stripe patterns
(Textile 35-2, Specimen V-126-2a).



d. Fragment with various sorts of stripe patterns
(Textile 35-2, Specimen V-95-4).



a. Fragments with horizontal plant pattern bands (Textile 36, Specimen V-88-1).



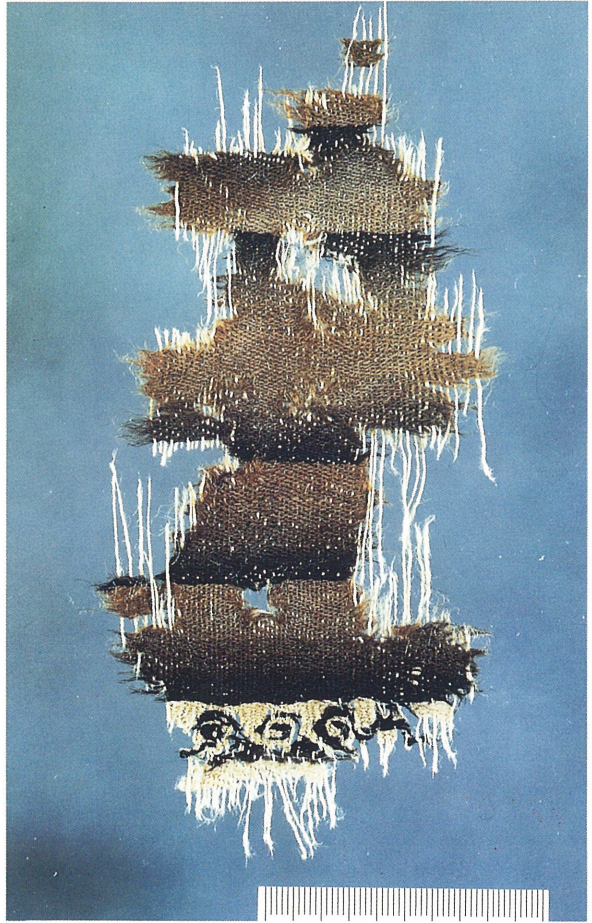
b. Fragment with horizontal plant pattern band (Textile 36, Specimen V-47-8).



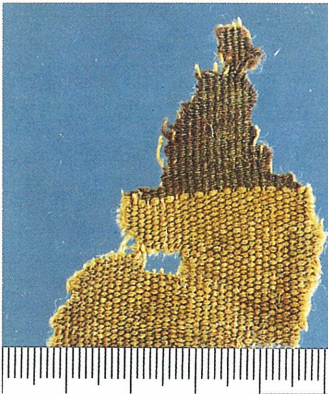
c. Fragments with horizontal plant pattern band (Textile 36, Specimen IV-W-32-3).



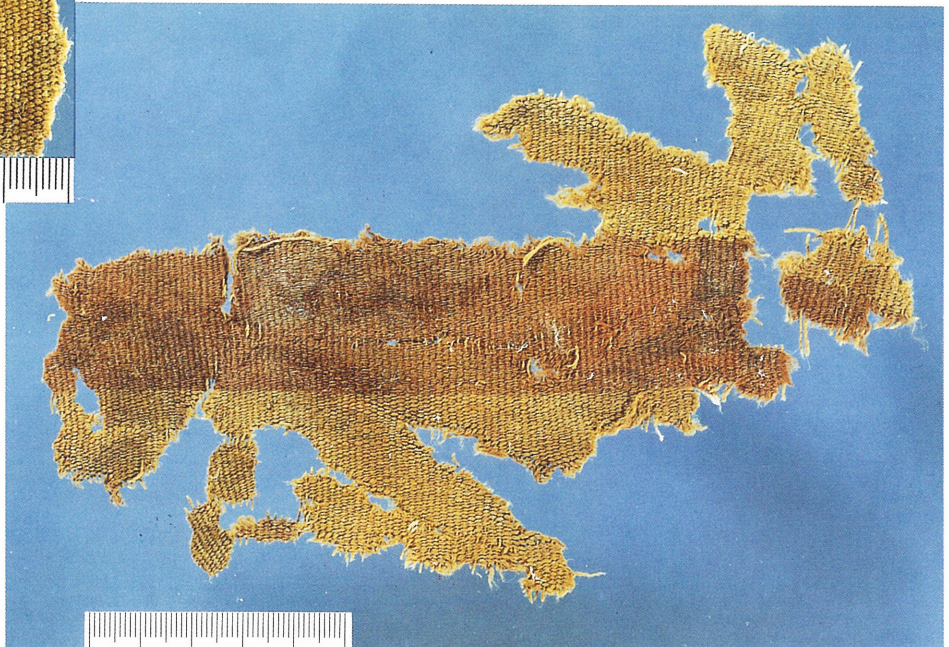
a. Fragment with warp alignment of 2·1/repeat (Textile 38).



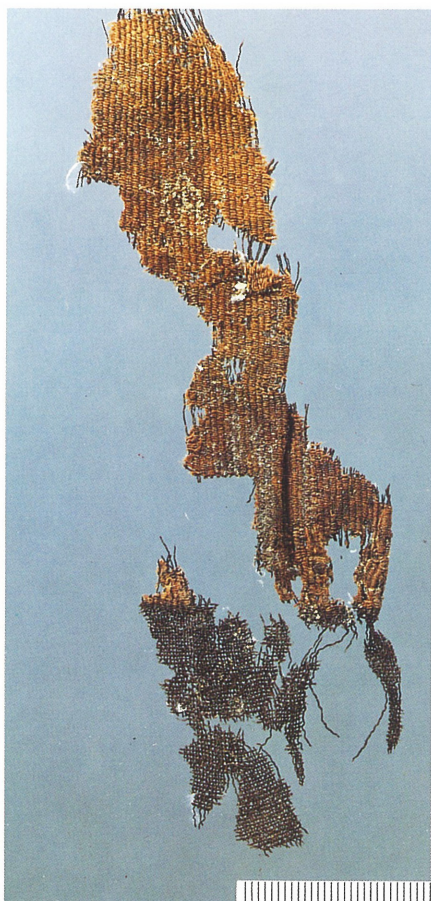
b. Fragment with warp alignment of 2·1/repeat, weft 2 on the pattern and 1/2 twill ground (Specimen IV-OH-2, Cave 7 Hill C).



c. Textile with horizontal band pattern, 2 picks of paired wefts each along the pattern (Textile 39, Specimen V-65-3).



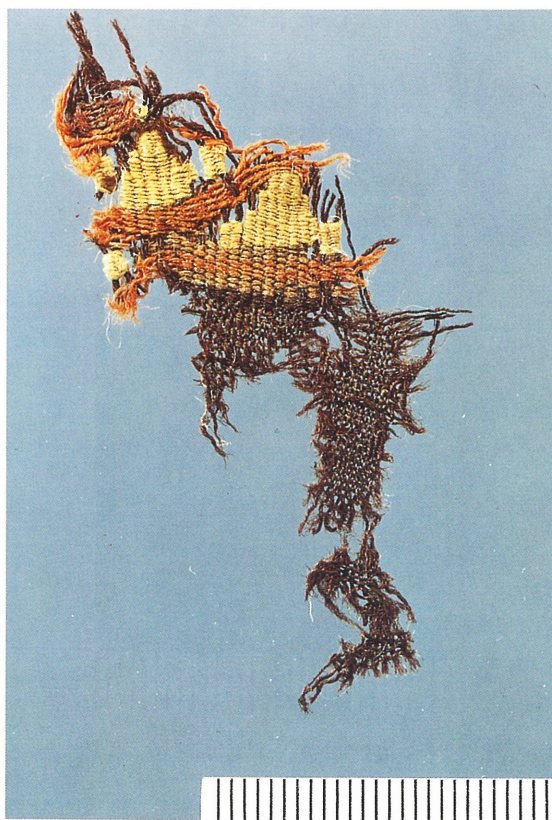
d. Textile with horizontal band pattern (Textile 39, Specimen V-95-1).



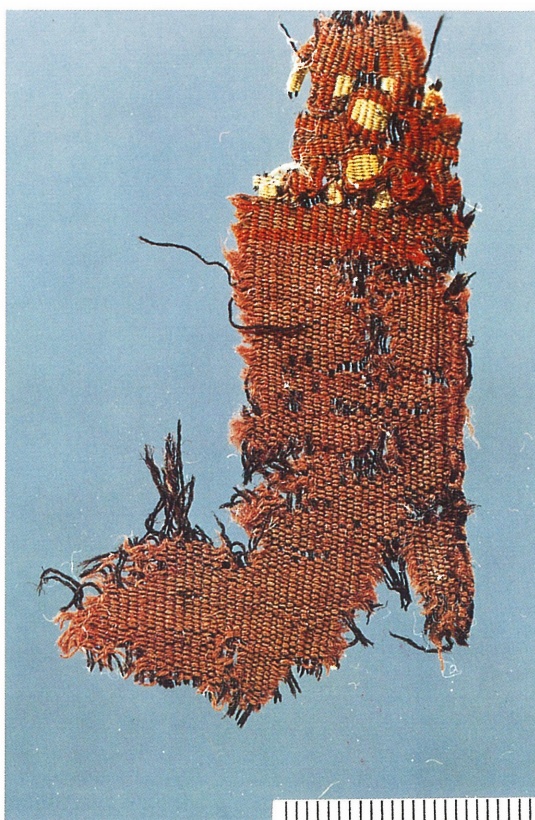
a. Fragment with vertical band
(Textile 40, Specimen V-39-1).



b. Fragment with floral pattern band
(Textile 40, Specimen V-125-2).



c. Fragment with geometric pattern band
(Textile 40, Specimen V-65-10).



d. Fragment with floral pattern band
(Textile 40, Specimen V-126-4 with Selvage).

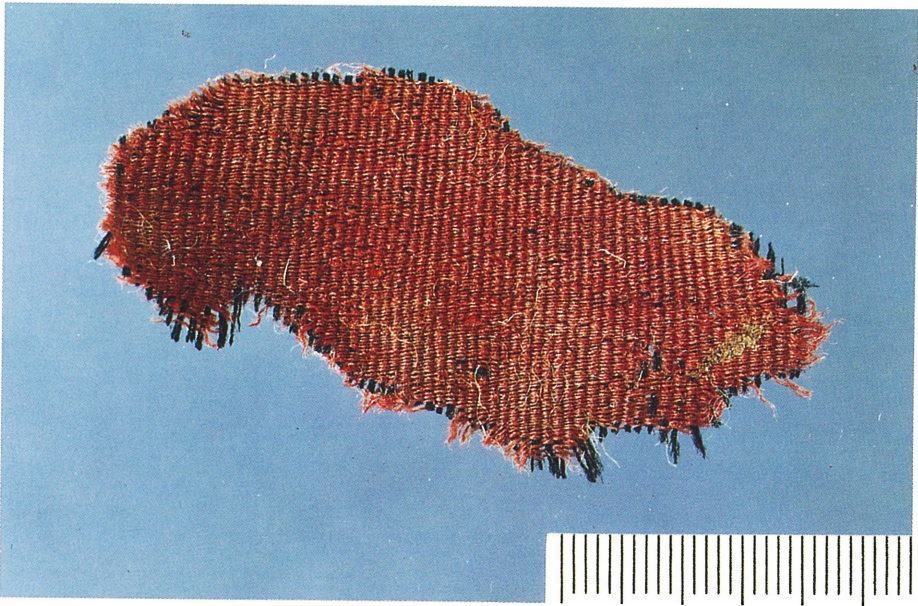


a. Fragment with paired warps of different colors (Textile 41).

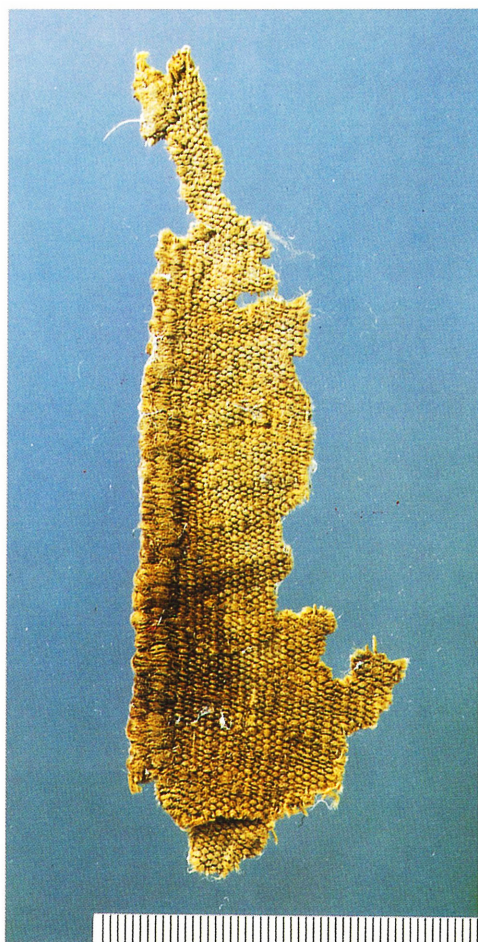
A paired warps of different colors.



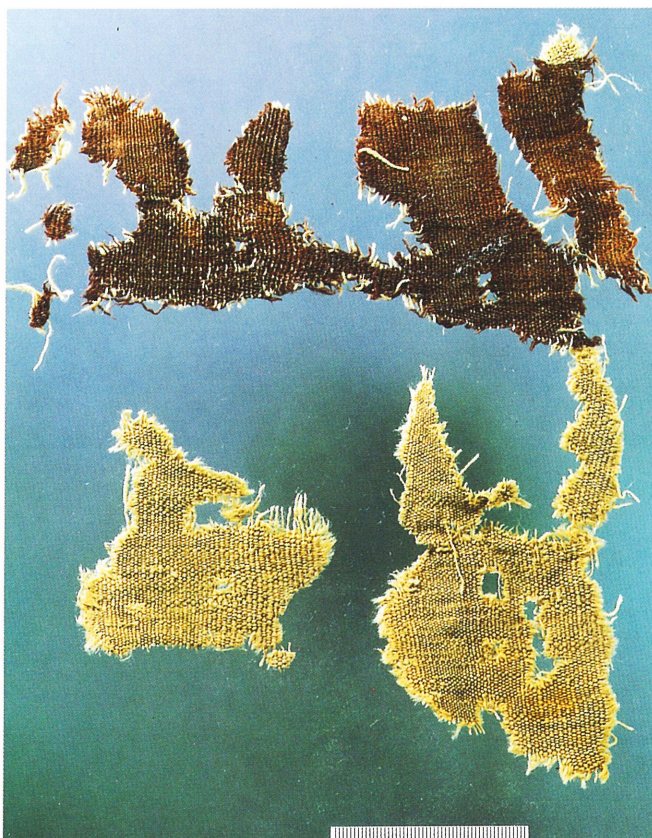
b. Gauze-like fragment (Textile 42, Specimen IV-W-53).



c. A part of 'Kermes' band pattern (Textile 42, Specimen V-41-15).



a. Fragment with selvage, Type 3, cord 3·4·3 (Textile 43, Specimen V-21-1).



b. Textile with horizontal band pattern (Textile 43, Specimen V-2-1).

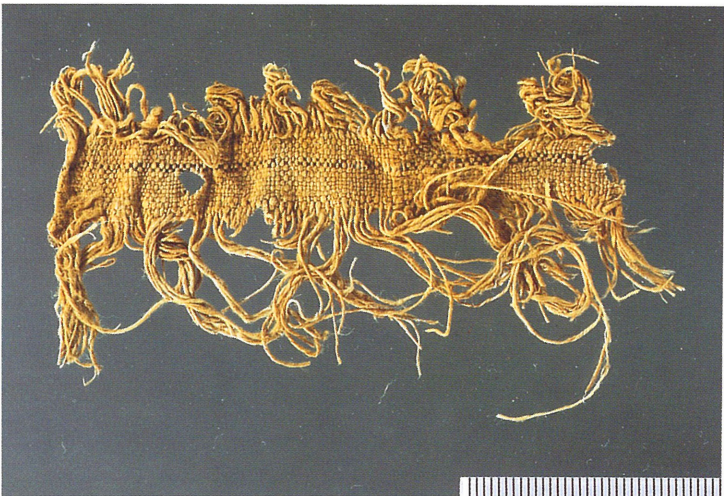


A warp-connecting part. —

c. Linen fragment with the evidence of warp-connecting method (Textile 44).



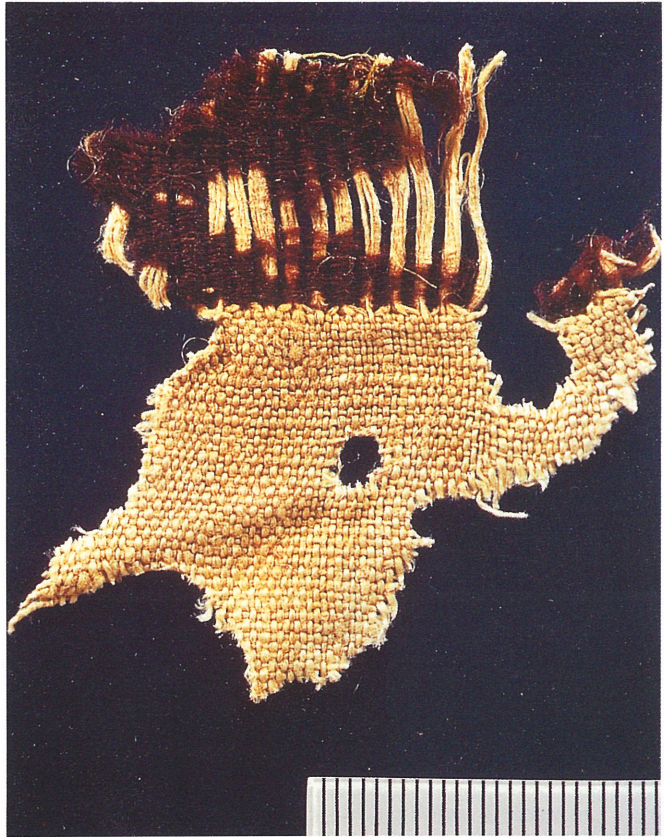
a. Linen cloth with sheep thread used for pattern weft (Textile 45).



b. Linen cloth with sheep thread used for pattern weft and fringed warp finish (Textile 45, Specimen V-95-6).



a. Linen cloth with sheep thread used for pattern weft (Textile 45, Specimen V-95-6).



b. Linen cloth with sheep thread used for pattern weft, warp crossing by means of a set of 4-warps each along the pattern (Textile 45, Specimen V-71-1).



c. Contact portion of cotton fragments (Textile 47).