DESIGNING FOR PRINTED TEXTILES

A graduate project submitted in partial satisfaction of the requirements for the degree of Master of Arts in Art

by

Lillian Joyce Larsen

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May 20, 1983
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DEDICATION

I dedicate this work to my husband, Ken.
AKNOWLEDGMENTS

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ABSTRACT

DESIGNING FOR PRINTED TEXTILES

by

Lillian Joyce Larsen

Master of Arts in Art

The purpose of this graduate project is to provide a design manual that will aid prospective textile print designers by giving specific design information and requirements; to present practical assistance for professional designers who need to fill gaps in their technical backgrounds; and to serve as a handbook for educators in community colleges and art schools who include textiles in their curriculum.

The manual covers the following information: design materials and their applications; an analysis of the formation of patterns and an explanation of the structure of design repeats; the development of color combinations, color sources and trends; divisions within the print design markets and the considerations in designing for them; portfolio presentation and sales of artwork; tex-
tile printing processes and the design requirements of each; and sources for ideas and inspiration.
Chapter I

A PRINT DESIGNING CAREER

Imagine walking through a house that has no patterns on the rugs, walls, curtains, and upholstery; a kitchen with only solid colors on placemats, tablecloths, napkins and towels; a bedroom with plain sheets, comforters and bedspreads. Envision opening a closet and finding the dresses, blouses, shirts, ties and scarves without any printed fabrics. How monotonous our surroundings and clothing would be without the enrichment that expressive pattern brings to undecorated surfaces! Suddenly the technical and artistic skills of a print designer, plus an intuitive sense of what influences a consumer, become important.

The responsibility of a commercial print designer is to create patterns that appeal ultimately to a consumer—the person buying either apparel or a home furnishing fabric. In addition to being a competent artist, a designer needs to visualize painted designs as finished fabric for use in either the fashion apparel world or the interior design field. A successful designer does this first of all by understanding the technical methods of printing on fabric and by knowing the limitations of printing reproduction (Chapter IX), and then, by being aware of the factors that
influence a consumer's decisions (Chapter VII).

Anyone considering a career as a print designer must be skilled in drawing, possess a sense of color and design, and have the ability to paint in a variety of techniques. These are essential basic requirements for working in this field. Any additional talents and training will give a prospective designer an edge in a very competitive arena. For instance, a background in the arts and humanities provides a source of enrichment; knowledge of historic ornament adds an inspirational resource. New and innovative designs can be created by combining fresh ideas with previously acquired concepts; elements of an antique millefleuer tapestry could be adapted in some unique way that results in a novel, contemporary design.

General education and life experiences usually help a person in analyzing current conditions. This is important to a designer as current events influence consumer demands. Designers must know what is taking place in fashion, industry and politics, and anticipate which events will have an impact on the textile business. The Tutankhamen exhibit from Egypt, which toured America in 1978, is an example of a national occurrence that had a strong influence on the fashion and home furnishing industries. A renewed interest in Art Deco, a style inspired in part by Egyptian architecture, took place. Fabrics emphasizing the geometric patterns reminiscent of this 1920's style were produced for
both major markets. Everything from dress fabrics to upholstery was covered in an Egyptian or Art Deco design. Successful designers anticipated this influence and were ready for it.

Since most art schools fail to adequately prepare students for the business world, any practical experience or business training is valuable and enhances the ability to solve problems, make decisions, and gain self-confidence. These assets are particularly important to designers who intend to work freelance and operate their own businesses.

Career opportunities are available in commercial design studios and in the art departments of textile converters and silkscreeners (both of whom print on fabric), and product manufacturers of apparel and household textiles such as towels and sheets. A print designer may also choose to work freelance or become associated on an apprenticeship basis with an established freelancer. The type of work involved, pay, time, environment and creative prospects should be considered when making a choice.

A majority of textile designing is done by freelancers. A designer creates a portfolio of patterns to sell on speculation and/or does artwork on consignment (designs, colorways, repeats). Print designers working freelance must be skilled in several areas and be able to function as designers, colorists, and repeat artists. A designer is an artist who does pattern sketches; a colorist
does color combinations; and a repeat artist puts patterns into repeat. A freelance designer will find it advantageous to be proficient in all three capacities.

Personal freedom is an important benefit of freelancing. Working hours can be structured to fit one's lifestyle and a suitable working environment can be created. More emphasis can be placed on the creative aspects of print designing when designers control the work they do. A major sense of achievement and satisfaction is felt when self-actuated ideas become realities.

Freelancers gain several advantages by selling their own work. They keep in touch with the textile market and its needs; receive design information and direction from stylists and designers; and eliminate the commission fees charged by studio/agents.

An artist may choose to work in a design studio or in the art department of a manufacturer or a textile converter. Studios work on a wide range of designs for many markets and direct the work to be done by the colorists and repeat artists they employ. The patterns are created by the studio designer and the staff executes the layout, color combinations and repeats. Textile converters usually specialize in fabrics for specific markets such as women's wear, but their art departments function similarly to a studio.

A staff artist does very little designing. Painting
croquis and making colorways of other peoples' work are the tasks generally assigned to most "in-house" artists; therefore studio work lessens to some extent the personal fulfillment most artists like to feel. The advantages to full-time employment are a steady income, insurance and social security benefits, and the opportunity to gain experience by working with an established studio designer.

If a beginning designer is reluctant to start out freelancing and finds the idea of working in a commercial studio unacceptable, the answer can be resolved by assisting an established freelance designer. It is an excellent opportunity to learn about the textile industry and to see how a freelance design business operates. An assistant can observe how another designer creates; is exposed to additional styles and techniques; finds out how to prepare a collection and how to deal with clients. The bulk of the work, depending on the assistant's aptitude, consists of drawing repeats, rendering colorways, and painting backgrounds.

Designers who do not wish to sell their own work may have a studio or an agent represent them. The arrangement usually involves exclusive representation (the designer can only sell through that agent or studio), and a 30 to 40 percent commission is charged. The artwork is sold at the same price a freelancer charges per design, so the artist selling through an agent or studio receives considerably
less money. If a studio employs a staff of artists, all commission work will be done in-house rather than given to their freelance designers. Neither studios nor agents accept any responsibility for artwork that is lost. A freelancer should realize that agents and studios are in business to sell designs and not to promote designers.

Textile designing is a highly competitive career. In order to be successful, a freelance designer must have excellent artistic skills, a background of design theory, and an aptitude for making aesthetic color and design judgments. They must know the markets, be aware of fashion trends, and stay tuned in to current events. A designer needs to have a continuous stream of ideas and be creative enough to combine it all into good designs that enrich fabrics. Then textile designing becomes an art form that links art with industry.
As artwork for commercial print designs eventually has industrial applications, a designer should not consider using materials of inferior quality. The best grade surfaces respond better to various techniques; top quality dyestuffs are more manageable; and the finest brushes will handle with greater facility and last longer. In addition to the advantage they give to finished art work, the right materials make designing easier to accomplish, and therefore, more enjoyable to do.

The following is a list of materials and equipment which should be useful to a print designer, and a guide to their uses and applications. Although some of the products will cease to be available, new ones will take their place and serve similar purposes.

**Papers and Boards**

The surface to be used for rendering art work depends on the choice of media (wash work, pen). Many different weights and finishes exist and it is important to choose the right sort. For example, opaque watercolor used on a thin paper will cause it to buckle and wrinkle. The surfaces used for rendering print designs include the
following:

Hot press—a smooth plate finish paper or board that is good for sharp edges and fine lines. Some paints and inks do not adhere to the surface well enough to achieve an even opaque wash.

Cold press—a kid finish paper or board having some texture that provides a good surface for any wet techniques, pastel or crayon work. Medium toothed surfaces allow more control of paint flow.

Strathmore makes a good quality bristol paper (two or three ply) that will take extensive corrections with erasers or scraping. Single sheets are available in sizes 23”x 29” or 30”x 30”. Student grade boards or papers are not to be considered; only commercial grade is recommended. Crescent and Art-tec make 100 percent rag boards which have good eraser characteristics.

Specialty papers. Beautiful, subtle effects can be produced on certain specialty papers such as Japanese rice paper. Waxed masa, a translucent waxed rice paper is widely used in textile design as it has an excellent surface for watercolor dyes. The transparent quality of dyes upon the translucent paper creates clear vibrant colors. The wax resist look of Batik fabric can be duplicated with masa paper. First, the paper is crumpled gently and then ironed flat with a warm (not hot) iron. Dye (mixed with a drop of liquid soap) is then applied to the color areas of the
design. Pencil lines are not erasable on masa paper, but the paper due to its transparency can be placed over a design and painted onto directly.

**Prepared papers.** Color Aid and Color Vu papers are made by silkscreening an oil base paint on white stock. The result is a soft matte surface that works well with almost any medium. Art stores sell, in addition to the papers, swatch books that show all two hundred available colors. Colored papers such as these can be used as background because they accept paint well and insure a smooth even ground color. The sensitive nature of these papers somewhat restrict their use. All marks, erasures, fingerprints, touch-ups and errors show and cannot be removed. Minor stains can be minimized by spraying the entire sheet with fixative, although it darkens the paper.

**Canson paper.** Textured canson paper is printed in thirty hues and sold in 19"x26" sheets. Designer colors, tempera and pastels all work well on canson. Some nice effects are possible by combining gouache with pastels or crayons on this textured surface.

**Tracing paper.** A good tracing paper should have a hard, smooth drawing and erasing surface. Vellum tracing papers are strong and resistant to wear and tear. They are sold in rolls, single sheets or pads. Paper manufacturers, such as Printfast, makes gridded pads and rolls (4 x 4, 8 x 8, 10 x 10 grids) that are useful for repeat layouts and
drawings. Clearprint, another producer of papers, manufacturers top quality transparent vellum in rolls twenty to fifty yards long with widths of 24"-42". Inexpensive, thin or medium tracing papers are generally used for preliminary sketches or layouts.

**Transfer paper.** Saral transfer paper works like carbon paper but does not smudge; it produces a grease-free line that is easily erased. Saral is sold in 12"x 12 1/2" rolls, and comes in five colors: yellow, white, red, blue, and graphite.

Prepared paper of graphite for transferring a drawing to another surface can be bought, but it is easily made. A 4B or 6B pencil is rubbed over a sheet of tracing paper (vellum). A clean rag is dampened with Bestine (rubber cement thinner) and the excess graphite is gently wiped off. Paper made this way will not smear or smudge and leaves a very soft erasable line.

**Paints and Dyes** (Figure 1)

Opaque waterbased paints and transparent dyes are the most widely used mediums for rendering print designs. Both are quick drying and combine well for mixed media techniques.

**Gouache.** This opaque watercolor, provides tremendous versatility with its smooth flow, pure color and great opacity. Known also as designer's colors, gouache can be applied to any surface (even acetate when a touch of soap is
added), and the largest surfaces can be painted evenly. Gouache, sold in tubes, is diluted with water to the consistency of heavy cream. It can be thinned further for use in ruling pens and airbrushes. One layer of color will cover another even if one is darker; a middle tone can be painted over an entire area, then lights and darks applied on top. Correction is possible by over-painting and scraping off.

Winsor & Newton have opacity and staining codes. By consulting these codes before superimposing one color on another, a designer can save time in experimenting. A light color must be reasonably opaque when being placed over a dark one. Also certain intense colors stain and bleed. When a correction is needed to paint over a staining pigment, a bleed proof white paint is used. Pro-white is an excellent opaque white that effectively covers small areas.

A large number of colors needs to be kept on hand as it is difficult to obtain exciting hues from a limited palette. A good beginning palette might include the following Winsor & Newton designer's colors:

1. Cadmium Yellow Pale
2. Golden Yellow
3. Flame Red
4. Alizarin Crimson
5. Brilliant Green
6. Cerulean Blue
7. Prussian Blue
8. Turquoise
9. Ultramarine Blue
10. Burnt Sienna
11. Burnt Umber
12. Vandyke Brown
13. Bengal Rose
14. Lamp Black
15. White

All mixed colors must be stored in small screwtop jars to maintain liquidity. Water is added from time to time to remix the paint. If the paint does dry in the jar or on a palette, water is added. Certain brands may crumble and not bind together again, in which case they must be discarded.

Dyes. Highly concentrated transparent watercolors, called dyes, surpass gouache in brilliance and luminosity. They may be mixed or diluted with water to produce a wide range of colors. Dyes can be applied to most papers with brushes, pens or airbrushes.

Dyes are so penetrating that they stain any paper and bleed through opaque paints laid over them. Only bleach will remove stains caused by dyes. The bleach is applied carefully with a cotton swab and removed immediately with clear water.

Both Luma and Dr. Martin's Radiant Concentrated Watercolors are excellent and highly recommended brands, although Luma has a larger selection of colors. The following is a list of basic colors a designer needs to render print designs:

1. Cerulean Blue
2. Daffodil Yellow
3. Flame Red
4. Grass Green
5. Orange
6. Sepia
7. Tropic Pink
8. Black

Other color mediums. Gouache or dyes are generally used to color the large areas of a design for finished renderings. Colored pencils, crayons, or chalks are sometimes applied to these grounds for accenting or creating tonal effects (Figure 1).

Colored pencils and crayons. Colored pencils, rarely used alone for final artwork, are helpful for making quick color sketches or for contouring shapes on watercolor grounds. Prismacolor waterproof lead pencils blend extremely well and are made in sixty colors. Caran D'Ache water-soluble pencils render watercolor effects when markings drawn by them are gone over with a moist brush.

Caran D'ache Neocolor crayons can be used like wax crayons or thinned with turpentine and applied with a brush. Scratchboard techniques are achieved by covering an area with Neocolor and etching into it. Sets are available in ten to thirty colors.

Cray-pas sticks. These sticks of color perform like oil pastels but are cleaner to use. They are sold in sets of twelve to fifty colors.

Markers. Dye markers are an ideal medium for quick color studies. As water soluble markers smear, only those identified as permanent or waterproof should be bought. The latter will not smear when another color is applied, but
Figure 1. Color Mediums: Gouache, Watercolor Dyes, Colored Pencils, Markers, Crayons, Oil Pastels.
they soak through paper and stain any ground underneath. Design Markettes, Admarkers, and Pantone all make good brands of felt marking pens in a wide selection of colors and nib shapes.

**Brushes** (Figure 2)

A designer needs to accumulate a good assortment of the finest quality brushes. Although they are very expensive, red sable brushes are the most responsive and have the ability to render either hairline or broad strokes. With the proper care red sable will outlast all other brushes.

**Pointed sables.** The bulk of artwork is done with brushes #2 through #7. As smaller size brushes do not carry sufficient amounts of paint, #2 or #3 brushes are generally used for very fine detail. An artist may wish to add the larger (#8-#12) brushes later. Winsor & Newton Series 7 (#2-#7); series 707 (#8-#12) are recommended as their brushes are fullbodied, durable and hold a point. Brushes should be tested before buying them to make certain their points are well tapered and evenly centered. If the tip of a brush splits after being dipped in water and given a sharp shake, it will not hold a point during use.

**Aquarelle brush.** An aquarelle is a flat, wide brush used to apply large washes. A 1" width is suggested in either red sable or the less expensive light ox hair.

**Acrylic primer brush.** This inexpensive brush with synthetic bristles is used to cover large areas with rubber
Figure 2. Brushes: One Inch Aquarelle, Pointed Sables, Acrylic Primer, and Hacke.
cement or any other medium that would be harmful to fine quality sables or ox hair brushes.

Hacke brushes. Also called Japanese Sumi brushes, the wide, soft-haired Hacke brushes are useful for laying in watercolor washes. Although less expensive than aquarelles, they do not hold up as long.

Only the most inexpensive brushes are used for mixing paint or dyes, as a brush is easily broken down by consistently using it for this purpose.

Airbrushes.

Although airbrushes are expensive pieces of equipment, they achieve certain desirable rendering effects that make them worth considering. Designed to apply paint by a controlled spray, an airbrush will cover large flat areas either in light tints or smooth opaque color. Gradations of tone and soft edges are also possible. By using a frisket (paper stencil) and overlaying color, subtle effects can be created. When the nozzle is removed an airbrush sprays with a stippled effect.

Several books have been written on airbrushes that present information about buying and operating them, plus techniques for specialized applications in rendering (see bibliography). After consulting one or more of these books a designer can better decide the merits of investing in such a tool.
**Drawing and Drafting Tools** (Figure 3)

**Ruling pens.** A ruling pen is used for finished artwork when a line must be perfectly done. Filled with ink, paint or dye, the ruling pen makes a mechanically straight or curved line of uniform thickness; the pen adjusts to varying line widths. If a wider stripe is needed, then two parallel lines are made and the center is filled in by brush. Although a ruling pen requires some practice at first, it is an essential tool for a designer.

**Technical drawing pens.** A technical pen has a hollow point which, when filled with ink, allows even lines to be drawn with templates, curves and rulers. Castel and Koh-I-Noor pens have interchangeable points in very fine (000) to wide (5 and up). Pelican Technos and Mars 700 make color cartridge refills for their pens. All the above drawing pens work well when the correct technical ink is used and they are cleaned and cared for properly.

**Lettering pen.** Wrico makes a pen that can be filled with thinned gouache, ink, or dye. It performs the same functions as the technical pens, making lines of uniform width, and stippling dot patterns.

**Crowquill pens.** Flexible pen points, for example the Hunt 102 or Gillot 659, allow a great range of line weights. Some exploration may be necessary to discover the various marks a pen can make and the degree of pressure to use. A smooth surface is required unless the artist has
Figure 3. Drafting Tools: Compass, Technical Pens, Ruling Pen, French Curve, Triangle, T-square, Templates, Ruler.
learned to control the pen on grounds that tend to snag and catch the pen point.

**Drafting tools**

**Rules.** A flexible aluminum ruler approximately 18" long with a non-skid backing is recommended. The metal edge will not nick or cut when a mat knife is being used against it. The non-skid cork backing also raises the ruler off the drawing surface and prevents bleeding and smearing when used with a ruling pen.

**T-square.** A T-square is a ruler with an additional section mounted on one end at a right angle. This addition enables an artist to draw parallel lines by positioning the end piece on the edge of a drawing board and moving it down the desired amount. If vertical or diagonal lines are needed, a triangle is used with the T-square.

**Triangles.** All triangles have three angles and three sides. When used in conjunction with the T-square, numerous geometric shapes can be devised—squares, triangles, rectangles. A double layered triangle with the bottom edge slightly recessed provides a raised edge for use with ruling pens.

**French curves.** The French curve is a drafting tool constructed of plastic with curved edges for guiding a pen or pencil. Many shapes are available but one set of three or four forms ought to serve most purposes. A preliminary pencil sketch is made to be certain a curve is constructed
correctly. As curves usually require a repositioning of the guide, not too much of a curve is drawn at one time.

Templates. Plastic drawing guides called templates are used for accurately drawing certain desired shapes, such as circles, squares, ellipses. The Picket 1204 Circle Master (1/16" - 3" diameter) is a handy template for drawing circles quickly. Many others are available for squares, ellipses, triangles, etc.

Compass. Although there are many kinds of compasses, a bow compass with a center screw adjustment prevents any looseness that may cause errors in drawing circles. Some compasses have an extra handle and convert the pencil part into use with a ruling pen.

Drafting tape. This crepe paper tape has a low tack adhesive that comes off without damaging paper surfaces. Regular masking tape discolors and leaves adhesive residue and may pull the surface of the paper. Drafting tape is used to fix artwork to drawing boards or tables and to mount overlays on artwork.

Erasers (Figure 4)

The choice of an eraser is important as it must not leave a mark worse than the original mistake.

Kneaded eraser. A soft, pliable kneaded eraser cleans large areas and lifts off tracing lines on top of painted or unpainted surfaces. It absorbs discolorations on paper without leaving residue. Capable of being kneaded
Figure 4. Erasers, Knives, Adhesives, Liquid Mask, Non-crawl Additive, Airbrush, Burnisher.
into a clean surface, this eraser can be used over and over, and it can be formed into shapes that will clean and correct small areas.

**Rubber cement pickup.** A rubber eraser or pickup is made especially for removing dried rubber cement from paper or other surfaces.

**Bleach.** Household chlorine bleach diluted with water will erase most dye colors. Bleach is used also as a design tool, taking out areas of color to create highlighting or to paint in another hue.

**Knives (Figure 4)**

**X-acto.** An X-acto knife is a tool for light weight cutting of friskets, stencils, or thin papers. A # 11 blade is useful for such purposes.

**Utility knife.** An all-purpose utility knife is needed for cutting uses - mats, trimming artwork, etc. When cutting thick boards, a series of strokes are made until the knife has cut through the board, otherwise the knife may slip and cut a finger or hand. A retractable blade knife is the handiest and safest.

**Single-edge razor blade.** A mistake can be scraped off a surface with either a single-edge razor blade or a small pocket knife. Tiny spots removed from gouache or Color-Aid in this manner can then be touched up with paint.

**Adhesives (Figure 4)**

**Rubber cement.** Rubber cement is the most frequently
used adhesive for artwork as it is nonstaining, clean, and easily removed. When only one surface is covered with rubber cement, it can be repositioned. The bond between two surfaces will be permanent if they are both covered. Because rubber cement does not leave a stain on paper and is easily removed from unwanted areas when dry, it can be used as a frisket to mask off sections. After the entire surface has been covered with color and dried, the rubber cement is lifted off with a pickup eraser.

**Glue stick.** Glue stick is a convenient rub on dry glue that adheres well to paper. It is only recommended for small pieces of paper or to paste up colorways and color charts.

**Photo Mechanical Aids**

**Copy machines.** Photocopy machines are a common way to make copies of designs. Too costly to qualify as equipment in most freelancers' studios, machines that enlarge and reduce are available for use at many locations.

**Opaque projectors.** These machines for enlarging or reducing an image project a reflection through glass onto translucent paper for tracing purposes. Hours of sketching and inaccurate proportions are eliminated by utilizing an opaque projector. Simple models (Seerite's opaque projector) are relatively inexpensive but only enlarge a picture of 6"x6" maximum onto a wall or board. Larger professional models, such as the popular Lacey Lucei, run into hundreds
of dollars and take up considerable space.

**Light box, tracing box.** This box contains a light fixture with uniform fluorescent lighting and a frosted glass top providing a tracing surface. A drawing or picture is placed on top and covered with tracing paper. The light allows the image to be seen through the tracing paper. To reduce cost a desk top light box can be easily constructed with an 18"x 24" box, two fluorescent light tubes placed inside the box and a frosted glass to place over the top.

**Photostats.** Motifs or patterns can be photostated, the proofs pasted up and negatives made. The negatives can then be printed as positives on either stat paper or acetate. This two step process first produces a white line negative on black; a second print produces a black line positive.

**Other Aids (Figure 4)**

**Prepared acetate.** This transparent plastic is treated to receive ink, paints, and dyes. When a pattern has been applied to the surface, the acetate may then be used as an overlay on a previously prepared ground.

**Liquid frisket.** A liquid frisket (maskoid) brushed onto a surface protects the covered area from subsequent applications of paint. When the frisket is dry and peeled off, the edges may be slightly ragged. Liquid frisket is good for masking small details and can be applied by a ruling pen to mask out straight lines. Only old or inexpen-
sive brushes should be used and then washed immediately as liquid frisket is very detrimental to brushes. If a brush is dipped into liquid soap prior to the liquid frisket, it will help protect the bristles and make it easier to remove.

**Non-Crawl.** Non-Crawl, a liquid additive, enables a medium to adhere to glossy surfaces such as acetate or masa paper. Liquid soap performs the same function when added to paints or dyes.

**Burnisher.** A plastic or cone burnisher is a tool for rubbing down either tracings or pressure graphics (Rub on lettering, color film). The back of a spoon provides the same function.

Although it is important to know the materials available for producing designs, not all of the above items will be useful to everyone. The supplies and equipment to be purchased will depend upon personal preference and on the type of designs that one chooses to do.
Chapter III

RENDERING TECHNIQUES

After becoming familiar with the tools and materials for rendering print designs, an artist can work with them to achieve an almost limitless variety of effects. By combining materials with one another in mixed techniques, for instance, colored pencil work on a gouache ground, imaginative possibilities arise. A designer, by experimenting with the available tools and by investigating new techniques, may achieve some unique and exciting effects.

Working With Gouache

Gouache out of the tube is too thick for most rendering techniques and needs to be thinned with water (preferably distilled water). The best consistency of paint resembles heavy cream. If too much water is added to gouache, it dilutes the colors and makes them transparent, thus causing them to streak. White paint added to a hue affects its value, making it lighter.

When gouache is applied with the proper consistency (heavy cream), light colors will cover dark ones. A ground color should be dry before another color is painted on top of it. Gouache can be blended when wet by zigzagging the brush across the two colors to soften the hard edge, or by
painting one tone into another while it is still wet. It is important for a designer to know that gouache dries lighter than it appears while wet, so when colors swatches are being matched the paint must be thoroughly dry.

All colors are mixed before a rendering is begun. Color swatches are made on the background color being used; an area is painted on a separate paper for testing colors. When making a tint, color is gradually added to white. The amount of white paint necessary to cover an area is estimated, then small quantities of color are added until the desired shade is reached. For dark shades black is gradually added to a color.

A method called "loading" is used to reinforce a color; loading adds complexity that enriches a hue. For instance, a warm tone mixed or loaded with a cool tone results in a rich neutral. Small amounts of grey loaded into a color exert a subtle effect, whereas large amounts produce dusty colors. Catalina fluorescent poster colors added to designer colors will brighten them. For example, an addition of fluorescent pink or red will brighten an opaque spectrum red.

Painting a ground. When painting a ground with gouache, the paint must be mixed thoroughly and evenly or streaking will occur. All four sides of the paper are taped to prevent buckling (Figure 5), and the largest brush possible for the area being covered is used (a large brush
carries more paint). Brush strokes are kept going in the same direction and the paint is floated in large enough amounts to pick up the excess of the stroke before it (Figure 6). The paint is applied horizontally across the entire paper first, and then repainted vertically while it is still wet. As gouache dries rapidly, the painting must be done quickly. A limited amount of correction can be done with the side of a small knife or razor blade. The area to be corrected is scraped lightly, then the paint is reapplied. This type of correction only works for small areas. A dry gouache surface marks so easily that areas being worked upon should be covered with a paper for protection; spots created by drops of water cannot be remedied.

Painting a blotch or a design shape. When painting motifs and background areas around the motifs, known as blotches, the consistency of the paint will also resemble heavy cream. Using a round sable brush, the area to be colored is outlined and filled in with quick broad strokes (Figure 7). Going back over partially dried areas darkens the paint and should be avoided.

Concentrated Watercolors and Dyes

Some practice may be necessary to lay an even wash over a large ground with dyes. Laying in a wash of pure water first reduces streaking, and keeping the brush fully charged with color avoids overlapping lines. The first
Figure 5. Preparation for Laying a Gouache Ground.
Figure 7. Painting a Blotch with Gouache.
stroke is applied horizontally and then pulled back across the paper. The brush is recharged with color and the next stroke is laid alongside the previous one so they merge. This method of painting a wash is repeated until the area is covered. Another method of painting a ground with dye is to hang the paper on a board; the dye painted on the paper will run down and cover the ground in an even manner. Any excess dye at the bottom edge is soaked up with a blotter. Dyes work especially well on masa paper (liquid soap must be added); the results are brilliant, vibrant colors.

Blotches are more difficult to paint with dyes than gouache as the dyes may show overlapping lines. Often the motifs in a pattern will be painted with dyes and the blotched ground will be rendered in gouache. Bleach removes dyes, but certain colors have great staining capacity and leave some color. The stained areas can be touched up with Pro white or gone over with another color. The bleach is applied carefully with a cotton swab or an old brush, and removed immediately with clear water.

**Watercolor dye on masa paper.** The appearance of a wax resist batik fabric can be achieved by using masa paper and water color dyes. The masa paper is crinkled into a ball, flattened and ironed with a cool iron (Figure 8). When dye is applied it accumulates in the cracks much the same way color penetrates the wax cracks in batiking. A completed design resembles the wax resist method of batik (Figure 9).
Figure 8. Crinkled Masa Paper Ready for Batik Painting.
Figure 9. Completed Design Resembling a Wax Resist Batik Fabric.
Mixed Media Techniques

Colored pencils, crayons, and pastels. By using gouache or dye as a main medium, colored pencils and crayons can be applied to create varied shading effects (Figure 10). The intricate shapes of flowers and leaves present excellent opportunities to combine one or more of these media with a dye or gouache ground by adding accents of color or small linear lines such as vein patterns in leaves. Crayons render gradated tones, and colored pencils give subtle shading and highlights. A white pencil is very effective for highlighting.

Spattering (Figures 11, 12, 13, 14, 15)

Spattering is a technique in which specks of pigment are randomly flicked onto a painted area in order to create shading and textural effects, similar to those made by an airbrush. Any stiff brush—-toothbrush or stencil brush—-can be used. By loading the brush with thinned gouache, and by dragging a screen wire or a knife across the bristles, the paint spatters onto the surface. If an area becomes too heavily covered with color, respattering with the ground color (gouache) or bleach (dyes) will lighten it.

A frisket may be used to mask off areas that are not to be spattered. Frisket paper, a strong, thin, transparent paper, is cut out in the desired shape. Rubber cement is applied to the back of the frisket which is then adhered to the surface that is to be painted. After
Figure 10. Mixed Media Rendering Using Dyes, Colored Pencils, and Bleach.
Figure 11. Cutting a Shape Out of Frisket Paper.
Figure 12. Spattering Technique Using Gouache.
Figure 13. Removing Frisket after Spattering.
Figure 14. Spattering Gouache to Render a Yarn Dye Effect.
Figure 15. Yarn Dye Effect Produced by Spattering Gouache.
spattering, a rubber cement eraser picks up any residue left when the frisket is removed.

Print designs that resemble woven textiles, known as "yarn dyes", are rendered by using a spatter technique with a frisket. Plaids and stripes are popular "yarn dyes" created by this technique.

**Stippling**

Stippling consists of shading by placing dots of various sizes and values in or around specific areas. The shading ranges from light (dots further apart) to dark (dots closer together). Pens, special dotting pens, brushes filled with gouache or dye, colored pencils, crayons, or markers can be used to create a stipple effect. Both the positive and negative areas of a the same design may be shaded by stippling, usually in different colors (Figure 16).

**Liquid Frisket**

To produce a resist on paper, a design is applied by using a liquid frisket or rubber cement to create the image (Figure 17). After the frisket is dry, the paper is covered with a wash of color, either gouache or dye (Figure 18). The liquid frisket acts as a resist and repels the color. When the paint is dry, a rubber cement eraser is used to pick up the frisket (Figure 19). The resulting image may then be painted another color.
Figure 16. Stippling Technique Using Wrico Pen and Gouache.
Figure 17. Design Painted with Liquid Frisket.
Figure 18. Frisket Image Covered with Gouache.
Figure 19. Frisket Being Rubbed Off with Pickup Eraser after Color Has Dried.
Any brush that is used to apply a liquid frisket—never a good brush—should first be dipped into liquid soap to acquire a protective coating and washed immediately after use. Liquid mask can be thinned for use in a ruling pen.

**Ruling Pen**

The ruling pen produces a variety of results, such as uniform line widths for stripes, plaids, dots and circles. This very useful tool requires some practice to develop expertise in handling but is worth the effort because of its versatility.

To fill a ruling pen, a brush is loaded with color and the medium is then placed between the two pen points (Figure 20). Gouache needs to be thinned slightly in order to flow through the pen evenly. Excess pigment left on the pen blots or runs so should be wiped off. The pen is held upright and moved evenly along a beveled or raised edge (Figure 21). Coins or paperclips can be taped to a ruler or French curve raising them off paper level and allowing the paint to flow without smearing. As the pen does not hold much fluid, it will be necessary to refill it frequently.

**Flush-join**

The method of inlaying one piece of paper into another is called flush-joining. Mostly used to correct mistakes and damaged areas in a rendering, flush-joining may also be utilized as a design technique by inlaying one
Figure 20. Filling the Ruling Pen.
Figure 21. Drawing a Line with the Ruling Pen.
decorative paper into another painted surface (Figure 22).

The paper to be inlaid, and the surface into which it is to be placed, must be cut one on top of the other so the shape and size will be identical. The two papers are taped with drafting tape to keep them from slipping, and they are then cut through with an X-acto knife—almost all the way around (Figure 23). Just short of finishing the cut, the paper is turned over and portion of the cut area is lifted. The backside of the new inlay is taped flush to the backside of the surface paper (Figure 24). Then, the cutting is finished on the front side and the last taping is done on the back. In order to make a good flush-join, the paper weights should be similar (Figure 25).
Figure 22. Decorated Paper to be Flush-joined with Ground Paper.
Figure 23. Cutting Through the Inlay and Ground Papers Simultaneously.
Figure 24. Taping the Backside of the Inlay Paper to the Ground Paper.
Figure 25. Decorative Paper Flush-joined with Ground Paper.
MOTIFS, PATTERN, STYLES

The criteria of good textile design includes all the basic qualities of good design in general. The elements of line, shape and color must interrelate in such a way as to create the rhythm and balance necessary for an effective, harmonious pattern.

Pattern is essentially a single unit of design repeated again and again. That is, a motif which may be a complete design in itself forms an all-over pattern when multiplied and combined in various ways. Good patterns or groupings of motifs become the most satisfying designs when repeated. A repeat, however complex, will not disguise a bad motif.

An individual unit may be a very imaginative or casual design but for it to comprise a repeated pattern it must become part of a deliberate plan. Textile designs are logically constructed and start with definite ideas; therefore, nothing is haphazard about the approach to designing a pattern.

To consider pattern making would be premature without first examining the decorative units that form a design. They can be invented or imagined motifs, realistic represen-
tations of natural objects, or purely non-objective design forms. Specific motifs cannot be easily classified into basic categories as there is a continuous overlapping. The following classification by subject matter seems to be a satisfactory solution.

Animals, Birds, Insects

The use of animal motifs was the first breakthrough into subject type patterns. Stylized animals caged in roundels or medallions made simplified and formal textile designs that had pleasing symmetrical balance. Birds and insects included in freely designed floral work were charming and successful patterns. The symbolism of ancient folklore led to animals being used as auspicious devices, such as the eagle and lion denoting power. Some legendary significance associated with various animals and insects has filtered down to the present time and may account for the recurring popularity of certain figures. The butterfly, a favorite in print designs, became the emblem of joy when a Chinese philosopher dreamed he became a butterfly and found great happiness in flitting from flower to flower gathering nectar. A distinctive shape or the ability to change shape may make some animal figures more usable than others. For instance, a frog sits, jumps and spreads out, creating movement and interest.

Animal motifs, not widely used in fashion textiles, are more popular for junior and children's apparel patterns.
When bird or insect motifs are used in fashion fabrics they are ordinarily combined with florals or scenics such as toiles. Prints that imitate animal fur, reptile hides, and feathers are used alone or as textural effects with other motifs; these prints may be found in both apparel and home furnishing fabric patterns.

As birds, insects and animals figure largely in Eastern symbolism, many representations of them can be seen in bronzes, porcelains and architectural reliefs. Both children's and wildlife books have illustrations, and the French "millefleur" tapestries depict animal figures that are worth studying.

**Flowers**

Flowers have always been an inspiration to artists, but they are particularly important in the designing of textiles. Florals are the favorite of textile manufacturers and comprise two-thirds of all design patterns and motifs in fabrics and wallpapers. They are an enduring design source with infinite diversity and freshness that can be interpreted realistically or stylized and abstracted. Classical florals have many forms: floral sprigs of lilacs; stripes of closely massed carnations; lush bouquets of roses; daisies scattered over a field of color; or straight rows of tulips. Although flowers may be arranged in many imaginative ways, the composition of stems and branches in a design can be difficult for the novice to handle. The designer controls
the problem by either concealing the ends of stems and branches under a leaf or nearby flower, or by allowing them to continuously branch and grow. Often the type of flower dictates the way a design is composed—morning glories may logically meander across a pattern. By studying the formations of foliage in nature and the directions of growth, it becomes possible to relate design forms to one another in a realistic structure instead of forced aimless connections. Naturalistic flowers and leaf forms are easily arranged and repeated into formal patterns, but less detailed or simplified prints, such as provincial prints, fall into more casual compositions.

Certain flowers have emotional associations. The rose, consistently the favorite floral motif, is a poetic symbol of beauty and romance. The iris has long been an heraldic device used in both stylized (fleur-de-lis) and natural forms. Other flowers because of their composition are easily adapted to decorative design, for instance, violets, daisies, tulips, and carnations.

Foliage forms (leaves, grasses, vines) are excellent motifs for textile designs. Softly colored leaves make backgrounds that do not demand attention; vines, such as ivy, create flow through a pattern; and grasses blowing in the wind give a sense of movement. Clustered or scattered, leaves provide contrast in floral patterns; used alone or as an all-over pattern, foliage creates an illusion of depth.
Natural colors are not always used to render foliage for print designs, instead, hues may be chosen from many different color schemes.

Botany books with beautifully illustrated flowers, seed catalogs, and paintings are all good sources of reference materials that can become adaptable to fabric design. In addition, designers familiarize themselves with the various ways flowers are handled in design by looking at examples of printed and woven patterns in museum collections. A careful study of flowers and foliage in a garden should be made, and photos and sketches saved for reference.

Geometrics

Geometric motifs used in decorative designs have developed from mathematical forms. The star, diamond, trefoil (three petaled figure), cinquefoil (five petaled figure), and other sophisticated mathematical constructs may be found in geometry books along with the well-known circular, square and triangular shapes. The ways of dividing and/or combining these geometric forms yield countless design devices.

The simplest geometric pattern is the stripe. Whether straight, waved, chevroned or broken, stripes make formal versatile designs. Wide, boldly colored stripes command attention, while narrow, softly shaded stripes fade into a background. When stripes are plaited or woven, new possibilities emerge—lattice, trellises and frets. These
"open designs" give an illusion of space behind them.

Optical illusions may be beneficial in a design. A lattice-patterned wallpaper may lend an open feeling of space to a room; however, visual problems may be created by optical effects that demand too much attention. A designer must always consider the dynamic nature of geometrics and use them accordingly. For instance, an energetic pattern of swirls and curves might be appropriate for an active sports-wear fabric, but not for wall coverings.

The main concern of geometric designs is to cover space. The most effective patterns have shapes that are related to one another and spacing that has been carefully planned. Any repeated pattern has a geometrical quality, but those having geometric motifs frequently set up their own repeats—patchwork patterns are classic examples. Plaids and ginghams, both informal provincial designs, are built out of simple stripes and squares. Effective geometrics are not as easy to construct as they appear. The best patterns are frequently those which appear simple but have a good balance of space and color relationships. When repeated, the simple dot requires the proper balance to become a good design.

Chinese lattice designs and Arabic tiles provide a wealth of reference material. Many interesting geometric devices are found in math books. Modern art has an affect on contemporary design and it is helpful to study the paint-
ings of artists such as Mondrian and Stella.

**Novelties and Conversationals**

The types of motifs that can be classified as novelties are so numerous and varied that it would seem anything not floral or geometric falls into this category. Even animal prints, listed separately as motifs, are nonetheless referred to as novelties in the textile business. The following is a partial list of the wide variety of subject matter available to a designer for use in novelty patterns:

- **man-made objects:** toys, musical instruments, fans, kites
- **elements of nature:** shells and sea life, fruits and vegetables, snowflakes, pine cones
- **sports and hobbies:** nauticals (sailboats, anchors, ropes, flags), equestrian, tennis, racing (cars, bikes)
- **conversational narratives:** a story or record of an historical event

When a novelty figure is played down by combining it with a floral (fans and flowers) or a geometric (sailboats and stripes), it generally becomes a more acceptable and saleable pattern. The effect of a motif may also be minimized by size relationship: large flowers combined with small fans; and by coloration: medium blue anchors with red stripes on a light blue ground. Close color tones keep motifs from jumping out.

Certain novelties are considered seasonal, appearing at particular times of the year. Nauticals, shells, and
kites are among those motifs that are popular for spring/summer; snowflakes and pine cones are used for fall/winter motifs.

Novelties are used in both home furnishings and apparel for surface treatment, but they have a limited market. Junior sportswear, children's wear, household accessories, and a few wallpapers use them the most. Occasionally high styled novelty designs are found in women's wear.

Novelty motifs are readily available for reference in numerous publications (toy catalogs, sports and specialty magazines) and in photos taken at amusement parks and other public places. One's imagination can make use of the many surrounding design possibilities.

Scenics

Patterns having scenic motifs of classical landscapes tend to attract attention and hold interest; thus limiting the use of the fabric they decorate. Scenics are generally large scale designs used mainly for home furnishing textiles. Sometimes scenics will be used for apparel as "engineered prints" (designs created to fit the shape of a garment), or for borders. Abstracted landscapes resembling patchwork, or amusing and simplified scenes might be more adaptable to apparel than the traditional toiles. Swimwear and loungewear are the apparel markets that most often make use of scenic designs.
Textures

Textures printed on textiles and wallcoverings often imitate woven fabrics (ikat, damasks), hand-dyed cloth (batik, tie-dyes), building materials (wood grain, marble), markings in nature (furs, feathers) and surface variations on man-made objects (corrugated paper).

Texture can be built by the repetition of objects such as pencils, stamps, nuts and bolts placed near or overlapping one another so that the overall effect is more noticable than the individual objects.

A textural effect may become an unobtrusive background or may set a mood, such as the luxury of marble or fur). Whatever the purpose, a texture should be an asset and not a distraction. Not all beautiful, subtle designs can be reproduced by industrial printing methods, and if the texture covers an entire repeat, it must match in an inconspicuous way. Textural patterns printed alone or in combination with other motifs, are widely used in all markets.

Pictures of textural effects can be found in nature and wildlife magazines (National Geographic, GEO) as well as photographic publications.

Paisley

The cone-like motif known as paisley came originally from the Kashmir shawls of India. These design devices began as simple bent leaf units that contained tiny mosaic flowers and were surrounded by open areas. Today paisley
patterns range from small, delicately detailed figures to large, elongated scrolls with elaborate and densely composed flower forms. As the popularity of the shawls reached Europe in the late eighteenth century, they were widely imitated. The Scottish town of Paisley became so worldly famous for the shawls they produced that the name paisley has remained an identification for not only the motif but for the style it developed. This style has a mixed character that combines naturalistic to semi-naturalistic flowers with geometric shapes and arrangements, often in complex compositions.

Paisley, like a stripe or a plaid, is always a basic pattern in the interior design market and it has become a recurring seasonal pattern (fall/winter) for apparel fabrics.

Books on Indian textiles, as well as publications exclusively dedicated to paisley, are available. Paisley shawls are now collectors items that can be found in antique stores and museums.

With the limitless field of subjects from which to draw inspiration, there is no need to copy stale patterns. A designer must acquire the faculty to see the design possibilities in the countless sources of inspiration available: designs in nature, historic ornament, and geometric constructs.
Style

The characteristic manner in which a design is expressed is referred to as style. This includes major features and colors, proportions, and general form. Style is also influenced by the materials and rendering techniques employed. Types of styles fall generally into two areas: first, cultural; Egyptian and Oriental, for example; and second, historical; Art Nouveau, Art Deco, and Eighteenth Century. The eye easily detects design differences that are difficult to describe in words. The characteristics of a style can be more quickly established by looking at fabric swatches, renderings, or photographs. Owen Jones famous book, Grammar of Ornament, first published in 1856 and reprinted in 1910 and 1972, is a collection of cultural styles that every decorative artist should study.

A textile designer's vocabulary has been created to identify design ideas and looks. Briefly described are the following styles:

Art Nouveau. A style popular at the end of the nineteenth century. Design elements are stylized representations of nature--plant and animal shapes formed into flowing rhythmic patterns that seem to have an organic basis.

Art Deco. Anti-classic style of the 1920's and 1930's that concentrates on abstracted forms. Formal angular motifs are used that have been derived from Egyptian and
Mayan devices and influenced by the art of Cubism, Fauvism, and Expressionism.

**Batik.** Fabric decorated by a wax-resist method that is associated with the island of Java. A crackling of the wax allows some dye to penetrate and achieve a veined background effect. The "style" is easily imitated by machine printing.

**Calico.** Cotton prints from Calicut, India which have become known as calicos were originally small patterns done by wood block. Most designs have complex motifs with fine detail and brilliant fresh colors.

**Chintz.** Originally a hand-painted polished cotton fabric developed in the seventeenth century in India. Chintz to a textile designer means beautifully rendered large florals in gay, bright colors on polished cotton. Chintz is widely used in the home furnishing industry.

**Liberty print.** Hand-blocked designs originally produced by Liberty Ltd., London as an English interpretation of Indian calicos. Liberties are small closely patterned florals with a fine outlining and are frequently printed in soft colors.

**Provincial.** Woodblock designs originating in Provence, France in the eighteenth century. The motifs are small and simple with few colors.

**Toile:** Scenic designs depicting landscapes or historical events and usually printed in one color on a neutral
ground. This style, also known as Toile de Jouey, originated in the French town of Jouey. Toile fabrics were the first textiles to be printed by engraved copper plates.
Chapter V

LAYOUT

Two steps are necessary in making a design: first, to obtain a satisfactory unit comprised of one or more motifs; and second, to arrange this unit to form a surface pattern.

A designer may not be restricted in the use of motifs but certain compositional factors have to be taken into account when laying out or arranging a pattern. An organized structure is necessary when elements are put together to form a layout. This underlying framework is made up of technical and stylistic aspects. The technical layout is the internal structure used to cover a defined area. An all-over layout (Figure 26) sometimes referred to as random or tossed, covers the entire fabric surface in what appears to be a casual scattering of motifs. In fact, it is a balanced and organized distribution of elements not readily apparent. A set match layout (Figure 26) has a regular grid structure and establishes an obvious repeat. In the case of a simple polka dot pattern (set match layout) the conspicuous repeat is an asset, but in an all-over floral layout, an obvious repeat might detract from the pattern and be considered undesirable. A pattern, folded
Allover

<table>
<thead>
<tr>
<th>Border</th>
<th>TURNOVER</th>
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Set Match

Figure 26. Technical Layouts in Pattern Arrangements
over (duplicated in reverse), is referred to as a turnover layout (Figure 26). William Morris, the highly regarded nineteenth century designer, frequently used this mirrored image technique in his textile patterns. A border layout (Figure 26) is designed to be printed along the edge or selvage of a fabric and the pattern is repeated lengthwise only. A border should relate in style to any adjacent designs but differ in size to create an interesting contrast. Borders often have to turn corners on scarves, tableclothes, and beachtowels. The corner join must be planned in advance either by leaving a square unit on each corner for a specially designed element, or by dividing each section of the border equally so the unit fits and turns. The design may turn at the corner on the diagonal or the corner may constitute the whole design with connecting lines or motifs. Space inside a border may have an all-over pattern with or without a center motif.

Engineered prints are individualistic patterns that are non-repeating from selvage to selvage in an attempt to eliminate a mass produced look. These designs often use graphic effects, folk motifs, or scenic prints (Figure 27).

A design may be placed in one-directional or two-way layouts (Figure 28, 29). When a motif, such as a flower, is placed with the stems always facing the same direction, a symmetrical and vertical look is achieved; home furnishing fabrics frequently have one-directional prints
Figure 27. An Engineered Print Designed for a Shirt Pattern
such as these. In a two-way layout the design is placed to read in all directions; therefore, the stems in a floral pattern would turn various ways. Fabric waste is minimized in cutting prints with two-way layouts and this economical feature appeals to most apparel manufacturers.

The proper scale of a layout depends upon the size and amount of motifs. A sense of movement occurs when smaller and larger motifs are combined. Careful balancing of the positive and negative spaces and attention to maintaining equilibrium in the arrangement of the various elements will give a pattern the necessary symmetry or asymmetry.

In order to keep a design from becoming static, dominant areas or focal points are established by using sharp accents of color (emphasis). A shifting of interest (counterchange) is created by contrasting light and dark values, or by rotating, inverting or reversing some element in the design. A checkered pattern is an example of a simple counterchange by contrast.

Repeats

The way in which a motif or group of motifs is arranged to cover a surface determines the basic unit of a pattern. By rotating, inverting, or reversing this basic unit and incorporating additional horizontal, vertical or diagonal elements with colorings, a repeat pattern can be established.
Figure 28. Two-way Layout

Figure 29. One-directional Layout
Two basic understructures, or networks, that form all repeat patterns are the full drop (square) and the half-drop (Figure 29). The full drop repeat is a square formation where every other row is dropped a full unit, creating a checkerboard effect (Figure 30). In the more common half-drop repeat every other row is dropped half the depth of the repeat (Figure 31). Patterns can be built on several stylistic variations of the half-drop structure:

(a) Half drop vertical—the most popular network as it works well with vertical forms.
(b) Brick—a horizontal half drop that is compatible to horizontal forms.
(c) Diamond—a very workable structure that avoids horizontal lines.
(d) Ogee—based on the S curve, the ogee produces flowing patterns vertically or horizontally.
(e) Hexagon—a stable, orderly structure that repeats without creating adverse negative space.
(f) Scale—a scallop effect that tends to produce tension in one direction.

When designing for yardage, the pattern will be repeated many times during printing. If the design does not repeat accurately or the joins are pronounced, the finished fabric will be unusable. The size of the repeat is dependent on the width of the fabric and the printing method being used (Figure 32). The side repeat of a pattern (hori-
Figure 30. Full-drop Layout.
Figure 31. Half-drop Layout.
Figure 32. Structural Networks for Design Variations
Zontal repeat) is equally divided into the fabric width. Fashion fabrics are usually 36"-45" wide; therefore, the width of the repeat may be any multiple of thirty-six or forty-five. The length of the repeat will be determined by the printing method. In rotary and roller printing the circumference of the rollers allows repeats of 16"-18" for apparel fabric, and up to thirty-six inches for home furnishing textiles. Any division of these measurements can be used. For example, a small-scaled design may require only a two-inch repeat, thus fitting into the circumference of sixteen inch roller eight times. The vertical repeats for screen printing are normally 18", 25", and 36". Wallpaper width is usually twenty and a half inches with vertical repeats of 15", 18", 21", and 24" for roller printing and up to 30" when screen printed. Larger size wallpaper designs are made by printing half the design on one width of paper and the other half on a second paper.

Every repeat pattern must have some method of joining units and the join marks should be invisible. Units can meet (butt) along a straight line, as with rows of lines or shapes. By over-lapping units the appearance of a continuous line can be achieved. A darker or different color may occur when overprinting is done, but it may be minimized by choosing small joints or narrow lines as joining places. One part of a unit may dovetail or fit into a part of the next unit without touching. When joining on a
Repeat: 25" x 15" to 60"

12 1/2"

Any fraction of 25"

8 5/16"

6 1/4"

5"

Figure 33. Design Dimensions for Rotary Screening
colored ground, the join goes around the form of one motif and across to the next motif at the place where the narrowest gap occurs.

The repeat structure of a pattern must be understood in order to lay out a design, although a design may not necessarily be put into repeat immediately. Usually the layout of a pattern is done to simply suggest a repeat, and at a later time, when exact dimensions are determined by a stylist or designer, an accurate repeat is set up.

Although a freelance designer seldom puts a design into an exact repeat, it is essential to know the procedure in order to create patterns that will eventually work out well as repeats. Some patterns such as set layouts, borders, and stripes are laid out in precise measurements from the start. The following is a suggested method of setting up a repeat. The basic unit of a design is traced or photocopied a sufficient number of times to set up the repeat. A very large repeat may only be necessary to include once in a croquis. Small intricate patterns should be repeated enough times to show an overall effect in a croquis size large enough to be mounted. A flowing design needs to be rendered in a larger croquis than a static pattern. The units are pasted up on tracing grid paper according to the repeat method chosen (half-drop, full-drop). The space between units is analyzed and filled in, if necessary, with careful consideration for the overall
design. The decision on how the units will join is determined also. Next, the necessary changes are made at the line where the pattern repeats by adding or eliminating motifs, by connecting lines or overlaps, and/or by moving motifs into desired positions. Both vertical and side repeats are taken into account as they are equally important. The accuracy of the measurements horizontally and vertically are checked with either a drafting machine or a T-square used with a triangle. After determining that the design is set up as desired visually and in accurate alignment, the pattern is either photocopied, or traced by placing vellum over the design and tracing (Figures 33, 34).

Positive and negative space should read well in a repeat pattern and the design as a whole should have a sense of balance and scale that creates a rhythmic flow. Two mirrors placed at right angles in the corner of a repeat will give the effect of the repeats on a finished fabric. Only one full repeat of a design usually needs to be painted. Tabs of each color in a pattern must accompany a design.

The development of a pattern is a gradual procedure, a "progressive invention" that enables a designer to see ahead with each step. The starting point is always an idea, maybe an arrangement of forms, or color, or the specific overlapping of a particular motif. Whatever the idea, the design proceeds by considering the proportions of space to
Figure 34. Half-drop Repeat. The design is traced in the first and second positions and then placed in the half-drop position.
Figure 35. Full-drop Repeat.
The solid lines represent the network structure; dotted lines indicate the repeat limits. Motifs are not divided because they cannot be matched in printing.
be dealt with, and by balancing one feature against another. This step may lead to the introduction of intermediate shapes, smaller units, or connecting lines. Often a design may be made more interesting by the connecting units. Focal points may then be determined with counteracting features applied. An amount of experimentation arrived at by artistic instinct is usually necessary to establish the lines and masses of a pattern composition. Detailing occurs at the point when it affects the overall unity of the plan. Preliminary sketches are worked out in color or at least in dark and light values to indicate the distribution of color masses and to arrive at a proper color balance.
As the average eye is more sensitive to color than to either line or form, color becomes a fundamental consideration in the design process. The textile designer is concerned with creating a scale of colors that possesses a sense of harmony, identifies and balances shapes, and emphasizes the rhythm of a pattern. The use of color in a design is based on a knowledge of color theory, a sensitivity to color, and experimentation.

Descriptive terminology of color varies according to each person; people rarely visualize color exactly the same. Colorists in the textile field may have a totally different descriptive vocabulary of hues than either color scientists or artists. By referring to color swatches or a color specifier in discussions with clients, a designer avoids misconceptions in communication that could lead to recoloring finished work. Pantone makes a Color Specifier (Designer's Edition) that contains 563 colors reproduced on perforated tearout chips. Easily removed, the chips are helpful in both identifying exact hues with clients, in arriving at color schemes, and in planning colorways. Color Aid and Color Vu produce swatch books that are particularly
good for choosing hues to be rendered in designer's colors.

In selecting colors the designer deals with fashion and general aesthetic considerations while working within the limitations of manufacturing. What appears to the designer to be an agreeable color solution, may be regarded as impractical from fashion, price, and technical aspects to a manufacturer. How then does a textile designer choose an acceptable range of colors?

Fashion is a triggering element in color and starts the movement to new colors. The public's everchanging preferences and reactions must be studied. New colors are introduced each season in the apparel industry based on the pre-testing of consumer taste through color surveys, but color trends in home furnishings remain popular for as long as five years. Certain events influence fashion in color. For example, the Tutankhamen exhibit caused an interest in an Egyptian palette of turquoise, gold, red and black. If a color has been popular for several seasons, there will be an unfavorable reaction to it. Overuse of bright colors will bring back muted pastels or monotones. The resourceful designer is aware of color trends and takes advantage of available color forecast information.

Professional designers and colorists work in a color world that is fourteen to eighteen months ahead of the consumer. By the time a consumer sees and buys the product, color planning is underway for the next line.
The fashion press prints the promotable colors for spring/summer or fall/winter, but that information comes too late to be of value to the textile designer who works a year in advance.

Several yarn and fiber manufacturers compile color forecast charts that are available on a seasonal basis. For a nominal fee, cards or charts may be obtained from Cotton Inc., Dixi Yarn, Monsanto, Dupont, and Celanese. Several color service organizations offer more comprehensive coverage and make available trends, forecasts, and marketing information for fees ranging from $35.00-$600.00. They shop European markets, edit the information in American terms, and pass along both basic trends and specific directions.

The Color Box releases color projections three times a year: spring/summer, fall/winter, and holiday/resort. Each set contains colored yarns, color direction information, and coordinated color combinations eighteen months ahead of the season. Color Projections Inc. provides three issues of either men's wear, women's wear or home furnishing directions nine months in advance. The Color Association of the United States separates their color information into men's wear and women's wear categories and provides a color consulting service. As other good forecast services exist, designers should investigate what is available and choose one that best suits their needs.

The number of colors in a design varies with the
method of printing and the selling price of the fabric. If a textile is being printed for a low-priced market, the cost factors of production must be kept to a minimum. Often this restricts the number of colors being used (see Chapter IX, Methods of Industrial Printing). In a multi-colored design a separate screen or roller is provided for printing each color (PLATE I), unless overprinting can be achieved by using semi-transparent dyes.

Assuming the textile designer understands the language of color and has learned the principles of color theory including value contrasts, hue activity, and color harmony, he/she will have the means to control the use of color and recognize well-balanced relationships.

Every color plan requires a focus which is the predominate hue; companion colors are then selected. Accent colors usually comprise only a small percentage of the total color ratio. The designer's main concern is the balance and interrelationship of all the colors to the major hue. Balance is achieved by having some variation in both value and intensity without having any sharp contrasts in either. Contrasting color in equal amounts creates an unpleasant effect and should be used either in unequal amounts, or combined with a softer shade of one color and/or relieved by a third color. Lack of proper balance in color can be very disturbing, especially in wallpapers or fabrics that cover large expanses.
PLATE I

Color Steps in Discharge Printing

a. Dyed Ground Ready for Printing
b. Discharged Color
c. First Printed Color
d. Second Printed Color
e. Third Printed Color
f. Fourth Printed Color—Accents
PLATE II

A Design Shown in the First of Three Colorways. Screen Printed with Five Colors Plus a Blotched Ground.
PLATE III

The Design in PLATE II Rendered in a Second Colorway on a Light Ground.
PLATE IV

A Third Colorway for the Design in PLATES II AND III.
Color values and intensities are established early in a design. It is helpful to photocopy the beginning layout of a pattern (or a portion of it) and use colored markers to set up a color relationship. Exact hues need not be decided upon until a pattern is ready to be rendered or put into repeat.

Textiles are often chosen because of their color, so most fabric manufacturers offer alternate color schemes known as colorways (PLATES II, III, IV). Patterns must have the capability of transposing well into additional sets of color while maintaining the general feeling of the original. To do this a designer must keep in mind the value and function of each color rather than its hue, and know which colors advance and recede. Secondary elements rendered in aggressive colors pull a design out of balance. It is important to keep all tonal relationships as they were in the original and to maintain ground colors of the same depth. If the flowers are bright on a neutral ground, then this tonal relationship is carried through in the other color schemes. In some cases a different look is desired in the alternate colorways. By reversing the depth of the ground from dark to light, the entire design will need to be reconstructed in terms of color. All the tonal relationships will be affected and need to be rebalanced.

Each colorway should project a predominate color feeling, such as red-pink-purple or blue-green-turquoise.
Ground colors are generally planned first; accent and neutrals are added later. When a ground is bright, accents are made more neutral or monotone to avoid a clashing of colors. Because separate printing screens are made for every color in a design, any color replacing another in an alternate scheme must always be used in the same areas as the original. For example, if the leaves of a pattern are tones of green and brown is the substitute color, all the leaves in the second colorway must be in tones of brown. The same hue can be used in another colorway as long as the predominate color feeling differs.

Designing, which is a combination of research, background, and training, is also an intuitive process. Everything that one has absorbed, including color theory and design principles, comes to the front when a decision is needed. Designers will ultimately find their own way to proceed, but Anthony Hunt's advice in his book, Textile Design, to "think in cloth, not on paper" is strongly recommended, as well as to keep in mind the specific end use of the design and the market for which it is intended.
Chapter VII

MARKET IDENTIFICATION

Numerous opportunities exist within the textile industry for versatile freelance designers. They can work with a wide section of the markets available or produce designs for a select and limited group. The decision on how much to specialize and in which markets to concentrate needs to be made before much designing is attempted. Print artists, by researching different markets, can learn the characteristics of each and choose to work in those areas best suited to their talents. The markets that utilize print designs are apparel, home furnishings, household textiles, and non-textile products (paper goods).

Apparel Market

The apparel industry is divided into broad categories of women's wear, men's wear, and children's wear with many subdivisions and overlaps in these categories. A manufacturer usually specializes in a type of garment (ladies' sportswear, men's shirts, children's dresses) within a specified price range (low, medium, or better priced). A growing number of manufacturers have diversified and produce garments in more than one category.

Garments are grouped in specified price brackets
with a defined top to bottom range; for example, dresses priced at twenty-six to thirty-four dollars. Considerable price line specialization exists and the brackets, which are referred to as *price points*, divide the market. A manufacturer produces merchandise within narrow price ranges and does not fabricate apparel for both low priced and high priced markets. Manufacturers of high price lines do not have the same economical restrictions as the budget market. They can use top quality fabrics and print by more costly methods that achieve special effects unobtainable by less expensive printing processes. As certain printing methods restrict the type of designs that can be utilized, the fabric designer must understand the different techniques of reproduction and know at which market levels they are used.

General categories based on price are as follows:

**Designer.** Higher priced designer lines represent a fraction of the fashion industry's total output. These are highly styled designs accepted by a limited group of fashion leaders who are the first to endorse new ideas and changes. High fashion concepts are always ahead of what is acceptable to the average consumer. Designer fashions are important as they are trendsetters for the rest of the apparel industry.

**Better price.** The better price markets are those where one finds fashion innovations that are sold in seasonal collections. New designs evolve by the adaptation of certain fashion elements of couture designs that are
applicable to a firm's image and type of merchandise, or by revisions of the previous season's best sellers. Contemporary, innovative styling that is tastefully understated, rather than extreme, typifies this market.

**Moderates.** The merchandising of moderately priced goods is the broadest market and reaches the majority of women. This mass market does the most volume by producing saleable clothes in widely acceptable styles and designs. The apparel which is sold in large quantities at moderate to low prices is frequently copied from the better priced houses. Manufacturers of moderate apparel seldom produce high fashion merchandise; they manufacture classic styles that remain in fashion for extended periods of time. The moderate buyer is a traditional customer who insists on good value.

**Budget.** The budget market consists of lower priced merchandise where styling is often developed by "knocking-off" the moderates' market. The budget manufacturer produces inexpensive wearable garments with an attractive look. This merchandise is sold primarily by discount stores and mail order houses. As less fabric is wasted in the cutting of a non-directional pattern for mass production, two-way or multi-directional prints are the most suitable for the moderate and budget markets.

Manufacturers also target a consumer in addition to price, by size, age, interests and lifestyle. The market
description of a customer isn't just a "look", such as an updated missy, but a lifestyle which may be career or sports oriented. As fashion changes and moves with the tides of social, economic, and political forces, it is difficult to clearly define the categories of consumers for new classifications may develop out of consumer needs and different ways of living. Currently, manufacturers direct themselves to the following categories:

**Missy.** A mass market that designs for a stereotype of the mature woman with a fuller figure. The missy look doesn't respond readily to fashion change although there is some reflection of fashion influence. Safe, conservative designs and background colors typify the missy market in printed fabrics, and medium to large scale floral patterns are usually acceptable.

**Updated Missy.** A classic sophisticated look with forward styling. Customers are career oriented and want apparel with a more contemporary updated look at an affordable price. Understated prints with tasteful colorations are suitable.

**Contemporary.** This category is aimed at the woman with an advanced taste level who does not want, or is not able, to pay the prices of designer clothing. She buys fashionable apparel at better prices and likes fashion changes. Sophisticated prints and colorations on better quality fabrics are used in this market.
Juniors. Trendy more fashionable merchandise is manufactured for juniors than for the missy market. Breakdowns within this category are young juniors, contemporary and updated juniors. Basically they are all fast-turn fashions in a forward market. Print designs may range from tiny foulards to large, bold prints with considerable latitude in colorations.

Women's Specialty Sizes

Petites. This category contains two markets: first, junior petites for the young trim woman; second, missy petites designed for the small woman with a more ample figure. This is a size, not an age category, as research reveals that 18-25 percent of American women fall into this classification of 5'4" tall and under. Petite merchandise tends to be higher priced and more sophisticated than juniors. A large portion of the business is in moderate to better separates and sportswear. Classics are the mainstay of the petite sizes and both styles and prints tend to steer clear of bold patterns and wide stripes.

Large sizes. The newest and fastest growing market is large size lines in both missy and juniors. The manufacturers are attempting to focus on smarter styling and better quality than in the past. Extremely large or very small prints are not as acceptable as designs that do not call attention to the size of the wearer.

Women's fashion originates with a handful of couture
designers in Paris, Rome, New York and Los Angeles. The entire apparel industry is influenced by their designs, which provide not only fashion inspiration, but often line-for-line copies. Couture designs are copied or adapted with modifications by manufacturers of better priced apparel who are in turn copied by the lower priced manufacturers. Eventually, a fashion trend, including style, silhouette, print pattern and color, filters down to the lower end of the apparel market. Fashion is a combination of what the top designers originate and what the consumer accepts. If the consumer does accept a fashion look, every price level will manufacture it from the better brackets to volume merchandise. Accelerated mass production and mass distribution of fashion goods make adaptations and copies quickly available.

Children's. The children's market has several subdivisions: infants and toddlers (six months-two years), children's (2-6x), girl's (7-14) and preteen (Junior High age). Scale is an important consideration in designing prints for children's wear; a large print will not show to advantage on a small garment, even one with a simple shape. Dainty prints, simplified flowers, subject matter prints, and stripes are good designs for children's wear.

Men's Wear. Fashion evolves at a much slower rate in men's wear as it is primarily a market of price—an industry in business to sell clothes, not fashion. Designer and young men's markets tend to have more fashion oriented
designs and colorations, but the vast majority of men's wear is for the career-minded consumer, and subdued, classic prints with a conservative look predominate. Textile designers direct their interests to the sportswear market, particularly men's sport shirts which are manufactured in a limited size range. More experimentation is done with print patterns and colors on sport shirts as less risk exists in merchandising them.

**Accessories**

**Scarves.** The scarf business is comprised of small companies who depend upon the fashion tides for their livelihood. An increasing amount of apparel manufacturers are producing signature scarves as coordinates for their fashions. Color and its placement are important elements in a scarf design. Patterns can change color and design according to the way a scarf is folded when it is worn. The design should look equally well when it is laid out flat.

**Men's ties:** Small size repeat prints that do not overwhelm the limited area they cover are well-suited for men's neckwear. Foulards, paisleys, stripes, and geometrics are popular. Colors are rather subdued and are coordinated with the men's wear market.

**Home Furnishings**

The home furnishing industry has turned itself into a fashion market by using "decorator" colors and expanding the scope of the prints and coordinates that it uses. A
vast assortment of patterns is available to consumers—large and small florals, and geometrics in a variety of realistic and abstract styles. Colors run the gamut from pastels to brights with the interior design field choosing which color trends are currently fashionable. As the home furnishing market is more stable than the fast-turn apparel industry, successful patterns may remain in a collection for several years; designs frequently reappear in updated colors.

Some manufacturers produce fabrics for the residential market; others target the commercial design area (offices, restaurants). The colors and prints may vary widely between these two, so it is important to research manufacturers' products and become acquainted with the types of patterns used for specific places and functions. Certain manufacturers become known for the kinds of prints they sell; some are noted for historical patterns and others for contemporary designs.

When designing for home furnishings, an important consideration is the repeat. Fabric used for curtains, upholstery and wallcoverings often cover large flat areas and an obvious repeat can be unsettling.

**Upholstery and Curtains:** Upholstery fabric for use on cushions may have a pattern that needs to be centered. As chair and sofa cushions are normally twenty-four inches wide, any division of that number is a safe scale to use for
repeats. Very small patterns do not have repeat problems.

Fabric for use as curtains have, as with upholstery, few limitations on print styles. Large or small florals, abstracts, geometrics and directionals may be designed.

**Household Textiles**

Household textiles include tablecloths, bed sheets and comforters, bath and beach towels, and kitchen accessories (hot pads, towels). Each manufacturer of printed household goods may have specialized size and production requirements that a designer should ask about before working in this area.

**Bed sheets and bath towels.** Color and fashion have created growth in the sheet and towel business. Exciting colors and patterns are used as matching coordinates and a designer is free to create novelty ideas and graphics in addition to the customary florals. When designing an all-over floral for sheets, some thought has to be given to the direction of the print when a top sheet is turned back: borders and non-directional prints are good solutions.

**Printed terry towels and velours** require less detailed designs because the pile may obscure fine lines. Some thought should be given to the appearance of towels when folded to be hung.

**Beach and kitchen towels.** Both beach and kitchen towels are designed within picture-like margins and seldom require a repeat. Graphics and novelty designs are very
popular. The artwork for beach towels in done to scale according to the manufacturer's specifications, usually 9"x 16". Designs for jacquard woven towels are limited in the number of colors that can be used in the warp. It requires some ingenuity to come up with designs, other than geometrics, that can be worked out well.

Table linens. Patterned tableclothes and placemats have gained popularity with the general acceptance of casual entertaining. The designs are varied and the colors are coordinated with the prevailing trends of the interior design business.

Kitchen accessories. For kitchen accessories, the print designer can do pictorial designs with themes that may or may not pertain to cooking, foods, and herbs. Manufacturers of these products are always on the lookout for new, novel themes that would not be offensive in the kitchen area of the home.

Rugs and Carpets

Patterns for rugs and carpets are often created by print designers who must learn any production limitations of this specialized field. Continuous carpets have all-over repeat patterns, but area rugs are designed within a contained unit (as with scarves and beach towels). Rug patterns often have historical origins or they may be custom designs created to match interior fabrics.
Non-Textile Products

Designing for various non-textile products such as wallpaper and paper goods (napkins, paper towels, wrapping papers) also falls into the realm of the print designer.

Wallpaper. Major differences between wallpaper and fabric designs are the technique of reproduction and the consideration of its ultimate use.

Printing media applied to fabrics are usually semi-transparent so overprinting is used to blend colors. This increases the number of possible colors without additional screens. In wallpaper printing blending in not possible because opaque pigments are used.

As wallpaper is hung on large unbroken expanses, any faults in the balance or composition of a design are conspicuous. A designer must acquire some understanding of good wallpaper design in order to visualize how a pattern will look when it is covering the walls of a room. Depending on the desired effect, a room can be made to look wider or taller (stripes); more open (lattice, fretwork) or textured (imitative wood grains, marbelizing). In addition to repeating patterns, there are special designs for borders (architectural ornamentations), panels (self-contained designs), and scenics (trompe l'oeil, landscapes). Wallpaper design must be an asset to a room and not a distraction.

Paper goods. Designs on paper goods, such as place-
mats and cocktail napkins, are produced by either rotary letter press or off set lithography. Both methods are used by commercial paper printers. Textile designs to be lithographed can be finely detailed as it is a sophisticated process that is also used to print magazines. Economics are a factor in the printing method chosen, and in the case of rotary letter press, the price is increased by the number of colors used.

A print designer's success depends upon the ability to visualize designs in application to precise needs. A designer will be handicapped without some basic knowledge of what has already been done, of what may be done within the existing reproduction methods, and of what needs to be done.

In order to create a timely and saleable collection, a designer must do something beyond what has been done and come up with a line of interesting and different designs that reflect some direction or trend in color feelings and design inspiration.

The guideposts to fashion trends are everywhere and by conducting an analysis of the marketplace, talking to stylists, keeping an eye on items selling well at retail, noting the trends out of Europe, watching the trends which evolve from season to season, observing the financial and political news and reading the pertinent trade publications, a designer determines: first, in which direction the trends are headed--toward or away from maximum acceptance, and
then, whether to stay with the trends or move on.
Chapter VIII

RESEARCHING THE MARKETS

Print designers conduct their own analyses of the marketplace by shopping the retail outlets, reading pertinent magazines and trade publications, attending fashion and trade shows, studying the consumer market, and carefully watching the trends out of Europe.

When shopping fabric, apparel, and home furnishing stores, a designer looks at what is for sale and makes a note of the fashion angles, color selections and price ranges. The merchandising policies and marketing techniques of the vast number of retailing outlets vary according to the type of retailer and the interests and living standards of the customers to whom they distribute their merchandise. A print designer should be aware of these general differences.

Retail Markets

Department stores. Department stores serve varied interest groups with a wide range of merchandise that includes apparel, home furnishings, household goods and linens. Merchandise is grouped into separate departments by type: blouses, dresses; price: budget, moderate; and consumer: juniors, missy. Department stores deal with
resources capable of manufacturing large quantities of merchandise, and feature nationally advertised brands. Federated Department Stores (Bloomingdales, Bullocks), Associated Dry Goods (Robinson's), Carter Hawley Hale (Broadway, Neiman Marcus), and Batus (Saks, Gimbels) are department stores familiar to nearly everyone. These stores target the moderate to better price buyer, and in some cases, designer customers. The Broadway stores, for example, aim for the moderate consumer, while Saks has in mind a more fashion conscious, affluent customer.

Specialty shops. Specialty shops are often the most fashion aware retail stores and concentrate on apparel and accessories. Their merchandise is directed to a specific clientele, generally with moderate to high price lines, and they sell mostly current fashion. Specialty stores are able to buy from small resources because they do not require huge quantities of goods at a given time. This enables them to carry stock that differs from department stores. In addition to the better priced specialty stores (I. Magnin, Bergdorf Goodman), the merchandising efforts of other retailers are directed to special consumers: junior specialty stores (Judy's), men's stores (Brooks Brothers), and specialty chains (Lerner's).

Chain stores. Chain stores are a group of stores centrally owned and merchandised from a buying office in a major market. They have tremendous purchasing power and a
high turnover of goods that enables them to retail their own private brands. That is, they order merchandise to their own specifications (colors, prints, styles) and use private labeling. Private labeling obscures the name of the manufacturer who contracted the goods and makes the print designer's research more difficult. Chain stores offer popular priced apparel at the peak of fashion demand and they emphasize consistent value and promotional pricing. K-Mart and Mervyns are examples of stores that fall into this category. Sears, Roebuck & Co., J. C. Penney, and Montgomery Ward are mass merchandisers who also conduct large mail order businesses.

**Discount stores.** Discounters are mass merchandisers of widely accepted fashions with an emphasis on bargain prices. Nationally advertised brands are not usually available to discount stores, although they may ask manufacturers to produce merchandise using a personal label. They sell enormous quantities of low price apparel at a rapid rate. In addition to the regular budget merchandise, they may also sell discontinued brands or marked-down goods. Alexander's, Daylin, Harz and Zayre are some of the better known discount stores.

**Boutiques.** Boutiques are small shops that serve a limited but well-defined customer. They have the ability to merchandise custom designs of their own or others, and may carry limited numbers of creative and avant-garde fashions.
Giorgio, Dorso, and Gucci are well-known and very successful boutiques, but hundreds of small fashionable shops are located on the streets of Soho, Rodeo Drive, and elsewhere.

Publications

A necessary part of a print designer's research is reading the important trade publications and fashion magazines thoroughly for the advance information they present. Every sector of the home furnishing and fashion businesses is represented by trade papers which publicize information directed to a particular industry. Styles, fashions, trends, and business conditions are reported daily, weekly or monthly depending on the publication. It is essential to read any significant trade papers covering areas in which a print artist chooses to work.

Women's Wear Daily is the "bible" of the fashion world and covers all facets of the women's apparel business. Five days a week Women's Wear Daily reports fashion forecasts, analyzes trends of various collections and foreign markets, and publishes news of the industry. A different aspect of the market is featured daily so a designer who focuses on just one area, such as children's wear, may subscribe to only that issue weekly. The Daily News Record is a comparable paper for the men's clothing industry that covers on a daily basis all categories of men's wear, as well as textiles. An important publication for print designers working on the West Coast is California Apparel
News: a trade paper which is an apparel industry source for coverage of trade shows, business conditions and fashion information.

Home Furnishings Daily publishes information on the home furnishing industry and features business news, trends and forecasts much the same as its counterpart in the fashion world, Women's Wear Daily.

Most trade papers are available by subscription only and not sold over-the-counter. Women's Wear Daily and The Daily News Record are exceptions and usually may be purchased in apparel marts or newstands within the garment district. The above publications, as well as others not listed, are a major part of the communication system of home furnishing and fashion merchandising, and should be included as regular sources of information for print designers.

Consumer publications, those intended for the general public, are very specialized and appeal to well-defined markets. Vogue and Harper's Bazaar emphasize a high fashion, high price approach to women's wear, while Mademoiselle and Glamour are geared for the young college or career-woman's wardrobe. Seventeen focuses on the teenage girl's lifestyle and dress. Gentlemen's Quarterly is an influential authority on men's fashion and style, and is directed to manufacturers and retailers as well as consumers.

Architectural Digest and Interior Design are presti-
gious magazines covering the interior design fields. Architectural Digest presents trends, products and services for both consumer and professional audiences with emphasis on residential interior design. Interior Design is published expressly for the professional. All the merchandise and products featured are available only to interior designers. The magazine reports on products, trends and design activities for residential and commercial markets. Both publications may be purchased at select newsstands.

European magazines are always a step ahead so print designers look to them for trends in pattern and color. The periodicals most helpful are the "collection" issues of L'Official, Italian Vogue, French Vogue (women's wear), L'Huomo (men's wear), and Casa Vogue (interior design). The fashion collection issues come out twice a year, fall and spring, and feature the apparel exhibited at the couture showings during those two periods. The European magazines are expensive and the collection issues are difficult to obtain. Certain bookstores and newstands that carry foreign publications will have them for sale. Also, some libraries stock foreign periodicals.

The guideposts to fashion trends are everywhere and by conducting an analysis of the marketplace, talking to stylists, keeping an eye on items selling well at retail, noting the trends out of Europe, watching the trends which evolve from season to season, observing the financial and
political news and reading the pertinent trade publications, a designer determines: first, in which direction the trends are headed--toward or away from maximum acceptance, and then, whether to stay with the trends or move on.

Freelance designers may find it difficult to create patterns and maintain portfolios for both the apparel and home furnishing industries. The amount of research necessary for keeping up with the trends and colors of each market makes it more feasible to design within related fields. Prospective designers have many options but probably will do a more satisfactory job by directing their talents to areas within either the apparel or home furnishing industries. When more knowledge and experience have been acquired, a designer may diversify into other markets and increase the scope of his/her design efforts.
Chapter IX

METHODS OF INDUSTRIAL PRINTING

As all print designs must be adapted to some manufacturing process, a commercial textile artist needs to understand the limitations and capabilities of the various industrial printing methods and learn to work within the necessary requirements of each process.

The two main color reproduction techniques are direct printing and discharge printing. In direct printing dye or pigment is applied to a white or tinted fabric. Although darker grounds can be used, colors applied directly to them may well be affected by the ground color. In discharge printing a chemical paste is applied to a previously dyed fabric (usually with a dark ground) that causes the dissolution of color in the areas printed with the paste. If the discharged areas are to be colored, rather than left bleached white, a dye will be added to the discharge paste.

Screen Printing

Screen printing is a development of stenciling where a pattern is applied to a surface by allowing pigment to go through cut-outs in a metal, fabric or paper stencil. Screens made of nylon mesh are coated with a resist solution
that blocks out all areas except those to be screened. Color is then pressed through the open shapes onto the cloth. For each color in a design there is a screen. One color is printed at a time over the entire length of the cloth.

Three methods of commercial screen printing are used to produce printed textiles: automatic flat-bed printing, rotary screen printing, and hand screen printing. Each technique has advantages and disadvantages that involve cost factors, production time (yards per hour), repeat size and color requirements, and reproduction accuracy.

Automatic flatbed printing. Fabric, fastened to a backing, moves automatically over a long table. Stationary screens drop down and squeegees press pigment or dye through the mesh. When the screens lift, the fabric moves one repeat length and the process begins again. Some design limitations are inherent in printing with flat-bed screens. Warp-way stripes and continuous blotches (ground color) both need to have some design features that disguise the repeat joins and integrate them into the pattern, otherwise a line will appear where the screens fail to meet properly.

Rotary screen printing. Cylindrical screens of metal or synthetic mesh to which a design has been applied provide continuous screen printing. Pigment or dye is injected into the cylinders and pressed through the rotating rollers onto the fabric which moves continuously
under them. As the cloth moves along, it receives the repeat of each color in turn. The repeat sizes range from 20"-60" on most machines and continuous lines, such as stripes, can be used in designs.

Hand-screen printing. Screen printing by hand is done in the production of expensive fabric or for a limited amount of fabric. The hours of hand labor versus machine production limits the output and contributes to the high cost for large runs. Designs cannot have solid backgrounds; breaks must occur across the width of the fabric where the screens meet. Breaks are frequently concealed in the form of a zigzag (trailing vines, arrows) or some other horizontal device. A handscreened fabric may appear to have a solid ground, but breaks occur somewhere from selvage to selvage and are skillfully hidden in the pattern.

Screen printing allows much latitude in designing as brushwork, airbrush, stippling and etched effects can all be reproduced on fabric by this method. A large number of colors may also be used, but as each color adds an additional screen and therefore an additional cost, it is advisable to plan only five or six colors, unless a manufacturer specifies otherwise.

Roller Printing

In this process a design is either engraved or raised on metal rollers to which dye is then applied. Cloth
continuously moves under these rotating rollers, each of which transfers a single color of the design to the fabric. Sharp, accurate registration is possible in roller printing and allows background colors to be printed at the same time as the design colors. High quality prints are produced and this is the main method of printing used when large quantities of fabric are required.

The most applicable designs for roller printing are those drawn in fine detail with many small areas of color, such as minute florals and geometrics. Small-scaled, unbroken, linear designs (vines, stripes) work well due to the exactness of the roller registration. As repeat patterns must fit the circumference of the printing rollers (usually about 15 inches) large repeats are not possible.

Transfer Printing (Sublistatic printing)

Transfer printing is a two-step process. First, a pattern is printed on paper with an ink containing a special dye. Second, the paper is pressed onto fabric by either a flatbed press or by a rotary screen. When heated the ink is transferred to the cloth. As the paper may be printed by either gravure or a lithographic (four-color printing) process, virtually any kind of artwork will be reproduced with remarkable clarity onto textiles. Three-dimensional effects are easily duplicated and a wide range of colors is possible. Artwork must be "camera ready" though, which means clean lines and no smudges or other unwanted marks.
Knowing the printing method a manufacturer uses is helpful to a designer. Someone using handscreening, for instance, would not be interested in designs that have continuous stripes; a manufacturer printing by roller would find it difficult to print a pattern with a very large repeat. Each process has visual differences and by studying textile samples it becomes possible to identify them and to tell which method has been used to apply a pattern.
Chapter X

SELLING PRINT DESIGNS

A good portion of freelance print design is done on speculation. It is a widely accepted practice for a freelance designer to prepare a portfolio of artwork for sale and show it to those firms who buy print designs.

Portfolio

A portfolio reflects the quality and type of work a textile designer is capable of producing: technical expertise, design, coloring and repeat capabilities. Portfolios of both novice and experienced designers whether applying for a job or soliciting freelance work should demonstrate the ability to visualize designs that apply to precise needs.

A portfolio for selling freelance work differs from one used to seek full time employment. The freelance portfolio should include a collection of designs that show a specific and consistent trend. For example, in setting up a collection of twenty-four designs, they might be divided into series of six patterns each—perhaps six florals, six ethnics, and with each concept making a definite design statement. Manufacturers of fashion textiles are accustomed to seeing a hundred or more designs at a time from agents and studios, and expect to view more than a dozen patterns...
from a freelancer. Home furnishing art directors usually see less designs at a time, but with a larger variety of styles.

Design croquis are mounted for showing on a fairly durable white paper. Each design is mounted separately at the corners with rubber cement. A border of suitable width is left surrounding the artwork with more space allowed at the bottom of the sheet. Often a buyer will make color notes or write information for the printer in that area. If the media used in rendering is likely to smear in spite of a fixative, a cover paper is attached to the back of the mounting. Uniformity in the size of mounts makes it easier to arrange a portfolio and gives a neater, more organized appearance. Complicated mounting, besides being too time consuming, tends to detract from the work. Each design is numbered on the back and stamped with the designer's name and the copyright symbol.

Artwork should never be rolled as it is impossible to flatten again. Durable presentation portfolios are available in a number of sizes; the dimensions of the artwork determines the required size of the carrying case. Soft fabric tends to bend and curl enclosed papers, so vinyl-coated leatherette portfolios prove to be better protection.

A professional textile designer will accumulate an additional portfolio of work that has previously been pur-
chased. This portfolio consists of photos of the designer's best work and fabric swatches of those patterns that have been reproduced commercially, or printed by the artist. Photographs (5"x 7" or larger) are mounted in notebook style presentation binders. Only one pattern is mounted on a page with the exception of colorways or coordinates which may be mounted alongside the original pattern. Slides are not used to show work to textile manufacturers for clients rarely have viewers available, and slides presented in plastic sheets do not show the designs well enough.

A textile designer may sell work to product manufacturers in either the apparel or home furnishing markets, and to converters or silkscreeners, both of whom print on fabric. When the prospective customer is a converter or screener, the person who purchases artwork is a stylist. The stylist puts together a collection of designs once or twice a year that is referred to as a line, and is also accountable for selecting colors, choosing print patterns, overseeing production and merchandising of the line. In the apparel market the person who buys print patterns for a manufacturer is known as a designer. The apparel designer is responsible for all pattern silhouettes, the type of fabric to be used, colors, and print patterns. The customary title of the purchaser of artwork in the home furnishing market is that of art director. The art director assembles a complete line of print designs and is responsible for their
production.

New York City is the headquarters for the textile industry and the center of the fashion business. Mills are located throughout the South, New England and overseas, but 90 percent of the industry's styling and business offices are in Manhattan. The fashion markets in New York extend from 34th Street north to 48th Street, and from the Avenue of Americas west to 8th Avenue. The term "7th Avenue" has come to mean not only the garment center in geographic terms, but is synonymous with the women's apparel industry.

Trade associations of all types publish directories of their members: for instance, the National Textile and Apparel Manufacturers Association; American Textile Institute; and American Apparel Manufacturers. The Telephone Company's Yellow Pages of Metropolitan and outlying areas provide, under the proper headings, the names and locations of many companies.

The names and locations of West Coast textile converters are available in an annual publication by the Textile Association of Los Angeles, known as TALA. Their directory lists textile firms and manufacturers not only in the Los Angeles area, but in San Francisco, Seattle, Tacoma, Portland, Vancouver, B. C., and Honolulu. For information on the home furnishing market, the Pacific Design Center in Los Angeles issues an up-to-date directory of firms in the Center, including fabric and wallcovering manufacturers.
A large number of print patterns are bought in Europe. This is due to the widely held belief that French, Italian and English designs are superior to those being offered in this country. Most patterns bought in the United States are from New York designers and studios. This competition makes it necessary to find out what is happening in Europe and on the East Coast.

Interviews

Designers should acquire information on any manufacturers whom they intend to contact, and ascertain those characteristics that distinguish their products from others, and their outlook and the section of the market to whom they appeal.

A freelance designer's main concern in an interview is to project an adequate professional attitude and present all artwork in an effective manner to the potential buyer. A neatly organized portfolio that allows designs to be viewed easily and quickly indicates a business-like approach. There is no actual method of showing or selling designs, usually the client leafs through a portfolio quickly. A resume is unnecessary for a freelance artist not seeking full-time employment, but a business card stating name, address and telephone number is important as most firms keep cards on file and may call at a future time.

A designer must be very discriminating about leaving unsold artwork with a client. Aside from the risk of having
a design concept copied, when artwork is being held, the designer risks losing other potential sales. The customer signs a "holding receipt" which indicates that the designs will not be copied or modified, and that the client will pay the full purchase price for designs if they are not returned within so many days (three to five days). Even with this protection, it is not advisable to leave artwork unless a designer has previously done business with a firm and is satisfied that they are a reputable and ethical company. The Textile Design Discipline of the Graphic Artists Guild provides worthwhile information to help designers with business problems, legal or otherwise. In addition, they issue invoice, holding, and order forms to be used when dealing with clients.

All original artwork is automatically protected by copyright. Textile designers retain exclusive rights to artwork on which they place a copyright symbol along with their signature and date. Upon the sale of a design an agreement is usually signed between the buyer and seller as to the dispensation of the reproduction rights.

Pricing

The pricing of designs is always difficult for the artist and often doesn't reflect the research and knowledge that go into a design's conception. An organized structure of fees should be established within an acceptable and competitive price range. The following is a suggested
guideline for print design fees in today's (1983) market:

**Apparel Market**

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original designs in repeat</td>
<td>$350.00</td>
</tr>
<tr>
<td>Repeats</td>
<td>$100.00 and up</td>
</tr>
<tr>
<td>Design croquis (8&quot;x 10&quot;-16&quot;x 24&quot;)</td>
<td>$150.00-$250.00</td>
</tr>
<tr>
<td>Colorways</td>
<td>$45.00 and up</td>
</tr>
</tbody>
</table>

**Home Furnishing Market**

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original designs in repeat</td>
<td>$500.00</td>
</tr>
<tr>
<td>Repeats</td>
<td>$200.00 and up</td>
</tr>
<tr>
<td>Design croquis</td>
<td>$300.00 and up</td>
</tr>
<tr>
<td>Colorways</td>
<td>$65.00 and up</td>
</tr>
</tbody>
</table>

Coordinate print designs are not done full size and cost less than the larger matching patterns. Usually the charge for a coordinate set is based on one and a half designs instead of two.

When doing colorways the amount of hours needs to be estimated so the work can be priced accordingly. An artist considers the additional work involved in mixing colors and matching swatches for patterns containing many hues. Also the size of the croquis and intricacy of the pattern may contribute to extra work time. Estimating professional time becomes easier with experience, but one should record the time spent on any design.

Major design changes and revisions done at the request of the customer should be charged additional fees that are estimated at the discretion of the artist. Revisions necessitated by an artist's error are done without charge.

Product manufacturers may commission a freelance
designer to do work for them. Developing a close association with a company on a commission basis is advantageous to both the firm and the designer as it enables an artist to more effectively interpret the design statement that a company wishes to project.

A print designer may work on retainer by contracting to produce a specified number of acceptable designs per month for a pre-determined amount of money, the sum of which is less than if the patterns were sold on an individual basis. Under this arrangement the freelance designer is assured a regular income and the client receives original patterns designed specifically for their market. The firm also avoids paying unemployment insurance and other benefits of salaried employees.

Royalties are rarely paid to freelance designers who have not achieved some celebrity status. Calvin Klein, Bill Blass, and other famous names do, of course, collect royalties from many licensed sources. The fashion industry is so transient that a pattern does not stay around for more than two seasons at most and, unless a design is a very big seller, little revenue will be gained by receiving royalties instead of a flat fee. Also, a design may be thrown out of a line before production or discontinued early, and the designer will be paid nothing or very little.

An efficient system for recording all artwork and business transactions must be organized. Each design is
numbered and recorded in a ledger with a brief description, name of the pattern, and an accompanying color photo or slide. If artwork is being held, notations are made of the dates and by whom. When designs are sold, the date of the sale, to whom, the amount billed and the date of payment, when it is received, are all recorded. Invoices and statements are typed to ensure legibility. An invoice lists all design numbers and descriptions, itemized prices, and the total price of the purchased artwork, and it should be delivered with the designs. The designer retains a copy of the invoice that has been signed by the purchaser for tax records. A statement should be sent for payments not received in thirty days. It need only include design numbers and the total amount owed.
Chapter XI

CONCLUSION

Observing and collecting ideas is a continuous process for designers as reference materials may activate creative thinking. Ideas are not for copying, but to trigger one's mind into creating something—a starting point from which to develop original concepts. Endless sources of inspiration are available in books and other publications, art works and historic reference, craft and folk shops, galleries and exhibitions, and perhaps the best source of all—nature.

Museums are treasure houses of inspiration for contemporary print designers: they may offer collections of printed textiles, have reference libraries, slide indexes, study sections and swatch books of textiles available for studying. Historic ornament, the art of past ages, is a rich source from which to draw ideas for original work.

Traveling affords a designer exposure to not only ethnic textiles from around the world, but creates an awareness of decorative and folk art traditions that increase one's perceptions of design.

A scrap file of reference material collected from every conceivable source becomes a designer's prime
reservoir of ideas. Cloth fragments, color samples, pictures from magazines and brochures, postcards, photos, sketches should be organized into a filing system where they can be easily located.

Designers should develop an awareness of everything around them, acquire the ability to see design possibilities in limitless sources of inspiration, and to edit, adapt, and synthesize the surrounding stimuli so they may apply it to their creative endeavors.
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Periodicals


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Designers West. Arts Alliance Corporation, Los Angeles.


Professional Information

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Organizations

Cotton Incorporated, 350 Fifth Avenue, New York, New York 10001.


Textile Collections


Costume and Textile Study Center, University of Washington, Seattle, Washington 98195.

Fashion Institute of Technology, Design Laboratory, 27th Street and 7th Avenue, New York, New York 10001.

Los Angeles County Museum of Art, 5905 Wilshire Boulevard, Los Angeles, California 90038.

Museum of Fine Arts, 465 Huntington Avenue, Boston, Massachusetts 02115.


GLOSSARY

Adaptation. A design that captures the main features of a style but is not an exact copy.

Analogous colors. Any three hues alongside each other on the color wheel that share a common color.

Backing. A tracing of the reverse side of a pencilled layout which is rubbed onto another surface.

Blotched ground. The main background color printed around the motifs in a design.

Butt join. A method of joining a repeat along a straight line, as in rows of lines or shape.

Classic. A style or design that remains in fashion for an extended period of time.

Color separation. A procedure by which colors in a design are separated for printing one at a time.

Colorist. An artist who does color combinations.

Colorway. A rendering of a design in a set of colors other than the original. Usually only a portion of a design is painted to indicate the alternate color combinations.

Complementary colors. Those colors which face on the color wheel. When mixed together in equal amounts they produce gray.

Cool colors. Colors of the blue and green families, also known as receding colors.


Coordinate. A design created to correlate with another pattern.

Counterchange. A figure-ground reversal that occurs when the negative space in a design is alternated with the positive forms.