

THE ORIGIN AND DEVELOPMENT OF
SILK SCREEN PRINTING AND ITS
APPLICATION AS A HOMECRAFT

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1963

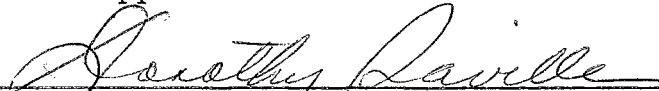
Submitted to the faculty of the Graduate School
of the Oklahoma State University
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE
August, 1965

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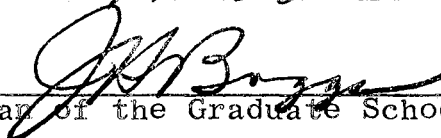
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593424

ACKNOWLEDGEMENTS

The author wishes to express her sincere appreciation to Miss Dorothy Saville for her valuable guidance and encouragement given during the period of graduate study.

Acknowledgement to Miss Sara Meador for her contribution and assistance in the preparation of this thesis.

Appreciation is expressed to the College of Home Economics and the Department of Clothing, Textiles, and Merchandising for the graduate assistantship which made it possible for the writer to pursue this study.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
II. FORERUNNER, ORIGIN AND EARLY DEVELOPMENT . .	3
III. LATER DEVELOPMENT AND COMMERCIAL USE	15
IV. DEVELOPMENT OF A FINE ART	22
V. APPLICATION AS A HOMECRAFT	29
VI. SUMMARY	38
REFERENCES CITED	41
ADDITIONAL REFERENCES	44

LIST OF FIGURES

Figure	Page
1. The Cutting of the Stencil	34
2. The Squeegeeing of One Color	34
3. The Separation of Stencils due to Inade- quate Guides	35
4. Less Separation of Stencils due to More Accurate Guides	35

CHAPTER I

INTRODUCTION

Silk screen printing is one of the ancient arts of applying design to cloth. An understanding and appreciation of this technique can be acquired only through the knowledge of its beginning and its use throughout history. This thesis is a study of the origin and development of silk screen printing and the opportunities it offers the home craftsman.

Opinions as to the actual origin of the silk screen printing process are varied. Some authors trace it back to the ancient Chinese and Egyptian stencil practices of decoration; others say the Japanese with their hair-crossed stencils were responsible. Although the beginnings are somewhat uncertain, the approximate date of the use of the actual woven silk screen can be determined. ^{how?} The progression of silk screen printing to a fine art and its acceptance by industry are reflected by the present day value placed upon an article produced in this manner.

It has always been thought that only industry or the professional artist could produce something of quality with the silk screen printing process. Now people seeking a

diversion or a means to utilize their leisure time may wish to experiment with various arts and crafts. It is the belief of this author that the relatively unknown art of silk screen printing can provide such an outlet for countless people. With a little practice, that which began as a pastime might possibly reveal an artistic talent.

CHAPTER II

FORERUNNER, ORIGIN AND EARLY DEVELOPMENT

Silk screen printing is believed to be one of the oldest forms of printing cloth. The principle of ancient stencil printing is essentially the same as that of modern silk screen printing. It was and is the pressing of color through or around a cut-out form in order to leave a design after the form is removed. Archeologists have found stencil prints which are thousands of years old, proving that the art of producing stencil prints to decorate cloth goes back far in time.

The discovery of the stencil itself was almost inevitable. Michael Andrews, in speaking of the cave wall paintings of prehistoric Europe, suggests that "Cro-Magnon man, some 20,000 years ago, incorporated in his brush paintings a technique of blowing pulverized pigments, usually iron and manganese oxides, through a reed or a hollow bone to outline the contours of his animal drawings."¹ Although this form of printing may not conform with one's idea of stenciling, it definitely is a forerunner of the recognized

¹Michael F. Andrews, Creative Printmaking (Englewood Cliffs, New Jersey, 1964), p. 43.

type. Insects boring holes through leaves of plants may have suggested the stencil method to primitive man. Biegeleisen and Cohn tell of a study made of the early history of the Fiji Islands in which it was discovered that the Islanders made stencils by cutting perforations in banana leaves and then applying the vegetable dyes through the openings onto bark cloth.²

The repetitive designs and the rounded surface of ancient pottery suggest the use of stencils rather than wood-blocks. According to Clemence, "The pottery of an early Chinese dynasty had been decorated by that very process and that the mesh of that early screen had in all probability been made from strands of human hair."³ Most of the Chinese pottery discoveries are estimated to be more than a thousand years old.⁴ Eisenberg and Kafka, in speaking of the early Chinese and Japanese methods, state, "The exact technique is not known, but designs were produced which made it possible to eliminate the bridges, or ties, which normally hold together isolated portions of a pattern."⁵

In 1907 Sir Aurel Stein, a noted British archaeologist and Orientalist, discovered the oldest known stencils in the

²J. I. Biegeleisen and Max Arthur Cohn, Silk Screen Techniques (New York, 1958), p. 6.

³Will Clemence, The Beginner's Book of Screen Process Printing, (New York, 1961), p. 9.

⁴Ibid., p. 3.

⁵James Eisenberg and Francis J. Kafka, Silk Screen Printing (Bloomington, Illinois, 1957), p. 15.

Caves of the Thousand Buddhas in Western China, sealed behind walls which were decorated with those same stencil designs. The stencils were of toughened paper with small pricks in the form of various drawings, made probably with a wood or bone splinter, or perhaps a thorn. The estimated date, given by Priest and Simmons, of the creation of the stencils was between 500 and 1,000 A. D.⁶ Of course, there is no reason to think stenciling was not done before that time. A large quantity of the stencils were innovations of Buddha. Stephenson, in discussing the discovery of the above stencils, suggests:

"The rising influence of Buddhism in Chinese thought brought about a tremendous development in the stenciling art, for one of its teachings was that the spiritual growth of the Buddha's followers could be promoted by the number of times each could imprint the master's picture, and so Buddhist piety found high value in the easily repeated stencil."⁷

Caravans on the trade routes leading to the Orient for the purpose of obtaining spices and silks returned with the knowledge of the stencil and its numerous uses, including that of printing the silk fabric itself. Siam, Persia, India, Syria, and Egypt were among the countries benefiting from the Cathay trade, and are frequently mentioned as having used the stencil method of printing cloth. From the

⁶ Alan Priest and Pauline Simmons, Chinese Textiles (New York, October, 1934), p. 5.

⁷ Jessie Bane Stephenson, From Old Stencils to Silk Screening (New York, 1953), p. 5.

famous so-called "silk route," Byzantine and Rome quite likely acquired the stencil information, and from there it spread into Europe.

The origin of silk screen printing in the Southern Hemisphere is vague, but even South America used the stencil method for decorating cloth. A thin silver plate with geometric designs was the stencil used by the Peruvians of long ago. The silver stencils were found in the Nazca region on Peru's Pacific coast. Stephenson believes the stencils belonged to the Ica era which was around 1,200 A. D.⁸ Most archeologists agree that few textile design methods were unknown to the highly developed culture of the ancient Peruvians. Prescott, a distinguished historian who tells of the conquest of Peru by Spain in 1532, frequently refers to the high quality of texture and decorative features of the Peruvian cloth. In one instance during a discourse on the wearing apparel, he claimed "The Spanish sovereigns, with all the luxuries of Europe and Asia at their command, did not disdain to use them."⁹

More stencil records were found in France than in any other European country. The Cloisters, a museum of medieval art in New York City, has several statues from Southern France. One statue is of the Virgin and Child, and on it are definite indications of stencil bridges or ties. The

⁸Ibid., p. 27.

⁹William H. Prescott, "The Conquest of Peru (New York, 1961), p. 50.

design around the edge of the Virgin's robe had a repetitive pattern that only a stencil could have made, due to the carving of the draped robe. The statue is believed by Stephenson to date from the first half of the 14th century.¹⁰

There is still other evidence of the use of stencil printing in Europe. Zigrosser mentions the use of that method in the mass production of the coloring of religious images during the 15th century.¹¹ Blum speaks of the making of colored playing cards in the latter half of the 15th century, and substantiates his theory with Italian as well as German documents.¹² Around the first half of the 17th century flocked wallpaper appeared. According to an encyclopedia, "The pattern was sized on the paper with a stencil."¹³ While the paint was still wet, bits of wool or silk were blown onto the wallpaper. Wallpaper at that time was made in short pieces, sometimes adhered to canvas, and simply nailed to the wall with no regard for matching pattern or design.

Early stencil art in America was practiced mainly on furniture. It was common to see a Federal eagle printed on

¹⁰Stephenson, p. 27.

¹¹Carl Zigrosser, "The Serigraph, A New Medium," Print Collector's Quarterly, Vol. 28, No. 4 (December, 1941), p. 443.

¹²Andre' Blum, The Origins of Printing and Engraving (New York, 1940), p. 49.

¹³"Wallpaper," The Columbia Encyclopedia, eds. William Bridgwater and Elizabeth J. Sherwood, 2nd ed., (one volume) p. 2103.

the back of a chair or the headboard of a bed of a New Englander. The early settlers were mostly Puritans who thought gay colors a sin; but in time the number of craftsmen increased as settlers continued to cross the oceans, and the new homes in the new world began to assume the coloring and atmosphere of the old world. The people strove to copy cherished items left behind. Urns of flowers, baskets of fruit and vines in border arrangement decorated many items. "By 1787, stencils were introduced as a means of applying designs or border decorations directly onto walls," related Biegeleison and Cohn.¹⁴ Carpets, in particular, were imitated by stenciling floor borders of elaborate designs around plain-colored centers. Later, an all-over design was produced similar to the parqueted floors of England and France. Stephenson mentions that the design blossomed into large, floral patterns as big as any carpet ever had, and which remained the fashion until about 1840.¹⁵ Hitchcock chairs and Seth Thomas clock antiques are examples of how beauty was brought to the early homes through the use of a stencil.

It was near the 6th century when Japan first appeared to have adopted the stencil. Many cultures have held stenciling in contempt on the grounds that copying or repetition is neither original nor artistic. The Orientals apparently

¹⁴J. I. Biegeleisen and Max Arthur Cohn, Silk Screen Stenciling as a Fine Art (New York, 1942), p. 10.

¹⁵Stephenson, p. 44.

had no such prejudice if one may judge by the many times the continuous patterns were used in their works of art. The Japanese realized the drawing of the design and the precision cutting of the stencil patterns were in themselves original works of art. Many authors remark on the delicacy of the decorative design produced by the Japanese stencils, and Biegeleisen and Cohn say, "It is difficult to comprehend how the Japanese, even with their skill and patience, could cut stencils so uncannily and with such fine detail."¹⁶ Franken, in agreement, adds, "Extremely fine patterns were obtained -- a striking achievement when the primitiveness of the techniques employed is considered."¹⁷

Historians suggest repeatedly that Japanese art is merely an outgrowth of Chinese art. Agreeing with that theory Zigrosser asserts, "Much of Japanese art and culture was derived indirectly from Chinese sources."¹⁸ The geographical location of China and Japan is quite likely the reason why the social customs, religions and other practices have been similar. The fact that the history of China dates back much further than that of Japan may be another reason why Japanese customs are believed to be a ramification of the Chinese. But with the Japanese, it was not the source but the excel-

¹⁶J. I. Biegeleisen and Max Arthur Cohn, Silk Screen Stenciling as a Fine Art, p. 9.

¹⁷A. Franken, "Forerunners and Beginnings of Screen Printing," Ciba Review, Vol. 9, No. 107 (December, 1954), p. 3835.

¹⁸Carl Zigrosser, The Book of Fine Prints (New York, 1948), p. 212.

lence of the article produced that was important. And so it was with the stencil print. Holloway states, "Thanks to the power of innovation there was in Japan, though Japanese art was an offshoot of that of China, it has never been a mere pale copy."¹⁹

Stencil printing of cloth for apparel, wall hangings and room dividing screens reached a high level of technical and artistic perfection most likely at an early period in Japanese history. It was the Emperor Shomu, reigning from 724 to 748 A. D., who encouraged beautiful workmanship, thus promoting artistic development. Emperor Shomu's private collection is still in existence today and is the only ancient art collection of its kind. It has been catalogued by the Tokyo Imperial Household Museum, and is open to the public for an annual two-week period. A large number of those articles were produced through the use of one or more stencils, and Stephenson claims the date was previous to the year 800 A. D.²⁰

The culture of Japan, with its geography of forests and mountains and its long periods of disorder in the Middle Ages, was intensely territorial and feudal in character. Not until the 20th century did Japan tend to become Westernized. The pervasiveness of the folk culture was conducive to originality. The originality of design was

¹⁹Owen E. Holloway, Graphic Art of Japan (London, 1957), p. 13.

²⁰Stephenson, p. 12.

encouraged by most of the Imperial rulers. Holloway states, "Although authority was responsible for the people, at the same time it aimed to leave them alone so that they should not become restless. It was the peace of despotism."²¹ While the stencil art in China centered around Buddha, the Japanese used it to express legends and symbolism with flowers, birds, and other items. "Japanese stencils were the finest produced anywhere in the world, for they (the Japanese) had imagination, ingenuity, originality of design, to say nothing of skill," elaborates Swann.²² The whole idea of a stencil was for clarity of detail, and the peasant who had the time would painstakingly cut the fine lines. Generation after generation carried the skill on with hereditary devotion.

Although the first screen was a network of human hair glued or tied at one-fourth inch intervals crosswise and lengthwise, it wasn't long before a spider-like fine mesh of raw silk filaments replaced the hair. The hairs or silk strands held together the free parts of the stencil which otherwise would tend to move and spoil the design. "On the finest work the hairs were even knotted at the crossings either by hand or with a hook," says Stephenson.²³ The use of silk threads as a screen permitted the color to flow freely under them, leaving the motif clear and unbroken. Biegeleisen declares the strands of human hair which held the

²¹Holloway, p. 6.

²²Peter C. Swann, An Introduction to the Arts of Japan (New York, 1958), p. 198.

²³Stephenson, p. 11.

isolated parts in suspension were so fine that their presence was hardly discernible in the finished print.²⁴ It was one small step to the woven silk, and Shokler expounds that only through thorough experimentation could the solution or discovery from loose threads to woven silk have been made.²⁵ It was due to the early use of silk as a screen that the name, silk screen printing process, was born. Many authorities advocate the above theory and agree with Conran that "Silk screen printing originated in Japan...."²⁶

The stencils cut during the 8th and 9th centuries were crude and sometimes dissolved after a very short time due to the dyes. Some of the stencils were dipped in oils or coated by other processes to try to make them waterproof, and thereby reusable. Conran mentions rice paper stencils;²⁷ while Stephenson tells of a mulberry fiber which was pressed into thin sheets and waterproofed with the juice of the persimmon.²⁸ The persimmon was thought to have made the paper impervious to the dyes, and to have helped make the cutting of the design with more sharpness which would result in a clean, fine edge or line to an intricate pattern.

²⁴J. I. Biegeleisen, The Complete Book of Silk Screen Printing Production (New York, 1963), p. 2.

²⁵Harry Shokler, Artists Manual for Silk Screen Print Making (New York, 1960), p. v. (Introduction).

²⁶Terence Conran, Printed Textile Design (New York, 1957), p. 26.

²⁷Ibid.

²⁸Stephenson, p. 11.

Suspicion of all foreign trade in the early part of the 17th century caused a closed door policy in Japan. The Emperor believed such a policy would assure internal and external peace, and bring an end to civil strife after centuries of disorder. It did establish the political stability Japan desired, but caused the country to fall behind in scientific and industrial achievements. As the peace was secured and internal improvements made, luxuries and extravagancies sprang forth. Gorgeous textiles and magnificent palaces were typical of the time. "Education became fairly widespread, and literature and art flourished," exclaims Latourette, a notable historian of the Far East.²⁹ Now various interests and occupations could be pursued at leisure without fear of feudal disturbance. The ruling class went into debt, for the luxuries, to the lowly merchant class who had grown in number and wealth and who had begun to wield influence.³⁰ Artists, instead of working to beautify the palaces, produced items to fit the tastes of the new economic class. Just as unrest was beginning to be felt, the famous Commodore Matthew C. Perry, of the United States, on July 8, 1853, drove a wedge into the closed door.³¹ From then on there was no stopping the foreigners -- the isolation policy was over. When Japan awoke, it was with the realization

²⁹Kenneth Scott Latourette, The History of Japan (New York, 1947), p. 55.

³⁰It was the merchants who had controlled the rice market.

³¹Latourette, p. 82.

that some of the arts they had cherished had become commercialized and had lost their value as an art. Silk screen printing was one of those. Even with that background in mind, one authority insists upon giving Japan the credit for developing stencil printing into a fine art and thus laying the foundation for modern silk screen printing.³²

³²"The Printing of Textiles," Modern Fabrics, Vol. 52 (Spring, 1961), p. 57.

CHAPTER III

LATER DEVELOPMENT AND COMMERCIAL USE

Near 1800, the fabrics produced with the aid of the silk screen printing process were very beautiful and sold at relatively high prices. Because work was slow and tedious and demand for the fabrics was great, it became necessary to develop a cheaper mass-production method of decorating cloth. Many methods were tried that satisfied speed and economy, but none could compare with the intricate designs of the silk screen process.

France, Germany, and England have each claimed credit for the industrialization of the silk screen printing process. Records indicate that the silk town of Lyons, France, was using the technique in 1850.¹ By 1870, prints were being made in Switzerland and Germany, and were then carried into Great Britain. The first official record of silk screen printing is that of a patent issued in England in 1907 to Samuel Simon, of Manchester, England. The Simon patent was not exactly the same process as is known today, although it was the first tieless stencil. Biegeleisen tells how Simon used a bristle brush instead of a

¹"The Printing of Textiles," Modern Fabrics, Vol. 52, (Spring, 1961), p. 59.

squeegee, a rubber-edged tool, to force the paint through the silk.² Although the English tried to develop silk screen printing, it never reached a paying basis. Kauffmann relates, "Since then, the contributors to its development in both its commercial and fine arts application have been numerous, adding each a little to the accumulated fund of knowledge, until today the 'secrets' of the process have become the common property of all."³

It was the United States that put screen printing on a paying basis. Commercial artists discovered placards and showcards could be produced quickly and easily. It took only one or two colors for a poster, plus very little artistic design. Franken mentioned, "John Pilsworths, an American, undertook the production of screen-printed Stars and Stripes banners for the U. S. Army at extremely low cost in 1915."⁴ Later, Pilsworths and a man by the name of Edward A. Owens were granted a patent for screening several colors from a single screen. It is the method most commonly used by industry and is known as the "Selectasine" method.⁵ In 1924, Owens introduced an improved method by means of a stencil printing machine. By 1927, silk screen-

²J. I. Biegeleisen, The Complete Book of Silk Screen Printing Production (New York, 1963), p. 2.

³Desire' Kauffmann, Graphic Arts Crafts (New York, 1948), p. 119.

⁴A. Franken, "Forerunners and Beginnings of Screen Printing," Ciba Review, Vol. 9, No. 107 (December, 1954), p. 3835.

⁵Biegeleisen, The Complete Book of Silk Screen Printing Production, p. 3.

ing had found general acceptance in the United States.

France, around 1920, again tried the screen printing process on textiles and met with more success than in the 19th century. France discovered screen printing produced far more beautiful colors and designs than that of the speedier method of roller printing. The production of the prints was slow and limited in number; but these limitations made it desirable to Paris and the haute couture, for anything "exclusive" was immediately acceptable to the fashion world. Conran says, "Screen printing is an economic proposition for manufacturers who produce designs with a limited sales appeal, having short, or experimental runs."⁶ The terms "hand painted" or "hand printed" were found frequently on scarves, neckties, etc., and were in demand although many had repetitious designs. According to Ahlberg and Janeryd, "Textiles which bear the label 'hand printed' were usually made by stencil prints."⁷

While France succeeded in making use of the silk screen process in artistic achievements, the United States went in the opposite direction. "Up until the early 1920's silk screening was practiced in the United States in a somewhat informal manner and, more often than not, behind locked doors to carefully safeguard the secrets of the craft,"

⁶Terence Conran, Printed Textile Design (New York 1957), p. 26.

⁷G. Ahlberg and O. Janeryd, Block and Silk Screen Printing (New York, 1961), p. 72.

relates Eisenberg and Kafka.⁸ Although the process was supposed to have been kept secret, in time it became public property; and like many public items, it was exploited and degraded. Printers found that the silk screening of letters was much faster and easier than the laborious hand method of lettering. Sign painters and others adopted the method, and through the gain of speed, carelessly lost the one thing most important to silk screen printing--the clear, sharp lines. The prints lacked quality and had blurred, ragged edges. Often the paints would not dry. Sometimes a poor quality of stencil was used, and in some cases the stencil was discarded in favor of resist methods of silk screen printing such as the "Tusche" or lacquer methods. The resist method is one in which a glue or grease is painted on the silk screen. The parts containing the glue resist the color as the color is forced across and through the screen. The "Tusche" method and other resist types carefully and correctly executed produce lovely designs. As the commercial importance of the silk screen grew, the artistic phase was sadly neglected, for those using the silk screen method saw it only as a means of making money.

Although there were many undesirable uses of the silk screen printing process, there were also many uses that were good. "The textile industry has found the silk screen

⁸James Eisenberg and Francis J. Kafka, Silk Screen Printing (New York, 1957), p. 82.

indispensable," elaborates Biegeleisen and Cohn.⁹ The many articles produced were actual proof of the versatility of the silk screen method. Kosloff informs, "Stencils could be cut that would produce minute detail and fine printing to stencils which print and coat large areas."¹⁰ Tablecloths, rugs, lampshades, glassware, and furniture were only a few of the articles that were decorated through the use of the silk screen process. Repetitive designs on the above articles increased sales by leaps and bounds, while the "hand printed original" still sold very slowly.

Another milestone in the development of screen printing was the automatic printing press patented in 1925. It was not adopted, for although the printing was faster, the paints themselves dried too slowly to keep up with the output of the machine. Biegeleisen claims, "In 1929, a screen printer named Louis F. D'Autremont developed a knife-cut stencil film tissue which was patented by an associate, A. S. Danemon. They called this film tissue 'Profilm'."¹¹ With the film it was possible to overcome the ragged, unsharp print which had become associated with the silk screen process. Following the discovery of Profilm, an-

⁹J. I. Biegeleisen and Max Arthur Cohn, Silk Screen Stenciling as a Fine Art (New York, 1942), p. 12.

¹⁰Albert Kosloff, Silk Screen Printing with Mimeograph Type Stencils (Chicago, 1946), p. 5.

¹¹Biegeleisen, A Complete Book of Silk Screen Printing Production, p. 4.

other type of film, called Nufilm, was perfected which would adhere more easily to the silk and which would also save time.¹²

All of the improvements have encouraged perfection in the finished products. Faster drying paints, durable colors, drying ovens, and other devices have been developed since the discovery of the stencil film. Large plants have been built solely for the silk screen printing of miles of cloth. An article in the American Silk and Rayon Journal states: "'Stencil' printing makes possible subtle gradations of line; fairly sharp outlines and clear edges of the masses; and, where expertly executed, invisible joining of the repeats of patterns."¹³ With the demand growing for the silk screen decorated cloth, industry never stopped experimenting. The result was a fully automatic rotary screen printer, developed by the Dutch, which would run at high speed. In the journal, Modern Textiles, the printer is described:

"The maximum speed is 85 yards per minute. It has seamless cylindrical screens. The moderate speed is 33 yards per minute. This is three times greater than modern flat bed printers. Printing paste is fed automatically from pressure tanks into screens. A squeegee forces the paste through screen meshes onto the fabric. The squeegee is vertical and can be adjusted to regulate amount of paste. It takes only five minutes to change screen or color design. Two people can operate it."¹⁴

¹²Ibid.

¹³"Modern Stencil Printing for Silk," The American Silk and Rayon Journal, (April, 1926), p. 65. (Vol. and No. not given)

¹⁴"Rotary Screen Printer Runs at High Speed," Modern Textiles, Vol. 45 (February, 1964), p. 30.

With silk screen printing, it is possible to print on almost any fabric surface. Peterdi adds, "It is possible to print on any material that is woven finely enough not to break up the details of the print, and that is made out of fibers with oil-absorption properties."¹⁵ Many of the synthetics would be eliminated; however, in this day of scientific discovery, there is every possibility of finding a chemical which could be used on the synthetics to produce an affinity for the dye and enable the industry to use the silk screen printing process for decoration of fabrics of all fibers.

¹⁵Peter Peterdi, Printmaking Methods Old and New (New York, 1959), p. 168.

CHAPTER IV

DEVELOPMENT OF A FINE ART

The discovery of silk screen printing as a fine arts medium provided a new way of self-expression for the artist. Newsweek claims that the credit should be given to Anthony Velonis, a young worker on the New York Work Projects Administration Art Project, for pushing the silk screen forward in the fine arts field.¹ Mr. Velonis was using the silk screen process for making posters for the Art Project when possibilities of the new art dawned upon him. The suggestions made to those in charge of the Art Project were scorned, for Velonis' experimental prints were like no other prints. Velonis' fellow artists liked the prints because they were different; and in November, 1938, as a result of the enthusiasm of Velonis' associates, the New York Art Project added an experimental Silk Screen Unit as a division of the graphic arts department.² The success was astounding. In March, 1940, Elizabeth McCausland, a distinguished art

¹"Touche' with Tusche," Newsweek, Vol. 20, No. 22 (November 30, 1942), p. 72.

²Elizabeth McCausland, "Exhibitions in New York," Parnassus, Vol. 12 (March, 1940), p. 34.

critic, wrote a review in which she said, "The opening this month of three large shows devoted entirely to silk screen prints may well herald the rebirth of popular graphic art in America, as news spreads of the successful art application of a method hitherto confined to commercial work."³

After that beginning, more and more artists took up the silk screen process. Among many artists who came to the United States to escape the war in Europe, was William Stanley Hayter, of Paris, who introduced his silk screen creation, "Atelier 17," which is said to have brought "renewed vitality into contemporary graphic art."⁴ It was in November, 1942, that silk screen prints reached the top of all the graphic arts. At that time Newsweek stated:

"Born only four years ago, it celebrated a victorious coming-of-age this month when 'Winter on the Creek' by the silk-screen pioneer, Harry Gottlieb, took first prize in the 40th annual Philadelphia Water Color and Print Exhibition--the first time a silk screen print has carried off such an honor in a major competition with the traditional etchings, woodcuts, and lithographs."⁵

Art Digest, in discussing the above honor, said, "Doubting Thomases who objected that a silk screen print just 'didn't look like any other black and white print' were forced to admit that it was this difference--color--

³Ibid.

⁴Elizabeth McCausland, Careers in the Arts (New York, 1950), p. 84.

⁵"Touche' With Tusche," p. 72

which gave it an important distinction."⁶ Critics of the new art medium were silenced, and only applause could be heard.

Due to the success of silk screen printing, other art mediums that had long been forgotten or unused were revived. Some of these were color etching, color wood-block printing, and color lithography. "The advantage of the silk screen process as compared with other methods of printing," says Brunner, "is the rich areas of color that can be applied and that it is possible to print white over black and cover it completely."⁷ The artist, using the silk screen method, could obtain many of the effects normally associated with a watercolor or an oil, since the color pigment deposited on the surface can have the heavy, thick consistency of oil, or the delicate transparency of a water color. Summer and Audrieth maintain, "The silk screen printing process is a method of printing in one or more colors on almost any surface with any medium, such as oil colors, enamels, lacquers, synthetics, watercolors, and dyes."⁸ Once again, just as it was in the early history, the vibrant colors and the artistic perfection in which the colors were applied brought silk screen prints to the foreground.

⁷Felix Brunner, A Handbook of Graphic Reproduction Processes (New York, 1962), p. 174.

⁸Harry Summer and Ralph M. Audrieth, Handbook of the Silk Screen Printing Process (New York, 1941), p. 7.

As artists began to experiment with silk screen printing, they did not want it to be confused with any of the other graphic arts or the commercial uses of the silk screen process itself. It was necessary to find a name that would distinguish it immediately from the others. Sternberg claims, "The name 'Serigraph' was originated for this medium by Carl Zigrosser, Curator of Prints at the Philadelphia Museum of Art, on the occasion of an exhibition of silk screen prints held at the Weyhe Gallery in New York City."⁹ According to Mayer, "The name serigraph has been proposed as a designation for an artist-made silk-screen print in order to distinguish it from silk-screen work that has been executed on an industrial or purely reproductive basis."¹⁰ Sternberg continues, "Seri (silk) and graph (to draw), is the obvious derivation of Serigraph, which seems an expressive and suitable name for the silk screen process when employed in the fine art field,"¹¹ To lessen confusion for the reader and to be more specific, the technique is called "serigraphy" and the finished prints are called "serigraphs." Zigrosser explains, "This arbitrary word, christened during the infancy of the art, has the advantage of being unambiguous and will grow richer in connotation of

⁹Harry Sternberg, Silk Screen Color Printing (New York, 1942), p. vii. (Introduction)

¹⁰Ralph Mayer, The Artist's Handbook of Materials and Techniques (New York, 1940), p. 458.

¹¹Sternberg, p. vii.

the silk screen medium as the process expands and unfolds."¹²

In the public mind there is confusion as to the meaning of the word "original." One of the major virtues of the silk screen method is its potentiality for producing multiple originals in color which will give as much pleasure as the single original. Just as the invention of printing made books available to all people, so does the silk screen method place original works in color within the reach of every person. Zigrosser discusses the graphic artist's feeling concerning an "original,"

"It is used as an adjective in contradiction to 'reproductive.' Every single impression of a woodcut, etching, or lithograph is an 'original,' the final and complete embodiment of the artist's intention, of which the plate, the paper and the ink are the preliminary steps. The miracle of the process is that there are not one but many originals--the incarnation of the democratic ideal."¹³

In 1940, a Silk Screen Group, affiliated with the United American Artists, was formed to advance the interests of the new technique.¹⁴ Many other organizations followed, and each promoted the new art medium. Among these organizations was the National Serigraph Society. Gwathmey states, "The National Serigraph Society is rather the parent body which has projected the medium through publicity, lecture service, and exhibitions extending across the entire coun-

¹²Carl Zigrosser, "The Serigraph, A New Medium," Print Collector's Quarterly, Vol. 28, No. 4, (December, 1941), p. 455.

¹³Carl Zigrosser, The Book of Fine Prints (New York, 1948), p. 20.

¹⁴Carl Zigrosser, "Ten Years of Serigraphy," The New Colophon, Vol. 1, Part 1 (January, 1948), p. 62.

try, as well as in Cuba, Canada, South America, U.S.S.R., and England."¹⁵ Continuing in this praise, Biegeleison and Cohn proclaim, "Noteworthy has been the work of the National Serigraph Society, New York, which has been the source of inspiration, clearing house, and temple of artists and print makers everywhere."¹⁶ Individuals with deep devotion to and acceptance of the new art medium took to the road to do their part. Zigrosser mentions, "In the fall of 1940, Harry Gottlieb made a lecture and demonstration tour through the West. All in all he has done much to spread interest in silk screen work."¹⁷ Color prints created by the use of the silk screen printing process continued to offer challenging possibilities for many years.

Little information is available concerning the fine arts medium of silk screen printing today. Within the last few years virtually nothing has been heard or seen of serigraphy. Articles in the artist's journals are almost nonexistent. Apparently disinterest has occurred. A letter written to the National Serigraph Society was returned along with a notice which said, "The NATIONAL SERIGRAPH SOCIETY is no longer in existence and the artist membership has been trans-

¹⁵Robert Gwathmey, "Serigraphy (Silk Screen Process)," American Artist, Vol. 9, No. 10 (December, 1945), p. 8.

¹⁶J. I. Biegeleisen and Max Arthur Cohn, Silk Screen Stenciling as a Fine Art (New York, 1942), p. 14.

¹⁷Zigrosser, "The Serigraph, A New Medium," p. 460.

ferred by invitation to the PRINT CLUB, 1614 Latimer Street, Philadelphia 3."¹⁸ The Print Club responded to an inquiry, but gave no explanation as to why the former popularity of serigraphy has receded so far into the background. There are some authorities on serigraphy who do not believe the present disinterest exists. Jules Heller wrote in 1958, "It grows in stature year by year, and is likely to stay."¹⁹ Later in 1963, Biegelesen discussed the status of serigraphy as "growing."²⁰ If it is growing, then where is it?

¹⁸ Personal Letter to Author.

¹⁹ Jules Heller, Printmaking Today (New York, 1958), p. 201.

²⁰ J. I. Biegelesen, The Complete Book of Silk Screen Printing Production (New York, 1963), p. 7.

CHAPTER V

APPLICATION AS A HOMECRAFT

Silk screen printing can be a fascinating hobby or homecraft. It has many advantages such as being inexpensive, easily performed, and versatile. The versatility is shown by its use on surfaces of paper, cloth, wood, cardboard, metal, glass, leather, plastic, etc. The length of time required to perform the process is the only disadvantage, and that can be shortened with a little practice. Silk screen methods are used in a "thousand and one" ways. It can be a decorative art for various items such as pottery, greeting cards, wallhangings, tea trays, throw rugs, bookcovers, and various kitchen utensils. The process may be applied to only one item, a dress length of fabric, or a full-length loom cut of fifty feet or more of fabric. For every color applied to a design, the color must dry before another color can be applied. Waiting for each color to dry is the slowest part of the process.

It is not easy to identify silk screen printing. On paper and other flat, smooth surfaces, one can usually feel the raised outline of the paint, while on fabric the dye is usually absorbed into the yarns. Sometimes with a magnifying glass the imprint of the silk gauze can be detected.

Many young children are being taught a simplified silk screen printing method in school under the arts and crafts part of the curriculum. A bright book marker or a colorful handkerchief may be a child's creation. Zigrosser mentioned that "several New York high schools have silk screen units."¹ Colleges frequently have an art course in which silk screen printing is taught. It is the opinion of the author that none of these courses are necessary for one to learn the process, although an art course would be helpful in perfecting one's technique more quickly. Brunner says, "One advantage of the silk screen process is that it requires a minimum of equipment and does not call for wide technical experience."² One excellent reference is Printmaking Today in which the author, Jules Heller, offers solutions to possible problems that might be encoun-

¹Carl Zigrosser, "The Serigraph, A New Medium," Print Collector's Quarterly, Vol. 28, No. 4 (December, 1941), p. 449.

²Felix Brunner, A Handbook of Graphic Reproduction Processes (New York, 1962), p. 174.

tered.³ Also, Heller discusses the various qualities of each of the necessary pieces of equipment and the advantages and disadvantages of each.⁴ There are innumerable manuals and handbooks explaining thoroughly the steps of the different methods of using the silk screen. In seeking a method the hobbyist should experiment until one method is found that best suits the individual. It is easier to become proficient in one method than to try to become expert in several.

A complete printing kit can be purchased at different prices at an art supply shop. Until the beginner understands the craft and wishes to continue in it, the least expensive kit will suffice. Biegeleisen and Cohn claim, "With simple, inexpensive equipment, almost as portable as a drawing board, the artist has at his command the means for reproducing prints of any size on any surface in any number of colors."⁵ It is best to keep in mind the type of surface upon which one desires to print, for the size of silk screen frame to be constructed or purchased would be affected.

In recent years and through experimentation it has been found that screens other than silk can be used. Ordinarily a fine silk gauze called bolting cloth is recommended, but

³Jules Heller, Printmaking Today (New York, 1958), pp. 228-233.

⁴Ibid., pp. 203-220.

⁵J. I. Biegeleisen and Max Arthur Cohn, Silk Screen Stenciling as a Fine Art (New York, 1942), p. 6.

fabrics with fibers of nylon, cotton and Dacron, plus some metal screens, can be used. The cloth must have a fine, even weave. Franken says, "The main factors deciding the choice of gauze are the design, the type of fabric, and the composition of the printing paste."⁶ One quality concerning silk that has made it a favorite screen is that silk is long-lasting and can be cleaned many times. High tensile strength is the necessary quality of any screen and although nylon is very strong, it does not behave like silk. An inexpensive fabric such as organdy could be used until the experimental stage has been passed. Eisenberg and Kafka believe, "The basic secret of silk screen printing is found in the fabric, or silk."⁷ The main factor is that the screen is stretched tight and is firmly attached to the frame and is a close, even weave through which paint will not flow of its own weight, but through which it can be forced with pressure. The pressure is exerted not by pressing down, but by the smooth and even passage of the squeegee across the screen. Figure 2 illustrates the use of the squeegee.

The author, having only observed and never having used a silk screen, decided to experiment with the process. An inexpensive, complete kit was purchased which included

⁶A. Franken, "Forerunners and Beginnings of Screen Printing," Ciba Review, Vol. 9, No. 107 (December, 1954), p. 3851.

⁷James Eisenberg and Francis J. Kafka, Silk Screen Printing (New York, 1957), p. 11.

screen, squeegee, paint, stencil sheets, a stencil cutter, etc. The first step was the sketching of a design and then coloring the parts with map colors to determine the various parts of each stencil. Each color requires a separate stencil. Stencil cutting takes practice, and one must not expect perfect or even near perfect results the first time. Stencil cutting may be observed in Figure 1. A guide should be established in order to set each stencil in exact position by which each color of the design can be applied without distortion. In the author's case, the guides were inadequate as can be observed in Figure 3, in which the lines do not meet. Separations can be avoided with more accurate guides, as may be observed in Figure 4.

As mentioned previously in Chapter II, nearly all fabrics of all fibers can be printed. Caution should be applied in dyeing soft, flimsy fabrics that tend to crawl or move, as the design may become distorted. Also, when printing textiles, it is best to wash the cloth with warm soapy water in order to remove any sizing, and then dry and iron the cloth until all wrinkles are removed.

The author was curious as to the effects of fabric qualities and finishes on dyeability. Two identical lengths of cloth were secured; one of these lengths of cloth had been treated with a "wash and wear" finish, while the other had not. Another fabric with which the author experimented was a 65% Dacron and 35% cotton broadcloth. Two questions were posed:

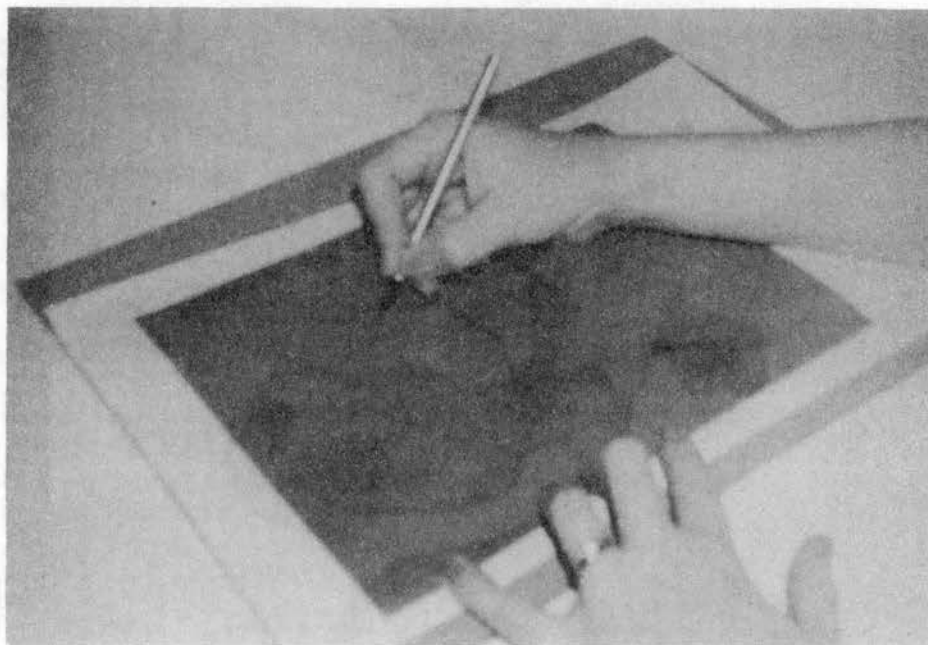


Fig. 1 - THE CUTTING OF THE STENCIL



Fig. 2 - THE SQUEEGEEING OF ONE COLOR

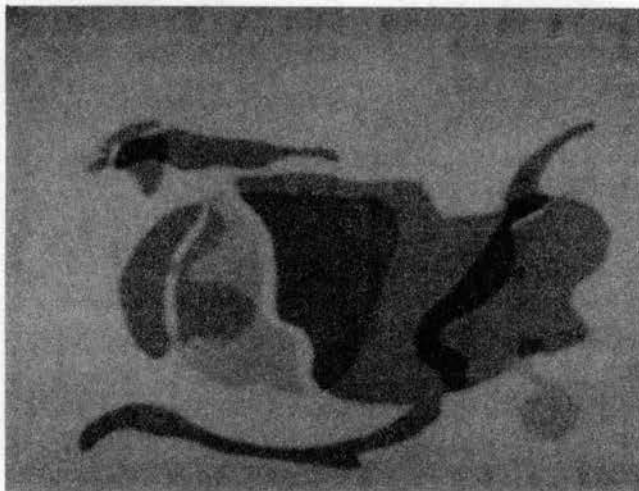


Fig. 3 - THE SEPARATION OF STENCILS
DUE TO INADEQUATE GUIDES

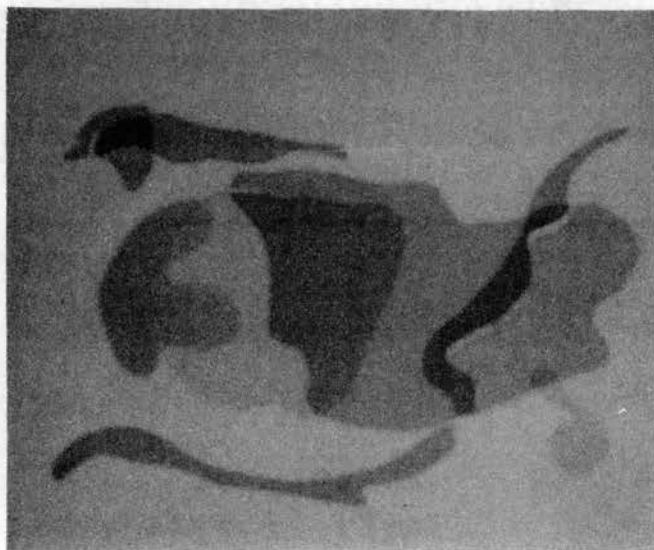


Fig. 4 - LESS SEPARATION OF STENCILS DUE
TO MORE ACCURATE GUIDES

1. Would there be any apparent difference in the finished prints?

2. If differences occurred, could their cause be identified?

Differences in prints on the three fabrics were negligible.⁸ The Dacron and cotton broadcloth appeared to have a slightly smoother and more even outline than the other two prints. The result in this print may have been due to a difference in pressure applied to that particular fabric, although no difference was thought to have been made. Only an expert in the silk screen printing process could make an accurate test as to whether a fabric finish would affect the absorption of the paint or dye.

It is possible to add flocking to a print today as it was long ago on stencil-produced wallpaper. Summer and Audrieth discuss a flock finish:

"Flocking is the process in which finely cut rayon, cotton, or wool fibers are adhered with the aid of an adhesive binder to a given surface. Cotton and wool flock are obtainable in only one length, usually about 1/16". Rayon flock is the most popular because of its lustre, simulating velvet or velour finish. Cotton and wool are used where a suede or dull finish is desired. Flock is obtainable in a variety of shades. The flock should be dusted or sprayed on the wet, tacky paint before the paint has had a chance to set. For flat work or small surfaces, an ordinary vegetable strainer may be used. When it dries, the excess can be brushed off the surface."⁹

⁸One must remember that the author is an amateur and this was the first application of any type of silk screen printing.

⁹Harry Summer and Ralph M. Audrieth, Handbook of the Silk Screen Printing Process (New York, 1941), pp. 59-60.

Flocking is another way to experiment and expand one's knowledge of silk screen printing. The possibilities of an interesting and creative homecraft through silk screen printing now exist for everyone. As Shokler said, "For the first time, one can produce in limited space, with compact, inexpensive equipment, using as many colors as one desires --editions of one's own original color prints."¹⁰

There is a difference between the so-called "textile painting" done several years ago and silk screen printing of cloth. A stencil was used then, but it was a purchased stencil of a particular design made from a heavy, waxed paper. One simply painted or brushed over the cut out parts of the stencil onto the towel, pillowcase, etc. While that method enabled one to print or paint cloth, silk screen printing enables one to be creative. A silk screen design is new and original, stemming from the individual. It is an outlet through which emotions, dreams and talent can flow. The individual can create both mentally and manually. Here is an occupation for leisure time filled with pleasure and fun. It may be an interest of therapeutic value, or merely an artistic diversion but creative, nevertheless.

¹⁰ Harry Shokler, Artists Manual for Silk Screen Print Making (New York, 1960), p.v. (Introduction).

CHAPTER VI

SUMMARY

In writing a history of fabric decoration such as silk screen printing, it would be pleasant if one could say here it began and here it grew and developed and there is where it is going. Although there are definite indications of the origin of silk screen printing, there is little proof as to the actual date of its discovery. The author can only agree with Biegeleisen when he said, "Perhaps it may be best to console oneself by saying that though the process may have had a vague past, it has a brilliant future."¹

In searching for the beginning of silk screen printing, many communications were sent to libraries, museums, and various people over the United States who might have the knowledge or be able to point to the location of a source indicative of the origin being sought. With the help of these communications and the aid of the Oklahoma State University Library's inter-library loan service, a plausible story began to unfold. A thorough library research

¹J. I. Biegeleisen, The Complete Book of Silk Screen Printing Production (New York, 1963), p. 1.

involving histories of countries known to use silk screen printing, art histories, decorative textile applications, graphic art references, periodicals, privately printed works, etc., was pursued. Collections of serigraphs by local, national, and international artists were also studied.

The background of various methods of decorative design has always been of interest to the author. Curiosity was aroused when little information was found on silk screen printing. Was the process new or old? From where did it come? Why? What or who started it? In the first search for the answers to these questions, certain "leads" encouraged the author to make a serious study of the subject of silk screen printing.

It was a surprise to find silk screen printing was among the best known and practiced graphic arts. It was also surprising to learn the degree of automation performed by industry in producing what had previously been a very long and tedious production. Newer and simpler methods have been devised for nearly all processes over the years, and silk screen printing has been no exception. One can tell by observing the many fabrics and other items on the market today labeled "silk screen printed" to know that it is an enduring art, not likely to be forgotten or ignored. Today, even as it was in the past, the deep, clear, rich colors of detailed designs stand out like no other.

It was the intention of this author to inspire, encourage, and challenge the reader to experiment as the author

has done by attempting a simple color design. It is a method of self-expression for the inexperienced school child and the professional adult artist. This lovely, old art is in the reach of all who wish to avail themselves of it. As a craft, one can take pleasure and pride in making things for himself and others. Ahlberg and Janeryd advise, "Silk screen printing is both a creative and satisfying handicraft, which trains the hand to skill and the eye to taste."²

It was the hope of the author to instill a deeper appreciation of silk screen printing through the knowledge of its background and development.

See If one were interested in a deep study of fabric decoration, learning something of the exotic, but simple, dyeing methods of the Oriental countries, could be an exciting pastime. Also, one might take a particular design and trace it from its birth ages ago to the present time, whether it were Spanish, Italian, Egyptian, or Chinese. Is it possible for one design to remain the same, or has it been changed in any way? If so, how and why? Studies of decorative designs are endless in number.

²G. Ahlberg and O. Janeryd, Block and Silk Screen Printing (New York, 1961), p. 13.

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