

AN ABSTRACT OF THE THESIS OF

Nona Jean Nelson for the M. S. in Clothing, Textiles, and
Related Arts

Date thesis is presented July 23, 1957

Title The Influence of Swedish, Finnish, and Danish
Textiles on Contemporary American Fabrics

Abstract approved ✓ Signature redacted for privacy.

Scandinavian textiles have played an important part in the family life of the Nordic people. During the evenings, members of a family worked on textiles and wove colors and designs of the countryside and of the family life into their fabrics. Traditional motifs, techniques, and color combinations were developed and passed down through the years from family to family.

The techniques of weaving Scandinavian textiles may be divided into groups according to the method used in weaving the fabrics. These groups are tapestry weaves, pile-knot weaving, flushing weaves, plain weaves, and other weaves which will not fit into a particular grouping. Each group has characteristic motifs, colors, and yarn content. Many techniques are centuries old.

Scandinavian craft societies are responsible for the revival of handicrafts after the industrial revolution. These societies aid in preserving traditional patterns, techniques and color combinations, and in encouraging folk art.

There are many Scandinavian textile designers who have gained recognition in their country and in the United States. Many of their fabrics have been imported to the United States. Märta Måås-Fjetterström, Astrid Sampe-Hultberg, Dora Jung, Count Bernadotte, and Paula Trock are some of the leading Scandinavian designers who are influencing designs in contemporary American fabrics. Many of their designs and patterns are based on traditional Scandinavian fabrics.

Many fabric designers in the United States show the influence of Scandinavian textiles in their fabrics.

Similarity is seen in colors, designs, motifs, and in weaving techniques. Some designers who show Scandinavian influence are Dorothy Liebes, Maria Kipp, Jack Lenor Larsen, Robert Sailors, Frank Lloyd Wright, Boris Kroll, and Finnish-born Marianne Strengell.

Influence of Scandinavian textiles on contemporary American fabrics may also be seen in other sources. Collections of fabrics being produced by companies such as Celanese, Fuller Fabrics, and Schumacher and Company are showing influence of foreign countries, including the Scandinavian countries. Exhibitions of Scandinavian fabrics are also influencing American fabrics. "Design in Scandinavia" is an example, and individuals such as Count Bernadotte are showing fabrics in private showings. Imported textiles from the Scandinavian countries are also influencing American textiles.

Scandinavian influence on contemporary American fabrics is seen in adaptations of color, motifs, and weaving techniques. Influence is also made by leading designers of America and Scandinavia; and weaving schools in America, Sweden, Finland, and Denmark also exert considerable influence. Because of the amount of influence and the interest seen in Scandinavian fabrics, Sweden, Finland, and Denmark are among the countries leading in influence on contemporary American fabrics.

THE INFLUENCE OF SWEDISH, FINNISH,
AND DANISH TEXTILES ON
CONTEMPORARY AMERICAN FABRICS

by

NONA JEAN NELSON

A THESIS

submitted to

OREGON STATE COLLEGE

in partial fulfillment of
the requirements for the
degree of

MASTER OF SCIENCE

June 1958

APPROVED:

Signature redacted for privacy.

Professor of Clothing, Textiles, and Related Arts

In Charge of Major

Signature redacted for privacy.

Head of Department of Clothing, Textiles and

Related Arts

Signature redacted for privacy.

Chairman of School Graduate Committee

< Signature redacted for privacy.

Dean of Graduate School

Date thesis is presented July 23, 1957

Typed by Esther Suzanne Nelson

ACKNOWLEDGMENT

The author expresses her appreciation to Miss Joan Patterson, Professor of Clothing, Textiles, and Related Arts, for her assistance and encouragement during the preparation of this thesis.

Appreciation and acknowledgment is also extended to Mrs. Esther Nelson, the author's mother, without whose assistance parts of this thesis would not have been possible.

Appreciation is also extended to Miss Ruth McCorkle, Instructor in English, for her invaluable help and technical advice.

TABLE OF CONTENTS

	Page
CHAPTER I INTRODUCTION.....	1
Purpose of the Study.....	3
Limitations of the Study.....	4
CHAPTER II HISTORIC SCANDINAVIAN TEXTILES.....	5
Development of Scandinavian Textiles.....	5
Characteristics of Scandinavian textiles..	7
Scandinavian tapestries.....	8
Ryijy rugs.....	9
Preservation of textile designs.....	13
Textiles as used in the home and in dress.	15
Scandinavian Weaving Techniques.....	19
Tapestry techniques.....	19
Pile knot weaving.....	32
Flushing.....	37
Other weaves.....	47
Scandinavian Craft Societies.....	59
CHAPTER III CONTEMPORARY SCANDINAVIAN DESIGNERS...	63
Swedish Designers.....	63
Finnish Designers.....	73
Danish Designers.....	77

	Page
CHAPTER IV CONTEMPORARY AMERICAN DESIGNERS INFLUENCED BY SCANDINAVIAN TEXTILES...	79
Mrs. Eliel Saarinen.....	80
Marianne Strengell.....	81
Anni Albers.....	84
Greta Magnusson Grossman.....	86
Maria Kipp.....	87
Dorothy Liebes.....	91
Jack Lenor Larsen.....	93
Robert Sailors.....	97
Henning Watterson.....	100
Frank Lloyd Wright.....	101
Knoll Associates.....	104
Boris Kroll.....	105
CHAPTER V OTHER AVENUES OF SCANDINAVIAN INFLUENCE ON CONTEMPORARY FABRICS.....	108
CHAPTER VI CONCLUSION.....	117
BIBLIOGRAPHY.....	121

TABLE OF PLATES

No.		Page
I.	Traditional Weaving Techniques of Sweden, Finland, and Denmark.....	20
II.	Ground Webs.....	22
III.	Flamskvävnad Techniques.....	24
IV.	A diagram illustrating the method of interlocking weft threads in the Röllakan technique.....	28
V.	Röllakan.....	29
VI.	A diagram illustrating the method of introducing the pattern thread in the technique of Soumak-inlay.....	31
VII.	The method of knotting in flossa pile.....	33
VIII.	Double Flossa.....	35
IX.	Dukagång.....	40
X.	Munkabälte.....	45
XI.	Rosengång.....	48
XII.	A diagram showing the technique of Danish Open Work.....	53
XIII.	Danish Open Work.....	54
XIV.	Tapestry by Märta Måås Fjetterström.....	66
XV.	Fabric by Maria Kipp.....	90
XVI.	Fabric by Jack L. Larsen.....	96
XVII.	Fabric by Robert Sailors.....	99
XVIII.	Fabric by Frank L. Wright.....	103
XIX.	Fabric by Boris Kroll.....	106
XX.	Pile rugs.....	111
XXI.	Tapestries.....	113

No.	Page
XXII. Pile rug	114
XXIII. Drapery.....	115

THE INFLUENCE OF SWEDISH, FINNISH, AND DANISH TEXTILES ON CONTEMPORARY AMERICAN FABRICS

CHAPTER I

INTRODUCTION

Decorative textiles have long played an important part in man's life. Since early times, man has used fabrics to decorate his home and his body, and throughout the centuries, the art of weaving and textile design has become a highly developed skill. As the techniques of weaving and the development of designs grew, differences in the designs of various areas occurred. For example, American Indian tribes were identifiable according to their different dress.

Many countries have contributed to the world's collection of textiles. Luxurious silk brocades were developed in the Orient, Kashmir shawls and calicos originated in India, Persian rugs came from the Near East, and beautiful velvets developed in Italy and Spain, giving a wide variety of elegant, colorful fabrics to the world for personal adornment and home decoration. These textiles, along with many others, gave a rich inheritance in design and technique to fabric designers of the future.

As a result of this valuable heritage, the American designer has had a wide variety of source material from

which to draw inspiration in designing contemporary fabrics. Until a few years ago, American textiles were traditionally European and Oriental in pattern and design. Recently, however, American textile designers have shed the influence of the old traditional fabrics and have begun developing typically American fabrics. The new fabrics are characterized by interesting texture and color and have become fabrics which take an active part in the interiors of contemporary architecture.

Although fabrics for mass production are woven on power looms, the designing of these fabrics is done on hand looms. The designer draws his ideas and inspirations from many sources. Some designs are based on symbolic and psychological influences as seen in the world of experimental painters. Geometric patterns and designs, the electron microscope, aerial photography, and other sources have inspired designs for fabrics. Although designs are not developed in the traditional manner as was formerly done, fabric designers still draw inspiration from the textiles of the rest of the world.

Scandinavian countries have long been noted for their colorful and functional textiles, and for centuries, weaving and textile design have played an important part in the lives of the Nordic peoples. The influence of the

Scandinavian countries has recently been seen in fields other than textiles. Danish and Swedish furniture has been seen on the market, and the Scandinavian countries have long been noted for their fine glassware and silver. As a result, many American designers have been influenced by these designs and products. Is this also true in the field of textiles?

Purpose of the Study

This study has been set up to determine whether there is any Scandinavian influence and to what extent it is to be seen in the field of textile design. The project is also designed to study textiles of Sweden, Finland, and Denmark for techniques, fibers used, and designs. This study of Scandinavian textiles is necessary to determine any influence that might be seen in contemporary American fabrics. The study will also show the backgrounds and work of some of the leading American designers to see whether they may have been influenced by Scandinavian textiles.

It is hoped that the report will offer suggestions and ideas for fabric design. Some of the author's own adaptations of Scandinavian techniques are included to show possibilities in adapting techniques and designs to contemporary fabrics.

Limitations of the Study

The limitations of this study are four:

1. The study is limited to woven fabrics that might be designed on a hand loom for fabrics that may or may not be produced on a power loom.
2. The size of designer fabrics, which are herewith included, are smaller than the author would like; however, these fabrics can be obtained only through intricate channels and not on the open market. Further, because of the high cost of the fabrics, the swatches included are not large.
3. Since it was impossible to obtain samples from some of the American designers, the collection is limited.
4. The study is limited to influence on contemporary American fabrics.

CHAPTER II

HISTORIC SCANDINAVIAN TEXTILES

Development of Scandinavian Textiles

Textile art of the Scandinavian countries is deeply rooted in ancient peasant traditions; and throughout the ages, peasant art has been undisturbed in developing its own particular characteristics. The textiles are, therefore, an expression of ancient national traditions and are reflections of the national taste of each country. Not all Scandinavian textiles are peasant art. There are many fine specimens of church needlework, which show a very highly developed technique. (36 p. 2425)

Among Scandinavian families, peasant art has been an integral part of home life. During the long winter evenings, members of the family worked on various crafts, thus developing interests in wood carving and metal work for the men; weaving, embroidery, braiding, and lace making for the women. Family tales, traditions, and sagas from the past all became a part of the textile designs of each family and each area. (53 p. 17) Because of the remoteness of farms and communities, each area developed characteristic techniques, motifs, and designs. Denmark, however, is such a small country, that the influence of towns was felt even in the remotest places. Danish peasant embroidery, therefore, has many affinities

with art needlework but still embodies certain typical peasant elements. (36 p. 2425)

Because of a damp climate, very few ancient Scandinavian textiles have been discovered. Denmark, however, has a few existing specimens; one of which dates back to the Bronze Age. (69 p. 46) One garment, which may date back to the Bronze Age exists in Sweden; however, no other garments have been found which can be dated prior to the fourteenth century. (43 p. 3171)

There are records of old Scandinavian looms, which were of the warp-weighted type typical of Penelope's loom. Threads were attached to loom weights instead of being tied to a warp beam. Some of these old looms may be found in the Nordisk Museum in Stockholm and in the National Museum in Helsingfors. (60 p. 80)

Considerable influence from foreign countries occurred at an early date; and because of the proximity of the Scandinavian countries, much influence was exerted upon each other in techniques, motifs, and colors. Outside influence came from the Near East and the Oriental countries, and these influences were brought by mariners and voyaging soldiers. Byzantine design was very influential. These new methods and techniques were first practiced and studied by members of the wealthy classes and were only gradually accepted by the peasants. Each vicinity developed its own ideas and variations of motifs and thus

evolved the traditional textiles of the countries.

(53 p. 18-19)

Characteristics of Scandinavian textiles

In constructing their fabrics, the women carded, spun, and dyed the yarns, and wove them with great skill into textiles of linen and wool. Nature was also a source of ideas for forms and colors. Variegated, figured fabrics were in evidence as early as 1555. Designs of vines and flowers on linen fabrics were rare in the early days, but such strips were woven with bright, colorful, stylized human figures. These figures were worked in loose rows or in regular transversal stripes. All of the Nordic countries made fabrics with blue or red stripes, which incorporated designs of figures, geometric motifs, or conventionalized flowers. In Sweden, woven ornaments were either blue, brown, or yellow on a light background. The designs were comparatively small and stylized, but the repeats were spread over the entire surface of the fabric. Wool embroidery in bright colors was occasionally used on a dark background. Favorite linen color combinations were red and black, or blue and red. Many tones used in fabric ornamentation of the northern countries were light and delicate and were inspired by colors of the northern landscapes. Many of the color contrasts were unified by

repeated motifs or by light brown outlines around each pattern, drawing the entire design together.

Scandinavian tapestries

High warp tapestries were not made in Scandinavia until the middle of the sixteenth century, but tapestries played an important part in the history of Scandinavian textiles. The first high warp tapestries or "Flamskvävnad" were woven in a royal tapestry factory founded by Gustavus Vasa near Stockholm. In 1578, Frederick II of Denmark brought a Flemish weaver named Hans Kneiper of Antwerp to Denmark to introduce the Flemish manner of weaving, and to design portraits of all the kings of Denmark. Of the 113 portraits made, only fourteen remain. The special interest of these tapestries is the pictures they depict of the Danish court and of peasant life. There is a wealth of detail; and the blue-green foliage of the trees is very beautiful, as is also a peculiar tone of sulphur yellow found in nearly all of the surviving tapestries.

Other important persons brought in to introduce tapestry work to the Scandinavian countries were Von Eichener and Franz van Spiernick. Peter van Spiernick was brought from Flanders to be the Director of the Tapestry Works in Stockholm. As a result, most of the high-warp tapestry in Scandinavia was either French or Flemish in design.

Low-warp tapestries are the truly Swedish and Danish ones. Some of the most beautiful of these pieces originated in Slesvig-Holstein in Northern Germany. (These two provinces were at one time Danish.) This type of tapestry is called Röllakan, or the covering for the back of a chair or seat. The designs found in these fabrics are universal patterns which also occur in Peruvian, Bedouin, Icelandic, and Oriental textiles. The eight-pointed star, frequently used in Scandinavian textiles, is a common motif of Asia Minor. Other motifs frequently found in these tapestries were animal patterns, antlered deer being used most frequently. Scriptural subjects, such as Adam and Eve on either side of the tree of knowledge, were popular; the Nativity, the Marriage Feast, and the Annunciation were also frequently used.

Ryijy rugs

The Finnish ryijy may be considered a tapestry, as it is largely used for wall coverings, though the technique is more like that of carpet making. (60 p. 80-92) The weaving of ryijy or ryor rugs is an old tradition in Scandinavia, but it is most highly developed in Finland. The rugs were found in the inventories of those classes who lived in castles and monasteries. In the old days, these ryor were used as quilts and sleigh covers in place

of furs. The skins of furs became hard and brittle, and the ryor rug developed as a substitute. The rugs were woven of all wool and had a pile on both sides for warmth. Presently, they are used for rugs and wall hangings.

The technique of weaving a ryor rug is the same as the technique used in weaving Oriental rugs; however, the Oriental rug has 800 to 2,000 knots per square inch, while the Finnish rug has only 66 to 300 knots. The ryor knot, or pile, is also slightly longer than the one-inch pile of the typical Oriental rug.

Ryijy rugs of the fifteenth and sixteenth centuries were rather plain and simple in design. They were usually checked, or striped, or were designed to resemble simple coats of arms. Typical colors were white, natural gray, and natural dark brown. Country women, who colored their own homespun yarns, used plants for dyes; and a full scale of color, soft and harmonious, was obtained. This gamut of color is one of the main attractions of the old Finnish rugs and is still unsurpassed by the modern weaver. (61 p. 17)

Designs found in the ryijy rugs became more and more complicated, including purely geometric patterns such as squares, rhombs, circles, crosses, zigzag lines, and other symbols, all ornamental in character. Flowers,

trees, animals, human figures, all in highly stylized form were also woven into the rugs. (61 p. 17) In addition to the purely northern motifs, there were Oriental designs composed of fountains, the tree of life, tulips, and carnations. These designs are more lifelike than those found in the Oriental originals. The influence of wood-carving is a distinctive feature of these carpets and is seen in toy-like human and animal figures in shapes reminiscent of cones or bells. (63 p. 831)

Many of the ryijy were designed as bridal rugs, and were used for the bride and groom to stand on during the marriage ceremony and afterwards as their bed cover. The designs were mixtures of the native landscapes and symbols of ancient rituals. As carpets were never made for commercial purposes, but for highly personal use, they retained their perfection in technique and high artistic value. (61 p. 17)

The weaver does not use a diagrammatic plan in weaving a ryijy but retains an idea in her mind. There is, therefore, no stiffness or formality. Each rug is strictly individual, and no two ryijy are ever alike.

The finest ryijy rugs were produced in the eighteenth century and into the first part of the nineteenth century. The technique was lost during the industrial revolution at the beginning of the twentieth century, but it has since

been revived. The designers turned, however, to strictly geometrical figures, a rather cold style of the 1920's. In the 1930's it was replaced by a softer trend based on color rather than design. In the late 1940's and the 1950's, the rugs gained their former glory with a balance of color and design combined with high technical skill. (61 p. 18-20)

The Finnish carpets are comparatively easy to date, as the initials of the owner and year of weaving were usually worked into the fabric. From the eighteenth century on, garlands and bouquets of flowers began to appear in the design. Only in the remote parts of Finland did the peasants continue the old tradition of including toy-like patterns in the designs.

Swedish carpets originating from districts bordering Finland were very similar to those found in Finland. In other districts of Sweden, however, spiral patterns which often covered the entire rug were prevalent. The spiral designs emphasized the textile character of the fabric more than did the toy-like figures, trees, and flowers of the typical Finnish rugs. (63 p. 831)

Ryijy's of today are designed by artists and constructed by highly skilled weavers under the artist's supervision. Among the best known weavers are Kirsti Ilvessalo, Eeva Brummer, Kaija Mustakallio-Souminen,

Uhra-Beata Simberg-Ehrström, Heli Vuori, Eila-Annikki Vesimaa, and Soumen Kasityon Ystavat (a craft society). Wool from native sheep especially bred for this purpose is spun by hand. Colors are usually few and simple, such as gray, white, and dark brown. The wall hangings, however, have more vivid colors, such as glowing reds, dark blue, moss-green and greenish-yellow. These colors are intensified by the characteristic Finnish background of dark bear brown. The ryijy technique is widely known throughout the country, and many rugs are made in private homes as well as in home industry shops. (61 p. 20)

Preservation of textile designs

Swedish techniques and designs have become traditional because the designs and techniques were passed down through families. When a fabric gave way through years of use, to preserve family patterns they were copied as closely as possible by descendants of the original weavers. Often the original patterns were preserved in exact copies; at other times, the designs emerged with a new freshness or feeling, but retaining the old motifs and designs. It is thus possible to trace a textile to a certain area of each country. (49 p. 5)

The products of the different areas in Sweden helped to develop particular styles and fabrics in a certain

province. In some of the provinces, textiles were produced for sale; while in others, the textiles were produced solely for use in the homes. In middle Norrland (provinces of Hälsingland, and Ångermanland), flax grew very well; as a result, the emphasis in textiles was on linen products, such as drillings, table damasks, and plainer household linens. Gotland, the large island in the Baltic Sea, developed a woolen industry. The peasant women of this island, therefore, developed highly imaginative and colorful cloths of wool.

Development of certain techniques and preservation of motifs and designs were aided by the isolation of many districts. However, if the daughter of a household married and traveled to another district, she carried patterns and techniques with her. Patterns and techniques also were carried to other districts through inheritance or sale. Thus similar techniques may appear in districts far apart. (43 p. 3167)

Geographical differences also influenced patterns. In the northern provinces, textiles show dull half-tones seen in colors of the vast forests. In contrast, are the bright color combinations woven into the textiles of Dalecarlia and Hälsingland. Provinces of the south show the influence of foreign textiles. (43 p. 3168)

Peasant women of Sweden often based their designs on legends of the country. These legends emerged in patterns of ships, castles, stars, flowers, trees, and figures of men and animals. Birds and animal designs were abundant, with the reindeer appearing most often in the fabrics. The tree of life was also an early Scandinavian symbol, and patterns of leaves often carried this same connotation. Biblical figures were popular, and the symbols of the wise and foolish virgins appeared over and over. Many of the textiles depicted Swedish summer landscapes. Tulips and roses appeared frequently, and the lily was probably an influence of the Orient. Geometric designs appeared because of their suitability to the raw materials and the methods used. As in the other Scandinavian countries, influence was brought in from other parts of the world and may be found in the typical designs of the Swedish textiles. (49 p. 5)

Textiles as used in the home and in dress

Swedish textiles include both dress materials and fabrics for the home. The peasants usually dressed in grey, rough cloth of wool. White and brown-black also appeared. In about the sixteenth or seventeenth century, the peasants began using linen; and blue, red and yellow wool appeared in suits, jackets, and skirts. In the

nineteenth century, cotton made its appearance; and with this fiber, came large quantities of striped fabrics. Checked designs were also prevalent and were the favorite dress fabrics of the peasant women. Toward the end of the nineteenth century when local costumes disappeared, the peasant women continued to weave all wool materials.

(43 p. 3171)

Textiles were of great importance in the home, and the prestige of a home rested upon the number of fine fabrics that it contained. These fabrics were displayed on special occasions and celebrations. Rafters and walls were covered with hangings, and chairs and benches with brightly colored pillows and cushions. The home was changed from its usual drab appearance to one of gaiety and festivity, somewhat like the interior of a Bedouin tent.

Decorative hangings and bed covers were characteristic of peasant homes, and these hangings and covers served two purposes. The hangings were insulation against the cold northern winds, and at the same time, they provided bright colors and designs on drab wooden walls. Seats, tables, beds, and chests were frequently covered with textiles. These were designed and woven by the women of the household.

The most interesting hangings come from the provinces of Skåne and Halland. They were woven of white linen, and yarns of dark blue were inserted by hand as the fabric was woven. This technique is known as "dukagång." In some rare cases, red or green yarn was added to the hanging. Floral patterns, geometric designs, and stylized human and animal figures, arranged in transverse stripes are characteristic of dukagång. (49 p. 6)

Curtains were unknown, but instead a fringed valance hung over the window. This same type of fringe was also used to decorate shelves, beams, and bed moldings. This fringe was made from warp ends; peasant women were very thrifty. The beds were recessed into the wall, and often had striped blue-and-white linen curtains that could be drawn. Bed linen was also hand woven, and blue was a favorite. The linen was decorative in both color and pattern. Carpets were not used on the floors. (49 p. 8)

With the industrial revolution, hand weaving declined, and industry took over the weaving of the old traditional pattern. Patterns were imitated, but the charm and special character of the peasant art was lost. By the end of the nineteenth century, a movement was begun to revive the homecraft industry. This organization, the Hemslöjd Association, is responsible today for the revival of hand weaving and for the fine quality of the homespun textiles

produced in Sweden. (49 p. 16) Similar associations have been organized in Finland and Denmark as a result of the decline of homecrafts.

Scandinavian Weaving Techniques

Scandinavian textiles may be grouped according to techniques used in their production. Plate I shows the different techniques and the countries in which they are found. In some instances, more than one technique may be used in a single fabric. (43 p. 3179) Plate II shows some of the ground webs described in the following text. Figure A is a plain tabby or plain web, figure B is a double tabby or double thread, figure C is a zigzag double twill, and figure D is a birdseye twill. (65 p. 6)

Tapestry techniques

The first group of techniques includes the tapestry weaves. In this technique, the warp is entirely covered by the weft yarns. Weft threads are inserted by hand over and under the warp; but they run only the length of the design not the entire width of the fabric. Included in this group are Flämskvavnad, Billedvevning, Röllakan, and Soumak-inlay. (43 p. 3179)

Flämskvavnad is a high warp tapestry, often called Flemish weaving. In this technique, a flaxen warp is stretched vertically on an upright loom. Threads are laid in order, so many to the inch, depending upon the texture of the fabric to be woven. The shed is formed by means

Plate I
Traditional Weaving Techniques
of
Sweden, Finland, and Denmark

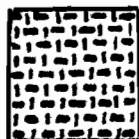
Techniques	Sweden	Finland	Denmark
A. Tapestry techniques			
Flämskvavnad (high warp)	x	x	x
Billedvevning			x
Röllakan (low warp)	x	x	x
Soumak-inlay or Snärjväv	x		
B. Pile Knot Weaving			
Rya, Flossa, and half Flossa	x	x	x
C. Flushing Weaves			
Dukagång	x	x	x
Krabbasnår	x	x	
Halvkrabba	x		
Upphämta	x	x	
Monksbelt or Munkabälte	x	x	x
Rosepath or Rosengång	x	x	x
Hampus	x		

Plate I cont.

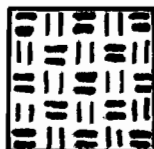
	Sweden	Finland	Denmark
Techniques			
D. Plain Weaves			
Double-weaving Finnskevav or Dubbelvavnad	x	x	
Danish Open Work			x
Mattor (rep)	x	x	
E. Other Techniques			
Twills	x	x	x
M's and O's	x	x	x
Damasks or Dräll	x	x	x
Kilpikangas (a twill weave)			x
Swedish lace weaving	x		

Plate II

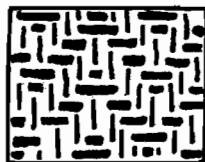
Ground Webs



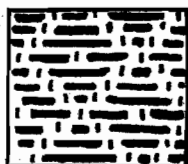
A. Plain tabby or plain web



B. Double tabby or double thread



C. Zigzag double twill



D. Birdseye twill

of a found stick which is inserted between the alternate warp threads. The stick is kept suspended, and thus always forms one shed through which the weft threads may be inserted. The second shed is formed by means of a heddle rod. This is secured behind the warp threads, and string loops are attached from the stick to alternate warp threads. This opens the second shed for the return of the weft threads. (See Plate III for a diagram of the found stick and heddle rod.) This method of weaving is very primitive, but the Scandinavians skillfully produced artistic fabrics.

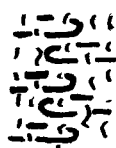
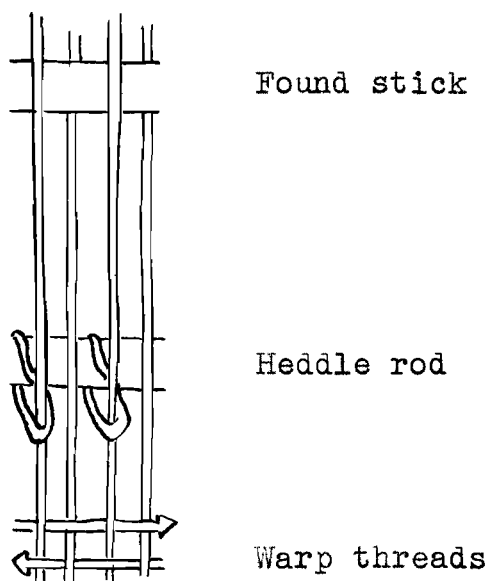
The weft of the tapestry is wool, and many different colors are used in the designs. Each color is wound on a separate bobbin, small and pointed on one end.

The pattern for the design is drawn out and colored in full size and then placed at the back of the loom as a guide for the weaver. The weaving begins at the bottom and works towards the top of the loom. After weaving approximately one inch of plain weft at the bottom of the tapestry, the designs are begun. The weaver fills in the weft threads in the colors and amounts designated by the pattern, until the designs are formed and completed.

In instances where vertical slits are formed, they may be closed by toothing. (See Plate III) In this manner slits are closed. In most instances, however, in the

Plate III

Flämskvavnad Techniques



Toothing

larger areas of color, the weft creates diagonal seams which eliminate slits between various colors (65 p. 17).

Tapestry motifs used most often by the peasants were a red lion in a circle of foliage or in a palisade, flower vases, fruits, stags, and rose designs. Biblical scenes also were frequently depicted (43 p. 3180). The Flamskvävnað of Sweden are some of the country's most brilliant work in textiles, according to Mary Lois Kissell. (35 p. 32) The colors vibrate with tones of emerald, ruby, blue and gold. The flower-garden tapestries of Sweden are covered with every imaginable blossom, and often as many as a dozen colors are used. The province of Scania was famous for tapestries done in a formal and naturalistic pattern. (25 p. 32) The same method was widely used in Denmark for making seat covers, chair covers, cushions, borders, and wall hangings. (53 p. 26)

The technique of Billedvevning was used mainly in Norway, although it was practiced in Denmark. It is a method of tapestry weaving in which a weft interlocking process is used, and the tapestry is complete on both sides. The weaving is done on an upright loom, and the weaver works in sections from a diagram of the design, which is secured behind the loom. The process is very slow and tedious, as each yarn is blended, spun, and placed by hand to give the right texture. The hand took the place of the shuttle, and a fork is used to beat the threads into

place. (53 p. 25)

These tapestries were pictorial fabrics depicting the life and customs of the times. The first pieces were only ten to twelve inches wide but were perfect in workmanship. The texture was unusual; and the colors were glowing, denoting that the technique took many years to perfect. (53 p. 24) The weft of the fabric often moved to shape the figures or designs, so that it was not always at right angles to the warp, which would keep the design from becoming geometrical and as conventionalized as in other techniques. (2 p. 32)

Röllakan originated in Scania, Sweden, and soon spread throughout the country. It is a technique which was also practiced in Denmark and Finland.

Röllakan is a low-warp tapestry with a smooth rep-like surface because of the closeness of the weft yarns. The weft was wool and entirely covered the linen warp. A member of the tapestry family, Röllakan differs from the others in that where vertical slits might occur, the weft threads are enlaced to avoid such slits. (43 p. 3179) The weft and warp threads lie at right angles to each other, and the weft is interlocked at every row. (2 p. 32) Weft threads are introduced without the use of a bobbin or shuttle and are worked in along a straight line. Slits in the tapestry are closed by a double-locked method on

the wrong side of the fabric, which faces the weaver as he works. Plate IV illustrates the method of interlocking the weft threads. (65 p. 11)

Because of the technique of interlacing the weft threads, the designs of the Röllakan tapestries are characteristically geometric. Besides the typical Scandinavian designs, the eight-pointed star is a frequent pattern. The fabric is often divided into octagons and quadrangles in varying combinations. Röllakan is often used in combination with other techniques, especially in borders or transversal stripes. Colors introduced into the tapestries vary according to the regions in which the tapestries originate. Many of the fabrics are dark in color, with quiet and sombre tones. Plate V is an example of the Röllakan technique.

Soumak-inlay, or Snärjväv, is the last of the tapestry techniques, and is found only in Sweden. The Soumak stitch is a very old technique also found in Oriental rugs. Swedish soumak-inlay is a variation of the Oriental rug stitch. In Oriental rugs, the stitch gives a chain effect, while the Scandinavian variation gives a twilled surface. (2 p. 13) The technique has been extinct in Sweden for many centuries, and it is now found in only three Swedish weavings, which date from the Middle Ages. (65 p. 7)

Plate IV



A diagram illustrating the method of interlocking weft threads in the Röllakan technique.

PLATE V



RÖLLAKAN



The ground web of snärjväv is either wool or linen, usually undyed, or of a monochromatic color scheme executed in a plain weave. The design thread is worked in with thicker yarns of different colors. (43 p. 3181) The weft thread of the same fiber as the warp is interwoven with the warp, making a plain weave. The pattern thread of wool on a linen web, or linen on a wool web, is then introduced by means of a needle. The design thread is embroidered on the warp in an outline stitch. This is done either over two threads and under one, or over three and under one, or over four and under one, depending upon the fineness of the stitch desired and the weight of the warp. A row or two of tabby is then woven in, and another design thread is introduced. Plate VI illustrates the method of Soumak-inlay. The entire surface, or only portions of it, may be covered with this technique. In some instances, the Soumak stitch is used without any tabby, giving the effect of tapestry, and the under side of the fabric is used as the right side. (2 p. 13) The patterns are usually enclosed within narrow outlines of a contrasting color, and the stitches have a degree of freedom and variety. (65 p. 7)

Plate VI



A diagram illustrating the method of introducing the pattern thread in the technique of Soumak-inlay.

Pile knot weaving

The second group of techniques is pile-knot weaving. Included in this group is rya, flossa, and half flossa. The pattern in the fabric is introduced by means of loose threads knotted into the warp. (43 p. 3179)

The flossa (fleece) fabric is constructed either wholly or partly of hemp, flax, wool, and in some instances cow's hair yarn. The web is made of a plain web, two-heddle rep, double tabby, three-heddle twills, or birds-eye twill. (65 p. 22) After several rows of weft have been shuttled into the warp, the flossa or pile is introduced. One row of pile threads of a selected length and of various colors is knotted in. The pile forms the design. See Plate VII for the method of knotting in the pile. Several more rows of weft are woven in and then another row of flossa. This process is continued until the fabric is finished. Flossa or pile knots cover the weft threads and form the design through the use of different colored yarns. (43 p. 3185) Because the flossa textiles were used for hard wear, the loops were not cut, which would have decreased the wearing quality of the fabric. (65 p. 23) Gradually designs developed in which the loops were cut, and the length of the pile was varied for interest in texture. (53 p. 33)

Plate VII



The method of knotting
in flossa pile.

In some instances, there are flossa fabrics with a knotted pile on both sides of the fabric; however, the pile is always less dense. Flossa is tied in with the face toward the weaver; and at the same time, the second set of knots is tied in on the reverse side. The pile is, therefore, longer and not so dense as the regular flossa. This technique is called double or double-knotted flossa. (65 p. 23) Plate VIII is an example of double-knotted flossa.

In addition to fabrics which are entirely covered with flossa and those of double-knotted flossa, another pile fabric is produced. Part of the weft is visible between the rows or sections of knots. This fabric is called half flossa or "halvflossa." (65 p. 24)

Ryijy rugs are produced in a flossa technique using tufts of wool instead of yarn for the knots. (43 p. 3185) They were originally of a long pile with very little color, as they were used more for serviceability than for design purposes. (53 p. 33)

Designs common in the flossa techniques are squares, stripes, and simple stars. When the design is plain, there may be a broad border across the top of the fabric. Fabrics that are used as coverlets are laid on the bed with the pile side down. Some fabrics designed for show, however, were rich in floral motifs and Baroque and

PLATE VIII



DOUBLE FLOSSA



Rococo designs. (43 p. 3185) From 1705 on, the date and name of the owner were woven into the better rugs.

It is a bit difficult to trace the origin of these knotted fabrics, and authorities disagree on the name of the country that invented the technique. Such fabrics have been found in the Orient, in southwestern Asia, and in Turkey. Similar knots, the Smyrna knot and the Ghiordes knot, both originated in the latter two countries. Some authorities say that the technique originated in Siberia, Poland, Lithuania, or Finland. (53 p. 33)

Knotted weaving was known in Denmark as early as the Bronze Age, and fragments of such cloth which date back to the eighth century have been found in Sweden. (43 p. 3185)

One theory is that rug weaving was brought to Finland by Swedish settlers during the Crusades, and that a reaction in the opposite direction took place later, so that it is difficult to tell in which country a technique actually originated. (65 p. 24)

Flossa, half-flossa, and rya fabrics were used as dress material, rugs and carpets. They were probably meant to imitate fur, and the Scandinavians often used animal skins to keep themselves warm. Skins grew stiff, and did not last long; and they were ultimately replaced by flossa and rya fabrics. (43 p. 3185) The fabrics

came to be used for carriage seats, chair coverings, and wall hangings. (53 p. 33)

The present day flossa fabrics are not made in the same manner as their forerunners. The modern weaver uses a wooden or metal stick around which he winds the pile thread before tying it to the warp. The loops may be either cut or uncut, still giving the impression that each pile is knotted in separately. (43 p. 3185) The bar used for constructing these knots is called a flossa bar.

Flushing

The third group of techniques in the Scandinavian textiles is called "flushing" because a third thread, other than the warp or weft threads, is introduced. This thread forms a pattern by running on top of and underneath the ground web. (53 p. 36) This technique produces a raised or embossed effect similar to embroidery. Included in this group is dukagång, halvkrabba, krabbasnår, rosengång and some of the upphämta and munkabälte. (43 p. 3179)

Dukagång is characterized by the consistent size of the float yarn and by the straight vertical bars or lines formed by the pattern threads. (53 p. 36) Because of its characteristics, dukagång may consist of linen, wool, or of a linen warp with a woolen weft which entirely covers

the warp in a rep weave. (65 p. 30-31) Originally, however, the technique seems to have been exclusively a linen one.

The method of weaving dukagång is described as follows by I. Lund:

"In order to obtain the pattern shed the woman weaver lifts the warp threads which help to make the design by means of a flat piece of wood inserted in front of the reed, turns the stick on its edge and inserts a broader one behind the reed through this shed, after which she removes the first piece of wood. She then leases-in the pattern thread by hand. Every time this is done, the wooden rod is laid down behind the reed, and the ordinary plain weave shed obtained again. Before the rod is re-inserted for the next pattern shed, one or more foundation wefts are laid in. The pattern, therefore, is made up of shorter or longer parallel lines as required by the design." (43 p. 3181-3182)

During the process of weaving the fabric, the reverse side faces the weaver. (65 p. 30-31) The weaving takes a long time to complete, as the pattern thread is all put in by hand. (29 p. 27) Because of the striped effect of the technique, the name dukagång was given to the fabric from the Swedish word "doka", meaning shred or strip. (65 p. 30-31)

This technique is found in the provinces of Scania, Bleking, Öland, Halland, and Västmanland in Sweden as well as in Denmark and Finland. (65 p. 31) The Finnish fabrics

apparently grew out of the work done in the Brigittine convent of Nadendal. (65 p. 31)

The drättar (wall-hangings) from Scania are some of the most beautiful and elegant fabrics done in the technique of dukagång. These Swedish fabrics are woven of two lengths of cloth, yards long and sometimes more than two yards wide. Intervals of plain ground fabric are separated by broad ornamental stripes in colors of blue, yellow-green, and red. The ground fabric is always white linen. Almost all of the typical motifs are present, as are balconied palaces, rows of human figures--many women and one lone man at the end of the stripe. This latter design was representative of the wise and foolish virgins with the bridegroom. Other biblical subjects were depicted, and Christmas subjects were very popular.

(43 p. 3182) Plate IX is an example of dukagång.

The technique of krabbasnår is believed to have derived its name from the crab, because of the similarity of the sideways motion of a crab to the diagonal appearance of the pattern typical of this technique. The Swedish word "krabba" means crab. (43 p. 3182) Some of the most common motifs of krabbasnår resemble a crab.

Krabbasnår is similar in technique to dukagång; however, it is not as limited, as any size skip may be taken with the pattern threads. (53 p. 36) Like dukagång,

PLATE IX



DUKAGÅNG



krabbasnår is a brocade technique. (43 p. 3183) In executing the technique, the web is turned face downwards, and the pattern thread is picked in without the use of a shuttle. The fabric is composed of a warp of linen with wefts of linen or wool. The pattern is worked in with wool or flax. Cotton is now sometimes used for the pattern thread. Most of the pattern thread is on the face of the weaving. (65 p. 34)

There are two chief variations of krabbasnår. The first type is common in southern Sweden and usually has a white ground of linen and richer, raised designs which are distributed over the fabric. The colors are brilliant and varied. The second type is from central Sweden and has a dark background of wool with loose surface patterns often in stripes.

Characteristic designs of krabbasnår are diamonds with comb-shaped contours, paired and crossed bars, and rows of hearts. A great variety of design is obtained as each pattern is worked separately and independently of the others. Biblical motifs are also used. (43 p. 3183)

Krabbasnår seems to be typical of Swedish fabrics; however, some textiles of this technique are also found in Finland. Fabrics of this type have also been found in ancient Peruvian and Coptic textiles. (65 p. 35)

Halvkrabba or half-krabbasnar is a technique of "flushing in squares." It is similar in material and workmanship to the textiles of krabbasnar and is even similar to the technique of dukagång. (65 p. 33) The patterns are formed by small squares which are diagonally placed on the fabric, similar to a chessboard. Triangles, stars, and zigzag patterns are typical designs woven into the fabric. The technique gives little variation in pattern. This technique occurs mainly in southern Sweden, in a limited area of central Sweden, and in Finland. (43 p. 3183)

Upphämta which is technically related to dukagång, is a type of draw loom weaving, and is more tedious, often requiring two weavers to operate the loom. Unlike its relatives, dukagång, halvkrabba, or krabbasnar, this fourth technique in the group of flushing weaves is reversible. (53 p. 37)

In order to weave the patterns of upphämta, it is necessary to add a set of pattern harnesses to the ordinary loom. This is accomplished by threading the warp threads through loops attached to sticks. By lifting the stick, the proper warp threads will be raised to form the desired pattern. Any number of sticks may be used depending on the complexity of the pattern being woven. With two or three sets of loops, a large range of designs can

be woven. A mechanical device called a "dragrusting" was developed to aid in lifting the shafts while the pattern thread is being inserted. (65 p. 39)

Typical patterns of the upphämta technique are squares standing lozenge-wise, stars, indented oblongs, hexagons, paired and crossed bars, and other geometric figures. A typical pattern is a composition of diagonals, angles and points which resemble the antlers of a stag. This design is rightly named "stag's point" or hjorttagg." The simplest upphämta designs are similar to the seventeenth and eighteenth century drilling, while other designs seem to have been copied from pattern books. (43 p. 3184)

This particular technique was used mainly for weaving bed covers, hangings, and table cloths. The background was usually of linen with pattern threads of a coarser linen or wool. Cotton was used in later times, especially for scarlet colors, as linen did not take the dye successfully.

Fabrics of this technique are found in many of the provinces of Sweden. The Danish museums show woven covers of the same technique, although it is called "Vastgotatacken" in Denmark. Finnish double harness weavings date from the nineteenth century. (65 p. 39)

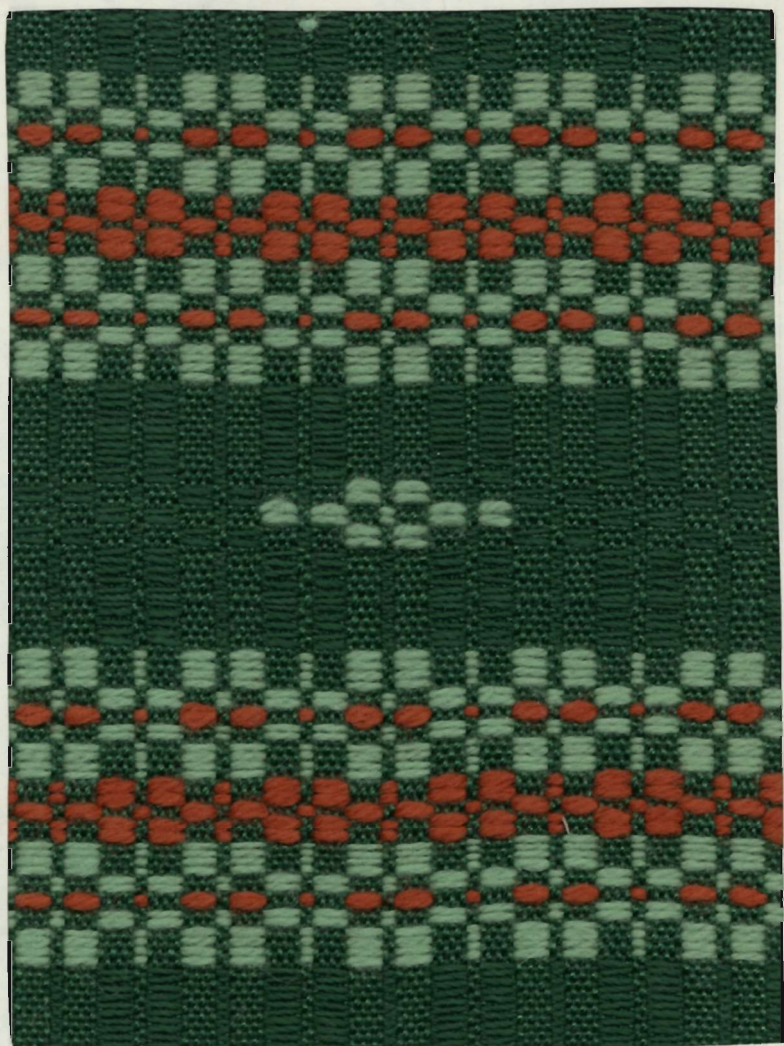
Munkabälte is interpreted as "monk's belt", because of the fact that the technique usually produces broad

stripes. The fabrics are woven on a loom with four harnesses, two for the web and two for the pattern sheds. The web was usually of wool or linen, and later of cotton. The pattern threads were wool or cotton (43 p. 3183).

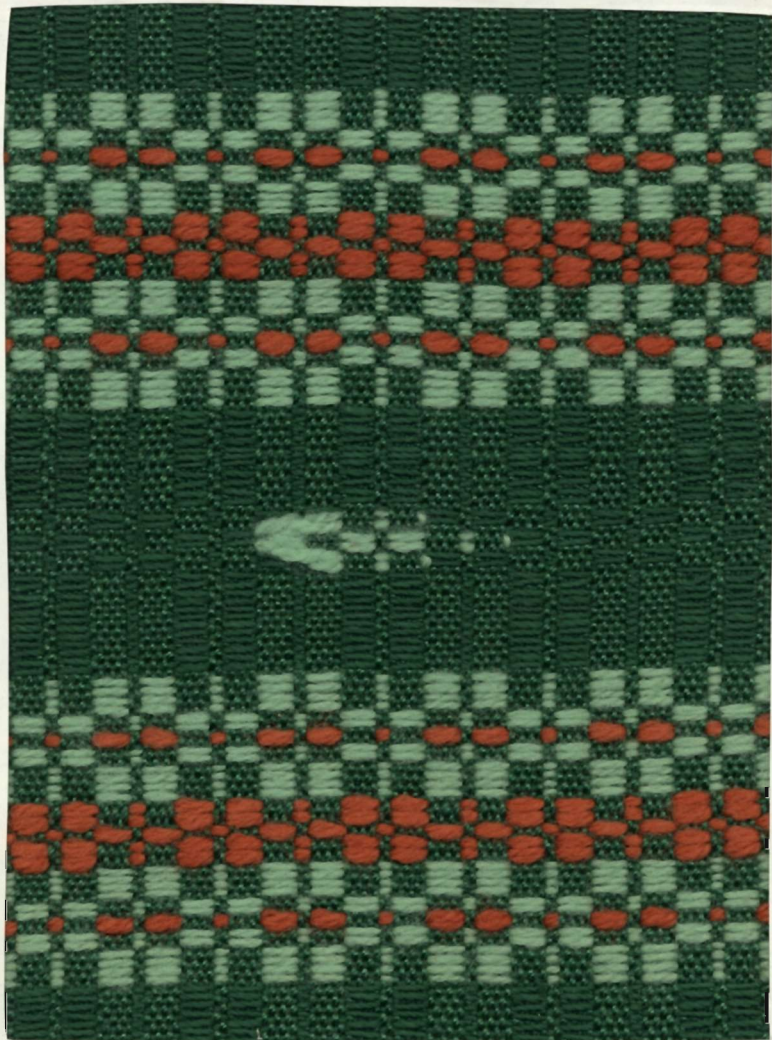
The design for munkabälte is drawn onto ruled paper. The design is then transferred to the threading of the heddles so as to allow the warp threads to pass, or flush, over or under six and two threads or any determined number required to give the correct pattern. The designs are either shuttled in when of one color, or brocaded in one design at a time when contrasting colors are used. Because of this type of technique, munkabälte is related to simplified damask; and the munkabälte star, a typical pattern, is traced to a damask pattern common in the eighteenth century. (65 p. 43)

The munkabälte star, which is peculiar to this technique, is the most common motif found in the fabrics. The star figure is somewhat like a flower, and is made up of small and medium-sized squares and oblongs. A simple chequer design is also found. In some instances, groups of stars radiated from a central large star. In this case, the design was not made by the pattern threads, but was broached in with floating threads. Plate X is an example of Munkabälte.

PLATE X



MUNKABÄLTE



The last in the group of flushing weaves is rosen-gång and hampkrus. The two are closely related types which were at one time considered to be variations of the same technique and were called "tied" and "loose" rosen-gång. (43 p. 3184) The design is formed by a flushing thread which runs over a birdseye threading. The fabric is woven of wool or cow's hair on a linen warp; possibly in early times, it may have been woven on a woolen warp. In a few instances, cotton and linen were used for weaving rosen-gång pillow-cases, bands for shirt sleeves, and aprons.

The tied variation of rosen-gång has a rep-like surface and is generally three-heddled. On the wrong side of the fabric, the weft threads lie loosely and do not form a pattern. (65 p. 45) This technique results in a fairly thick fabric which was made into warm covers of linings for coach rugs. (43 p. 3184)

It is possible, however, to produce a rosen-gång pattern with a rep surface on both sides of the fabric, and with a pattern on the wrong side of opposite colors to those on the right side. This is done by alternately passing two shuttles of different colored threads from opposite sides of the shed. The method produces colors which appear periodically in the same shed. This is

called two shuttling, or "tvaskyttling" and is found in many textile techniques. (65 p. 45)

Color schemes in rosenång patterns vary with the areas in which the fabrics originate. Patterns are spread over the entire surface of the fabric, or may appear in broad transversal stripes with unpatterned stripes in between. (43 p. 3184) Plate XI is an example of rosenång.

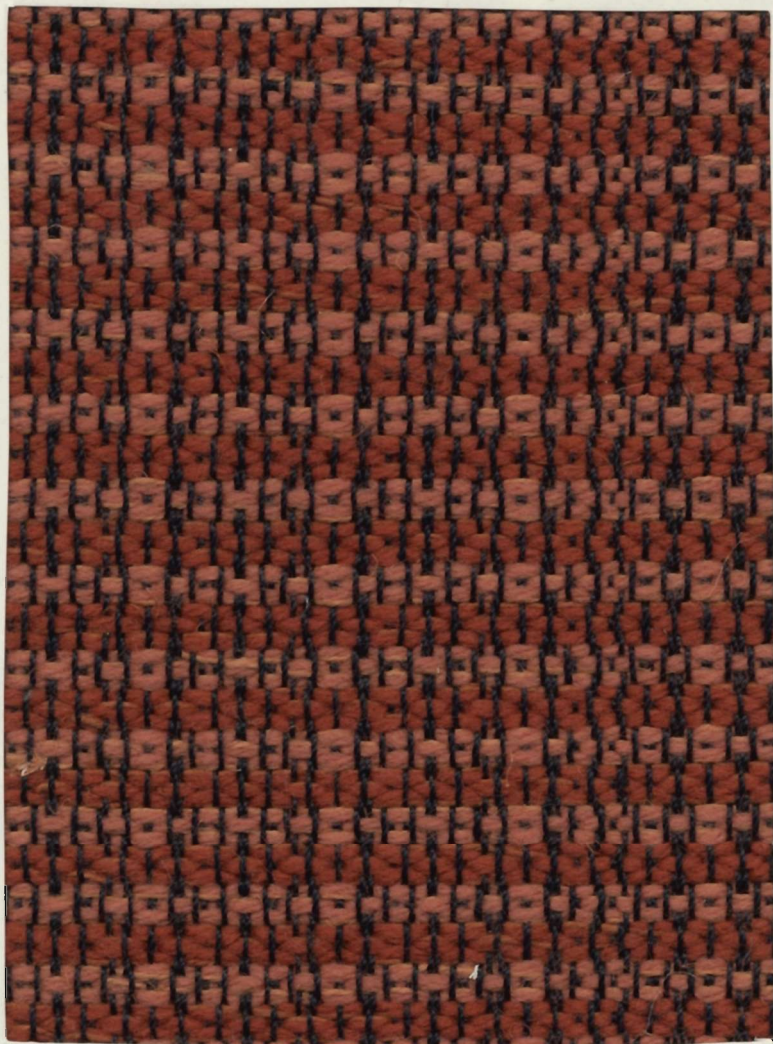
Loose rosenång is similar to twills and has the same characteristic diagonal patterns. The weft threads generally flush over more than one or more warp threads giving a loose float. (65 p. 45) Loose rosenång, or hampkrus, is a double-faced fabric; the colors are reversed on each side. The technique differs from a twill in that the warp is often completely covered, and the textile is often worked in only two colors.

When the fabric is constructed of wool, it is usually made into table covers and rugs. If cotton fiber is used, the fabric woven is made into variegated striped aprons. (43 p. 3184)

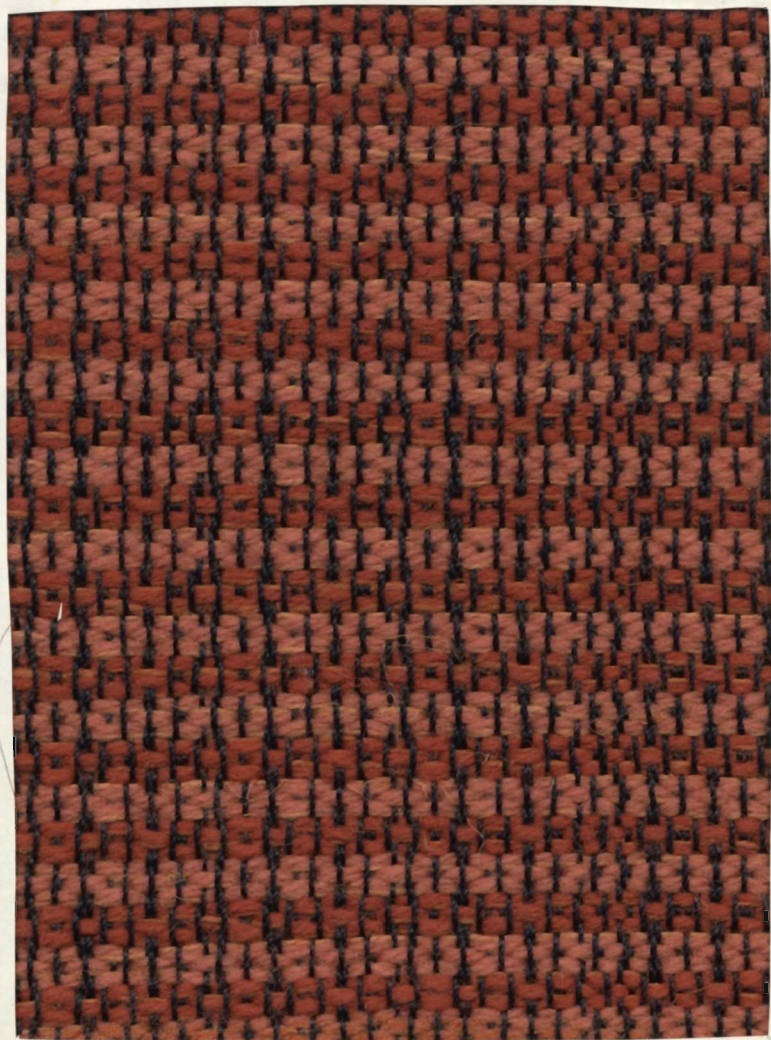
Other weaves

Tabby weave is basic to all weaving techniques, and many variations of this weave are found. Scandinavians show a great deal of versatility in employing this weave

PLATE XI



ROSENGÄNG



in their fabrics, for example, Finnish or double weaving. (53 p. 42) Finskevav, or Finnish weaving, appears to have originated in Finland; however, there is some question as to this fact. (53 p. 42)

Double weaving is a technique in which two separate webs are woven at the same times, one above the other, and are joined together whenever the weaver wishes to alter the position of the webs. If the two webs are of different colors, each color will appear alternately on the front and on the back of the fabric wherever the two warps are crossed by the weaver. Very simple or very complex designs may be woven in this technique; however, the designs must be evenly distributed over the surface, in order to prevent weakness in certain sections of the fabric. Because of the time involved and the complexity of the technique, weavers need a great deal of skill and patience in executing double weaving.

The method of weaving double cloth is described by Von Walterstorff as follows:

"The pattern is formed by picking up certain threads in the uppermost warp, for web I, by means of a pointed narrow shaft inserted between the reed batten and the web beam. Then the shaft is raised on edge and with the reed batten moved towards the web. The parts of warp I that lie below the shed rod are treadled down and in the shed now visible behind the batten a shed-rod is entered and moved towards the heddles. The pointed shaft is pulled out. The shuttle is then thrown through the sheds of the two-heddled web II

"with two shoots of weft: the weft being of the same colour. The shed-rod is next pulled out, and treadling and picking up of warp II takes place; the two shoots in the second warp being made with the contrasting colour weft."
(65 p. 8)

Strongly contrasted colors are often woven in double weave textiles; and thus, the designs stand out clearly. Each side is the reverse of the other (43 p. 3184) Designs and patterns of Scandinavian double weave show definite influence of weavers of the continent, and Byzantine and Romanesque designs were often used. Nordic impressions were thus often given to these fabrics.

Designs and motifs that were often seen in these fabrics were heraldic birds, scrolls, Italian stars and rosettes, Christian symbols, as well as patterns and motifs indigenous to the Scandinavians themselves. By the end of the sixteenth century, family patterns had been developed; and from that time on, the motifs were renewed by reweaving the patterns over and over again as the old fabrics wore out. (52 p. 22-24)

The technique of double weaving was first used to produce simple narrative scenes. Later, symbolism was introduced; and the fabrics took an important part in festivals and significant dates in the lives of the people. The fabric was used on wedding days to protect the home from evil spirits, on visiting days to welcome guests, and as burial cloths to protect the dead from ghosts.

Ecclesiastical cloths were woven in the double weave technique as altar cloths and coverings for the Bible. Wool and linen fabrics in the double weave technique were used to cover the straw and feather mattresses of the wall beds and by the seventeenth century had become valuable possessions of the household.

The technique of double weaving was revived in the Scandinavian countries in the twentieth century, and the traditional weaving has been successfully combined with modern theories of design to present fabrics for modern usage. Double weave is a challenge to any weaver, as the technique presents many artistic problems for the contemporary artist and weaver. The technique, which is done on a four-harness loom, is one that belongs exclusively to the handweaver, as it is not profitable for operating on a mass production basis. (52 p. 22-24)

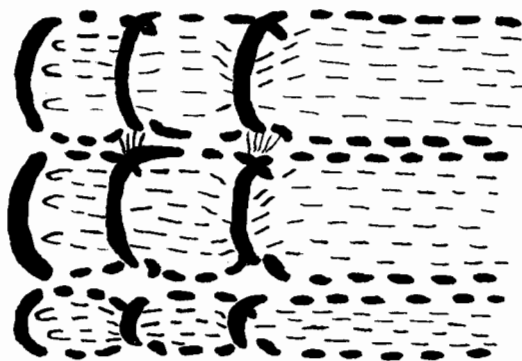
Danish Open Work is sometimes referred to as the Danish Medallion finish and is a technique that may be done with a tabby shed. (24 p. 33) The pattern is formed by leaving certain dents vacant. Several rows of tabby are woven in, and the pattern thread is then introduced by means of a netting needle. The next shed is opened, and the needle is inserted to the first vacant dent. The threads which cross this space are drawn together by the pattern thread in a blanket or buttonhole

stitch. (See Plate XII) The pattern thread is then carried to the next vacant dent and so on across the width of the fabric. This process is continued to give the desired pattern or design. (1 p. 4)

The design which results from this Danish technique may resemble that of bricks lying atop one another. Interesting patterns and variations are obtained by varying the spacing, the sizes and the colors in the pattern threads. Whether this technique is found in countries other than Denmark has not been determined. (53 p. 43) Plate XIII is an example of Danish Open Work.

Rep textures have a place of importance in the weaving techniques of the Scandinavians. The technique is a plain weave in which alternate shots of fine and heavy weft are woven into a fine, closely strung warp. In Sweden, the most outstanding textiles in this group are the "mattor" or rugs and carpets. The rugs are usually of the runner type and are usually a little more than two feet wide. (53 p. 44) Scandinavian people are very frugal, and many of these rugs are made of rags cut from worn-out garments. From these rags, the Scandinavians produce interesting rugs of unusual color and design. Such rugs are used in the Scandinavian homes of today.

Plate XII



This diagram shows the
technique of Danish Open
Work.

PLATE XIII



DANISH OPEN WORK



Because of the versatility of the tabby textures, there are many variations developed in rib and basket weaves. (53 p. 44)

There are many other weaving techniques used in the Scandinavian countries. Lack of available information prevents study of many of these weaves. This may be due to their relative importance in relationship to the techniques previously mentioned. Wadmál, a fleecy twill fabric of wool is one such fabric. Another example is a novelty technique giving a lacy weave called "spetsvav", "halkrus", "gagnefkrus", or "svaert piket." All of these are similar to honeycomb. The effect achieved by this technique is that of a lace, but is actually a compact fabric requiring many weaving complexities. (53 p. 49)

A type of weaving called M's and O's in this country is common to all Scandinavians. This was a popular technique in linen in the Colonial Days of America. The Scandinavian fabric, however, used the weave for heavier materials and in different color effects. The fabric is reversible and is exactly alike on both sides, as the material does not have a long overshot. M's and O's is usually a one shuttle weave, with the tabby and pattern threads being the same, and usually the same as the warp. Patterns for M's and O's are based on a two block type of design. Helen Louise Allen describes the technique as follows:

"The threading for one block is based on the 1-2, 3-4 plain weave system and the other block on the 1-3, 2-4 system. The smallest units of each block is of eight threads, but they may be cut to four. If set up and woven in even units of eight threads each, the reason for the name of M's and O's may be seen if one has a good imagination." (2 p. 78)

When the unit block is enlarged, the effect of M's and O's is lost and is difficult to distinguish. (2 p. 78)

Damasks are another group of techniques familiar to the Scandinavians; however, the fabrics are usually called "dräll", including apparel and household linens, and half-linens of a large variety of weaves with bindings of satin or twill. (53 p. 50) A great deal of damask is still woven in the Scandinavian countries. An eight harness loom, often of the contremarche kind, is used for weaving the fabric. In Sweden, this is called a "dräll" loom, and a device called a "harneskrustning" is used to raise and lower the pattern threads. (2 p. 4-5) It is also possible to weave damasks on a four-harness loom, but then the technique is called "Skalbad." (22 p. 15) "Kilpik-angas", a Finnish technique, gives the same effect as damask, but is a twill weave with a satin-like background. The Finnish technique also requires fewer harnesses. (22 p. 57) Examples of damasks are seen in many of the Scandinavian countries. Cotton damasks are seen as well as ones of linen and wool, and some of pure linen.

Upholstery fabrics in a damask technique are found in both Denmark and Sweden. (23 p. 14)

Twills are also important in the fabrics of the Scandinavian people. Twills have been developed in heringbones, checks, and other varying patterns. Designs that have become traditional within the twill technique have developed within each country and within each family.

Swedish lace weaving is a traditional weave that is believed to have been used by the Vikings. It is the only lace weave which may be woven on a four harness loom.

(64 p. 46) The weave is a cross between lace and weaving. The fabric has no weft, and all the weaving is done with the warp threads. The loom must be a frame with flexible warp bars, as the two beams gradually come together as the warp is woven. The advantage of Swedish lace weaving is that as the weaver is constructing the pattern at one end of the frame, the other end is automatically weaving the same pattern. When the weaver is finished, she has two strips of fabric exactly alike, which are then cut apart. This method is described by Helen Louise Allen as follows.

"I use two heavy cards for my warp beams, winding them around the side beams in such a way that I can readily adjust the tension as is necessary. The warp is wound back and forth over these two cards, making the tension as even as possible. Two back threads are brought under one front thread, the latter then becoming a back thread. The next thread being brought under the front thread to the right of it. This front thread

"becomes a back thread. When the whole row has been worked like this, a weaving sword is put in the resulting shed which is being held open by the fingers. If the piece is too wide, the sword can be put in as one goes along. The next row is then picked up in the same fashion. The threads may be twisted once around each other to give a greater ridge if desired. Open lace-like spaces made similar to the Mexican lace weaving may be made. One thread of the back is brought around two of the front threads and then two of the back threads are brought around one of the front threads. In the second row it is done the same way, but in the third row the straight plaiting is done, which closes the open spaces. In each shed just the shed stick is placed, no weft, until one can no longer comfortably twist the threads. One of the edge threads is then chain stitched or "crocheted" across the whole article and the two halves of the weaving can be cut apart." (1 p. 6)

The better known and most often used techniques have been included in this study. From the frequency of weaving techniques found in Sweden, it appears that weaving was more highly developed or at least more variations and techniques were used than in Finland and Denmark. Further indications of this difference are seen in the amount of material written about the techniques of each of these countries. Due to a lack of available information, and to the many variations of weaving techniques possible, this list and descriptions are incomplete.

Scandinavian Craft Societies

As a result of the industrial revolution, folk craft of the Scandinavian countries began to diminish. The people could no longer find markets for their products at prices reasonable for their materials and labor. Industrially produced products lost the charm, quaintness, and artistry of the peasant work. As a result, interested leaders in the fields of handicraft began to organize folk craft societies. These associations have helped to subsidize the crafts and have aided in the sale of goods. Classes in different crafts are given to aid the people in executing new designs and in applying old techniques.

The original folk craft society in Sweden was organized in 1899 by Prince Eugen and Lilli Zickerman. This small society then grew into forty local craft societies as the people realized that this was a way to save their valuable folk art. These forty societies of "hemslöjds" joined under a single association in 1921 called "Svenska Hemslöjdsföreningarnas Riksförbund." (40 p. 16) The association was founded to promote the educational and cultural development of home crafts in the country. (68 p. 6) A joint sales organization for most of the members is provided by the association, and the Swedish government subsidizes the national association in the work of circulating the information about folk craft. (40 p. 16)

The association is composed of thirty provincial associations or societies. Schools for weaving have been established, and the appreciation of craft artistry and skill is strengthened by exhibits of the articles produced. Markets are provided for those products which are for sale. Throughout the country there are ten weaving schools which offer approximately 150 courses to an annual enrollment of 2,000 students. (68 p. 6)

The influence of the crafts which are rich in tradition, both in patterns and techniques, has been great. New motifs are introduced which give new and individual designs to the fabrics and crafts but which retain the qualities of the traditional textiles. Hand-prepared woolen and linen yarns are preferred and encouraged. Both men and women work in producing modern textiles. (68 p. 6-7) Mac Lindal says that, "It is generally recognized in Sweden that its traditional crafts have strongly influenced the contemporary designer-craftsmen, the ceramists, metal-smiths, furniture makers, the weavers. In contemporary weaving, for instance, even the most sophisticated modern rugs and tapestries being produced today adapt centuries-old designs, colors and techniques of the rural crafts."

The Finnish association for the preservation of artistic crafts was organized in 1897. It was founded as a

result of the onrush of industrialization and is called "The Friends of Finnish Handcrafts". In the field of weaving, the ryijy rug has emerged as a gem in the arts of Finland. The acknowledged dean of studio weavers is Dora Jung, who acts as a consultant for the textile industry. H. O. Gumerus is the managing director of the Finnish Society of Arts and Crafts and Industrial Design in Helsinki, and has this to say about his native art:

"Our traditions are strong, rich and decidedly healthy. Our medieval churches, our ancient iron work, our ryijy rugs, our old wood-carvings are unfathomable wells of inspiration to contemporary designers. There is, perhaps, a certain wholesome absence of esoteric customs and beliefs, but contemporary Finnish design has undeniably an indigenous character based on ancestral hand crafts, and even though we are considered a progressive country with high technical standards, we are still closer to our historical folk traditions than most peoples. What is more, it is not a static pool but is renewed continuously from many tributaries." (27 p. 27)

The art of handweaving in Denmark did not survive the industrial revolution as well as it did in Sweden and Finland. Techniques of producing handwoven textiles were continued in only a few hamlets of Southern Jutland. Some fabrics were preserved in museums. The demand for cheap, machine-made, readily available goods dealt a death blow to the weavers of the country; and as a result, Vaeveboden, or Little Weaving Shop, was established 25 years ago by two women, Annie Fisker and Augusta Morck.

Three women operate Vaeveboden. Miss Moreh, one of the founders, studied at Stockholm's school, Bruson's Vavskole. She was trained in both design and in the complexities of theory and technique. The second founder, Mrs. Fisker, was a weaver for many years prior to the opening of the shop. Magda Paulli joined the school as leader or teacher of the workshop. She now helps in the designing of fabrics. Mrs. Paulli studied and taught at Askovhus, the weaving school in Sonderborg, which also had much to do with the re-introduction of weaving to Danish crafts. These three women do all of the designing, and their students do the weaving.

Askovhus School of Weaving is under the direction of Paula Trock, a well-known weaver. She does a great deal of dyeing to specification of yarns for the Vavaeboden Shop and is establishing a factory to be equipped with special small handspinning machines from Scotland.

CHAPTER III

CONTEMPORARY SCANDINAVIAN DESIGNERS

The Scandinavian countries have produced many famous and well-known designers who have influenced the work of their own people as well as people and designers of other countries. Scandinavian influence is felt through examples and exhibitions of designer's work, which are sent to the United States, and by the many weavers and people from this country who have studied in the Scandinavian countries.

Swedish Designers

Sweden has produced many weavers and designers who have spread their influence abroad. Märta Måås-Fjetterström was Sweden's greatest textile designer. The many fabrics that she designed have found their way from humble peasant homes to palaces of the royal family, and to the United Nations Building in New York. She was one of the first designers to recognize the value of peasant art; and she drew her inspirations from Swedish and Norwegian peasant art, modern Van Gogh, art of the Middle Ages, and Oriental art. (54 p. 13) Because of her realization of the importance of the peasant art, her work and influence did a great deal to make a success of the folk societies in their early days.

Miss Måås-Fjetterström enriched Swedish weaving with a lively creative imagination and a superlative color sense. Her early work was highly detailed and very subdued in color; but as she wove her impressions of life and the countryside, her designs became more simplified and her colors became brighter, bolder, and more sparkling. The brilliance of the northern lights and designs of the flowers of the countryside were translated into colorful rugs, draperies and tapestries.

Basic weaves used by Miss Måås-Fjetterström were tapestry and knotted pile. A technique which she sometimes employed was that of setting her warp for tapestry far enough apart to let it show in places, a method which was later used by many contemporary weavers of the United States. Röllakan technique was used in many of her wool rugs, often spun with cow's hair for strength. Flossa technique gave her an opportunity to blend shades of colors and to make her designs more vibrant. (23 p. 21)

This famous weaver, whose influence has spread far beyond the boundries of her native Sweden, expressed her feeling of how she worked:

"If I ever go so far that any of my designs can awaken a spontaneous feeling of beauty such as one experiences in the presence of nature herself, if they can show an innate bond with the earth's own blossoming glory or the beauties of the heavens such as I once felt I saw in the shimmering background of an Oriental rug, then I will feel that

"I have not worked in vain." (54 p. 15)

Upon the death of Miss Måås-Fjetterström in 1941, a small company was formed at Båstad to carry on her artistic work. The studio which is devoted entirely to hand-weaving is maintained by such designer-weavers as Barbro Nilson, Ann-Mari Forsberg, and Marianne Richter. (23 p. 21) Plate XIV is a picture of a tapestry designed by Miss Märta Måås-Fjetterström.

Marianne Richter was the designer of the Swedish tapestry which hangs in the Economic and Social Council Chamber of the Conference Building of the United Nations. The weaving of the tapestry was supervised by Miss Märta Måås-Fjetterström. This tapestry consists of two sections, each which is about five feet by twenty-five feet long, and was woven on a special loom. The curtains are so integrated in design as to give the illusion of being one continuous web. The design is made up of vertical ovals with concentric stripes containing triangles in a variety of colors. The predominate colors are magenta, orange, white, and plum. (7 p. 10)

Two weavers, among the most outstanding of Sweden, are Ingeborg and Elsa Kristina Longbers. In 1919, Elsa Longbers started a school for weaving at Insjön, Dalarna. (42 p. 217) The school, Saterglantan, has been one of the leading influences in the revival of weaving in Sweden.

PLATE XIV



TAPESTRY BY

MÄRTA MÅÅS-FJETTERSTRÖM

The school has woven fabrics for the royal family, and many of their textiles are sold in the United States.

(42 p. 5) Classes place emphasis on modern Swedish textiles. In about 1935, the school was taken over by the weaving society, Handarbetes Vänner. (54 p. 217)

Miss Ingeborg Longbers is now a resident of the United States and has taught weaving at the University of Tennessee, Knoxville, and at Cornell University, New York. Her sister, who is well known as an interior decorator as well as a weaver, has visited in the United States; and in the summer of 1950, the two sisters taught a course in Swedish Textiles at Hanover, New Hampshire. This course placed special emphasis on Swedish textiles, thus, continuing the influence of their native country to this country. (56 p. 45)

Astrid Sampe-Hultberg is another of Sweden's leading textile designers and is director of the Textile Workshop and co-director of the interior design department of A. B. Nordiska Kompaniet, one of Sweden's largest department stores. Miss Sampe-Hultberg designs fabrics both for decorative textiles and for apparel. Her work is based on wide experience and a thorough knowledge of the later developments in the international field of textile design. Her work shows a sturdy and practical combination of esthetic values which are neither spectacular nor

flamboyant. A variety of weaves is used with a discriminating choice of texture and color. Miss Sampe-Hultberg always keeps in mind, however, the function of her fabrics and, therefore, finds an answer to practical demands.

(59 p. 36)

Fabrics by Miss Sampe-Hultberg were displayed in the "Design in Scandinavia" exhibit which toured the United States in 1956. She also supervised the designing and weaving of textiles supplied by the Norkiska Company for the United Nations Building. Curtain fabrics were woven for conference rooms and offices. In these curtains an unusual weave construction was used to combine orange wool, gray rayon, and white cotton in vertical stripes. (7 p. 11) Casement curtains were also designed to hang behind the window tapestry. (7 p. 12) Bedspreads designed of small rectangles were woven for the Secretary-General's suite. (7 p. 11)

The Swedish royal family is very interested in the folk craft of their people. One member of the royal family, Sigvard Bernadotte, is a designer of repute. His fabrics have been sold in the United States, and more than three hundred of his rugs have been brought to this country. They have aroused a great deal of interest. Rugs designed by Bernadotte are handwoven by the peasant weavers of Sweden.

Bernadotte designs co-ordinated fabrics for upholstery and rugs of handspun, hand-carded wool. His rugs are designed for small rooms or for decorative touches in large ones. They are never blatant or overpowering but have a touch of coolness and freshness with a non-aggressive quality.

His rugs are designed in four different styles. They consist of long pile, high pile, flat-woven rugs, and textured rugs. The textured rugs give an effect of third dimension through the use of sculptured wool on a background of linen in a related color. The design is also a matter of light and shadow and contrast between the height and depth of the pile rather than of color. Designs are mainly arrangements of geometric figures, traditional in Sweden.

Bernadotte draws his inspiration from Swedish flora and landscape and blends his ideas into combinations and gradations of well-modulated tones. Characteristic hues of birch, green of pine and spruce, and silver-grey of beech patches are combined with the heather tones, poppy colors, the wild strawberry, raspberry, and tinges of arctic moss.

One of his most famous designs is the "Celebration" rug, which is a traditional textile of Sweden. On it a couple is married, their children are christened, and all

important occasions are celebrated. The motif is of two tree trunks intertwined and growing upwards. (57 p. 24-6)

Ann-Mari Hoke of Saltslobaden, Sweden, is another outstanding weaver as well as a leading interior and furniture designer. Miss Hoke was born in Dalarna and in her early childhood, learned a great deal about native costumes and fine handcraft of the province. She attended art school in Stockholm and then taught drawing. Later, she attended the large weaving school of Brussons, Vavskola, to learn more of the techniques of weaving.

For a short time, Miss Hoke was associated with the Swedish Home Industries; later, she did free lance weaving and textile design. Much of her work has been done for churches. In addition, she designs many modern tapestries which are constructed in the technique of the Gobelin tapestries. Fabrics for airplane interiors have also been included in her work. One of her most noted designs is a large decorative panel hanging in the high school in Norberg. It is a water wheel and mining shaft from a famous iron mine and is executed in the röllakan technique.

Miss Hoke uses the old traditional Swedish techniques. Her designs, however, are contemporary for use in modern styles of architecture. Many designs are symbolic and are taken from sources such as the Bible and Swedish folk lore. She has done a great deal to aid in the revival of weaving

in Sweden and has helped in selecting suitable materials and designs that will go well with the traditional furniture still used by the old families of the country.

(64 p. 20-21)

Bittan Valberg, a Swedish weaver, is applying traditional Swedish techniques to rugs and wall hangings that are attuned to American taste. Her background includes work under Barbro Nilson, head of Miss Måås-Fjetterström's studio. Miss Valberg also studied textiles in Italy, France, and Spain.

After graduation from Konstfackskolan, the Swedish state school of arts and crafts, Miss Valberg worked as a textile designer for Hemslöjd; later, she opened her own shop in Uppsala. (10 p. 28) Her business was so successful, that she visited the United States to develop a market for her products.

Miss Valberg plans to establish a studio in New York and to make one-of-a-kind rugs, wall hangings, and draperies. Although her techniques will be typically Swedish, she will adopt designs of American flavor. Miss Valberg believes too many American weavers tend to imitate Swedish weaving. She feels that Sweden can contribute color theories and techniques; but the designs are Sweden's own and should not be copied. American weavers should base designs more on their design heritage of the Western

Hemisphere--pre-Columbian, North American Indian, Colonial. (10 p. 31)

Internationally known weavers are Valborg and Axel Gravander, of Mill Valley, in Northern California. Valborg or "Mama" Gravander was born in Gefle, Sweden, a ship-building and shipping center on the east coast. After she married Axel Gravander, she moved to San Francisco and began teaching weaving. Mr. Gravander assisted by making looms and other equipment for the classes. In 1929, the Gravanders moved to Mill Valley in Marin County and opened a new school for weaving called "Ekbacken," which is Swedish for oak hill.

Students are taught traditional weaving techniques in which Mama Gravander is well versed, as her foundation was acquired at a weaving school in Sweden. Classes are limited to short, intensive periods of instruction in basic weaves or in specific techniques.

Mama Gravander does much of her own dyeing and spinning. She imports yarns from Sweden as well as teaching and producing many woven products of her own. Her traditional manner of weaving peasant skirts and rya rugs have become well-known. Another specialty is striped cotton for dresses, skirts, and curtains; a favorite weave is the rosepath design of old Swedish origin.

One of the largest orders that the Gravanders have fulfilled is fabric for the home of the actor, Charles Laughton. In addition, Mrs. Gravander's fabrics have been exhibited in the deYoung Museum, San Francisco, and the San Francisco Museum of Art, as well as in many other places. Mama Gravander and "Eckbacken" offer excellent opportunities for weavers to learn the old Swedish techniques. (11 p. 4-7, 54)

Finnish Designers

Finland has also contributed her share of prominent and well-known designers. One of her best known designers is Dora Jung, who is noted for her linen damask tapestries. Her tapestries give an impression of serenity. Those exhibited, won the Grand Prix in the IX and X Milan Triennials. One of her most famous works is a series of panels of the Wise and Foolish Virgins, an old Scandinavian design. The panels are woven in rosewood and natural linen and are designed with a Grecian purity of line, in the form of a paneled frieze. (51 p. 13) The treatment of color in Miss Jung's tapestries is highly refined with sparse areas of color woven into dominating grays.

Ester Perheentupa, a well-known Finnish weaver, is also the author of several books on the techniques and designs of Finnish weaving. Miss Perheentupa also teaches

in her native country. All of her work shows a practical slant, and each piece is indicative of the function that it is to form. She has woven suitings and yardage for wool neckties, and the bed covers and upholsteries that she produces are always firm and usable for long wear and satisfaction. (51 p. 52)

Rauha Aarnio is another of the successful Finnish designers who designs furniture coverings and rugs. Her furniture coverings are usually a firm fabric with a shading of color obtained by using a warp of one color and a contrasting weft, which gives a very pleasing effect. Rugs that she designs are patterns in flossa or loops on a flat woven background. Her rugs for country homes contain smartly colored patterns of stripes and simple developments of rosepath and twill. Her fabrics are both effective in design and are practical for use. (rl p. 13)

Laila Karttunen is a Finnish designer who is turning to the Finnish traditions for inspiration in designing. This trend is also noticeable in the Home Industries of Finland. (51 p. 52) Miss Karttunen is director of Wetterhoff Institute in Hameenlinna, Finland, where she is chiefly concerned with the perpetuation of a national Finnish style based upon the most distinctive traditions of Finnish weaving. She has also been working on a survey of Finland's handwoven textiles. An index of design for

the entire country will be compiled from data gathered in this survey.

Miss Karttunen has developed her own style of weaving and design which is highly personal and dramatic and definitely Finnish in character and technique. The techniques of her weaving have all been derived from her studies of the folk art of each province of Finland. Most unique of the techniques that she uses are double-weave and the ryijy rugs used as wall hangings.

Colors used in Karttunen's fabrics are mostly those of the rich earth tones. Yarns are usually wool or linen and are dyed by hand with vegetable or chemical pigments imported from Germany. Designs consist of poetic, abstract styles with a strong Finnish flavor. All of her designs are woven in a workshop maintained by Wetterhoff Institute. (19 p. 60-61)

Viola Grasten and Eva Anttila are two more of the Finnish designers. Miss Grasten, who is weaving in Stockholm, is noted for her beautiful rugs of long rya fringes in brilliant jewel-like colors and pinwheel designs. (51 p. 13) Eva Anttila is from Helsinki and is a specialist in tapestry weaving. Her designs are first executed in crayon or water color and then woven on either a linen or cotton warp on an inclined loom. Typical designs are romantic subjects such as "The Street" and

"Moonlight" as well as biblical themes and the typical Scandinavian folk tales. Her style is characterized by a strong linear movement and by muted colors mixed with occasional flashes of brilliance. (19 p. 58-59)

Marta Taipale is a weaving artist who uses a wide variety of materials. Her work is quite untraditional except for a fringe which she adds to her finished pieces. Miss Taipale's designs are woven on an ordinary floor loom with a full scale drawing of the design pinned under the warp. In the process of weaving, every curved area is built up separately. The weft threads are beaten in with a small comb, and frequently a long thread is thrown around an entire curved area to outline the design. Weaving is not done by Miss Taipale but is executed under her close supervision.

Taipale designs are largely religious in theme and subject. She makes use of intense color and metallic threads; and her color, which is expressionistic, is suggestive of Rouault. Her textures, however, are quite primitive. The influence of her surroundings is shown in textures of the woods, rocks, apple trees, and birch bark. (19 p. 59-60)

Because of scarcity of materials, which forces weavers and designers to use ingenuity in exploiting the possibilities of all available materials, Finland's weavers are the most creative of the weavers in the northern

part of Europe. As a result, materials such as fine and coarse paper yarns, straw, birch-bark strips, and other varieties of wood products are put to use by the enterprising weaver. Finnish artists live close to nature, and thus their work is greatly influenced by the surrounding country. Rocks, trees, bark, water, and clouds all suggest motifs which are interpreted into fabrics with a charm which lies in a virile, primitive quality combined with sound workmanship principles and a realization of the artistic possibilities to be found in textiles. (19 p. 58)

Danish Designers

The well-known Danish designers have already been discussed under the Scandinavian Craft Societies. They are Annie Fisker, Augusta Morck, Magda Paulli, and the most well-known designer, Paula Trock. Miss Trock is also one of the contributing designers of fabrics for the United Nation's Buildings. From the Danish looms come upholsteries and draperies for one of the lounges for the Trusteeship Council Chamber. The all wool drapery material is styled in an apparel fabric fashion. It is a simple, striped pattern with two brown and two white warps, filled throughout in a plain weave of white wool. The upholstery fabric is much the same as the drapery

but is a pattern of a small plaid formed by color variations of gray, white, and yellow. (7 p. 12)

For several reasons, Denmark has not produced as many prominent designers of textiles as have the other Scandinavian countries. One reason might be that the decline of handweaving as a result of the industrial revolution was felt most severely in Denmark. Also, straw grown on the flat farmland soil of Denmark is the only raw hand-weaving material native to Denmark; and this scarcity of available material might also be one of the reasons that the country's designers have concentrated upon such products as silver work and furniture. Denmark is recognized as one of the leading, if not the leading Scandinavian country in furniture design and silver work. (31 p. 17-18)

CHAPTER IV

CONTEMPORARY AMERICAN DESIGNERS
INFLUENCED BY SCANDINAVIAN TEXTILES

Contemporary fabrics and their designs are influenced by American designers. Ideas, motifs, colors, and textures created by these people are adapted by the American manufacturer for public consumptions. Thus the leading textile designers influence fabrics that will drape our windows, cover our furniture and floors, decorate the insides of our automobiles, and clothe our bodies.

Where do these designers get their ideas and inspirations for new and beautiful fabrics? Sources are wide and varied--originating from traditional fabrics, primitive arts, modern paintings, modern architecture, and nature. Many designers also obtain their ideas from textiles and art objects of foreign countries. The Scandinavian countries are among those contributing to the inspiration of the American designer.

How do the American designers adapt or use the influence of foreign countries? The influence of a foreign country may be seen in the traditional color schemes adopted by the designer. Typical designs and motifs of a foreign country are adapted to the tastes and needs of the American public. One of the biggest influences may

be seen in the adoption and adaptation of methods and techniques used by weavers of foreign countries. The people of Europe and Asia developed the techniques of weaving many years before the process was brought to America by the first American settlers. In fact, it was from Europe that the settlers brought the process of weaving. Even today, many leading American designers have European backgrounds and training.

Mrs. Eliel Saarinen

Two individuals who have greatly influenced the designs of contemporary American fabrics are Mrs. Eliel Saarinen and Marianne Strengell. Mrs. Saarinen was for many years the head of the weaving department of Cranbrook Academy of Art, in Michigan. The Cranbrook Academy of Art was founded by George and Anna Booth to promote good design in contemporary products and architecture and to offer a school in which gifted students might study. As a result of this school, many of our leading designers of ceramics, fabrics, furniture, sculpture, and architecture are influenced by European teachers. Mrs. Saarinen obtained her background in weaving in her native Finland; and in her capacity as head of the weaving department, she was in a position to influence her students. Many of

the United States' leading textile designers have been students at Cranbrook Academy of Art.

Marianne Strengell

Marianne Strengell followed Mrs. Saarinen as the head of the weaving department at Cranbrook; and in the opinion of the author, Miss Strengell has done more to introduce Scandinavian influence on contemporary American fabrics than any other American designer. As well as being the head of the weaving department at Cranbrook Academy of Art, Miss Strengell is one of the most outstanding textile designers in the United States.

Miss Strengell was born in Helsingfors, Finland. She spent her early years there and graduated from the Central School of Industrial Design, Helsingfors. She spent her summers traveling throughout Europe and the Canary Islands. Her career in Finland consisted of being chief designer at Hemflit, Helsingfors, for open line textiles and custom work. She designed rugs, suitings, linens, and decorative fabrics for hand and power looms. (37 p. 25) She also designed for the semi-annual collections of home furnishings for BO Aktieselskab, Copenhagen, and some of her work was done for Sweden. Miss Strengell also headed the interior design studio of Koti Hemmet in Helsingfors.

In 1936, Marianne Strengell came to the United States for a short visit; but she liked the country so well that she decided to stay. (6 p. 9) Strengell has designed specifically for United States machine production. She capitalizes on a basic contrast effect of cotton, mohair, and wool yarn; and most of her work is for drapery and upholstery fabrics. (33 p. 36)

Miss Strengell has worked for a wide variety of manufacturers, and for several years she has worked as textile consultant to architects and automobile manufacturers. In 1951, she became consultant to Eero Saarinen, architect of the General Motors Center near Detroit. Fabrics which she designed for this center have attracted nation-wide attention. At the same time, she designed a stage curtain for the new auditorium at the Massachusetts Institute of Technology. The Institute itself was designed by Saarinen. Other fabrics were made for the new girls' dormitory at Drake University in Des Moines, Iowa.

Besides her work for Saarinen, Miss Strengell has designed experimental fabrics for Skidmore, Owings, and Merrill's Fiberglass Building in New York. (6 p. 6-8) The fabrics were designed for windows, walls, and furniture and contained Fiberglass, cotton, asbestos and silver yarns, and some ratine. Upholstery fabrics

contained Fiberglass, mohair, wool, and cotton. (18 p. 116) Miss Strengell also designed rugs and upholstery fabrics for Manhattan House, New York.

Getsinger-Fox, sales representatives for Chatham Manufacturing Company, obtained the services of Miss Strengell for designing experimental fabrics for automobile interiors. Samples were designed for the dobby loom, and she worked directly in yarns spun at the Chatham mill. Patterns for the Jacquard loom were also worked out. (6 p. 8-10)

In 1953, Miss Strengell was engaged by the United States Foreign Operations Administration as a textile consultant. She consequently went to the Philippines to assist the Philippine people in developing their weaving designs and techniques. She first designed a loom which the people could use for weaving rugs and upholstery materials as well as for sheer cloth in 42-inch widths. Experimentation included dyeing, bleaching, softening, and spinning Philippine materials. Materials used in experimentation included crisp cocoanut coir, silvery-sheened banana fiber, and pineapple pina. Many American fabric manufacturers and retailers are marketing rugs, place mats, upholstery material, draperies, and blinds woven of these fibers. (25 p. 14-15, 52)

Marianne Strengell's fabrics are sold by Knoll Associates and include some printed fabrics. In designing her fabrics, Miss Strengell says that "above all textures instead of pattern and intermingling of various fibers, glossy, dull mat finishes, flat yarns and novelty spun yarns fabrics must provide a background rather than stage setting." Thus, the influence of Finnish born and trained Marianne Strengell is felt in contemporary American fabrics not only through her teaching but also through the fabrics that she designs for the public.

Anni Albers

Another leading influence in the field of textile design is found in the person of Anni Albers, who has had collections of her work exhibited in both Europe and America. Albers was born in Berlin, Germany and studied at the Art Academy in Berlin and in Hamburg, Germany. (26 p. 20) Further training was done at the famous Bauhaus schools in Weimar and Dessau, Germany.

From the beginning, Mrs. Albers subjected the techniques and materials of weaving to close investigation; and rather than achieving effects with surface pattern and color, she varied the structure of her weaves in density and depth to achieve beauty in texture. To add luster and color to her fabrics, Albers uses threads of

plastic and fine metal foil. (28 p. 23) She makes use of many materials in her weaving, especially in blinds, which are composed of such materials as ribbons, braided horsehair, laths and dowels, cellophane, raffia, metal, harnessmaker's yarn, plastic or copper threads, cord, and of course the more conventional wool and cotton. (3 p. 14)

Mrs. Albers believes, as do the Scandinavians, that textile designers should play a creative role in designing fabrics against the background of today's interior architecture. Understatement and restraint are seen in and underline the richness of all her textiles. As a fabric engineer, she analyzes the purpose of the fabric, whether it be dress material, soft drapery, rugs, upholstery fabric, or a screen to be used as an architectural element in a house. As a result of her background and training, she is able to produce textiles that are an integrated part of modern living spaces.

Mrs. Albers left Germany in 1933 to come to the United States. She became Assistant Professor of Art at Black Mountain College in North Carolina, where she taught until recently. Her teaching has influenced a generation of modern textile designers. In her educational work, Anni Albers tried to restore the tactile and visual sensibilities of the students to their fullest usefulness. Although Mrs. Albers is not of Scandinavian descent, her

beliefs run parallel with those of the Scandinavian designers in that she draws a great deal of her inspiration from nature.

Greta Magnusson Grossman

Although Greta Magnusson Grossman has not been weaving for the past few years, her work has been an influence on American designers. Mrs. Grossman is the contribution of Sweden to the field of American textile designers. She is a designer of furniture, fabrics, and interiors, and is also an architect. This background is typical of many of the Scandinavian designers, who have training in more than one specialized field. (50 p. 69) Mrs. Grossman completed a general college education and then became an apprentice to a cabinet maker for one year. She then took a five-year course in the Art-Industrial School of Stockholm. She won two scholarships to study on the continent and followed those trips with three more through various countries of Europe. In 1939, Grossman rounded off her education with a year of architectural training at the Royal Institute of Technology in Stockholm. Before coming to the United States in 1940, Mrs. Grossman had her own shop in Sweden where she created her own furniture, textiles, rugs and lamps. (58 p. 38-40)

Upon her arrival in the United States, Mrs. Grossman began designing exclusively for Barker Brothers, a large exclusive home furnishing store in Los Angeles. (50 p. 69) Her woven textures and samples followed the Swedish textile tradition of simplicity and muted colors. Stripes and plain fabrics in various combinations of chenille, wool, rayon, and cotton yarns, many with metallic interest, are typical of her fabrics. Mrs. Grossman believes that fabrics are as important as wood in the over-all effect of furniture both from the standpoint of color and of texture. She designed both her own hand-loomed and screen-printed textiles. Mrs. Grossman's influence has been felt by many textile designers in the Los Angeles area. (58 p. 100)

Maria Kipp

Maria Kipp, also of Los Angeles, is one of the most commercially successful hand weavers on the Pacific Coast, and as a result, is a great influence in the field of textile design. Her studio, which employs 24 people, eight of whom are European trained weavers, produces annually as much as 20,000 yards of fabric. (44 p. 24) The custom woven fabrics of Miss Kipp have been used for more than 25 years by decorators and architects, and some fabrics sell for as much as \$40 a yard.

In preparing for weaving, Miss Kipp places education first, with emphasis on art and technical training. She began with private lessons in drawing and painting while she was still a child in Germany. After graduating from a secondary school, she completed her art education at the Arts and Crafts School in Munich where she acquired a knowledge of color and design. This knowledge, she believes, is essential for creative work. Her technical training was obtained at a textile school in Bavaria. She was the first girl to enroll in the school; and upon her graduation, she was qualified to be a superintendent in a textile mill. Her training included procedures involved from spinning yarn to finishing the cloth, and a thorough understanding of both hand and power looms, including the mechanical structure of each.

Miss Kipp does all of her own designing, and works out the plans for each weaving project in minute detail. Her fabrics are distinctively her own and are basically sound in design and structure. A double warp-beam is used for many of Kipp's drapery fabrics in designs of wide variety including loop fringes, which she calls tassels, and rectangular areas in contrasting or harmonizing colors. Such a technique, and the use of fringe or tassels is typically Scandinavian. Another popular

fabric that she has designed is a sheer leno weave which she uses in many variations.

Maria Kipp uses natural fibers in all types of finishes and even develops new yarns that are spun to her own specifications. Exceptions to this are metallics which she uses as neutrals to bring colors together, or more heavily in fabrics used for nightclubs where the normally dim lights need metallics to add life to fabrics. Her personal preferences are for muted colors, which are also typical of the Swedish and Finnish people, but Miss Kipp combines them in such a way as to give colorful results. Her choice of color is determined by the ultimate use of the textile, and emphasis is placed upon the usability of the fabric. Miss Kipp believes that flexibility in the designer is essential to create fabrics suited to individual needs, tastes, and to the surroundings of the customer. (11 p. 15-17)

Plate XV contains three examples of the work of Maria Kipp. Example No. 1 shows the use of the double warp beam. The fringe end on this sample shows a typical Scandinavian influence as does the small geometric design. Example No. 2 shows Scandinavian characteristics through the use of black with natural yarns. Example No. 3 again shows the use of natural yarns, but this time combined with metallic thread.

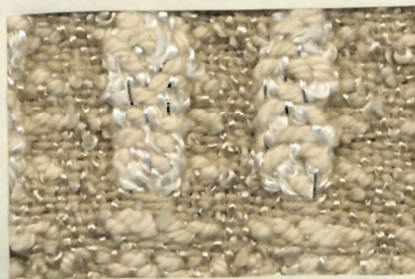
PLATE XV



1.



2.



3.

FABRIC BY MARIA KIDD

Dorothy Liebes

Dorothy Liebes, believed by many to be the world's greatest weaver, was born in the United States; and her influence greatly affects the textile world. She studied painting at the University of California and took up weaving when her teacher suggested that her paintings resembled textiles. She was granted a Master's degree in education from Columbia University and then began teaching and weaving. Mrs. Liebes studied in Paris and later traveled to Guatemala, Mexico, and Hawaii to study the techniques and designs of native craftsmen. She has searched all over the world for ideas and inspiration. (66 p. 306)

Mrs. Liebes weaves many fabrics including rugs, draperies, upholstery, lamp shades, blinds, and dress material. She has also designed a textured bedspread and a blanket woven as one fabric, with a nylon bedspread on the top and a fleecy, brushed wool blanket underneath. (13 p. 36) She uses a large variety of materials in her weaving, including raw silk, mohair, wool, cotton, rayon, jute, glass yarn, leather, bamboo, copper strips, cellophane, Lucite, beads, grasses, gold, oil cloth, teakwood, ribbon, chenille, and wooden dowels. Lurex, which is common in her fabrics, is her own invention.

In her designing, Dorothy Liebes attempts to produce unusual textural effects. Among her most popular fabrics are those employing loop and pile techniques, which are characteristic of Scandinavian textiles. She uses the Finnish rya and the Ghiordes knot. (45 p. 131) Dorothy Liebes believes that the important factors in weaving are color, texture, and pattern; but she feels that set patterns hinder creative growth. She seldom uses more than three colors: one light color, one bright color, and one dark color. (15 p. 16) Characteristic of her fabrics are her shocks of color, daring textures, and her use of accenting metallic threads. (66 p. 306) Her ideas are obtained from nature, good paintings, and period textiles. (46 p. 74)

Of weaving and design, Dorothy Liebes says:

"Design is a synthesis of form, color, pattern, texture, and our own responses to it springs from a mixture of biological urges, sensory and individual impulses." (17 p. 35)

"A new movement of fabrics, furniture and interiors is spreading from coast to coast. This new movement is a correlation of all interior furnishings, the blending and harmonious coordination of the necessary and the beautiful, the practical and the pleasurable, which presents beauty in its highest form while insuring functionalism in each and every item of the home or institutional interior."

Mrs. Liebes is also interested in mass production designs. She has been retained as a consultant to many

companies, some of which pay her as much as \$40,000 a year. (66 p. 306) These companies have included Goodall Fabrics, Inc., Packard, United Wallpaper Co., The United States Finishing Co., Rosemary Sales, Inc., Simmons Mattress Co., Jules Foreman of Foreman Fabrics, Jantzen, and the Dobeckmun Company. (45 p. 135) She estimates that 200,000 people work on materials that stem from her inspirations or color ideas. Liebes established her own famous studio in downtown San Francisco where she employed some fifteen trained craftsmen--Danish, Finnish, Swedish, Chinese, and American. In the spring of 1948, she moved to Washington D. C., and at the same time, opened a studio in New York. (66 p. 306)

Jack Lenor Larsen

Jack Lenor Larsen is one of the newest and most successful individuals in the field of decorative weaving. He became interested in weaving as a result of his interest in interiors and furniture. (34 p. 69) Larsen received his B.A. degree at the University of Washington. (39 p. 39) After a brief but notable career as a weaver and teacher in his native Seattle, he went to Cranbrook Academy of Art and received his M.F.A. He also studied at the University of Southern California and worked in a hand weaver's studio. Larsen took some samples of his hand-

woven fabrics to New York; and because of the demand for his fabrics, he began production on his own in New York. His fabrics are available through decorators and architects and at his studio. (16 p. 40)

Larsen's latest work is the development of a new fabric called Trilok. This fabric was developed for United States Rubber Company, who retained Larsen as designer and textile consultant. The fabric was developed by a patented process for creating new types of three-dimensional fabrics through shrinkage after the fabric is woven. The fabric is woven flat and becomes permanently third dimensional when dipped in boiling water. Through this process, it is possible to obtain many unusual effects on a standard loom because of the quality of the pre-stretched yarn. Conventional yarns are used with the new yarn and run both lengthwise and crosswise, and the buckle and puff effect of the design is determined by the pattern of the material. In developing the designs, the conventional yarns are "locked" to the polyethylene thread on the loom, thus giving the name, Trilok. This is the first such fabric having three separate fabrics woven together. It can be produced in single, double, and triple fabric. The designs produced in Trilok are primarily geometric, and are strongly similar to many of the upholstery fabrics now imported from Sweden.

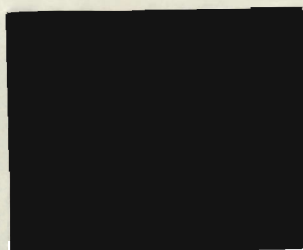
Larsen has also been working in leather, both woven and printed. His design "Coins in a Fountain" was awarded the \$1,000 decorative design prize at the Leather in Decoration show at the winter furniture market at the 1952 Chicago Merchandise Mart. (39 p. 40) Other accomplishments include the designing of draperies at the Lever House for Raymond Loewy, and the development of power-woven fabrics for A. Clarke and Thaibok. (39 p. 14) In 1948, Larsen was represented by seven of his fabrics in the State Department's "Creative Skills---U.S.A." exhibition which toured Europe. (34 p. 69)

Larsen draws much of his inspiration from nature, and he says the following about weaving:

"Limitations form the very essence of weaving, and often the weaver's highest potential may be reached by the intuitive exploitation of these limitations. To be led by the limitations, to study the warp and to be sensitive to it leads to an identity with weaving and thus to a profound accomplishment. This philosophy is the starting point and the conclusion." (38 p. 31)

Plate XVI contains work of Jack Lenor Larsen. In these swatches may be seen some characteristics of Scandinavian textiles. Swatches Nos. 1, 2, and 3 show the subdued colors frequently found in Swedish textiles. The soft narrow stripes as seen in swatches Nos. 2 and 3 are also often found in the textiles of Scandinavian countries, especially in fabrics that are presently being

PLATE XVI



1.



2.



3.



4.



5.

FABRIC BY JACK L. LARSEN

imported to this country. Swatch No. 4 shows Larsen's skillful combination of red, orange, and yellow. The Scandinavian countries often combined such colors, and especially on a plain or natural warp, as Larsen has done here with black and gray. Black is often used as an accent with brighter colors in Swedish textiles. Swatch No. 5 also shows the use of natural colored yarns and all natural fibers. The pattern created by the novelty weave bears some resemblance to the type of weave called M's and O's which is described earlier in the text. The weight of the fabric is in keeping with the Scandinavian use of this weave, as the technique was often used in weaving heavier weight fabrics. Larsen also produces some patterns in printed fabrics which in their delicate naturalistic floral patterns show influence of Scandinavian countries.

Robert Sailors

Robert Sailors, another of the country's outstanding weavers and designers, was born in Grand Rapids, Michigan, and received his training and education at Olivet College, Chicago Art Institute, and at the Cranbrook Academy of Art. He was later employed as an instructor at the Academy. (26 p. 402) Training in water color, oil painting, pottery, and sculpture gives Sailors a firm background for design and weaving.

In 1947, Mr. Sailors opened a weaving studio in the town of Bitely, Michigan. He sent samples of drapery and upholstery fabrics to a Grand Rapids furniture house; and they were so well received that requests were made for more samples, and subsequently for yardage. Showings of his fabrics attracted wide attention, and Sailors began custom weaving for many decorators throughout the nation. (8 p. 17)

Sailors makes use of many unusual yarns and materials in his weaving. Such materials include wooden slats, metallic thread, burlap, awning canvas, torn cloth strips, rope, bamboo, chamois, and corn husks; and, before metallic threads were on the market, Sailors used metallic accents in his fabrics by tediously unwinding the "Chore boy" type of pot cleaner and then weaving it into his fabrics. His fabrics are characterized by interest in texture obtained through contrast and the use of shiny and dull yarns together. His colors are also skillfully used in pleasing proportions and combinations. Drapery and upholstery are the main fabrics produced by Robert Sailors; however, he also designs tweeds, suitings, coatings, and rugs. He designs for the power loom as well as for custom hand weaving. (8 p. 19-20)

Samples included in Plate XVII are designed by Robert Sailors. Example No. 1 is typically Scandinavian in color

PLATE XVII



2.



3.



4.



FABRIC BY ROBERT SAILORS

and materials. The Scandinavian women often used cloth strips in weaving, as Sailors has done in this fabric. Example No. 2 is a wooden blind, and the cool greens and yellow suggest colors often found in textiles of the Nordic countries. Example 3 also suggests Scandinavian influence in color combinations and in the quiet, restrained design. Note the use of black as an accent. Sample No. 4 bears resemblance to Scandinavian fabrics through the use of yarns and fibers in their natural color. The fabric is also restrained and quiet in design.

Henning Watterson

Henning Watterson, well-known both as a handweaver and a designer for mass production textiles, is another individual with a thorough grounding in the arts. He became interested in weaving and began designing fabrics. He has designed many custom-made fabrics for Menlo Textiles in Menlo Park, California; and because of his interest in mass production, he moved to New York City to work with Henrod Textiles. (8 p. 38, 42)

Watterson believes that the two most important elements to be dealt with in the construction of fabric are color and texture. (17 p. 35) He feels that yarns of different varieties should not be subordinated and lost in the warp and as a result, many of his fabrics have a filmy

appearance with varying degrees of transparency. His use of color consists of concentrating on one or two textures and selecting a dominant effect with a color such as red, blue, or a yellow-green. He feels that working with tabby weaves gives the best results in working with different colors. (6 p. 41) Watterson's fabrics have a Scandinavian flavor in their simplicity and color schemes.

Frank Lloyd Wright

Frank Lloyd Wright is one of the most versatile and well-known designers of today. His reputation as an architect is outstanding; and in conjunction with his designing of buildings, he has also designed furniture and fabrics for interiors. His most notable work is the Taliesin collection designed for Schumaker and Company in collaboration with Rene Carrillo, who did the styling of the fabrics. Some designs are also put out by Karastan Rug Mills.

The Taliesin collection includes six prints, seven woven fabrics, and four wallpaper designs. Three of the wallpapers match the draperies. The fabrics in Wright's collection consist of wool, antique satin, iridescent cotton, and a silk chenille. The designs of the fabrics are strictly geometric, based on the same lines and figures

used in architecture. The fabrics give a third dimensional effect by the tightness of the designs and the geometric figures. (20 p. 188) The geometric designs strongly resemble some of the imported Scandinavian designs, and in some instances the designs are almost identical. Like the Scandinavians, Wright draws much of his inspiration from nature. This is expressed in his colors which include desert gold, copper, granite, wood brown, brick red, and slate, all closely related to materials used in the structure of a modern building. (21 p. 50)

Plate XVIII illustrates some of the work of Frank Lloyd Wright. These are not examples from his Taliesin collection, but they are representative of fabrics inspired by nature. The soft muted tones also suggest similarity to the ones of many Scandinavian fabrics. Example No. 1 shows the use of chenille in a fabric of cotton, rayon, and Lurex and in a "granite" color. Fabric No. 2 is "Woodrose". It is made entirely of linen and derives its design from textured yarn. Nos. 3 and 4 are called "Bark Brown" and "Pebble" respectively and again illustrates the use of muted colors. Example No. 5 is called "gold" and the novelty weave is composed of spun rayon and mohair. Although these samples are not as expressive of Scandinavian influence as are those of the Taliesin collection, they are similar to Scandinavian

PLATE XVIII



1.



2.



3.



4.



5.

FABRIC BY FRANK L. WRIGHT

fabrics in their restraint and simplicity of design, and in their muted natural colors. The fabrics are designed to be used with contemporary interiors.

Knoll Associates

Knoll Associates is a small but outstanding company that produces and imports home furnishings including rugs, furniture, sculpture, and fabrics. The reputation of this company and the quality of the products that it handles makes it a leader in the field of interior decoration. The company was founded by the late Hans Knoll and is presently carried on by his wife, Florence Knoll.

Knoll Associates handles fabrics produced by Marianne Strengell, who was mentioned earlier in the text. The company also handles fabrics imported from Sweden and others designed by Astrid Sampe-Hultberg as described in the chapter on Contemporary Scandinavian Designers. Textiles by Sven Markelius, another Swedish designer of some note, are also imported by Knoll Associates. An American designer who is gaining in importance and who designs for Knoll is Toni Prestini. Mrs. Prestini is a graduate of Cranbrook Academy of Art.

Florence Knoll does some designing for the company and is also known as a successful furniture designer. She received her training as an architect at Cranbrook

Academy, the Illinois Institute of Technology, and the Architectural Association in London. (47 p. 46) She does not attempt to produce the spectacular in fabrics, but attempts to produce a variety of simple weaves and good colors at a low cost. (17 p. 36)

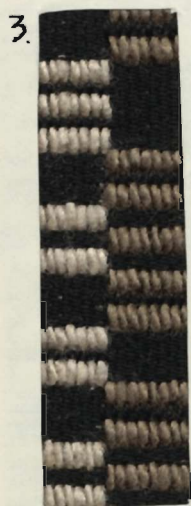
Boris Kroll

Boris Kroll is also a Knoll Associates' designer. He makes extensive use of the Jacquard loom in creating modern patterns. His fabrics show influence from foreign countries, and a previous collection has been called the Mediterranean collection. Other fabrics show considerable Oriental influence.

Fabric swatches in Plate XIX were designed by Boris Kroll. His use of color is extremely interesting and skillfully combined. In sample No. 1 may be seen a similarity to Scandinavian fabrics in the striped pattern. The fabric is simple in design, but the subtle colors and varying widths of the stripes give interest and beauty. The effect is somewhat similar to Scandinavian rep.

Samples Nos. 2 and 3 appear to show a strong Scandinavian influence in two respects. First, the color combination suggests the natural yarns in combinations as used by the Nordic people. Second, the weave is almost

PLATE XIX



FABRIC BY BORIS KROLL

identical to that of the dukagång technique. The vertical line created by the design is one of the characteristics of dukagång. Sample No. 4 strongly resembles the traditional Munkabälte technique. The striped brocade employs the small geometric designs so popular in Scandinavian fabrics, and here the star is also used. Different colored stripes in the fabric are also typical of many old Scandinavian textiles. Sample No. 6 is simple in design but handsome in color. The small checks again show the influence of geometric design. This particular swatch is very similar to many of the fabrics now being imported from Scandinavian countries.

CHAPTER V

OTHER AVENUES OF SCANDINAVIAN INFLUENCE
ON CONTEMPORARY FABRICS

Scandinavian influence on contemporary fabrics is exerted through many channels. The contemporary American designer is one source already mentioned. Other sources of influence are seen in textiles produced by fabric companies, and exhibits.

A current trend by fabric companies toward collections of fabrics influenced by foreign countries is apparent. Companies such as Celanese Corporation and Schumacher and Company are producing collections that denote influences of different countries. Schumacher's have a line of fabrics that are influenced by Japanese designs, and another line of fabrics that originated in India. In 1955, the sari print was popular on the American market. Celanese Corporation recently sent two of their stylists, John and Earlene Brice, on a trip around the world in search of countries and areas which might serve as inspirations in designing collections of fabrics. The Brices found that Asia, Austria, Spain, and Scandinavia were the areas most useful in gaining inspiration and ideas for their series of collections in the "World of Ideas Theme" by Celanese. Many of the ideas and inspirations will come from textiles and costumes of the people of each country.

Fuller Fabrics is another company that has used the ideas and inspirations seen in the fabrics of other countries. They are producing a line of fabrics called "Scanlandia" which includes Scandinavian calico's, prints, and floral patterns. Some of the designs represent herringbone stripes and embroidery.

Scranton Lace Company is producing a line of draperies that is influenced by Italian and Scandinavian inspirations. The cotton and dacron fabrics are in geometric and patterned designs; and four different patterns are named--Stockholm, Copenhagen, Oslo, and Sorrento.

Various other companies have designed and produced products with a Scandinavian influence. Cabin Crafts manufactures rugs. Some of their small area rugs were designed by Marianne Strengell, previously mentioned, and these rugs are called "Scandia." Firth Company also manufactured a rug called "Swedish Primitive". This rug no longer bears the name because of Federal Trade Commission rulings. It is now called "Primitive". Woven rag rugs also appear on the market in both large and small sizes, and they bear definite resemblance to their Scandinavian forerunners both in design and in the method of weaving. Plaid bedspreads bearing Scandinavian names are also being produced, showing Scandinavian influence through color and large open plaids.

Considerable influence is seen in furniture that is imported to the United States from the Nordic countries. Dux Inc., a successful Swedish manufacturer, carries a line of woven and printed fabrics that the consumer may choose from in upholstering a piece of Dux furniture. The fabrics come in both printed and woven designs, usually featuring a small, close, geometric pattern or stripe. Such patterns are titled Stockholm, Ingrid, Anna, and Boden. A very definite similarity may be seen between these fabrics and some of those designed by contemporary American designers.

One of the greatest influences was the Scandinavian exhibit called "Design in Scandinavia", which toured the United States in 1956. The exhibition was sponsored by the Societies of Arts and Crafts and Industrial Design of the four Scandinavian countries. On display were the finest objects in design in textiles, furniture, crystal, and silver from the leading designers of Sweden, Finland, Denmark, and Norway.

The exhibit included many fine textiles of each country, and some of the old techniques of weaving were used in these fabrics. The deep pile rugs shown were examples of adoption of the ancient ryijy technique to modern design. Plate XX gives an idea of the possibilities of this technique. The black, white, and orange rug was

PLATE XX

PILE RUGS



designed by Astrid Sampe-Hultberg and is completely reversible. The reverse side is all orange. The two rugs shown as wall hangings in the lower picture were designed by Eeva Brummer and Uhra-Beata Simberg-Ehrström, Finnish weavers. They show contemporary feeling as interpreted in this technique.

Tapestry techniques were represented, and Plate XXI shows two of them. The upper picture is a Finnish tapestry designed and executed by the famous Dora Jung, mentioned earlier in the text. This section is only a part of the complete tapestry which is called "The Evangelists". The lower picture shows an example of double cloth designed by Sweden's Kaisa Melanton. The tapestry work seen is executed on a plaid background, an extremely difficult technique but which produces a beautiful fabric suitable for the contemporary scene.

Plate XXII shows a Swedish pile rug and the manner in which it fits into the contemporary setting of furniture and architecture. The typical fringe on the ends of the rug date back to early Swedish rugs. Here again is seen the prominence of geometric design in Scandinavian textiles. The furniture in this picture is also Swedish as is the drapery fabric in the background.

Plate XXIII again shows the prominence of geometric designs, which were so definitely obvious in the exhibit.



PLATE XXI

TAPESTRIES



PLATE XXII



PILE RUG

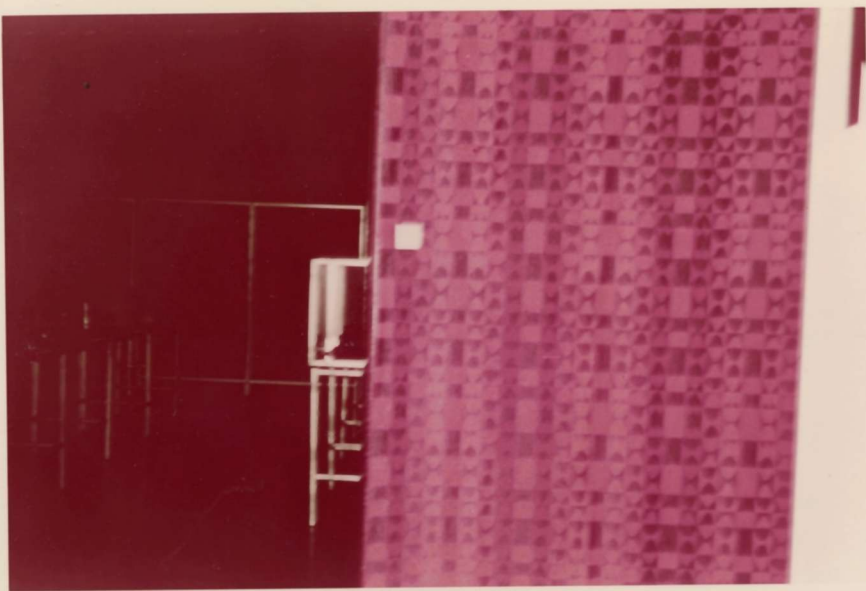


PLATE XXIII

DRAPERY

The upper example is a woven fabric; and the lower one is a print, but shows how the designs carry over from one technique to another. The bottom picture is of the well-known Pythagoras linen designed by Sven Markelius and sold by Knoll Associates.

The previous examples are a small representative part of the "Design in Scandinavia" exhibit; however, they help in giving a part of the picture of the modern use of traditional techniques and motifs. All of these fabrics will be sold in the United States, and many are available for purchase through authorized distributors. Wide interest in this exhibit was apparent, and many people associated with the fields of interior decoration and textile design viewed the exhibit when it appeared in several cities in the United States.

CHAPTER VI

CONCLUSION

The influence of Scandinavian textiles on contemporary fabrics and contemporary American design is felt in several ways. One of the greatest or most constant channels of influence is the Cranbrook Academy of Art. Because of the purpose of the school and the fact that the weaving department is headed by Marianne Strengell, many designers are trained with a thorough grounding in techniques and are influenced by her Finnish background in textile design. A number of graduates from this school have already been mentioned earlier in the text, and they are now exerting their influence as successful designers.

Other schools which teach textile design and which will influence students also exist. Valborg Gravander in Mill Valley, California, is one example of an individual specializing in Swedish weaving, and throughout the country there are other schools and universities offering courses in the techniques of Scandinavian weaving. Scandinavian weavers themselves are teachers; and in some instances such as the Longbers, they have taught in this country. Many weavers of the United States are traveling to Scandinavian countries and are taking courses in the small but excellent weaving schools.

Definite influence is also exerted by exhibitions and showings made in this country. The "Design in Scandinavia" was one event which exerted influence on American fabrics. Individual showings have also created a great deal of interest. The exhibition of rugs by Count Bernadotte is an example of interest in the work of the Scandinavian people. Imported fabrics are also making their impression and creating interest in the field of interior decoration and fabric design.

Designers are showing Scandinavian influence in their fabrics and designs. Leading designers, as a result, then influence or lead the trend in fabrics produced by other designers and fabric companies. Although the influence may be seen more easily in the work of some designers than in others, there seems to be a leaning toward better design and the more restrained fabrics as designed by the Scandinavian countries.

The type of influence seen in fabrics is felt in three different ways. Similarities are seen in the type of design, motifs, and patterns. This is perhaps the largest area of influence, and there is a wealth of resources and inspiration in design that have not yet been used. The second source of inspiration is in the area of color, in typical color combinations and in the manner of combining colors. The third area in which influence

is to be found is in the field of weaving techniques. This is the area in which influence is seen the least, as the modern designers tend to design fabrics in a simple weave with color, texture, and yarns making the design. Some similarity and influence may be seen, however, in contemporary fabrics that give the same appearance as traditional Scandinavian fabrics. Most typical of the techniques used are tapestry, ryijy, and flossa. There is a great deal that may be done by designers in adapting these old traditional techniques to contemporary fabrics.

How much Scandinavian influence is seen in contemporary fabrics? Because of recent interest in the work of the Scandinavian countries in the field of decorative arts, there is naturally interest in their fabrics. Influences and imitations may be seen in many sources, but can one measure the amount of the influence? To do this, it would be necessary to compare the influences of all countries that produce fabrics. The Scandinavians, however, are among the countries leading in influence.

Because of the many techniques, the vast amount of design, motifs, and patterns, and the unusual and pleasing combinations of colors in the textiles of Sweden, Finland, and Denmark, it appears that there are many, many possibilities for developing and designing fabrics with

Scandinavian influence. The field has barely been touched, and the American designer still has many possibilities open to him. Though influence is now observed, there is much more that might be done; and perhaps in the near future, because of the interest in the work of the Scandinavian countries, the American public will find even more Scandinavian influence on their contemporary fabrics.

BIBLIOGRAPHY

1. Allen, Helen Louise. American and European handweaving. Detroit, The Copifyer Division, 1935. 19 p.
2. Allen, Helen Louise. American and European handweaving revised. Madison, Wisconsin, Democrat Printing Co., 1939. 94 p.
3. Anni Albers: power behind the loom. Interiors 109: 14-15. Oct. 1949.
4. Arnold, Ruth. Weaving damask. Handweaver and Craftsman. 6:4-8, 52. Summer 1955.
5. Becher, Lotte. Handweaving designs and instructions. London, The Studio Pub., 1954. 96 p.
6. Bemis, Marion Holdes. Marianne Strengell. Handweaver and Craftsman 8:6-9. Winter 1956-1957.
7. Blumenau, Lili. Textiles in the United Nations buildings. Handweaver and Craftsman 4:10-12, Winter 1952-1953.
8. Brinkman, Margaret Elizabeth. Some selected contemporary textile designers of the United States and their contributions. Master's thesis. Corvallis, Oregon State College, 1949. 203 numb. leaves.
9. Brouard, Inge Jensen. Distinctive Danish textile design. Craft Horizons 13:22-25. July-Aug. 1953.
10. Brown, Conrad. Bittan Valberg. Craft Horizons 17:28-31. May-June 1957.
11. Bryan, Dorothy. Mama Gravander. Handweaver and Craftsman 5:4-7, 54. Fall 1954.
12. Bryan, Dorothy. Maria Kipp--her career as a weaver. Handweaver and Craftsman 3:15-17, 59. Winter 1951-1952
13. Covering the exhibition circuit. Handweaver and Craftsman 5:35-37. Winter 1953-1954.
14. Cyrus, Ulla. Manual of Swedish handweaving. Tr. by Viola Anderson. Boston, Charles T. Branford Co., 1956. 271 p.

15. Dorothy Liebes. Design 9:16. May 1944.
16. Exhibitions of Larsen fabrics. Handweaver and Craftsman 7:40. Spring 1956.
17. Fabrics. Arts and Architecture 65:33-38. Mar. 1948.
18. Fiberglass house. Interiors 108:113-116. Oct. 1948.
19. Fischer, Mildred. Three Finnish weavers. Magazine of Art 45:58-61. Feb. 1952.
20. F L L W designs home furnishings. House and Home 9:188. Jan. 1956.
21. Frank Lloyd Wright. American Fabrics 35:50. Winter 1955-1956.
22. Freeman, Claire. Scandinavian variations for American looms. Handweaver and Craftsman 3:14-15, 57. Spring 1952.
23. Freeman, Claire. Studio weavers. Craft Horizons 16:21. Dec. 1956.
24. Frey, Berta. New skirts for summer. Handweaver and Craftsman 4:33-35. Winter 1952-1953.
25. Gelé, Emele. New Philippine textiles. Handweaver and Craftsman 5:14-15, 52. Summer 1954.
26. Gilbert, Dorothy B. Who's who in American art. Washington D. C., The American Federation of Arts, 1947. 684 p.
27. Gummerus, H. O. Wellspring of Scandinavian design. Craft Horizons 16:26-27. July-Aug. 1956.
28. Handweaving for modern interiors. Craft Horizons 9:23-25. Winter 1957-1958.
29. Harris, Ruth Ketterer. Afgans in dukagång effect. The Weaver 3:27-28. April 1938.
30. Henderson, Rose. A Swedish furniture designer in America. American Artist 15:54-57. Dec. 1951.
31. Hill, Patricia C. Denmark's Vaeveboden. Handweaver and Craftsman 5:16-18, 50. Spring 1954.

32. Howes, Durward. American women. vol. 3. Los Angeles, American Publications, Inc., 1939. 1083 p.
33. Integrated fabrics. Art News 46:36-40. May 1947.
34. Jack Larsen, the interior designer's weaver. Interiors 113:68-70. Feb. 1954.
35. Kissell, Mary Lois. Old and modern webs from Sweden. International Studio 98:31. Feb. 1931.
36. Lambert, A. Peasant embroidery and weaving in Scandinavia. Ciba Review 6:2425-2428. Apr. 1948.
37. Larsen, Jack Lenor. At the Cranbrook Academy of Art. Handweaver and Craftsman 3:24-25. Spring 1952.
38. Larsen, Jack Lenor. The weaver as artist. Craft Horizons 15:31-34. Nov.-Dec. 1955.
39. Larsen, Jack Lenor. Weaving for name designers. Craft Horizons 12:13-15. July-Aug. 1952.
40. Lindahl, Mac. Hemslöjds, Sweden's folk art societies preserve the vitality of their crafts. Craft Horizons 16:16-19. Dec. 1956.
41. Loftness, Sonya. Swedish provincial. The American home pattern book. n.d. p. 42.
42. Longbers, Ingeborg. The Saterglantan school in Sweden, landmark in the history of handweaving. Handweaver and Craftsman 1:5-7. Fall 1950
43. Lund, I. Henschen. Swedish peasant textiles. Ciba Review 8:3166-3190. Oct. 1951.
44. Maria Kipp. Craft Horizons 16:24. Sept.-Oct. 1956.
45. McClausland, Elizabeth. Dorothy Liebes, designer for mass production. Magazine of Art 40:131-135. April 1947.
46. Meet Dorothy Liebes. House Beautiful 87:74-75. April 1945.
47. Morse, John D. The story of Knoll Associates. American Artist 15:46-50. Sept. 1951.

48. Mrs. Valborg Gravander. *American Scandinavian Review* 43:255-259. Sept. 1955.
49. Plath, Iona. *The decorative arts of Sweden*. New York, Charles Scribner's Sons, 1948. 246 p.
50. Rusticity improved: Greta Gorssman's well furnished hillside. *Interiors* 109:68-75. Feb. 1950.
51. Schobinger, Helen J. A summer with Finnish weavers. *Handweaver and Craftsman* 3:12-13, 52. Spring 1952.
52. Schrum, Loraine M. Revival of double weave in Scandinavia. *Handweaver and Craftsman* 8:22-24, 51. Winter 1956-1957.
53. Sorensen, Marguerite Eleanor. A comparative study of the traditional textiles of Norway, Sweden, Denmark, Finland, and Iceland. Master's thesis. Seattle, University of Washington, 1941. 74 numb leaves.
54. Sterner, Maj. *Homecraft in Sweden*. Tr. by Alice Stael Von Holstein. Stockholm, Lindbergs Tryckeriak-tiebolag, 1931. 322 p.
55. Strengell, Marianne. Marianne Strengell--writes about designing tomorrow's fabrics. *Upholstering* 13:18-20, 58. Mar. 1946.
56. Summer course in Swedish textiles. *Handweaver and Craftsman* 1:45. Summer 1950.
57. Swedish rugs signed by Sigvard Bernadotte. *Craft Horizons* 10:24-26. Summer 1950.
58. Swedish star of design. *Upholstering* 15:38-41, 100. Aug. 1948.
59. Textiles, Astrid Sampe-Hultberg. *Arts and Architecture* 65:36. Aug. 1948.
60. Thurstan, Violetta. A short history of decorative textiles and tapestries. Boston, Bruce Humphries, Inc., 1934. 377 p.
61. Toikka-Karvonen, Annikki. Finnish ryiji rugs...old and new. *Craft Horizons* 14:17-19. Mar.-Apr. 1954.

62. Top weaver. Life 23:93-95. Nov. 24, 1947.
63. Varron, A. Carpets in European peasant art. Ciba Review 2:826-831. July 1939.
64. A versatile Swedish weaver. Handweaver and Craftsman 8:20-21. Spring 1957.
65. Von Walterstorff, Emelie. Swedish textiles. Stockholm, Victor Pettersons, 1925. 89 p.
66. Walker, Hannah Reid. Feminine dynamo of textile design. Independent Woman 28:305-306. Oct. 1949.
67. Wollin, Dr. Nils G. Modern Swedish arts and crafts in pictures. New York, Charles Scribner's Sons, 1931. 207 p.
68. Yocum, Marian Mariah. Modern transitions in Swedish crafts. Design 37:5-7. May 1935.
69. Zethraus, Kamma. Textiles from an ancient Danish tomb. Handweaver and Craftsman 6:46. Spring 1955.