

COINS AND WEIGHTS IN THE VIKING AGE

by Allan Beneke & Peter Gritton.

X2

Part one

Imagine a busy market, perhaps Birka, Hedeby, Dublin, or closer to home at Yorvik. Imagine the hustle and bustle, the babble of voices haggling over prices, the vendors hawking their wares, and the clink of money changing hands. The coins exchanged were of highly varied origin; English, Islamic, even seven hundred year old Roman coins have been found in Viking treasure hoards. Couple with this the fact that Scandinavia developed its own mints relatively late, in the ninth century in fact, then the simple phrase 'money changing hands' takes on a much more complex meaning.

While barter was certainly an important mode of transaction, the Viking world was aware of the idea that coins have a face-value, a value that is different to their intrinsic worth as precious metal. It would seem though, that it was not normal practice for a Norse trader to recognise face-values. This can be deduced from the archaeological evidence, such as the sets of weights commonly found in male graves at Birka, the great Swedish trading centre of the ninth century. The weights were so small that they must have been used for evaluating tiny quantities of material, which must therefore have been valuable. The presence in the afore mentioned hoards of 'hack' silver, that is coin and other forms of silver cut into smaller weights, would indicate that coinage was regarded as having no more value than its equivalent by weight in silver fashioned in any other way. Silver, it should be said, was the basis of commerce, as gold was too scarce for widespread use, and was generally fashioned into jewellery and the like.

The scales used for weighing silver were of two general types, one with equal arms each supporting a pan, the other having only one pan, and a series of notches to hold counter weights on the other arm. The later variety is known only from Ireland, but the equal armed scales were used throughout the Viking world. They were small, only 12 to 14 centimeters long and some were made to fold neatly into their pans so that they fitted inside a case little bigger than a modern day pocket watch. Careful storage was required for these fragile instruments, as they were carried around the known world by traders.

The weights used to quantify coins, hack silver and the small make-weights clipped off spiral arm rings, came in a variety of styles and materials. Lead weights were found in York, but other metals, clay and pebbles were also used. Metal weights could have an iron core covered in sheet bronze, like those from Birka, to prevent the sort of cheating all merchants try from time to time. Coins were used as weights too, one from a grave in Dover was Roman, with an extra piece riveted to it in order to make up the required weight.

Just as coins were carried in a purse, so were these weights, some-times they were held in different pockets of the same wallet; a particularly fine example found at Birka contained both.

Later in the Viking age a standard system of weights evolved. The smallest element defined was the penningar. In modern terms this would weigh 0.8 grammes, but in the early Middle Ages it was intended to coincide with the silver coin of the same name. In practice though, a distinction was made between counted and weighed penningar due the impurity of the former.

Ten of these weights made up the 8 gramme ertog. According to Brogger the weight derives from the Roman 'tremissis' (one third of a solidus) which also provided the Anglo-Saxon pennyweight.

The eyrir (plural aurar) was composed of three ertogar, and derives from the latin 'aureus' (gold) as in the solidus of Constantine. this was perhaps the contemporary ratio of silver to gold, three to one, three ertogar being one eyrir.

Eight aurar, each of weight 25.5 grammes (although this particular weight seemed to vary later in the Viking age) made up a mork. This was equivalent to 204 grammes, and its first recorded use was in the late ninth century in a treaty between Alfred and Guthrum in England. The mork seems to have been of Scandinavian origin, not a borrowing from Rome.

To summarise this system of weights.

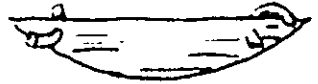
1 mork= 8 aurar= 24 ertogar= 240 penningar.

1 mork= 204 grammes.

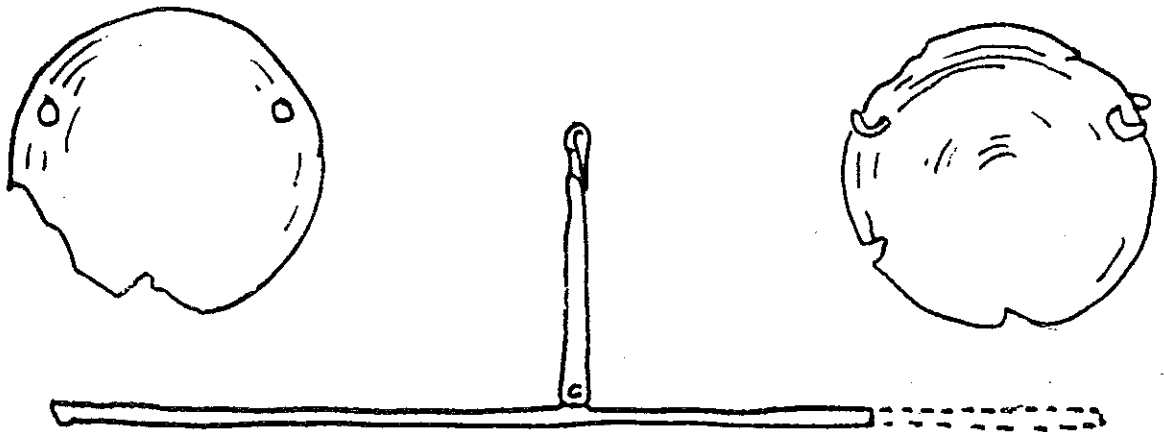
1 eyrir= 25.5 (later 24.5) grammes.

1 ertog= 8 grammes.

1 penningar= 0.8 grammes.



Rigid equal armed scales, from Dover.

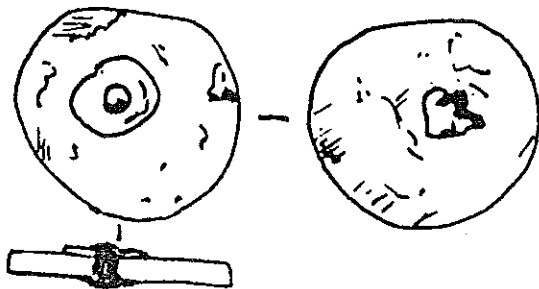


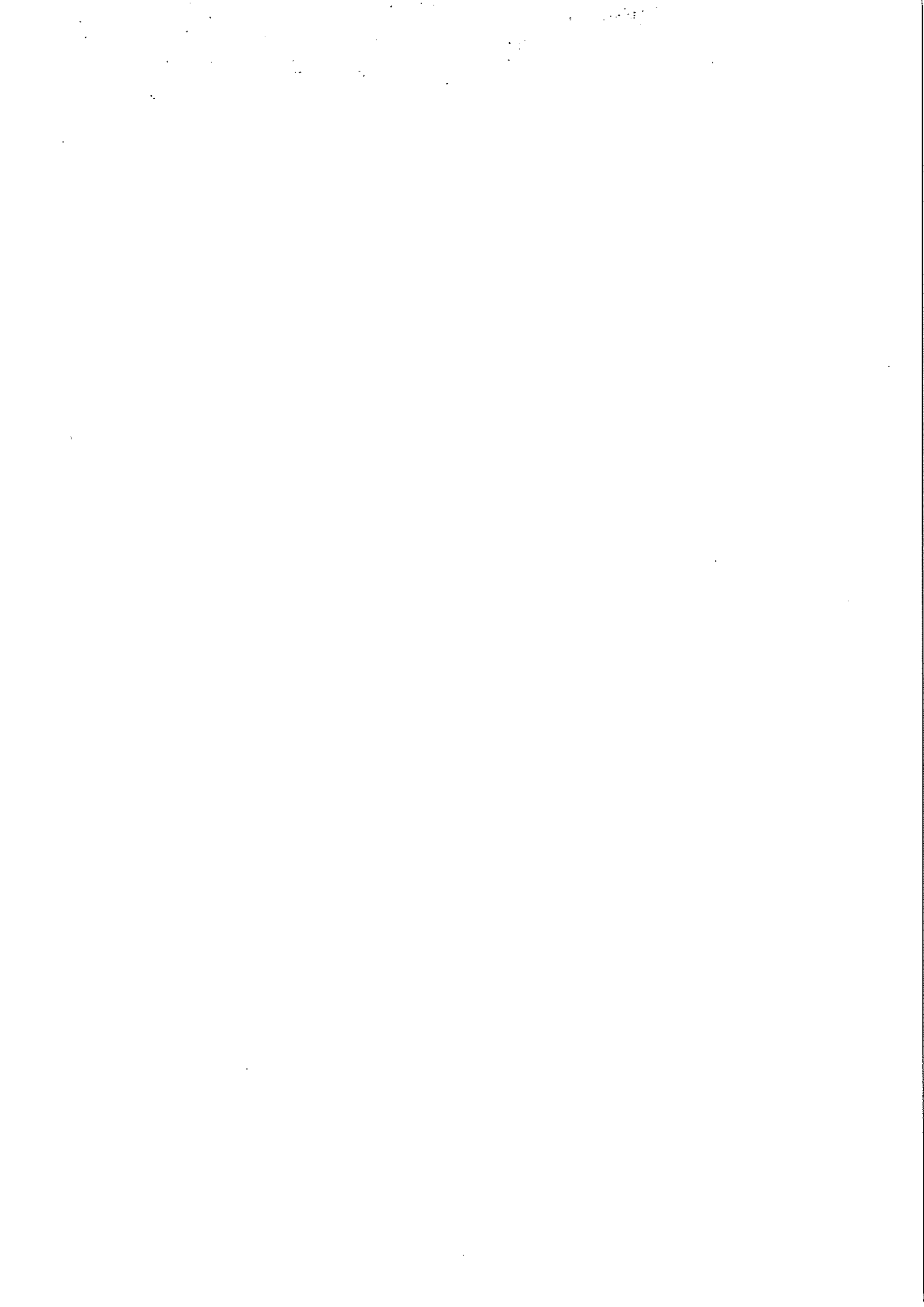
VARIOUS VIKING AGE WEIGHTS.

Weighted Roman, coin, Dover.

Round pebble.

Roman coin.





Q Kurtle from

Mamen in Jutland
Denmark

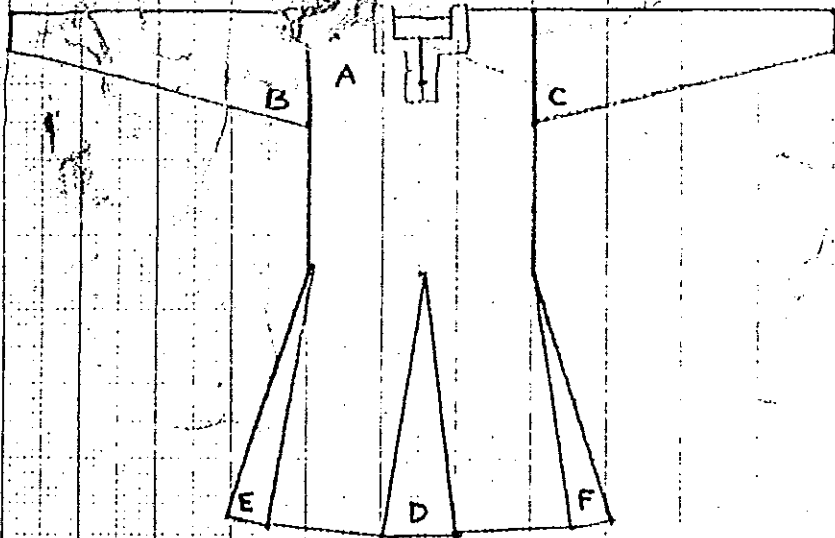
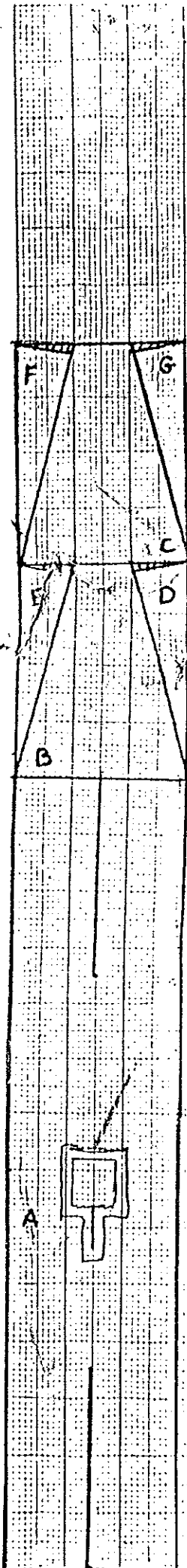
(Interim plan)

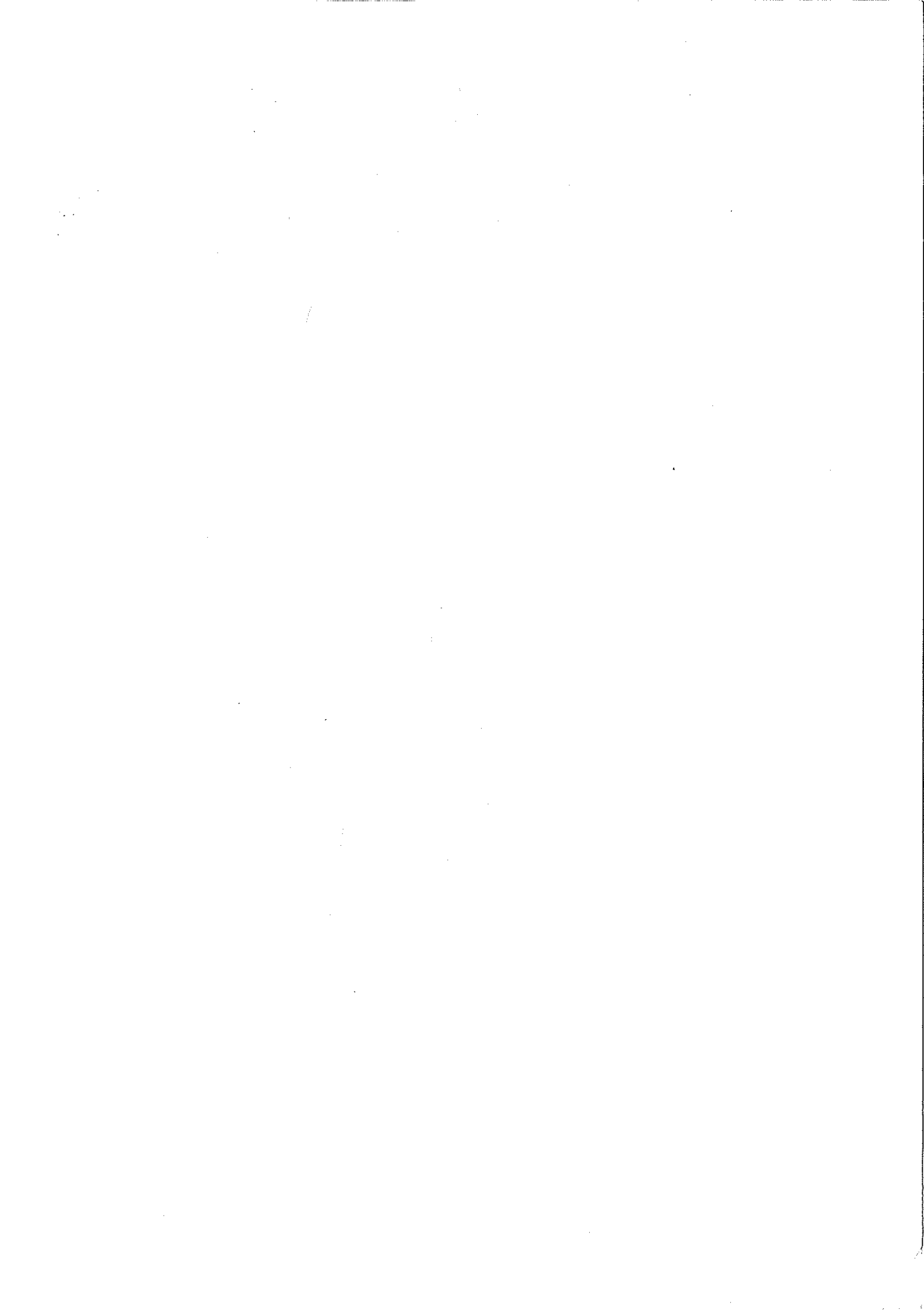
Maman kyrkte lorte Q

Edar = Madder red

Baid = cochineal + white square checks.

Embroidery = Wood bhs.

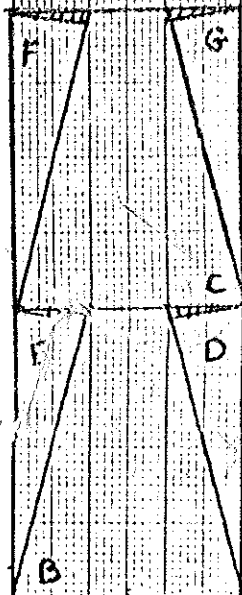




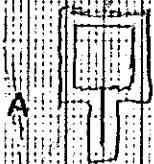
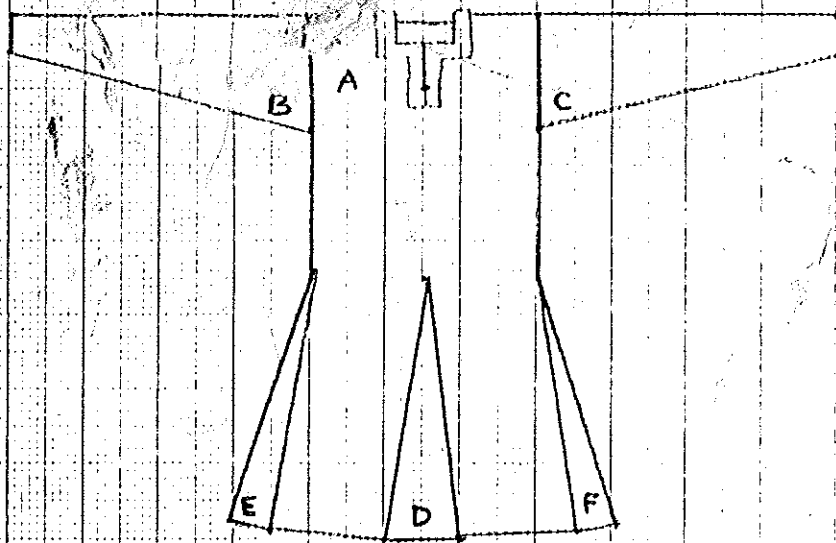
⑩ Kyrte from

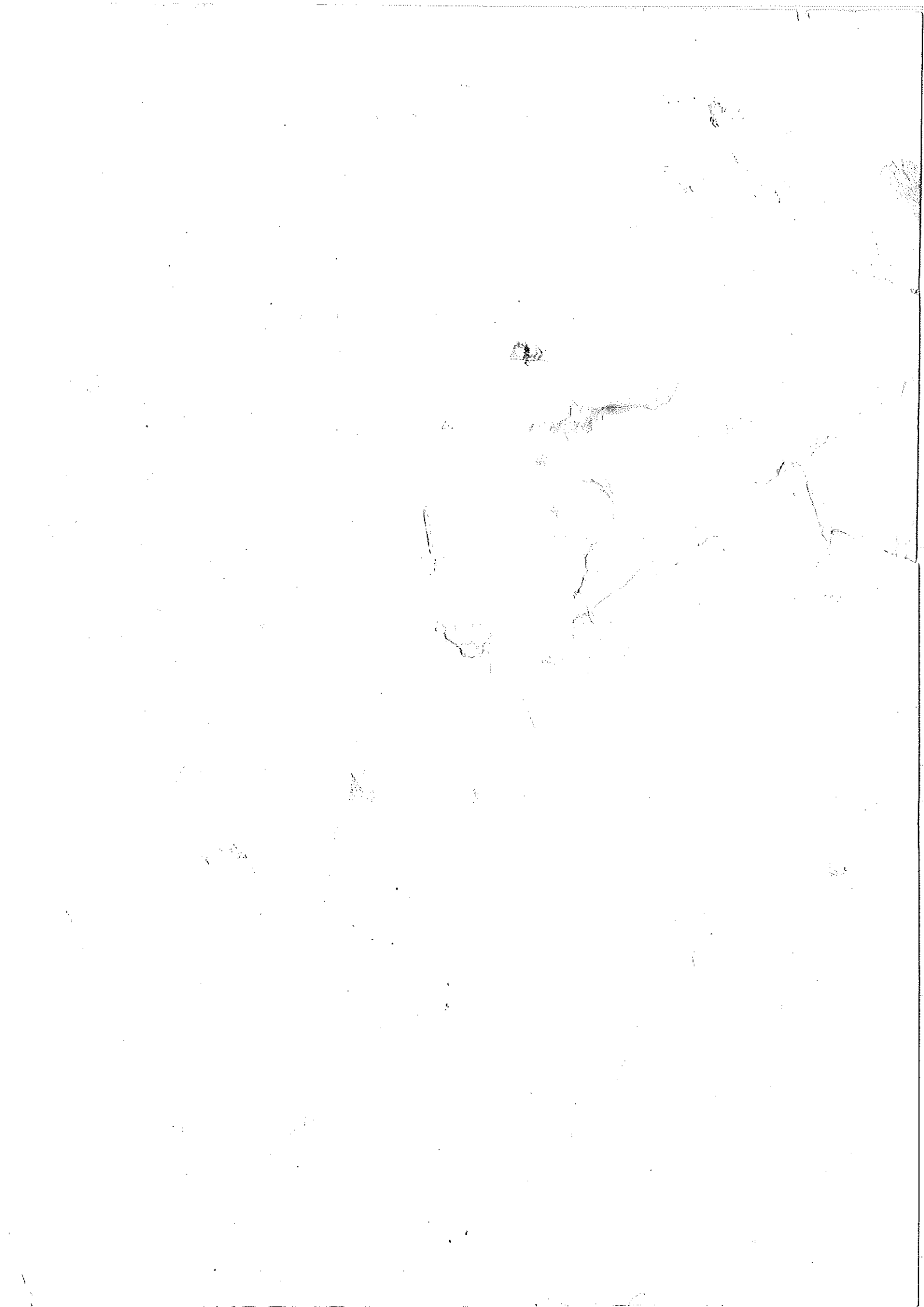
Mammen in Jutland
Denmark

(Interim Plan)



Mammen kyrte lorte ⑩
cdar = Madder reel
Braid = cocherial + white square checks.
Embroidry = Woad blue.





① Kurtle from

Mamen in Jutland
Denmark

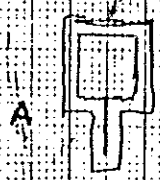
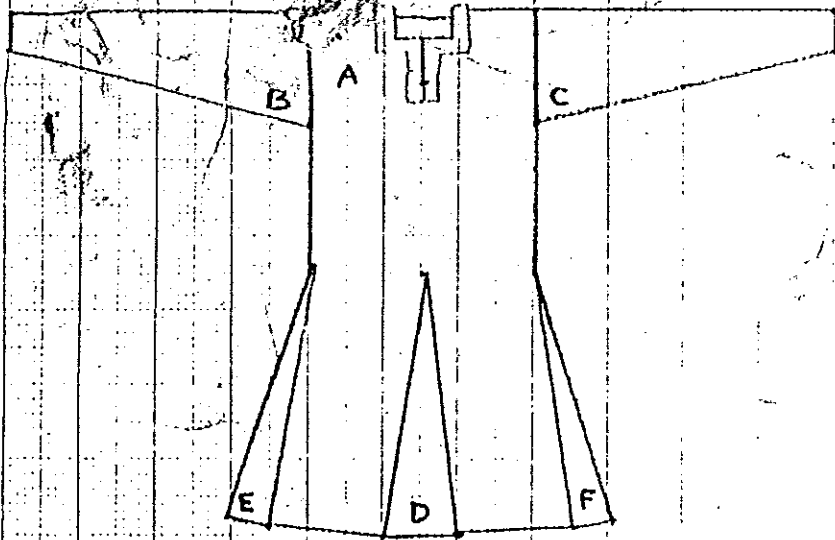
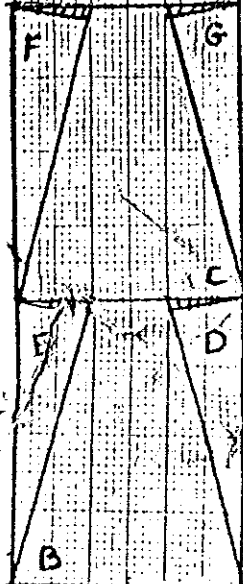
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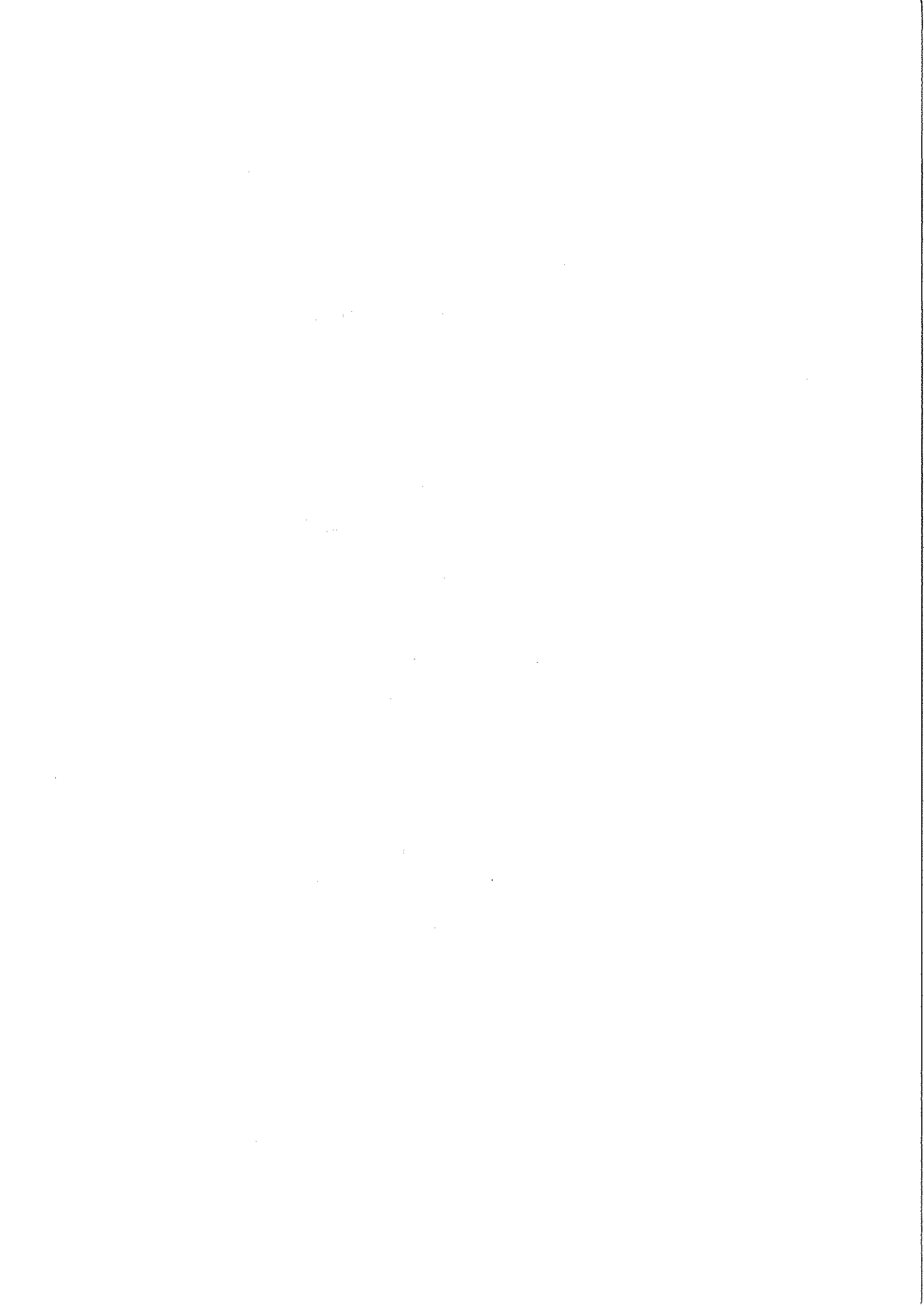
Maman kurtle lorte ①

sdar = Madder red

Baid = cocherial + white square checks.

Embroidery = Wood blo.





⑩ Kyrtille from

Mammen in Jutland
Denmark

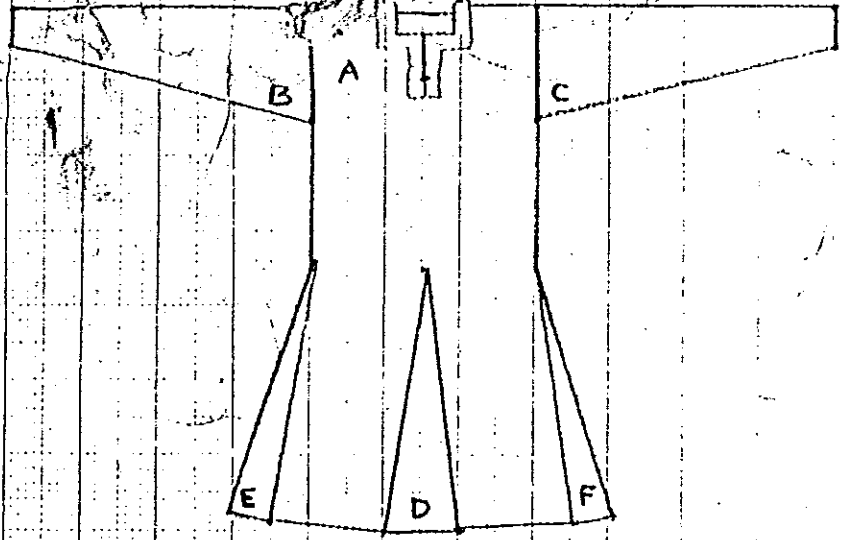
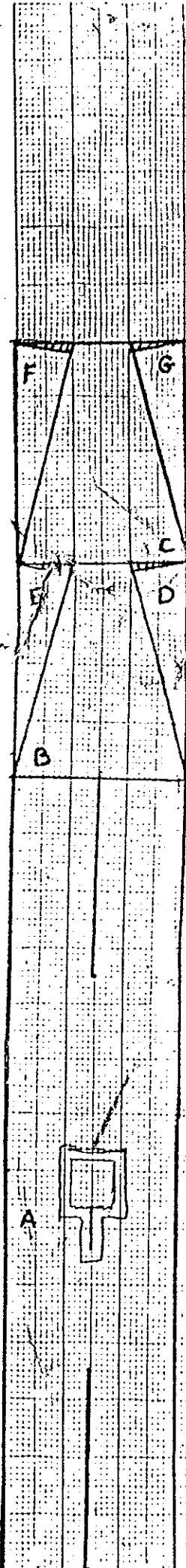
(Interim Plan)

Mammen kyrtille late ⑩

Edar = Madder red

Baid = cochineal + white square checks.

Embroidery = Wood blo.





① Kyrte from

Mamen in Jutland
Denmark

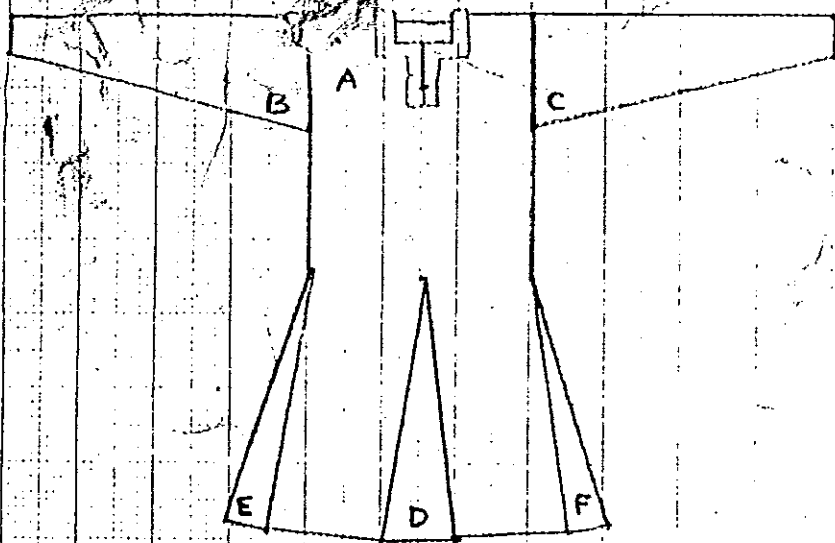
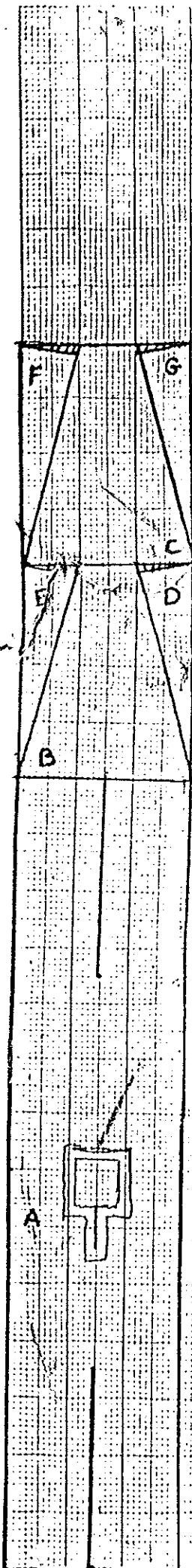
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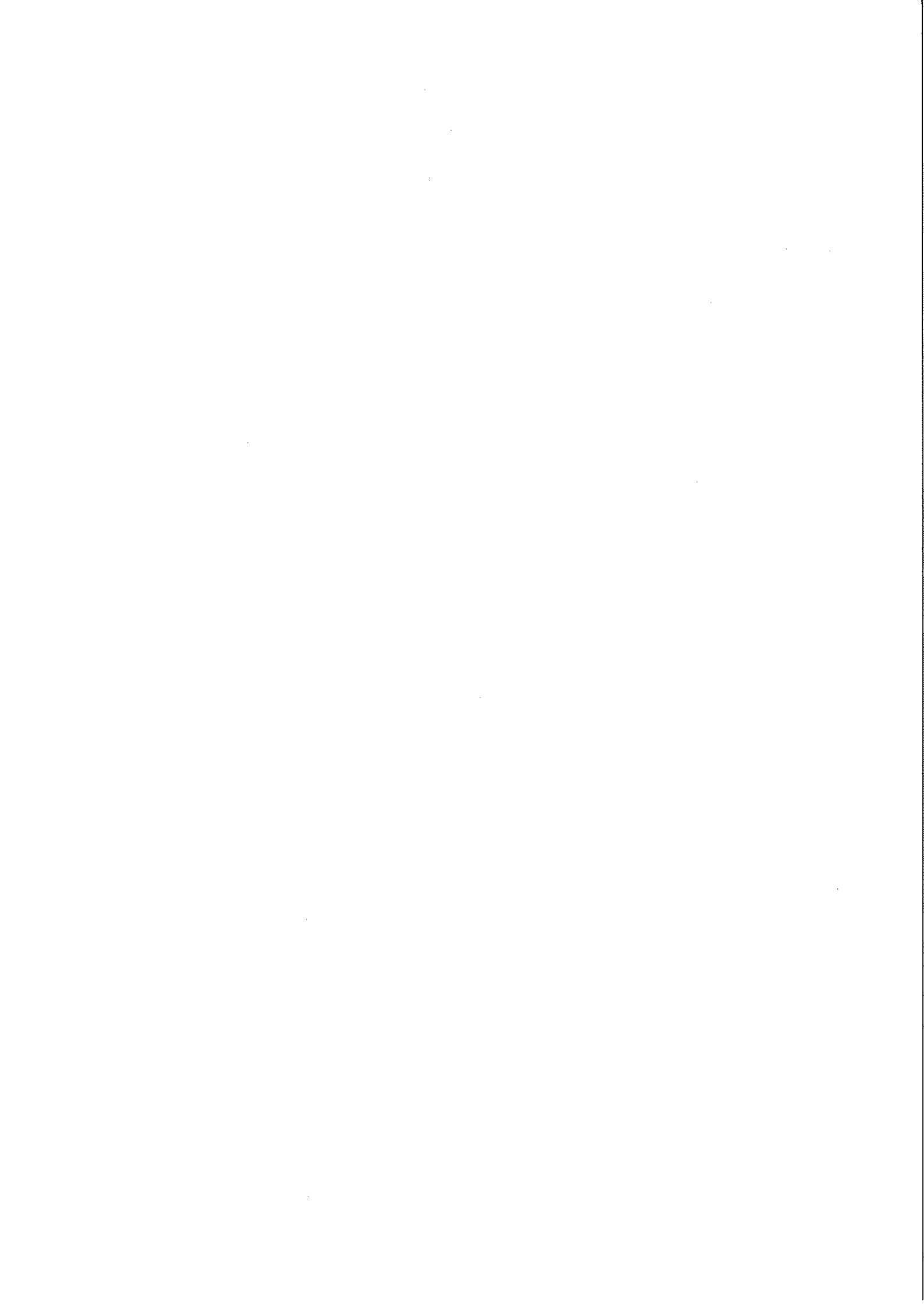
Mamen kyrte lorte @

Edar = Madder root

Baid = cochineal + white square checks.

Embroidery = Woad blue.





⑩ Kyrte from

Mamen in ~~outland~~
Denmark

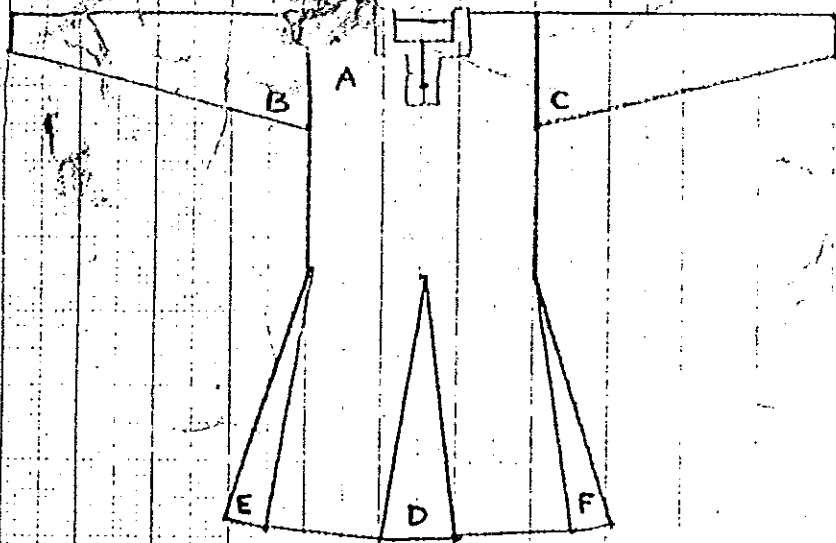
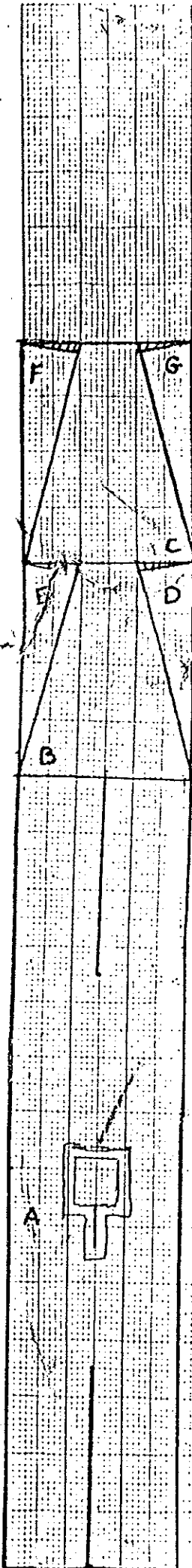
(Interim Plan)

Mamen kyrte lorte ⑩

Sdow = Madder red

Baid = cocheneil + white square checks.

Embroidery = Woas bluo.





hazel rims, and the names may be a Norse survival. For split ash basket. For catching lobsters, are still made. For eel traps made of willow were used till quite recently in some places where they were called eel traps. Excellent Bygones Collection with other specimens of

work, which lapsed about the time of bug traps to put under the eaves in the morning and insects were taken until quite recently.

of types of wicker cradle, etc. There are several very good examples in the Museum.

work still exist at home and especially the names used. In some places still use the word Maundy for the way places—a 'Living Room' for whiskey, the Shropshire style as made in the Lakes; these are made of hazel woven in the narrow-in-Furness, possibly

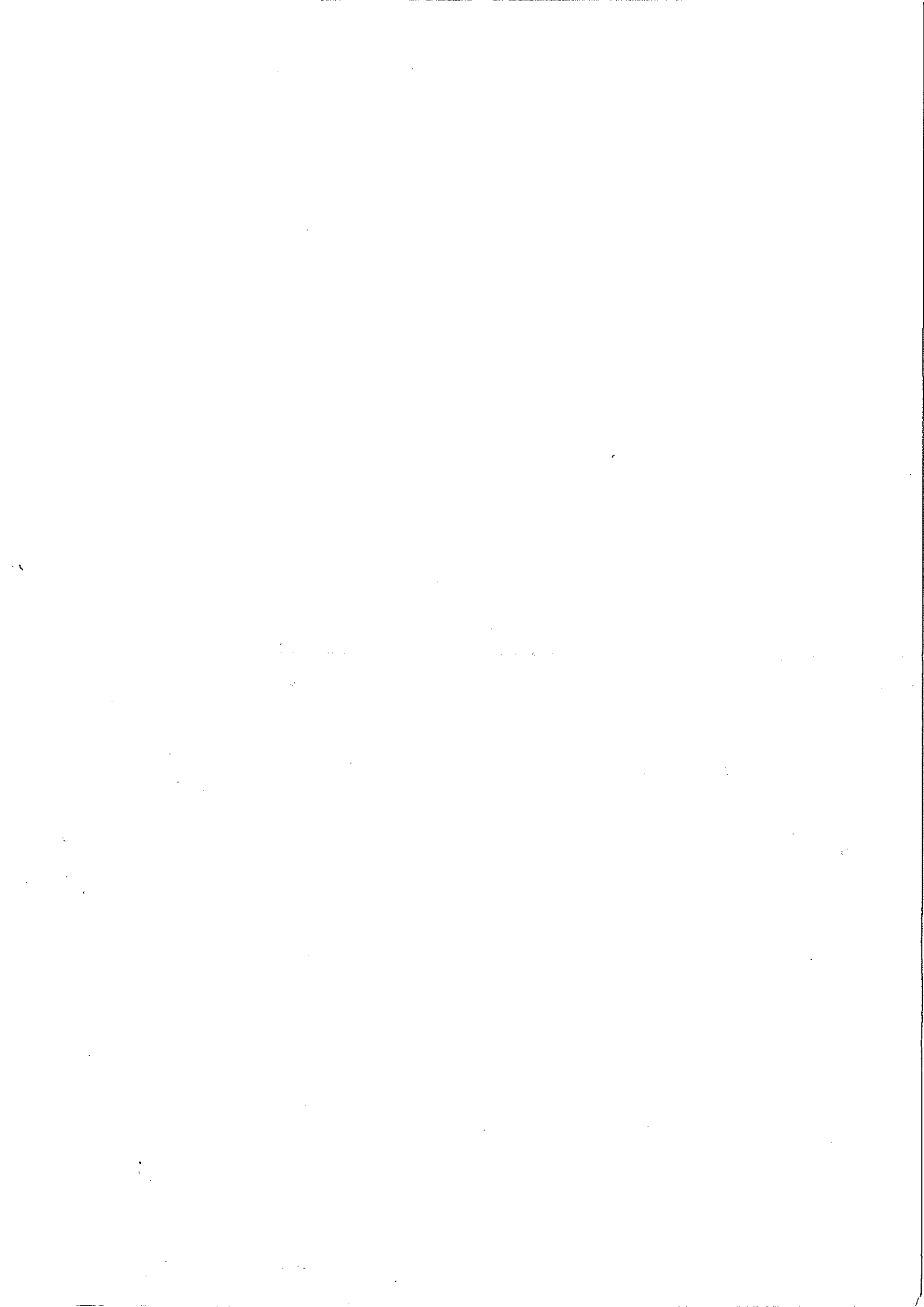
in northern Europe has its back basket, Italian *Gerlo*. These are made of willow, hazel, chestnut, etc. For the Fatherland Museum of Berlin specimens of these will gladly be

of the Guild or Company among the Basket-makers of London. It was established in 1785. Most of its old records were destroyed in Elizabeth's time the trade was suppressed, though there were in the 18th century enactments to reduce their



Fig. 8. BACK BASKETS

- | | | |
|--------------------------|------------------------|-------------------------------|
| 1. Lichtenfels, Germany. | 2. Crana, Italy. | 3. Dieppe, France. |
| 4. Berne, Switzerland. | 5. Piora, Switzerland. | 6. Valais, Switzerland. |
| 7. Goslar, Germany. | 8. Sarawak. | 9. Binn, Valais, Switzerland. |



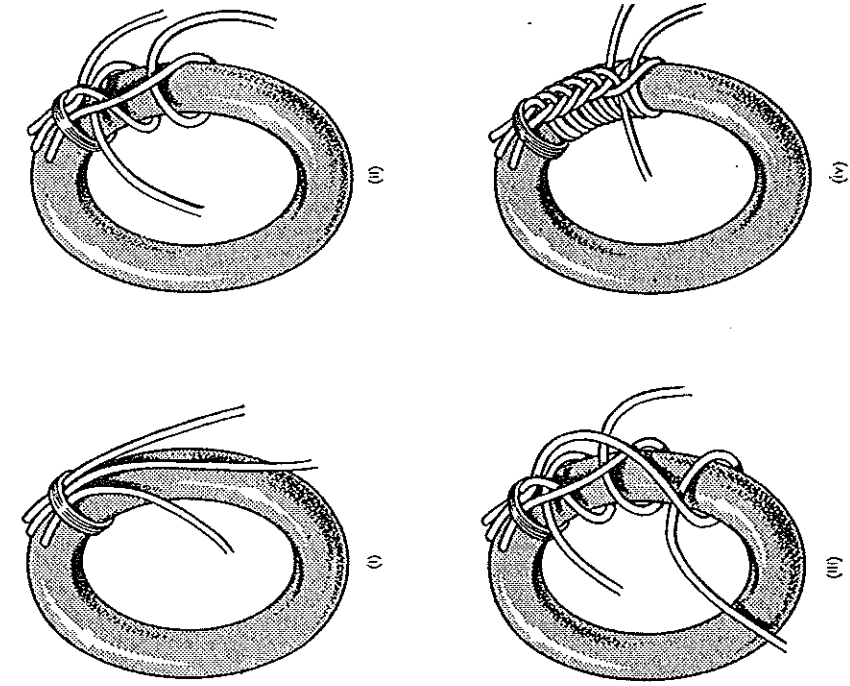


FIG. 4-29. Cockscombing.

in succession, alternately to one side and to the other and always using the farthest back part, until the fitting is covered (fig. 4-29(iv)). Finish off each part with a crown and wall.

Cordage provision net

The nets most commonly used in the Royal Navy are the cordage and the wire rope provision nets for handling provisions and stores in bulk. The latter is described on page 119.

The cordage net (fig. 4-30) is made on a jackstay of 8 fathoms of 2½-inch sisal, and the mesh consists of about 120 fathoms of 1¼-inch sisal. The mesh can be passed with the complete coil, but this is a cumbersome method, especially with sisal, because it necessitates taking out the turns which are put in the rope as the mesh is formed. For this reason it is simpler to pass the mesh with 30-fathom lengths, stretched and then coiled with a clove hitch around the middle, each length being long-spliced to the next.

seize a round thimble into each corner with a round seizing of ½-inch sisal, using six turns over seven. Close in the square to sides of 8 feet in length and put temporary seizings at the four corners, making four becketts each 1¼ feet in length. Now lash the becketts of one side of the jackstay to a spar at head level. Put a 30-fathom length of mesh on a stretch, coil it, and secure its first end to the top left-hand corner of the jackstay with an eye splice and stop it in place. Then take twenty turns of the mesh round the top side of the jackstay, working to the right, and space them evenly throughout its length (fig. 4-30(ii)). Secure each turn with a light stop, with the bight between each turn one hand's breadth in depth. The last turn is half-hitched and then half-hitched to the side of the jackstay, and the mesh is then worked back to the left in the following manner: The bight of the coil is passed up through the first bight of mesh and the coil is passed down through the bight so formed (fig. 4-30(iii)). The bight of the coil is then passed down through the same bight of mesh, and the coil is passed down through the bight thus formed (fig. 4-30(iv)). The parts are hauled taut and it will be found that a mesh has been formed with a reef knot at the corner (fig. 4-30(v)). The mesh thus formed should be 5 inches from corner to corner, and, after some practice, this can be judged by eye.

The mesh is continued to the left in the same way, and the first row is formed and finished, with a half-hitch round the first end and another half-hitch around the left side of the jackstay, before continuing with the second row of mesh to the right. The mesh is then continued, by working right and left between the sides of the jackstay, until twenty successive rows of mesh have been formed; each 30-fathom length of mesh is joined to the next with a long splice. The

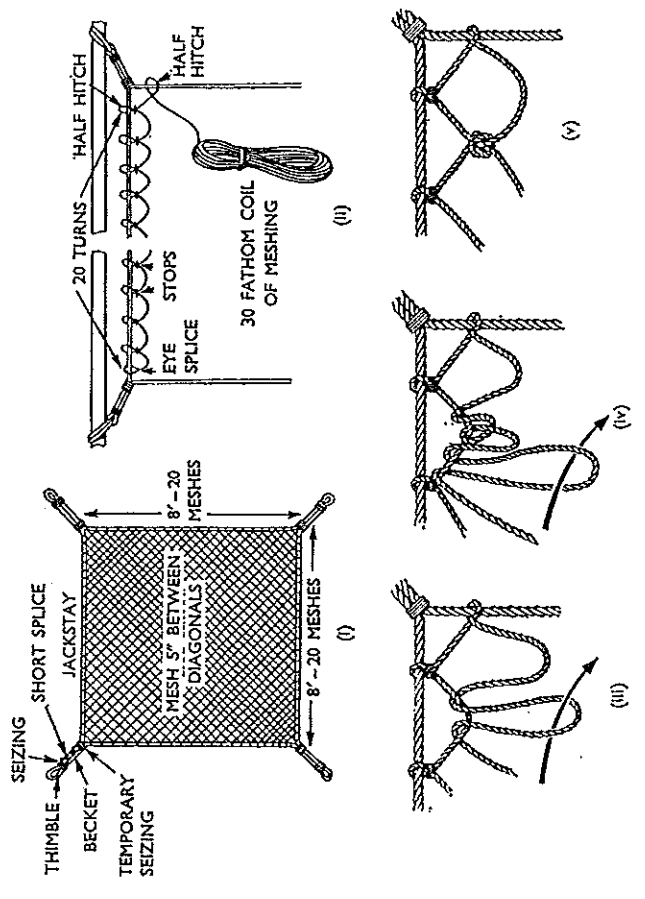
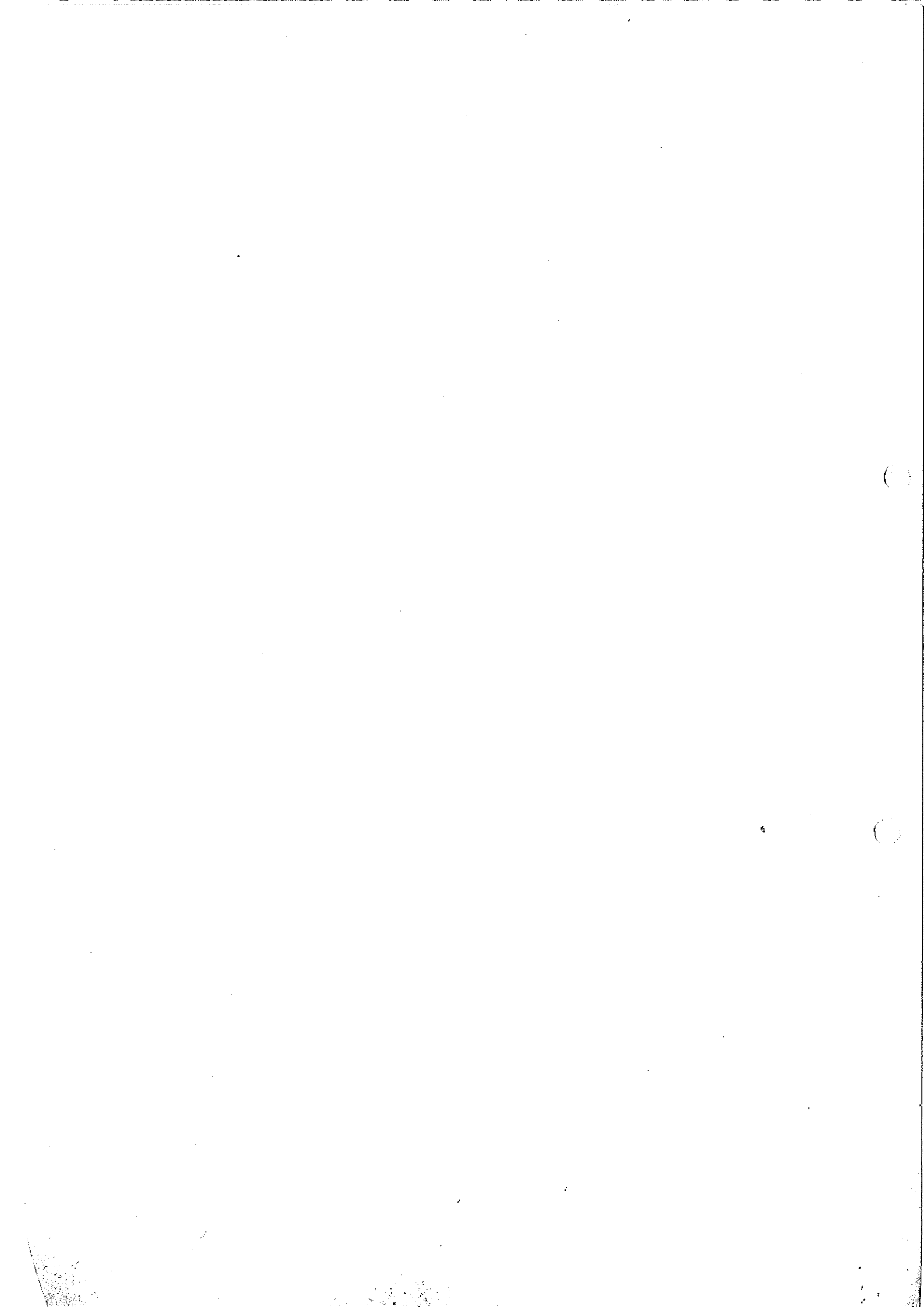


FIG. 4-30. Making a cordage provision net.



GUIDELINES FOR NON-COMS. X5

by Carrie Walker.

Most people are in this Society to enjoy themselves. The members should not feel bullied and intimidated and the officers don't want to spend all their time ordering others around.

By the very nature of the differences between combatants and non-coms the two groups have to work differently.

The combatants have to work to orders because they are using potentially dangerous weapons. The non-coms can work on ad-libbing and initiative and take any opportunities that arise to add to the show. There should not be any need to tell non-coms what to do unless they are part of a scripted routine in the show. It looks very bad from the audiences point of view if an officer has to shout instructions or run round whispering to the non-coms during a show.

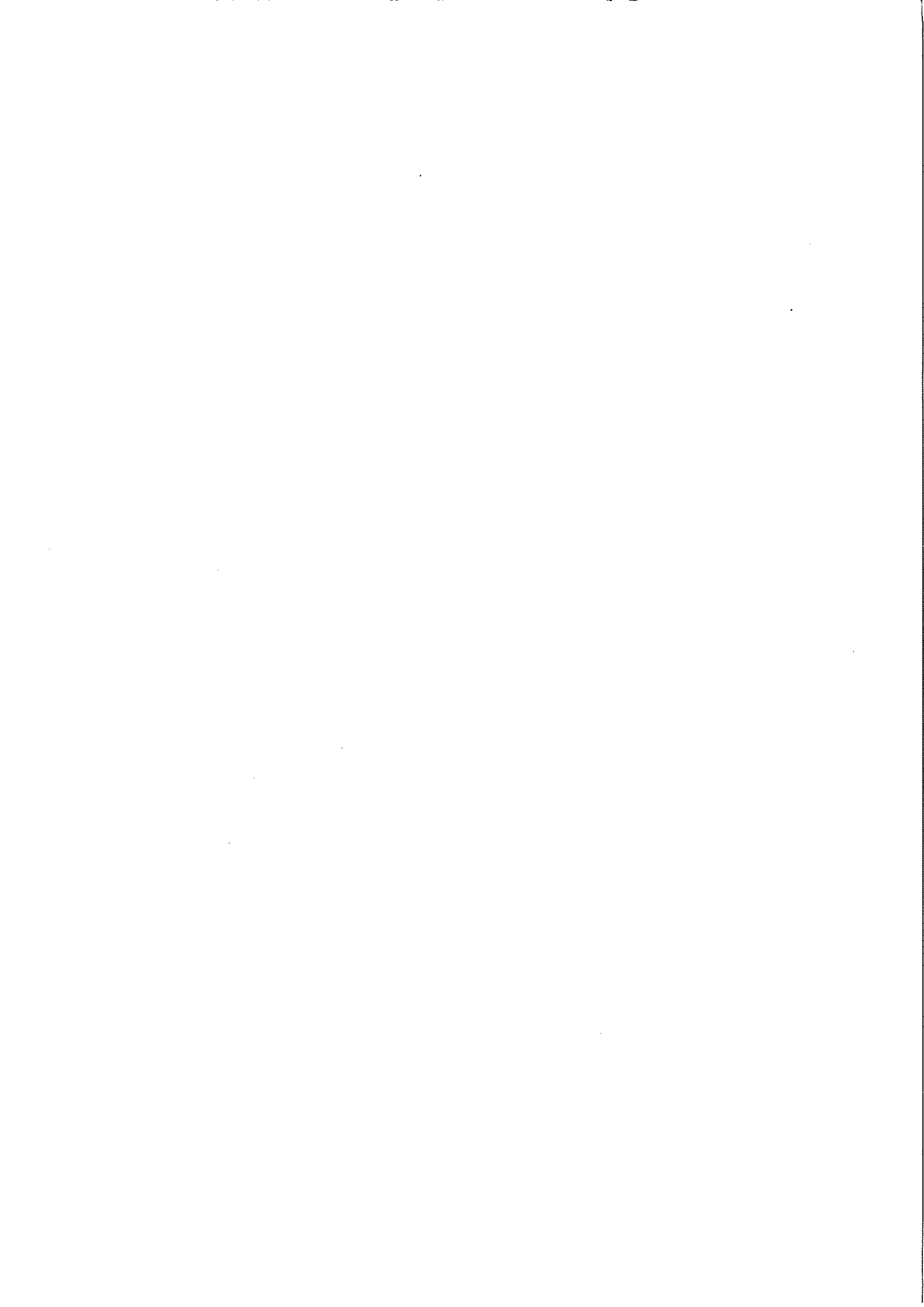
1. Get your gear right. Pay attention to details - hair, make-up, jewellery, shoes, underwear, belts etc.
2. Bring props which you can use, and play to the audience. Bring veg for the cooking pot - not twigs & grass. Make games for the children.
3. Rather than standing and saying that we should be doing something - get on and do something. Don't wait to be told. Don't wait for someone else to take the lead. Don't worry about the script too much so long as your not detracting from an important routine (like the battles of champions).
4. Play to the audience. Work close to the audience if you can. Let them see what you're doing. Don't bunch up, work in semi-circles, speak up.
5. Scream well if appropriate.
Struggle well.
Die well.

Try to act with self confidence rather than over-acting.

6. Normally there is every opportunity to take an active part in a show so please stop complaining that you weren't Given anything to do. If you want to take a major part in a script say so, preferably in advance.

The non-com's Freemanship test was introduced because it is time that non-com's are recognised as a useful part of the Society. This is not meant to be a difficult test but is intended to bring out the best in people and give non coms a target to work to improve their showmanship and confidence.

We are not intending to pull people to pieces and any criticism is meant to be constructive and not bitching.



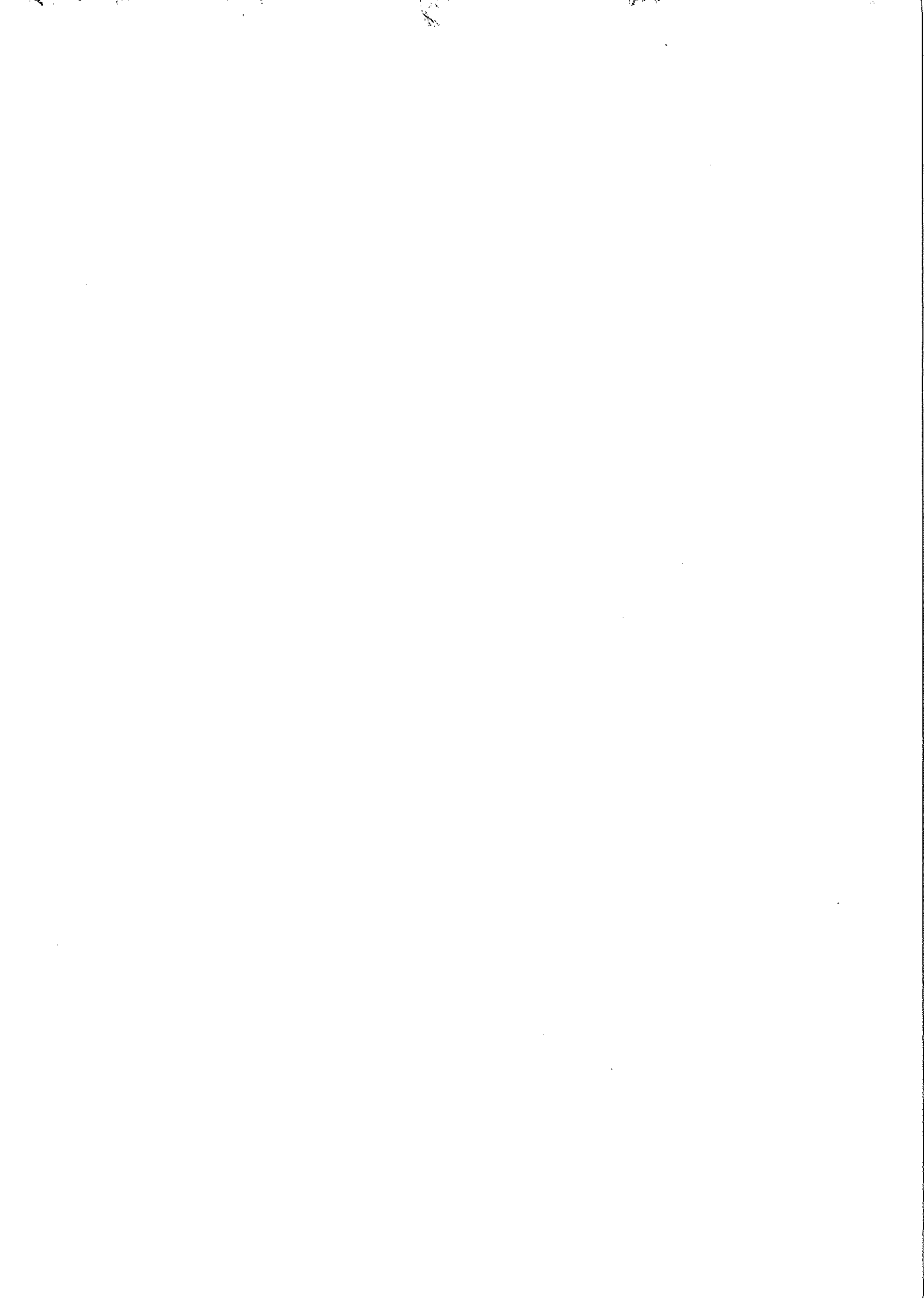
The non-coms tests so far have been interesting, entertaining, educational and fun, for all involved. New Bondspeople and anyone else are welcome to watch the non-com's Freemanship tests in order to find out what they will go through if they choose to take the test.

Nobody should be nervous about taking the test - so far we have had 100% pass rate. Because the test takes time we only encourage people to take the test if we think they are ready unless we think that they would benefit from the experience even if they fail. Otherwise we try to point out details which we think they should work on. We are interested to hear any feed back from people that have taken the test in order to improve it.

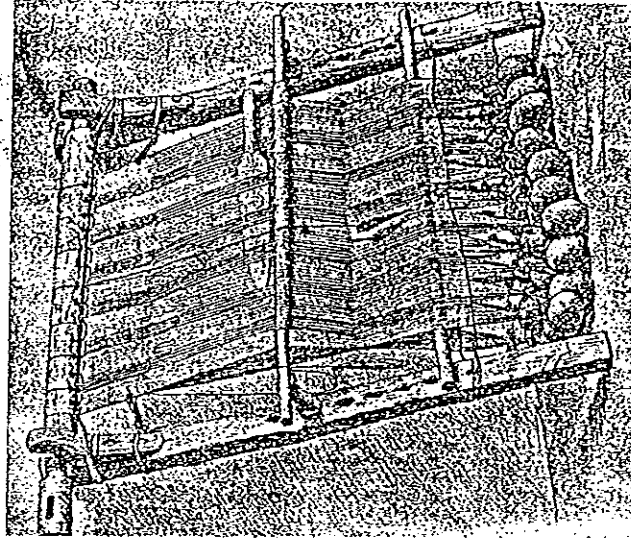
THE NON-COMS FREEMANSHIP TEST.

Open to all members.

1. Must be able to practice, demonstrate and talk knowledgeably about at least 2 Village skills. This includes anything that improves the quality of a pre-show Village, ie. Crafts, Trading, Cookery, Archery, Games, Storytelling, Runes, etc, etc, etc.
2. Must have authentic costumes adaptable to at least 2 different origins preferably including Viking and Saxon because most of our scripts involve a Viking or Saxon Village. Pay attention to details - hair, make up, shoes, underwear, jewelery, belts etc.
3. Showmanship, Banter, initiative, improvisation. Tested by being given a situation which has to be dealt with to the best effect. Playing to the audience is very important. This also includes after battle activities such as pillaging bodies and reacting to the victors.
4. Must be able to stage a good Village routine/scene for use in shows. Tested by the subject using his/her own props and being provided with other people to use. This can either be a short sketch or an ongoing situation. Again acting to the audience is important and it should be obvious from a distance what is happening.
5. General attitude - willingness to work for the good of the show to the best of their ability.
6. Must have props to bring onto the showground, these can be large or small and should be brought to the test, if it is practical to do so.
7. Six months membership is now essential before taking the test.
8. Training sessions are advisable for some people though it is not necessary to have attended them in order to pass this test.



Weaving on the Warp Weighted Loom



This article is based on "the warp weighted loom" by Maria Hoffman, Published in 1962, Number 14 in the Studia Norvegica series. Parts have been added from "The craft of the weaver" by Ann Sutton, Peter Collingwood and Geraldine St Aubyn Hubbard, published by the B.B.C. in 1982.
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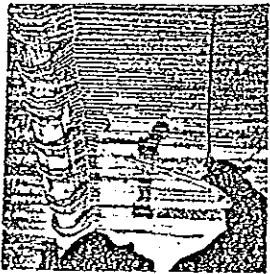
Jennifer Bray
Vanaheim N.F.P.S

shed to anchor it. The ud'do is then wound twice around the outer four warp threads, these give a strong salvage. (A salvage is a woven edge of cloth as opposed to a cut edge). The ud'do is then thrown into the shed close to the heddle rod then taken from the centre to the other side where it is left to hang. Starting from this edge the weft is beaten up with the fingers, and the warp threads are adjusted either with the fingers or a pin beater. When the middle of the cloth is reached the heddle rod at the end with the ud'do is moved on its bracket to change the shed and weft beating continues. When the other upright is reached the shed is changed at that end. Now the weft is beaten up hard either using the hands or a sword beater working back towards the ud'do. If the hands are used a group of front warp threads are taken in one hand and back threads in the other, these are pulled away from each other to force the slack weft into position. If a sword beater is used it is inserted into the warp at intervals and both hands are used to beat the loose weft upwards. When the ud'do is reached it is wound twice around the four outer threads and thrown into the new shed, weaving repeats as before except that after the first row six or seven threads may be loosely before they are beaten together.

When a sufficient length has been woven the cloth is wound onto the beam. The spoke and stopper prevent it from unwinding. The first time the cloth is wound up the weights are not unfixed, instead the chained spacing cords are pushed down as close to the weights as possible. The second time the weights will probably have to be moved. The warp ends are unwound and tied back on as before.

When weaving is finished the spacing cords, heddle cord and the cord used to sew the cloth to the beam may all be taken off and reused.

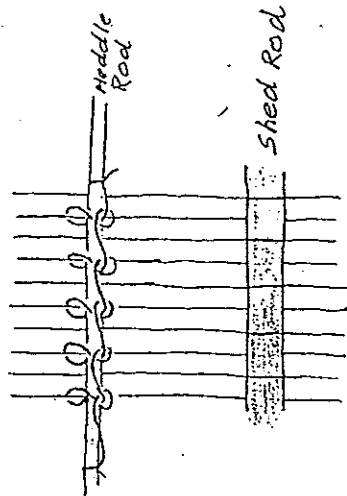
same spacing cords can be reused time and again as new lengths of cloth are woven.



Chaining on the spacing cord

6. Setting up the heddles

The easiest method of knitting the heddles uses a thin rod the same length as the heddle rod. The heddle rod is rested on its supports so that it lies against the front of the uprights of the loom. The second thin rod is tied against the back of the uprights at the same height as the heddle rod. A length of linen or hemp is now tied around the right hand end of the heddle rod. The thread is passed to the back of the loom below the heddle rod and below the thin rod, and to the right of the rightmost back thread, the thread is then passed around the thin rod from bottom to top then brought forwards passing to the left of the rightmost back thread until it is above the heddle rod. You should now have a loop in which the heddle rod the thin rod and one back warp thread lie. Pull out the bottom of the loop with your left hand and pass the linen thread upwards through the loop to the left of the top of the loop. Now pull the loop tight and you should have something looking vaguely like a button hole stitch. Repeat with another loop around the next back thread until all the back threads have been tied into loops, then untie the thin rod and slip it out. When the weaving is finished the heddles can be untied and the same thread used again.



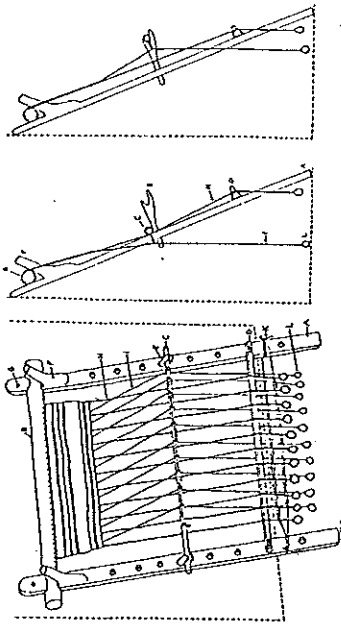
Tying on the heddles

7. Weaving plain lappy

The weaving begins with the natural shed (the heddle rod lying against the uprights). The free end of the ud'oo (well skein) is put a short distance into the

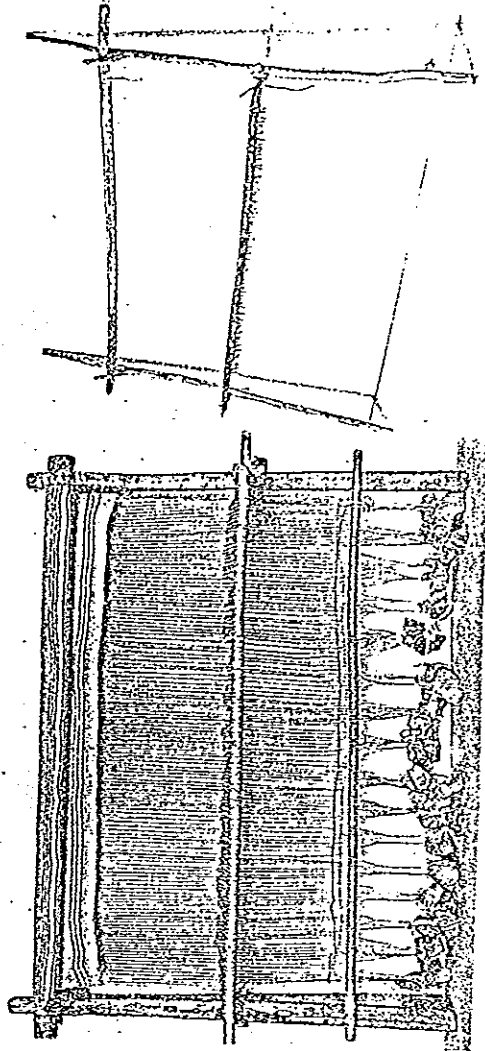
1. The loom

The loom consists of two uprights with brackets to support a cloth beam. The Warp is sewn to the cloth beam and kept taut by weights tied to groups of warp threads at the bottom. Fixed to the uprights is a cross bar the shed rod, this divides the warp into two halves; the front threads and the back threads. When the back threads hang straight down behind the loom the gap between the front and back threads is called the natural shed. A heddle rod connected to the back threads by a number of loops called heddles can be pulled forwards moving the back threads in front of the front threads creating a second shed called the counterished.



Simplified diagram of the warp-weighted loom illustrating the terms. A upright, B beam, C heddle rod, D shed rod, E supports for the heddle rod, F crochets for the beam, G hole for nailing the upright to the wall, H front threads, I back threads, K chained spacing cord, L loom weights.

Information is based on surviving looms in Museums and private houses, these vary from simple branches to carved wood, as can be seen from the pictures below. The clothbeam's supports may be natural crochets in the wood or carved brackets fixed to the uprights with dowels, the loom with the cloth on has one of each type.



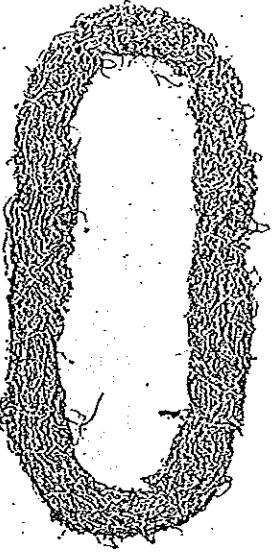
Two Lappish looms

A typical size for the uprights would be 160cm high 10cm wide and 3cm thick set 160cm apart, with a clothbeam 200cm long and about 8cm in diameter. The crocheted supports for the heddle rods project about 30cm. The shed rod is about 10cm wide. All these measurements may vary from loom to loom.

The cloth beam has a hole for a spoke at one end, in the side of the upright beside it there is a hole for a slopper this can be used to hold the beam in place when the cloth is wound up. The cloth beam is shaved into a sharp edge through which holes are pierced every 2 to 3 cm to sew on the warp.

2. making a skein

The simplest method of storing yarn is in a ball these were used by the Vikings and called *hroda* in Old Norse. However a ball of wool cannot be washed or dyed so skeins were also used. The yarn is wound around two fixed points and after a certain number of loops have been wound the two ends are tied together, then the resulting double end is tied loosely round the skein. The ties must be loose if the skein is to be dyed as wool expands when wet. Then three or four more ties are made at equal intervals around the skein: if possible these should be linen or a different type of wool, this will make them easier to find (even if the skein is dyed as they will take up the dye at a different rate from the main skein). When tying wool divide the skein into two by making a loop around part of the skein tying an overhand knot (half a reel knot) then making a separate loop around the rest of the skein and tying a reel knot. The divisions should be in different places for each tie so that the skein does not divide completely into two, this stops the skein from tangling as much as it would with plain ties. A skein of this type was found at Tegle and has been dated to third to fifth century.



Skein from the Tegle find in Stavanger Museum

A skein can be wound around the hand and elbow quite easily, this gives a variable length depending on the size of the workers forearm. However if a reel is used to wind the skein the loops of yarn are a fixed size and the length of thread can be calculated from the number of loops. The fineness of the thread can then be calculated by weighing the skein, which gives control over the fineness of the fabric being woven, and means materials can be produced to an even standard. Two reels from the middle of the ninth century were found with the Oseberg ship. They are made of several pieces joined together, the Old Norse word for these reels is not known though in England they were sometimes called *niddy-noddys*.

placed behind the shed rod and the second half are brought back in front of the beam and in front of the shed rod weights are then attached to these.

4. Tying on the weights

The weights may be made of fired clay or stone. Clay weights are usually made of lightly fired clay or terracotta, they may be pyramidal, conical, flat rings with a large hole or discs with a smaller hole, but although the Saxons used pottery, there are few traces of pottery or other ceramic crafts from Viking areas. In Scandinavia loom weights were customarily made of stone, soapstone was preferred because it was easily worked. (In Norwegian the word for soapstone is derived from the word for loom weight). Slate and limestone which are also soft were used as well. In districts where no soft stone was available a groove was cut round the stone to attach a cord or the stones were just left as found.



Stone loom weights from Fijlar, Hord

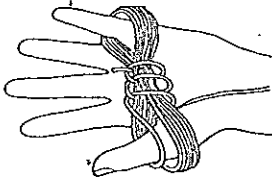
The weights varied from 200gm weights of terracotta from the Mediterranean, to 3000gm or more stone weights from modern Scandinavia. In Fijlar unworked stone weights are used which are not a constant size, these are weighed and numbers cut on the surface giving their weight in marks (250gm).

The weights are never tied directly to the warp threads, instead a cord is tied to the loom weight first then this is tied to the warp ends. If uneven weights are used then different numbers of warp ends may be tied to each weight to keep the overall tension even. If a long piece of cloth is being woven the warp may be longer than the loom, in this case the warp ends may be wound around the loom weight and fastened with a knot. For extremely long warps the warp ends may be gathered up and draped over a beam attached above the cloth beam (this was done in Iceland where the warp weighted loom was used to weave long bolts of cloth).

5. Chaining on the spacing cord

The warp threads will tend to separate into groups one group for each weight. If they are left to do this the finished cloth will have bunches and gaps in the warp. To avoid this spacing cords are chained across the threads, these are made of linen or hemp. A chain is made in the same fashion as when chaining a length of warp except each loop of thread is passed around two warp threads before the next loop is passed through it. Where groups of threads from two weights meet one warp thread from each group must be caught in the same loop, (if necessary catch three threads in a loop to achieve this). One thread is chained across the back threads and one across the front threads. The spacing cords are chained at a comfortable height then pushed down to about 10cm above the loom weights. The

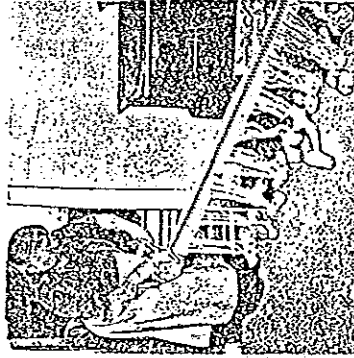
Now turn the tablets to get a fresh shed and pull another loop of yarn off the ball, passing it around the sticks as before, (beat the weaving tight as necessary using your hands). Each turn of the tablets gives two more weft threads which will form two more warp threads of the finished cloth. When twenty pairs of threads have been looped through the tablet weaving divide the loops into two with your hand close to the tablet woven border. Now lift the threads off the pegs cutting the ends of the loops. Wind the two sets of threads into two small skeins winding between the thumb and little finger and fasten off with a knot. These small skeins are left hanging along the outside of the warping frame.



Small finger skein

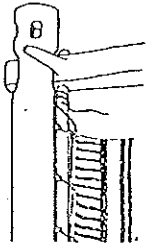
The two ends of the tablet weaving are now moved along, so that the weaving resumes in the same place as before. when the desired width has been woven the weaving is unfastened from the frame and the tablets stripped off.

Now the beam is taken down from the loom, and the ends of the border with the warp ends hanging free are tied to the ends of the cloth beam.



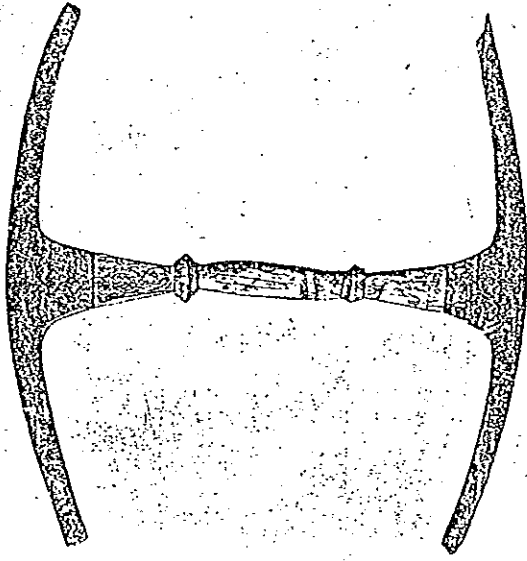
Tying the starting border to the beam

The warp is then sewn to the beam with a stitch which resembles buttonhole stitch.



Sewing the warp to the beam

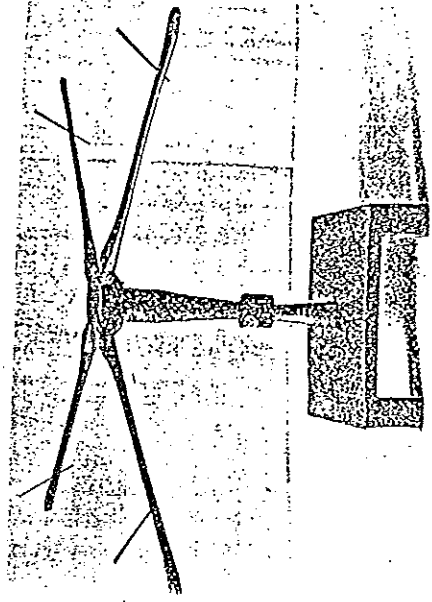
The skeins of warp are unravelled, one of each pair is thrown over the beam and one dropped straight down. When weights have been tied to the first half these are



Reel from the Oseberg ship

The yarn is wound diagonally across the front from top left to bottom right, then behind the bottom right arm in front of the top right arm and diagonally across the back to the bottom left, it passes to the front across the bottom of the bottom left arm then goes up to the back of the top left arm, from here it repeats beginning with the front diagonal again.

Yarn cannot be used directly from a skein as it tends to tangle as soon as it is unrolled, so it must be rewound. To do this a device called a *swift* is used. A swift has cross bars that form four arms placed on top of a post. The arms can rotate horizontally. Each arm has several holes for pegs so different sizes of skein can be looped over the pegs and unwound.



Reconstruction of a swift from the Oseberg find

From the swill the Yarn can be wound into balls, onto bobbins, or into a second type of skein useful for weaving. This is a hard headed skein called an ud'do in Lappish. The yarn is first wound around the hand a couple of times then wound into loops about 50cm long. After each loop, the yarn is wound around the top of the ud'do forming a firm head at the top about 10cm long. One skein of Yarn makes two ud'dos. No Viking shuttles have been found, this is probably because they used an ud'do instead, its firm head makes it quite easy to pass through the shed.



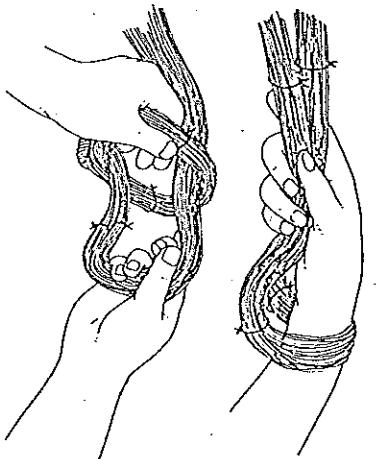
An ud'do the well skein

3: Setting up a warp with tablet woven border

This method is based on techniques used in Mandaldalen valley in north Norway where warp weighted looms are still used today, they use rigid heddles to produce a starting border, as this is thought to be a medieval import I have adapted the method for tablet weaving.

First a warping frame is needed. This is two horizontal planks fixed together at right angles with a vertical stick inserted into a hole at the join and two more vertical sticks, one inserted into a hole at the free end of each plank. The planks should be about 100cm and 48 cm long, (the distances can be changed for different sizes of cloth these are for weaving a double bedspread). The sticks at the end of the shorter plank only needs to be about 24cm high. The other two sticks should be 30cm to 70cm high. The longer two sticks have notches at the top to prevent the yarn from slipping off. Apparently the sticks were originally stuck straight into holes in the floor, but the arrangement of planks is more portable, as not everyone wants holes in their floor!

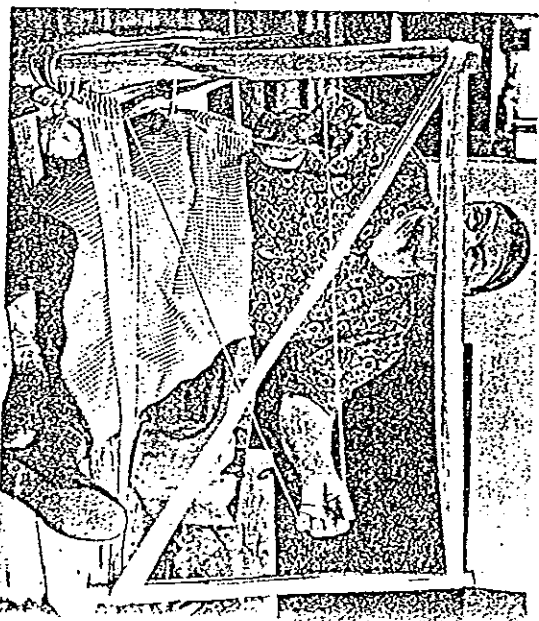
Prepare the warp for a length of tablet weaving about 50cm longer than the width of the cloth to be woven. Tie one end of the tablet weavings warp to the stick at the angle of the two planks, (if you leave a few inches spare in this the they can be used later to make a plait to decorate the corner of the cloth). Pull the warp tight and tie the other end to the short stick at the end of the shorter plank. Any spare warp can be chained to stop it gaiting tangled. This is done by slipping a loop over the wrist and pulling another loop through it, this is continued with a third loop being pulled through the second and so forth until all the spare warp has been used. The chain of warp should come undone quite easily if pulled, so the loops in the chain should not be pulled tight!



Chaining the warp

Wind the warp thread for the cloth into a ball and tie one end to the stick at the angle of the two planks, the warp thread for the cloth is the well of the tablet weaving. Put the ball inside the angle of the two planks so that it doesn't roll away, if you are working outside on the ground you can put it outside the angle of the two planks in a wooden bowl.

Now sit down inside the angle of the two planks with your legs stretched out and calves resting on the longer plank. Set the tablets to give a shed, pick up a loop of yarn from the ball and pass it through the tablet weavings shed. Now draw the loop out across your legs to the stick at the end of the longer plank, pass it around the bottom of this stick then take it back to the stick at the angle of the two planks, pass the loop around the top of this stick (where the notch will prevent it from slipping) then take the loop back to the top of the stick at the end of the long plank and slip it over the top of the stick where the notch is.



Using the warping frame

DYING WITH NATURAL MATERIALS

x 7

by Roz Sheard (Ragnhild) although some of the ingredients were not known or may not have been known in our time period see (*)

Synthetic materials do not absorb natural dyes).

Equipment:
Stainless steel or enamel pots.
Wooden stirring sticks.
Rubber gloves.
Fine strainer.
Measuring cup and scales.
Old spoons.

Mordants: Most dyes require a chemical substance to make the dye take. These are called MORDANTS. Some weaving or craft shops sell these but they can also be obtained from chemists. The same dye stuffs used with different mordants will produce different colours in the material. CAUTION please keep mordants out of the reach of children, wear rubber gloves, and work in a well ventilated room as some of the fumes are noxious and generally poisonous.

<u>Mordant</u>	<u>Chemical</u>	<u>Amount</u>
Alum	Potassium Aluminium Sulphate	3/4 teaspoon per 25 grammes (1oz)
Chrome	Potassium Dichromate	1/16 teaspoon per 25 grammes (1oz)
Iron (Copperas)	Ferrous Sulphate	1/16 teaspoon per 25 grammes (1oz)
Tin	Stannous Chloride	1/16 teaspoon pre 25 grammes (1oz)

Plant materials: Gather flowers when the blooms are young (leaves and bark in the spring) berries when ripe.

To make a dye bath: For each 25 grammes of yarn or cloth use 25 grammes of leaves, berries, or flowers, but 50-75 grammes of bark, or 15 grammes of spices (coffee or tea).

If your water is hard add a cupfull of softener or vinegar. Place crushed dyestuff into a pan and cover with water. Soak flowers or berries over night, stems and leaves for three days, woody parts for a week, walnut shells for a month. Bring these to the boil for thirty minutes or until the right colour is reached. REMEMBER the colour in the pan is deeper than the colour on your yarn. Strain and then measure the liquid and add water 1 litre for each 25 grammes of cloth to be dyed (2 pints per ounce). Dissolve mordant into half a cup of water then add to the dyebath.

Dying: Place the yarn in the cold dye-bath making sure that is thoroughly wet so that it absorbs the dye evenly, slowly bring the temperature up to simmer NOT boil. Simmer for about 30 minutes. Remove the yarn and rinse it in cool water until the rinse water is clear. Hang out to dry in the shade not sunlight.

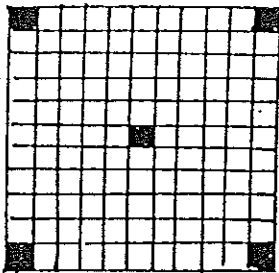
Colours from nature

<u>Colour</u>	<u>Dyestuff</u>	<u>Mordant</u>
Bright Yellow	Golden Rod Flowers	Chrome
Mid Yellow	Marigold	Alum
Dark Yellow	Turmeric	Chrome
Orange	Madder	Tin
Light Brown	Onion Skins*(?)	Alum
Mid Brown	Turmeric	Tin
Reddish Brown	Elderberries	Alum
Pink	Cochineal	Chrome
Red	Cochineal	Alum
Navy Blue	Yew	Chrome
Tobacco Brown	Tobacco*	Alum
Fawn	Orange Tea*	NOT NEEDED
Sage Green	Coffee*	NOT NEEDED
Greyish Green	Seaweed	Alum
Pea Green	Golden Rod Stalk & Head	Iron
Mid Green	Cow Parsley	Chrome
Dark Green *	Rhododendron Leaves*(?)	Iron
Royal Blue	Logwood	Iron
Black	Walnut Shells	Alum & Iron.

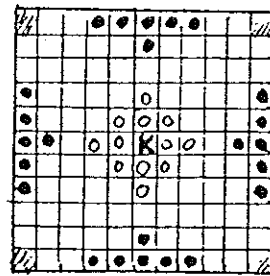
When your killing time in the village waiting for the action to start, how about a game of chess? Well, the trouble is that chess didn't actually come to North Europe until the 11th century. What Vikings played - and left boards and pieces for wherever they went - was a game called (Hnefatafl) or "King's table". A version has been reconstructed and is sold by History Craft Ltd. under the title "The Viking Game"; but their set, while very pretty, is expensive and inauthentic. It would be easy, and much more realistic, to make your own set. The game is well worth it!

The Board and Pieces

You have probably seen these in books and museums, vaguely labelled "parts of a board game". The board is of wood, with eleven squares or shallow holes each way. The middle and the four corner squares (called "King squares") are circled or coloured to distinguish them. The frame or border can be elaborately carved or decorated. The twelve white and twenty four black pieces are simple, plain glass marbles, small pebbles, slices of bone or horn or wood, plus a white King which is larger and decorated with a crown.



THE BOARD

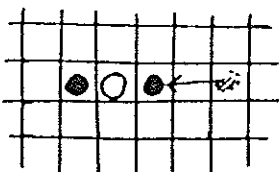


PIECES SET OUT

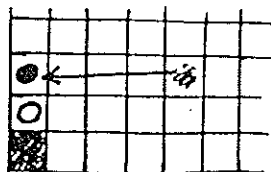
Like other board games, hnefatafl started small and grew larger and more complex. You could make a board seven or nine square, and reduce the number of pieces accordingly.

Moving and Taking

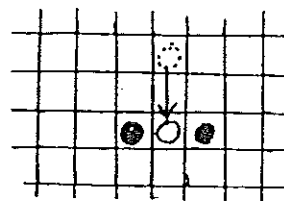
All pieces including the King move like chess rooks: any distance up, down or sideways, but not diagonally and not over other pieces. Only the king can land on the king squares, though any piece can move over a king square on its way elsewhere. A man is taken by trapping him between two enemy men (white can use his King) on opposite sides, or between a corner king square and an enemy man. However, a man who lands between two enemy men (or a corner square and an enemy) is not lost unless one of them moves away and back again.



White man taken

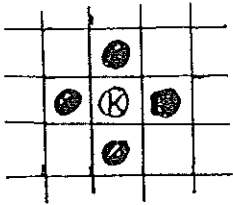


White man taken

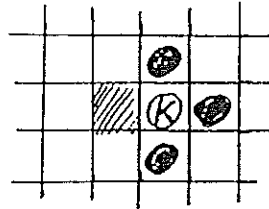


White man safe (for now)

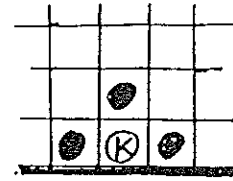
The King can only be taken by being surrounded on all four sides, or three sides with his central king square on his fourth.



King Captured



King Captured



King not captured
(could be stalemate)

The Game

It's no accident that chess replaced hnefatafl as the feudal society spread. Chess represents a king of a simple war band trying to survive as barbarians push in from the borders. White's object is to get his king to a corner king square. Black's is to capture the king, which isn't easy at all! Black moves first, and is well advised to spread out a few men towards each corner to start with. White should get his king out and moving as soon as possible, and not get sidetracked on taking black's men or protecting his own; the king is all that matters.

If enough people make sets and learn the game, I'm prepared to organise a tournament and put up a prize in a year or so. Get playing!

Anthony.