

Ancient Monuments Laboratory
Report 44/88

TEXTILES: WAKERLEY, NORTHANTS.
ANGLO-SAXON CEMETERY.

Elisabeth Crowfoot

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Summary

This small collection of textile remains from an Anglo-Saxon cemetery, though fairly typical and in most cases mineralised, includes one unique weave preserved on the metal of a shield boss in a man's grave. The technique of this reversible weft-float pattern, probably on an imported coverlet or hanging, perhaps shows an early connection with the development in the Middle East of more advanced looms.

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Wakerley, Northants. Anglo-Saxon Cemetery

Appendix: Textiles

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(Fibre identification, H.M.Appleyard, W.I.R.A.)

Textile evidence was present on many of the metal grave-goods from the Wakerley cemetery, but preservation was variable, and in many cases where spinning direction could still be seen, weave was not clear. The fibres in much of the material had been mineralised during contact with the metal, and some still flexible were badly deteriorated.

A number of the weaving techniques identified from other Anglo-Saxon sites are represented here; there are fragments of over twenty certain twill weaves, including both four- and three-shed constructions, three tabby (plain) weaves, tablet-woven braids or borders, and one important weave of considerable interest with a reversible weft-float pattern on a tabby ground.

Fibres and spinning

Fibre identifications carried out by H.M.Appleyard, F.T.I., at the Wool Industries Research Association could only be tentative (Appendix; p.). Vegetable fibres, which when clearly identifiable in Anglo-Saxon contexts have so far always been flax, were found in six samples - two tablet-weaves, one twill, one fine tabby, and in threads used for tying. Animal fibre, likely to be sheep's wool, was identified in one twill.

So far in study of Anglo-Saxon textiles flax is always Z-spun, while wool can be spun in either direction. At Wakerley spinning in tabby weaves is Z, while the twills are fairly evenly divided between the Z-spun and those with mixed spinning, Z one system, S the other - a rather higher proportion of mixed spinning than that recorded in other cemeteries.

Weaves

In only two cases was selvedge preserved attached to a weave, but in textiles woven on the warp-weighted loom used by the Anglo-Saxons, and particularly in twills, the warp thread count is often noticeably higher than that of the weft; in the catalogue the denser count has therefore been placed first, except where there is clear contrary evidence.

Float-patterned weave (fig.3)

The mineralised weave with weft float pattern on the shield boss in Grave 85 (Pl.) is so far unique among fabrics found in Anglo-

Saxon cemeteries. The construction, with a tabby ground weave and a supplementary pattern weft moving over and under the ground in three-thread floats, produces a reversible fabric, patterned both sides. The other side could only be seen on a small broken-off fragment, but the weaving is rather loose, and the three yarns used can be clearly distinguished from each other; the warp is coarse but fairly evenly Z-spun, the ground weft also Z-spun but considerably finer, and the pattern weft coarse and very loosely S-spun, with a softer appearance than the other yarns. The two wefts would no doubt have been of different colours. It is possible that all the threads were of wool, though the appearance of the ground weft rather suggests flax. The pattern weft can be seen passing the whole way across the width preserved, and is not simply an occasional brocading. Though the main area preserved is only 9.0 X 5.0 cm, patches and traces of the same weave survive all over the boss, and it seems likely that the coverlet or cloak, spread over the arms and possibly the whole contents of the grave, was patterned all over, rather than a tabby weave with a wide patterned border.

Comparative material near in date to this weave seems to be lacking. Float patterns on tabby grounds from two German sites, particularly a tiny fragment from Donzdorf with very similar yarns, are considered by Prof.H.-J.Hundt as likely to have come from borders (Hundt 1966.98; 1972.104,Pl.76). Hand-laid float patterns on large hangings and coverlets from Egypt of the 5th-7th centuries produce large areas of pattern, but the passage of the threads varies (Kendrick 1921.78-80; Lopes Cardozo and Zijderveld 1982.37,38). Dr.Peter Collingwood, to whom a drawing of the weave was shown, points out that it is likely, from the way the weft floats are disposed, that the pattern weft was laid in some shed produced by the harness, and not just inserted by hand, as the float over two ends is typical of the edges of a pattern block produced by shafts (personal communication, Dec.4,1973).

As far as can be seen, the weave construction is identical with a two-colour weave used for bedspreads among early 19th century English settlers in Canada, known as "Summer and Winter", the lighter side used uppermost in summer, the darker in winter. H.B.Burnham, discussing these weaves, suggested that their construction appeared to be descended from the weft-faced compound tabby, a two-faced weave with reversible patterns found in Coptic cemeteries in Egypt. In this two pattern wefts are used, one of which floats on the face, the other on the back

of the weave, changing places as needed for the design. Burnham pointed out that "if one of these continues to float on the face or reverse as required, while the second is used to produce a tabby ground, 'summer and winter' weave results" (Burnham and Burnham 1972. 264-5). The weft-face compound tabbies, found in contexts probably of the 4th-6th centuries in Egypt, are generally regarded as evidence of the earliest form of loom with treadles in the Mediterranean area (Kendrick 1921.71-75; Wilson 1933.13,17-18). The Wakerley textile may provide another small piece of evidence regarding this early form of loom, though not of its use among the Anglo-Saxons at this period. It should certainly be regarded as an imported luxury fabric.

Twill weaves (fig.1.B,C,D,E).

Among the twill weaves, the majority are four-shed (2/2) constructions. In Anglo-Saxon twills mixed spinning, Z warp and S weft, often indicates a twill with broken diamond or chevron pattern (fig.1.D,E); only one piece at Wakerley (Grave 80.a,p) unmistakably shows a broken diamond, though too little to recover the pattern, but the lie of the diagonals in another (Grave 34.a) indicates this must have been one of these weaves. The broken diamond twill, a construction very well suited to the warp-weighted loom, appears throughout northern weaving, and in Anglo-Saxon finds as a good quality garment fabric in wool, and for furnishings, such as pillow covers, in flax (Crowfoot G.M.1951. 30-32; Crowfoot E. 1967.39; 1969.51; 1976.32; 1978.105; 1983.418-424; 1985a.52-53; Crowfoot E. and Jones J. 1984.18).

One fine regular weave is a three-shed (2/1) twill (fig.1.B) in wool (Grave 49.a) with a tubular selvedge; a second probable example, mineralised, was found in Grave 58. The earliest known occurrence of this twill seems to be from Europe, a fragment of the Halstatt period described by Prof.Hundt (Hundt 1964.180ff.). Though it does not appear in Scandinavian archaeology before the Viking period, the number of Anglo-Saxon examples, in wool and flax, are of such varying style and quality that it is impossible to believe the weave was not being locally produced (Crowfoot G.M.1952.190; 1953.61; Crowfoot E. 1966.29; 1978.104-105; 1981.98; 1983.438-442; 1985a.53; Crowfoot E. and Jones J.1984.18). Some of the early finds of three-shed twills come from Roman Syrian sites of the first centuries A.D. (Hoffmann 1964. 251-253), and the earliest example in England is from a Roman hoard of the 1st.century A.D. at Corbridge, Yorkshire (Wild 1970.50); it is possible that its production in England was a legacy from the

Roman occupation.

Tabby weaves (fig.1.A)

In the undyed ?flax tabby weave lying on the face of the squareheaded brooch from Grave 80, the remains of a tubular selvedge (fig.2.c,d) indicate that in this cloth the denser count must have been the weft, though the rather loose weave is pulled and distorted. The tubular selvedge (present here also probably on twills in Graves 28 and 49) seems to have been a favourite in Anglo-Saxon weaving (Crowfoot E. 1978.104,106; 1981. 96-98; 1983.473-474; 1985a.52-53). Its virtues as a practical and hard-wearing edge seem to have outweighed the trouble its different shedding system requires, ensuring its continuing use from the Danish Bronze Age (Hald 1950.155-156) throughout medieval times, and in north-eastern Europe until mechanisation in the 18th century.

Tablet weaves (fig.2.a,b).

Recognisable but very fragmentary remains of tablet-woven borders or braids come from six graves. In Grave 5, tiny scraps show six twists of the simplest 4-hole type, all lying in one direction, S (fig.2.a.II), perhaps from a starting border. In Grave 69 confused remains of a flax fragment in the sleeve-clasps probably come from a braid sewn as cuff to the sleeve, as at Mitchell's Hill and Mildenhall (Crowfoot G.M. 1951.26-28; 1952.189-191), and on a strap-end from Grave 74 a fragment of 4-hole tablet-weave with twists lying in chevrons, alternately Z and S (fig.2.a.I) show that here the strap was a woven braid. Another braid of ?flax from Grave 78 is in an interesting tablet-weave in which only two holes are threaded, to which the nearest English parallel is a 13th century belt braid (Crowfoot G.M.1954.234-235).

Costume

Apart from a few details like these, very little can be said about the clothing from the Wakerley cemetery. What there is suggests that this was probably similar to the costume suggested by grave-goods and textiles from Anglian cemeteries, best shown here in Grave 74, where the Z/S twill (3) present in sleeve clasps and under the single round brooch could come from the long-sleeved undergarment of the Anglian woman's dress, the fine Z-spun twill (4) on the pair of small-long brooches the overdress, pinned on the shoulders, with the coarser twill (1) from a cloak pinned by the cruciform brooch, and the tabby weave (2) caught under its pin from a head-covering, veil or hood.

Appendix.

Fibre Identification

H.M.Appleyard, F.T.I.

(Wool Industries Research Association)

Grave 78 (a) 706107. Two samples. These were apparently vegetable fibres; the fibres in one sample were very encrusted.

The other samples, i.e. Graves 57(a) front, 69,70,74(a) and 80(b) front, are all of vegetable origin. It is impossible to be more definite about these samples, as most of them are very badly degraded.

Grave 80 (b) back. Some of the remnants suggest that the sample is animal fibres; some pieces contain what appears to be a medulla.

Grave 57 (a) back, and Grave 70(d) Unable to give any indication of their identity.

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Textile Catalogue: Wakerley

Note: Spinning direction of yarns indicated by letters Z and S, probable warp thread being placed first.

Overall measurements in cms, weave counts in threads per 1 cm, except where otherwise stated.

<u>Grave</u>	<u>Number</u>	<u>Object</u>	<u>Position on object</u>	<u>Measurement</u>	<u>Fibre</u>	<u>Spin</u>	<u>Weave</u>	<u>Thread count</u>	<u>Comments</u>
4	(e) 681834	Iron rod	patch	1.4 X 0.5	mineralised	Z/Z	twill	(fine)	surface damaged
5	(b) 681751	Annular brooch	on pinhead	L. 9 mm	mineralised	Z/?	tablet, 4-hole	8-9 wefts, (on 9 mm)	-
	(e,f) 681761	detached	over tablet weave ?from pin (b)	- 0.6 X 0.5	mineralised mineralised	Z, Sply Z/?Z	- tablet, 4-hole	- 6 twists, (5 mm)	bunch 4 threads. twists all S (fig. 2.a.II)
18	(b) 681943	Buckle	patch on back	-	mineralised	Z	-	-	threads
	(k) 681938	Iron hook	allover one side, patches other	-	mineralised	Z/S	twill	-	surface damaged
28	(a) 681924	Annular brooch	on ring back, pin-point	0.5 X 0.4 -	mineralised mineralised	Z/S Z	2/2 twill ?tablet	9/6 (5 mm) -	smaller scraps ?broken edge, twists
	(b) 681925	Brooch	detached round pin	1.0 X 0.6 W. 2.5 mm	impression mineralised	Z/? Z	?twill ?tubular selvedge or round plait	5 on 5 mm 4-5 (on 2.5 mm)	rust on earth (see fig. 2.c,d)
30	(a)	Brooch	on pin	-	mineralised	Z/S	-	-	weave not clear
	(b) 681918	Swastika brooch	back	1.5 X 1.5	mineralised	Z/Z	2/2 twill	7/6 (5 mm)	-
	(f) 681974	Iron fragments	round pieces	4.5 X 2.0	mineralised	Z/Z	2/2 twill	est. 11/10	coarser than (b)
33	(a) 681977	Shield boss	on iron	3.0 X 2.5	mineralised	Z/Z	2/2 twill	12/13	and smaller areas

Grave Number	Object	Position on object	Measurement	Fibre	Spin	Weave	Thread count	Comments
34 (a) 681976	Spearhead	one side	3.0 X 1.0, 1.5 X 1.0	mineralised	Z/S	2/2 twill, broken diamond or chevron	12/9	reverses both systems
(h)	Iron knife	on blade	-	mineralised	Z	-	-	threads on leather
(j)	Iron key and buckle	outside inside chape	- -	mineralised mineralised	Z S	- -	- -	threads threads
44,45 (c) 690550	Brooch with animal head	pinhead	1.3 X 1.0	mineralised	Z/S	2/2 twill	12/?	only Z system clear
(g) 690551	Bronze coin	both sides	1.3 X 1.1	flax	Z/Z	2/2 twill	8/8 on 5mm	parts surface worn
49 (a) 690570	Annular brooch	front, and on pin-head detached	1.3 X 1.0 4.0 X 1.2 1.5 X 0.7	deteriorated animal(wool)	Z/Z Z/Z	2/1 twill, tubular selvedge (same weave)	8/9 on 5 mm 13-14 warps 8/8 on 5 mm	(fig.1.B) even spin, soft folds, end showing reverse side; selvedge fig.2.c,d.
56 (a)	Shield handle Discs from shield	centre	for 1.2.0 cm -	mineralised ?flax	Z,Sply Z/Z	- -	- (fine)	lashing round grip traces, deteriorated
57 (a)	Swastika brooch	front	2.0 X 1.5	vegetable, ?flax	Z/Z	-	16 one system	part replaced, surface deteriorated
		back, pinhead	-	mineralised	Z/?	?twill	-	threads in pairs; coarse fibres ?leather
(b)	Small long brooch	front	2.0 X 0.8	mineralised	Z/S	2/2 twill	-	damaged
(c)	Iron pin	-	-	mineralised	Z/S	-	-	threads
(d)	Sleeve clasps	on all pieces	-	deteriorated	Z	-	-	traces textile
58 (d)	Small long brooch	pinhead and catchplate	2.5 X 2.0	mineralised	Z	-	-	too damaged for weave identification
		under, on metal	1.3 X 0.2	mineralised	Z/Z	twill ?2/1 est.15/12	-	fairly certain 2/1 threads
(e)	Iron object	-	-	mineralised	Z	-	-	

Grave Number	Object	Position on object	Measurement	Fibre	Spin	Weave	Thread count	Comments
61	(e)	Bronze ring on ring	1.1 X 1.2	mineralised	Z/S	?twill	-	similar weave on both
	(k)	Iron fragment						
	(f)	Iron fragment -	0.8 X 0.7	mineralised	Z/Z	2/2 twill	est.10/10	damaged, and similar on buckle (b)
	(d,h,i)	Bronze plates,strip	-	traces	Z/Z	-	-	tiny scraps, fine
69	(a)	Iron key on ring	-	mineralised	Z	-	-	coarse threads
	(b)	Iron ring all over	-	mineralised	Z/S	-	-	surface deteriorated
	(c)	Iron buckle top surface	-	mineralised	Z/Z	2/2 twill	-	coarse remains
	(d)	Sleeve clasps underneath	1.2 X 0.8	flax	Z/Z,Sply	tablet, 4-hole	twists 5 5 mm wefts 8 per cm	twists 2S,1Z,1S,1Z on 5 mm, confused by Z sewing ?to cuff edge; twists almost parallel to fastening, ?due to fold when sewn under
70	(a)	Trefoil brooch front waist,round pin	0.8 X 0.5 L. 2.0 cm	mineralised vegetable	Z/Z Z,Sply	?tabby ?fringe	est.16/14 -	under bone 2 threads, part 3 others, no sign of wefts
		back	-	mineralised	Z/Z	-	-	deteriorated
	(i)	Trefoil brooch back	-	mineralised	Z/Z	-	-	as on (a) pair
	(c)	Iron buckle main piece	0.7 X 0.8	mineralised	Z/Z	2/2 twill	9/6 on 5 mm	traces other fragments
	(d)	Sleeve clasps front	0.8 X 0.25	mineralised	Z/Z	twill	est.12-13/12	-
		detached	2.8 X 3.0	deteriorated	Z/Z	2/2 twill	-	impression of front
	(f)	Iron knife -	-	mineralised	Z/S	-	-	small deteriorated lump
71	(a)	Iron knife -	-	mineralised	Z	-	-	threads from weave
	(b)	Iron buckle above pin	-	mineralised	Z/Z	-	-	deteriorated weave, some thick Z threads
	(e)	Cruciform brooch near pin hinge	-	mineralised	Z/Z,Sply	tablet	-	tiny, one S twist
	(f)	Cruciform brooch back	2.5 X 2.5	mineralised	Z/S	-	-	layers or folds, surface damaged
	(g)	Penannular brooch inside edge	1.5 X 1.5	mineralised	Z/S	?twill	-	deteriorated surface

Grave Number	Object	Position on object	Measurement	Fibre	Spin	Weave	Thread count	Comments
73	(c) Annular brooch	front, across edge, from pin both sides pin	L.2.0 cm L.4.0 cm	flax mineralised	Z, Sply Z/S	round plait -	- -	6-thread plait surface damaged
74	(a) Cruciform brooch, detachable knobs	back, pin and pin head against catchplate on knobs	c.4.0 X 6.0 0.5 X 0.3 -	mineralised mineralised vegetable, ?flax	Z/Z Z/Z Z; Z, Sply	2/2 twill tabby -	10/10 est.10/10 -	weave (1) weave (2) under (1) threads, some ?plaited, fastening knobs on
	(b) Round brooch	along pin	-	mineralised	Z/S	twill	-	weave (3) deteriorated
	(c) Small long brooch	pinhead	1.8 X 2.0	mineralised	Z/Z	2/2 twill	c.14/12	weave (4)
	(e) Small long brooch	pinhead, catchplate	3.0 X 2.0	mineralised	Z, Sply Z/Z	- 2/2 twill	- 16/12	knot, coarse threads weave (4)
	(d,r) Sleeve clasps	inside	-	mineralised	Z/S	-	-	?weave (3), fine
	(g) Strap end	one side	-	mineralised	Z/S	-	-	?weave (3), fine
		underside of stud	0.8 X 0.7	mineralised	Z/Z, Sply	tablet, 4-hole	-	4 twists clear, S,Z,S,Z (fig.2.a.I)
	(h) Strap	one side	-	deteriorated	Z/Z	-	-	on leather strap
	(i) Strap end	top surface beneath	3.0 X 1.5	deteriorated	Z/S	-	-	? (3), fine, and under stud leather from strap
	(ii) Iron buckle, (j) Iron fragment, (l) Iron ring:			all fine Z/S threads.				(k) Iron knife, (o) Nail: Z threads
78	(a) 706107 Swastika brooch	front front, under tablet back, pinhead	c.3.5 X 1.5 - 1.2 X 1.0	vegetable deteriorated mineralised	Z/Z Z/S Z/S	tablet, 12 twists/ 2-hole 2/2 twill	5 wefts - -	(fig.2.b) inaccurate meeting, twill effect dark brown, scraps probably as above, but yarns replaced ?coarser
	(b) Swastika brooch	front back, pinhead	1.2 X 1.0 -	mineralised mineralised	Z/S Z/?S	?twill ?tablet weave	- -	scattered areas possibly different pattern
	(c) Bronze pin	all along	-	traces	Z/S	?twill	-	
	(e) Bronze earring	round ring	-	mineralised	Z	-	-	thread tied round.
	(h) Iron key	along shaft	-	mineralised	Z/S	-	-	traces coarse weave

Wakerley. Cat.5

Grave Number	Object	Position on object	Measurement	Fibre	Spin	Weave	Thread count	Comments
80 (b) 706113	Squareheaded brooch	front, plate	2.5 X 3.5	vegetable, ?flax	Z/Z	tabby,	13-14/18	weave (1) ?undyed; ,L.1.5; (fig.2.c,d)
		back, over pin	c.4.0 X 6.5	animal, ?wool	Z/Z	2/2 twill	14/12	weave (2) parts replaced, clear in bead-marks
(a,p)	Coiled annular brooches	pinhead (p) patches (a)	0.6 X 0.7	mineralised	Z/?	2/2 twill, broken diamond	-	weave (3), fine, one system only preserved
(e)	Bronze wire ring	wound round	-	traces	Z	-	-	threads
(f)	Iron key	-	-	mineralised	Z/Z	2/2 twill	-	probably weave (2)
(g)	Iron bars	on all pieces	5.0 X 2.0	deteriorated	Z/S	twill	-	scattered; probably (3)
(h)	Iron knife	on wood sheath	-	deteriorated	S	-	-	coarse threads, wound round
(i)	Iron ring	all round	-	mineralised	Z/S	twill	-	deteriorated, ?(3)
(l)	Bronze ring	over surface	-	mineralised	Z	-	-	fine weave, deteriorated
(m)	Sleeve clasps	on back	-	mineralised	Sply, Zply	?tablet	-	probably twists, braid; Z sewing thread in hole
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82 (f)	Annular brooch	front	1.5 X 1.0	mineralised	Z/Z	2/2 twill	7/7	loose weave, pulled
		all over pin	-	mineralised	Z/Z	2/2 twill	-	possibly finer, confused
(j)	Annular brooch	back and front of pin	-	mineralised	Z/Z	2/2 twill	-	deteriorated; again ?two twills, one finer
(c,e)	Iron knife; iron buckle	-	-	mineralised	Z	-	-	threads probably from the coarser twill
<hr/>								
85 (a) 706156	Shield boss	all over surface	9.0 X 5.0	mineralised	Z/Z,S	pattern, 8-9/10 3-thread (5 ground, floats on 5 pattern tabby ground wefts)		clear area and smaller patches and traces; (fig.3); warp diam. 0.7-1 mm; ground weft 0.5-0.7, pattern weft 0.9-1.3 mm. Probably all-over pattern weave
<hr/>								
(Unknown) 681901	Annular brooch	with pin	L.1.0 cm	vegetable, ?flax	Z	?round plait	-	fine threads in groups of 4-6; stained yellow

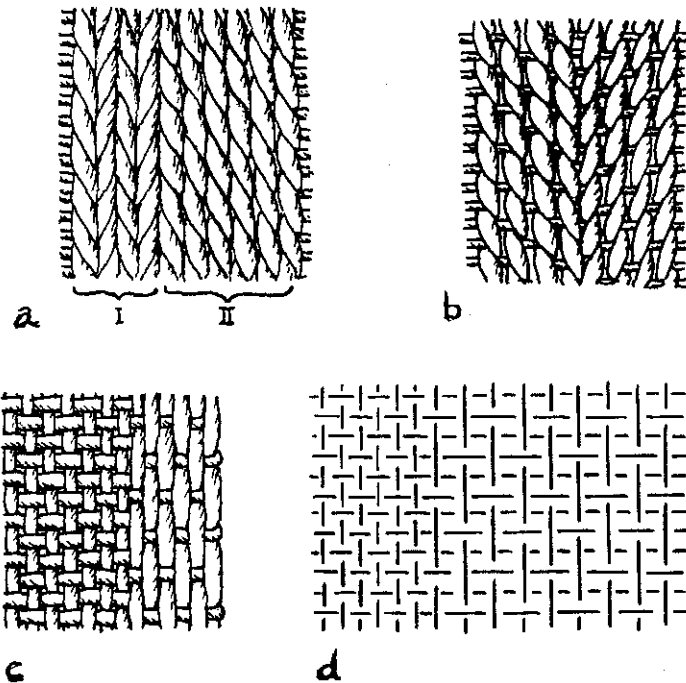
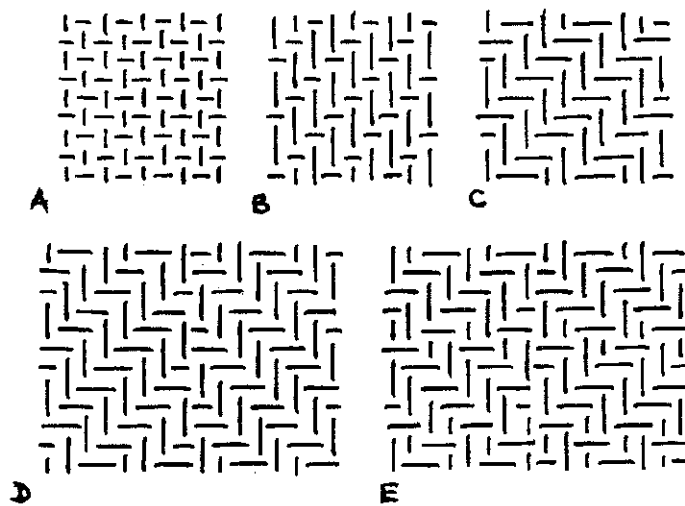


Fig.1. Weave types

A. tabby. B. 2/1 (3-shed) twill. C. 2/2 (4-shed) twill.
D. 4-shed herring-bone (broken chevron) twill. E. 4-shed broken diamond twill.

Fig.2. Tablet weaves: 4-hole a.I. Grave 74. chevrons. b. Tablet weave: 2-hole, meeting displaced. Grave 78.
II. Grave 5. all S.

c, d. Tubular selvedge on tabby, Grave 80.
Diagram, passage of wefts spread out.

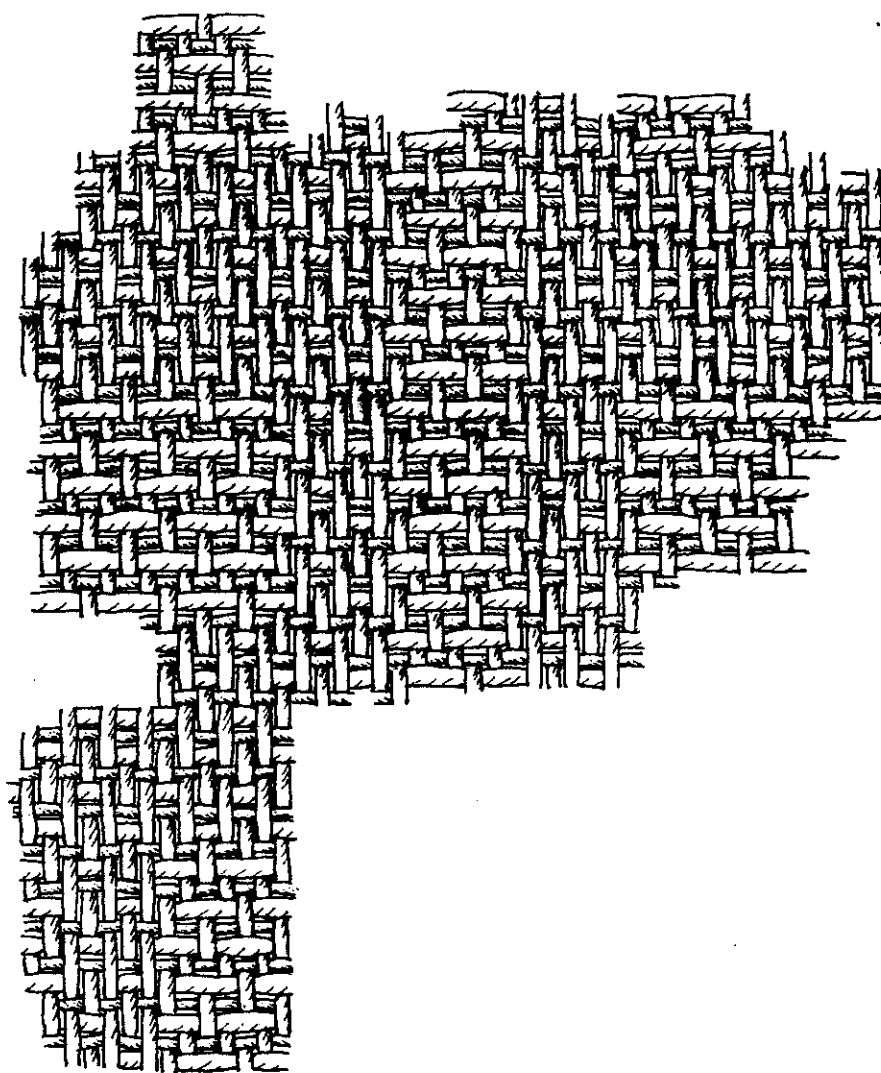


Fig.3. Grave 85. Tabby weave with reversible weft-float pattern.