1969

Batik as an Art Craft in the Middle School to Develop Creativity and Prolonged Interest

Margueritte A. Bauer
Central Washington University

BATIK AS AN ART CRAFT IN THE MIDDLE SCHOOL TO DEVELOP CREATIVITY AND PROLONGED INTEREST

A Thesis

Presented to

the Faculty of the School of Education

Central Washington State College

In Partial Fulfillment

of the Requirements for the Degree

Master of Education

---

by

Margueritte A. Bauer

July 1969

APPROVED FOR THE GRADUATE FACULTY

_____

Louis A. Kollmeyer, COMMITTEE CHAIRMAN

_____

Thomas Dean Stinson

_____

Richard Fairbanks

ACKNOWLEDGMENTS

For their help and participation in critiques, the author wishes to express her appreciation to the members of the Central Washington State College Department of Art who served as active committee members. Dr. Louis Kollmeyer is given special recognition for his participation and valuable assistance as committee chairman. Mr. Richard Fairbanks is extended special recognition for his valuable assistance during the formative period of the thesis. Appreciation is also extended to Dr. Thomas Dean Stinson for his help as an active committee member.

Appreciation is also extended to the students and parents who helped make this study possible.

Most directly, the author is appreciative of the wonderful encouragement and stimulus from her own children, Tom, James, and Mary Kay Bauer.

TABLE OF CONTENTS

PHOTOGRAPHS

CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

I. INTRODUCTION

This study of batik has been made essentially for the pedagogic value of batik as an art craft in the middle school, through which the student is given experimentation possibilities which will foster creativity and prolonged interest. The study includes traditional and contemporary methods of batik, with emphasis on creativity, using many different materials and approaches.

II. THE PROBLEM

Statement of the problem. It was the purpose of this study to present the craft of batik as (1) a means of studying the historical and contemporary background of batik, (2) a means of motivation to develop knowledge and feeling for the craft, (3) a means to introduce a craft which furnishes the individual with a sustained and prolonged interest, (4) a means to involve the student with many possibilities for experimentation in order to realize varied expressions, (5) a means to furnish the basic knowledge complete enough for each individual to work independently with this craft, (6) a means of furnishing an atmosphere

whereby the student can use his creative ability, and (7) a means of showing, by photographs, selective examples of batik technique.

Importance of the study. In order to fulfill its purpose in this age of automation and mechanized products, the art program in education must meet the challenge of creativity and prolonged interest whereby the individual feels he has contributed something of worth which is a personal accomplishment, something which will give him recognition.

With this in mind, this study will be directed toward these goals:

1. to acquaint students with the traditional and contemporary history and uses of batik;
2. to illustrate the pedagogic value of batik as an art craft which can be used to develop fundamental needs for creativity and self-expression;
3. to provide the individual with an insight into cultural development;
4. to furnish basic knowledge complete enough for each individual to work independently with this craft;
5. to stimulate awareness of different techniques and media combined to produce an exciting and rewarding end-product;
6. to acquaint the individual with uses of tools and media necessary to accomplish this work;
7. to involve the student with many possibilities for experimentation which will lead to sustained interest;
8. to incorporate these fundamentals with other areas of learning;
9. to broaden the aesthetic scope and sensitivity of the student;
10. to give the student assurance that a fine piece of art work is within his realm.

III. DEFINITIONS OF TERMS USED

Acetic acid. The same acid as found in household vinegar.

Ambitik. A synonym for "batik."

Batik. Resist technique of textile decoration where hot wax is applied to portions of the fabric to resist the effect of water-borne dye pigments.

Bleeding. Running of color from fabric when it is dampened.

Cadou. A tree grown in India.

Calico. Originally any cotton cloth from India and the East.

Canje. The water in which rice has been cooked.

Cassava starch. A starch made from the cassava root and used as a resist in West Africa.

Chintz. Originally printed or stained calico from India; now, printed cotton cloth, often glazed.

Cold dyeing. Coloring fabric in a dyebath at about 100 degrees.

Color separation. Procedure by which the different

colors of a design are separated for the purpose of dyeing one at a time.

Crackle. Fine-line effects produced in the batik process.

Dou-fu. Soya bean cheese used as a resist in China.

Dyebath. The solution of dyestuff in which fabrics are colored.

Dyestuff. Material that colors fabrics by combining chemically with the fiber.

Dye uptake. Absorption of the color by the fiber.

Extender. Material used to reduce the color value of a dye.

Fastness. Ability of the dye to withstand washing, boiling, or exposure to light.

Fixation. Process which permanently fixes colors to a fabric.

Ground color. Original color of a decorated fabric.

Hot dyeing. Process of coloring fabric in a hot (boiling water) dyebath.

Immersion dyeing. Process of coloring fabric by

submerging it in a dyebath.

Kalam. An intricate pen made of iron, around which is wrapped a wad of hemp thread about two and a half inches from the point. The hemp absorbs the wax and serves as a reservoir for it.

Middle school. Recognized as any combination of grades from the sixth grade to the ninth grade.

Mordant. Substance combined with dyestuff to produce a fixed color.

Overdyeing. A second color dyed over a previously dyed area.

Paste resists. Certain pastes used as the medium to resist dyes in designated areas.

Pounce. A small bag containing powdered charcoal.

Pretreatment. A process whereby the fabric is washed in hot water to remove the sizing in order for it to accept the dye.

Rails. Handmade patterns in wax, each different from one another, but all following a specific pattern.

Reducer. Liquid used to thin the consistency of a dye or pigment paste.

Repeat. The basic unit of design in fabric decoration.

Resist. Material which prevents dye from reaching designated areas of the fabric.

Rewax. Waxing over areas which have been previously waxed and dyed.

Sizing. Substances applied to fabrics to give them extra strength or body.

Soga-brown. Color obtained from the bark of a tree in Java.

Solvent. Liquid used to remove wax from the fabric.

Stamping. Means of transferring a design to fabric by pressing a color-coated or wax-coated object onto its surface.

Starch resist. Starch used as the medium to resist dyes in designated areas.

Stencil. Thin material perforated with a design through which some type of medium is forced onto the fabric to be decorated.

Synthetic fiber. Fiber produced by chemical synthesis.

Tauarei. A grain used in mixing indigo dyestuff.

Tie-dyeing. Technique of decoration in which the fabric is bound in some fashion to cause it to resist color in designated areas.

Tjanting. Traditional Javanese tool for applying wax on fine-line work and for outlining areas. Melted wax is poured into the tjanting and wax flows through fine needle spout.

Tjap. A tool consisting of soldered copper bands which is used to dip into hot wax and stamp onto the fabric.

Tulis. The name applied to a hand-drawn batik.

Wax resist. Any type of wax strong enough to resist dyes in the area where the wax has been applied.

IV. ORGANIZATION OF REMAINDER OF STUDY

The remainder of the thesis is presented in topical form which will include a brief history of traditional and contemporary batik, various techniques used in making contemporary batik, materials and tools involved in the process, photographs used to illustrate selective techniques and results, a summary of the work, and conclusions of the results of the study.

CHAPTER II

REVIEW OF THE LITERATURE

Many books have been published concerning the historical background of traditional batik; however, only a brief summary of this information will be presented in this study in order to acquaint the reader with the rich history and technique of this ancient craft.

Literature concerning the contemporary art of batik is not easily available. Two thesis have been written concerning different aspects of batik. In 1937, Dorothy Manchester, University of Washington, wrote a thesis entitled Javanese Textiles and Costumes. This thesis refers to the batik process in making textiles for Javanese costumes. In 1966-67, Glen C. Streeter, Sacramento State College, Sacramento, California, wrote a thesis entitled Batik: A Research on Available Materials Suited to the Batik Process in the School Art Program. This thesis touches on one of the areas in this study (materials suitable for batik). It also verifies the creative potential in this craft.

Very few books concerning contemporary batik have been published. However, several periodicals have edited information concerning different techniques used in the contemporary methods for the craft of batik.

I. LITERATURE ON TRADITIONAL BATIK

The word "batik" (also called "ambitik") is not pure Javanese since it is related to almost all the other Malay-Polynesian tongues. In various forms the word is found in Borneo, Celebes, Philippines, and the Fijis. The basic meaning of the word is related to tatooing and has come to mean the dyeing of white cotton in several colors. Batik is a technique of painting or drawing upon a fabric with melted wax, after which the material is dyed and the wax removed. This entire process produces a silhouette upon the dyed background of the material.[1]

The exact origin of batik is unknown. Some sources indicate that batik originated in ancient Egypt, hence spreading through Persia to India. On the basis of symbols and motifs, other sources point to its origin as China. "The visible evidence would favor a hot climate because of the light-weight fabrics required by the process and the traditional bright coloring. . ."[2], indicating that either source is valid. Research shows that proof of batik-making has been uncovered in Indonesia, China, Japan, India, Siam, East Turkestan, Europe, Africa, and South America. In Java it developed into a powerful industry which resulted in steady export to other countries.

Historical proof has been established verifying the work of batik in India as early as 1677, although Rouffair

". . . maintained that wax printing had already reached a high degree of development and perfection along the Tamils and Cingalese [rivers] before that date."[3]

Ctesias, the Greek physician, in his writing about India in 400 B.C., mentioned resist-dyed and hand-painted fabrics in which the colors ". . . may have been made with fruit, flower, root, or bark stains that were made fast by the addition of acid soil or mud containing iron."[4] When India was invaded by Alexander the Great in 327 B.C., the Greeks described "colorful printed cottons"; and as a result of these invasions, trade routes were established which introduced these cottons into other areas in Asia and beyond.[5]

Printed cottons were brought to Europe by way of the Red Sea in the second century A.D. Indian merchants did not settle in Java to introduce wax-resist techniques until two centuries later. Batiks which were "highly individualistic" developed in that area.[6]

The technique of wax-resist was used during the Nara Period (710-784 A.D.) in Japan. Numerous decoration processes were developed during the Edo Period (1673-1801). One of these techniques was the starch-resist dyeing which was used to decorate the kimono. In combination with resists and hand painting, stencil dyeing was also highly developed.[7]

One of the most important heritages of Chinese history is the art of batik. Early in the Six Dynasties Period (220-589 A.D.) the Chinese people used wax to dye cloth. During the T'ang Dynasty (618-906 A.D.) batik-making became an important industrial business.[8]

The craft of batik was a "guild-craft" secret in the Javanese Sultans' governments during the thirteenth century; it was only done behind the Kraton palace walls ". . . as an accomplishment of the well-bred ladies of the court. It was an avocation of the royal princesses to pass their leisure time. As these royal ladies were married to noblemen from outside the walls, the skill of batik processing went with them and spread all over Java. Batik art was then transferred to hands of the common people."[9]

Every well-bred Javanese lady of the court practiced "batik writing" as a hobby, utilizing the designs passed on to her by her mother. Today it is still the desire of every Indonesian woman to own a "hand-painted" batik garment which she may wear on special occasions.[10]

Europeans became extremely interested in the highly colored and "exotic" textiles imported from India after Vasco Da Gama discovered a sea route to India in the sixteenth century.[11] The impact of the Indian printed cottons in the warehouses and shops of European cities was so tremendous, the materials were of such unusual patterns,

and the colors were so rare and brilliant that the fabrics at once became a luxury item in much demand. A letter from the head office of the London East India Company to their agent will illustrate:

> '. . . nothing is more in esteem than these delicate paintings. . . . The greatest ladyes will now wear them for upper garments as well as for petticoats. . . . they can never make nor send us too many of them.'[12]

This great demand led the Europeans to attempt fabric printing, but it was not until the eleventh century that work with fabric printing developed there.[13]

Dutch traders imported batiks to Holland during the middle of the seventeenth century.[14]

Techniques of fabric decoration have been used for a long time in central Africa. Very likely the first attempts to decorate fabrics were done with the fingers. African motifs include those telling a story, those having symbolic significances or serving as identification, and those used to ornament fabric with a pattern. In this region resist-pastes were effectively used with indigo; and a crackle-effect was occasionally incorporated into the work.[15]

Batik-like methods (wax-resist) were used for pottery decoration in the pre-Columbian Peru era in South America.[16]

According to record, John Heuson of Philadelphia attempted the first calico printing in the United States in 1770. Immigrants from Europe brought their trades and skills with them, so the process and designs were direct

imports from foreign places. "There is now some doubt about the origin of many prints, especially indigo resists, that were previously thought to be of American manufacture."[17] This fabric printing industry grew gradually in America and was not established in Philadelphia and New Jersey until 1811.[18]

The designs and symbols common to batik were originally derived from nature symbols, since the Koran strictly forbids the depiction of the human figure. Due to the contact with many cultures and religions of Asia, other figures were gradually used. Today in Java, batik artisans use designs derived from many sources including some from ancient origins. Designs reserved for the royal families are a combination of motifs based on historical or mythological events, all conforming to local customs.[19]

The names of certain Javanese batik patterns and the interpretation of the names are interesting. The patola is the eight-pointed flower motif. The trumpal occurs as a magic symbol and is seen as a triangle accompanied by a sun or star-shaped figure placed above the apex. The lamak is a stylized and simplified human figure. The tjili portrays the Hindu goddess of rice and fertility.[20]

The interpretation of names of the pattern formations on batik are also interesting. On the borders are found tumpals, usually large and richly decorated. The slendang

is a centrally placed undecorated area which always appears in the form of an elongated rhomboid; it is a surface arrangement which does not occur in any other textile-decorating technique used in Indonesia. The garismiring patterns are bands of different widths, bounded by straight lines and ornamented by means of simple motifs. The parang patterns, with alternate narrow and broad bands, are bounded by wavy lines. The parang-rusak is strictly metrical in design and has colors of indigo blue, soga-brown, and creamy white. From an aesthetic point of view, some of the best batiks produced are from this pattern. The semen is the design used to depict the "tendril." The sawat is a rigidly stylized bird figure. The mirong and lar motifs are double and single winged figures. The tjeplokkans pattern is in the shape of a star or rosette. The isen are small ornaments used to fill in larger and smaller areas. Ganggong patterns consist of small parallel lines which start at the center of the main motif; the middle line is longest and is distinguished by a small cross or ball. Tambal patterns consist of squares which may or may not be divided in two by a diagonal line. Bandji patterns are definitely geometric.[21]

Color is basic to batik and captivates the eye with its many combinations and subtle blendings. Historically, in Indonesia, the first color used was indigo blue (a plant dye) on white bleached cotton. The indigo dyeing process

is different from that of other dyes, and the preparation of the indigo dyestuff is extremely important. A Jesuit missionary, Father Coeurdoux, described the process:

> The leaves of the plant were crushed and placed in a mortar having a small hole in its base. The leaves were pulped with sharpened bamboo poles as water was poured over the mash and allowed to drain away, finally leaving a thick paste that was rolled into balls the size of a pigeon's egg and dried in the sun before storage until needed. When required for dyeing, a number of these balls were crushed and mixed with water to which had been added a roughly equal amount of lime. This mixture was further diluted with the water in which a grain called tauarei had been cooked for two days. This combination was allowed to stand for several days before use and yielded a weak blue dye-stuff in which the indigo had finally been dissolved in a water solution by converting it with the lime to a soluble compound. Oxidation . . . converted this soluble compound back into deep indigo blue to produce the final color.[22]

Father Coeurdoux explained how black dye was made by plunging red-hot lumps of iron into canje and allowing them to soak for a day, after which the liquid was drawn off and placed in the sun to oxidize for three or four days. Father Coeurdoux told how the cadou fruit (the nut of a tree grown in India) juice was used to keep the colors from fading. After the cloth was soaked in the pure juice, it took on a yellowish color. Light orange appeared when the juice was mixed with buffalo milk. The cloth became green when a small amount of lime juice was added. With a large amount of lime juice, the cloth became brown.[23]

The color which was most impressive to those seeing chintz for the first time was madder, or alizarin red.

The process of obtaining this dye gives a good example of the difficulties met with in procuring colors.

> . . . The color apparently was extracted from the dried roots of the plant Rubria Tinctorius, and when powdered, was mixed with 'bitter well water.' Such water perhaps contained natural alum, or tannic acid leached from the soil, or other types of acid. We assume that the water contained some degree of tannic acid, and we can allow for more of this in the cloth, remaining from the preliminary preparation with cadou nut juice. Slowly heated, with the cloth immersed in the dye solution, the mordant and the dye affected the dyeing process. Madder, used with different mordants, yields very distinct colors: used with one, red; with another, orange; with yet a third, a reddish brown; and with iron, purple or black.[24]

Various tools were used in batik making. The artist would first draw his design on paper, then, with a fine point, he would prick small holes along the outline. Next he would lay the pattern on the cloth and transfer the pattern to the cloth with a pounce. After the transfer, he would inspect the cloth for missing portions of the charcoal and would touch up these omissions. This transfer method was used by the more advanced artisans. The common method was to draw the design directly on the cloth with wax.[25]

The simplest method of making a batik was done by using a pointed bamboo stick; other tools were bamboo squills of various sizes, small bamboo spoons, a palm leaf bag, or even the finger. The kalam, which is used in India, is a type of drawing pen which contains a spherical reservoir for containing the wax. The iron pencil is attached to a bamboo handle around which is wrapped a wad of either hemp

thread, fibers, or human hair. The wad is about the size of a fist and it contains the wax. Upon dipping this pen in the wax pot, the wad absorbs the wax, and from it the wax flows slowly and gradually toward the point of the tool. The flow is regulated by application of greater or less pressure on the wad. If parallel lines are required, a pen containing two or more pairs of iron blades may be used. The tjanting tool, strictly of Javanese origin, is the most elaborate instrument used in batik-making. It is a tool which consists of a small copper cup with one or more tubular spouts attached to a bamboo or wooden handle. The tjanting is used for drawing the outline in wax. Tjantings with two to five, or even seven, spouts are used for drawing ornaments consisting of a number of dots or lines at an even distance from each other. To cover the large spaces, a crude brush formed by a wad of cotton fastened to the mouth of the tjanting is used.

Application of wax by means of a block, called the tjap, was introduced in Java in about 1850. This accelerated the production of the work. The tjap printing is done by the men (the dyeing is done by the women). These blocks consist of soldered copper bands arranged in a design; they are dipped in the hot wax and then applied to the cloth. Small spaces which do not absorb the wax are later touched up with the tjanting.

The Chinese use celluloid stencils for their batik-making. This method is known as the Hau-pu technique and is used with an elastic paste mixture of dou-fu as a resist. After the resist dries, the fabric is then dyed in an indigo vat and dried in the sun on long sticks. When it is dry, the dou-fu is rubbed off.

The Chinese use another resist consisting of a mixture of ground nuts, lime and water. In order to apply this resist, stencils of lacquered paper are laid on both sides of the fabric. Stencils are also used in West Africa. Here the stencils are cut by the men from a thin sheet-zinc. After the stencil is put over the cloth, cassava-starch is spread on the exposed parts with a piece of wood.[26]

The hand-drawn batik is called the tulis, and it is done in its entirety by use of the tjanting. These hand-made batiks are expensive because of the length of time consumed in waxing-in the design. A tulis two yards long takes anywhere from thirty to fifty days to produce. The tjap printed batik can be made in much less time so it is not as expensive as the tulis. However, the repeated forms in the tjap print make it monotonous and less interesting than the hand-drawn design of the tulis.[27] The major feature of the handcrafted batik is the rails, each different from the other. These rails are easily identifiable and make the handcrafted product one with which the printed

product cannot compare.[28]

Batik cloth was put to many uses: aprons, wedding jackets, cuffs, sleeves, skirts, and the cushions whereon the women carry their children on their backs. The cloth was also used for children's jackets and other clothing. The cloth is ornamented according to its use. The following is a list of the articles of dress most usually ornamented in batik:

1. The iket or kain kapala is a square kerchief worn by the men.
2. The bebed or kain pandjang are larger than the sarong. They are worn around the lower part of the body and are used by the men.
3. The kembem is a long, shawl-like cloth (about one-half by two and a half yards in length) and is used by the women for covering the breast.
4. The slendang is about the size of the kembem and is used by the women, slung over their shoulders like a shawl, or worn in the manner of a sling in which to carry their babies or the food basket.
5. The sarong is a loin or hip cloth, worn by the women.
6. The dodot is a ceremonial garment worn with a train.
7. The tapih is a large cloth worn by the women over the lower part of the body.
8. The sampur or sonder are sashes worn by Javanese dancers. They are slightly narrower than the kembem.[29]

In concluding a review of traditional batik, the writer feels it is imperative to give the step-by-step process:

1. Prepare the fabric by washing it in hot water to pre-shrink it and to remove any filler it has in it.
2. Draw the design on the fabric with charcoal.

3. Following the charcoal drawing precisely, deposit a fine line of hot wax with the tjanting.
4. Turn the fabric over and wax the back adequately to protect the fabric from the dye when it is immersed in the dyebath.
5. When it is completely waxed, immerse the fabric in indigo blue.
6. While still wet, hang the fabric straight so that the wax does not crack and the dye remains even. Let it dry.
7. Scrape off the wax with a smooth tool or wooden stick.
8. Areas that are to remain white or indigo are covered by another coat of wax on both sides.
9. Immerse the fabric in the second dye, usually reddish brown.
10. Dry the batik.
11. Boil the fabric in water to remove the wax.[30]

II. CONTEMPORARY BATIK

Traditional batik work was such a time-consuming and laborious task that it is little wonder it discouraged people from attempting such a craft. Therefore, it is not surprising that the Westerners, in this day of invention, automation and mechanism, have turned the ancient craft into a form which can be done rapidly, spontaneously and creatively using a great variety of materials. Many contemporary artists treat batik-making such as they would a painting, for new methods of developing the craft have led to an exciting and rewarding work which may be completed in a short time.

This study has been done explicitly for the purpose of discovering if this ancient craft with its contemporary

innovations has the potential for motivating students in the middle school to develop enough knowledge and feeling for the craft to exploit their creative potential; and the study has also been done to discover if this craft will arouse enough sustained interest to carry the craft out of the schoolroom into their homes and, consequently, into the community.

With this in mind, an explanation and elaboration of the different techniques used, materials involved, and the results will be presented and illustrated by means of selective photographs. In conclusion, the interest and creativeness exhibited by the students, and the reaction of their parents and the community at large will be noted.

III. SCOPE OF THE STUDY

This thesis is limited to the following: (1) a review of the historical background dealing with representative types and their development, in a survey form rather than in an exhaustive manner, to acquaint the reader with the rich history of batik; (2) proposed contemporary experiences presented to the middle school; (3) selective examples developed and photographed to show certain techniques; (4) original comments concerning student and parent reaction to the experiments.

TRADITIONAL TJAP-PRINTED BATIK SARONGS FROM INDONESIA

CHAPTER III

TECHNIQUES AND MATERIALS USED IN STUDY

I. TECHNIQUES

Dyeing by Immersion

The fabric chosen for this experiment was the outer, unworn edges of old cotton sheets, either white or light in color. If the fabric is worn enough to be thin, the material will split and shred in the ironing process. New material should be pre-treated by washing it in hot water to remove the sizing and to pre-shrink it.

Although one may begin by working directly on the fabric without a preliminary design, it was found best, since this was the first experiment, to have the students first draw the design on a small sheet of paper, then color the design with crayons, keeping in mind the knowledge of how overdyeing will affect each color. The preliminary planning was also done so that the student would be able to view his finished product in its entirety with an eye for balance, rhythm and unity. This small pattern is also valuable to the beginner as a reference for application of colors in the process.

The outline of the pattern was then drawn on a piece of butcher paper the same size as that of the fabric. The outline was heavily drawn over with a soft lead drawing

pencil so the design on the paper would show through the cloth when the cloth was fastened over the paper pattern. In this way, pencil lines were eliminated from the cloth; these pencil lines will not wash out and often give a rigid appearance to the finished product.

To outline the design on the cloth, hot wax was then applied following the outline of the paper design which showed through the fabric. The wax is the correct temperature when it moves about in the container, or when a thin spiral of blue smoke arises from it. The wax was applied either by use of a small soft brush or the tjanting tool (often called the tjanting needle). Wherever the hot wax touches the fabric, that particular area is protected from any dye color applied to the cloth later. The wax was heated in small tin containers; then the containers were placed on ceramic tiles at advantageous areas along the work counter. When the wax became too cool to penetrate the cloth, the can was replaced with a can of hot wax from the hotplate.

After the outlining was completed, the student put on rubber gloves to protect his hands from the dye (application of talcum powder to the hands make them easier to put on), and the fabric was pre-wet in water so the dye could penetrate immediately. It was then immersed in a warm dyebath made from Rit dye. Care was taken not to

crack the wax during this process, that is, if no crackle-effect was desired at this stage. A cold dyebath is apt to crack the wax and a dyebath too hot will melt the wax. This dyebath consisted of the lightest color which would appear on the finished product (pale yellow, pink, etc.).

The fabric was removed from the dyebath. Then it was placed on several thicknesses of newspaper and a paper towel or scrap cloth was used to absorb all of the excess liquid to prevent bleeding or dripping when it was hung with plastic clothespins on a wire line. The fabric was completely dried before application of another coat of wax.

The following day the wax was inspected for cracking or peeling; then it was rewaxed in these areas. Hot wax was then applied to areas which were to remain the light color of the first immersion. Either a brush or the tjanting was used for this. A large bristle brush is good for covering large areas.

After rubber gloves were put on, the fabric was then immersed in a dyebath of a darker value or of another hue, according to whether the student wanted his work done in a monochromatic color scheme (variations of one color), or with various colors. This second dyebath was only slightly darker than the first, but dark enough to give a contrast in the color scheme. The same process as was previously used after the first dyeing was exercised here, and the

fabric was again hung to dry. This complete process was continued until all of the colors had been applied to the fabric and the entire cloth was waxed.

Most of the students felt that they wanted a "crackle-effect," so the cloth was crushed into a ball, straightened out, and then run through a dyebath of the very darkest value. Care should be taken, at this point, that the crushing does not remove too much of the wax because the final dark value is apt to obliterate most of the light colors. To avoid this, the students dipped the cloth very quickly into the dark color, then immediately sponged off any excess dye which collected on the surface of the wax. The piece was then allowed to dry before completely covering all areas with wax. (Any area of the fabric which is left unwaxed remains limp after the final ironing and detracts from the consistency of the body of the finished product.) If ironed before it is dry, the dark colors are apt to spread or "bleed" into areas which are light, and the design may become muddy or lost.

Most of the wax can be removed by use of a hot iron. Newspapers (about one inch in depth) were placed under the batik. Directly on top of the batik, a piece of butcher paper was placed. Then the hot iron was applied to the butcher paper by quickly and lightly touching it in certain areas, thus bringing the wax up into the paper. (The iron

should not be moved steadily or slowly over the paper at this point, but rather it should be put down and raised directly in each area. If the iron is rubbed steadily over the paper, the paper will become completely saturated with wax and cannot be used later with watercolor for a paper batik.) When sufficient areas of wax were absorbed into the butcher paper, it was removed and put aside to use for another type of batik work. Newspapers were then used to remove the remaining wax from the cloth, changing them frequently both above and below the cloth because they become completely saturated with wax in a short time. Only one thickness of paper was used on top of the batik because the heat from the iron did not sufficiently penetrate several thicknesses. The students continued using the hot iron in this manner until there was no more wax appearing on the paper.

Next, the students immersed another cloth in vinegar, wrung it out, then placed it over the batik. The hot iron was used to press the acetic acid into the cloth (by means of steam) to keep the colors from fading or to make them fast.

Ironing does not completely remove all of the wax, but it leaves the fabric with a rather firm body. To remove all of the wax from the fabric, it should be dipped into a container of solvent (gasoline, mineral spirits, kerosene,

or commercial cleaning fluids). However, most of these solutions are rather dangerous because they are flammable and are not recommended for use in the middle school classroom.

The fabric can also be boiled in several vats of clean water to completely remove the wax. But experiments with this proved disastrous because much of the color was lost in the boiling. In using a cold dyebath, the color is not very firmly set. Furthermore, the students seemed to prefer the stiff, firm body of the material as it was left following the ironing process.

Several days were spent on this process, and the students seemed unwilling to attempt another which would take so much time. Only two or three out of approximately one hundred students tried this process later in their homes. Not a great deal of creativity or spontaneity was noticed, perhaps because it was their first attempt and they were learning the process. However, some very good and very interesting batiks resulted, and the students were quite interested in the process as a whole.

Direct Painting of a Batik

For this process, cotton sheeting (with sizing removed) was treated with a thin coat of starch and then pressed. This starching prevented the wax and dyes from spreading or "bleeding." Students used Rit dye, Putnam dye,

and/or food coloring. The food coloring is not as permanent as the commercial dyes, so the fabric can not be rinsed in solvent or boiled in water after the final removal of the wax with a hot iron. Regardless of this, food coloring renders brilliant colors which remain fixed under the final thin coat of wax left in the fabric.

The preliminary planning on paper was again used, and the primary waxing to retain the ground color of the cloth was completed.

In place of immersing the fabric in a dyebath after the first waxing, the students used brushes to paint the color on the cloth in much the same manner as they would paint a picture. Some of the students used only one color in the desired areas, while others added different tints and values, using water as an extender. These different values were added to the first color while the cloth was still damp, giving a subtle blending of one value into another. The addition of a second color to the fabric, combined with the areas of overdyeing the two colors, produced a three-color combination. If color separation were desired, the first color was dried and waxed before the next color was applied.

Usually some rather large areas were left free for a background of dark color. This was dyed either by immersion in a dyebath or by using a large brush to paint in these areas.

Some of the students did not desire a crackle-effect; so, after their complete cloth was dried and waxed, they proceeded to iron out the wax (previously explained in the first process). Other students who wished to use the crackle-effect crushed the fabric into a ball, straightened it out, and then immersed it in a dark dyebath. After the cloth was dry, it was completely waxed; the wax was then removed with newspapers and a hot iron (explained in first process).

Those who did not crush the fabric for the crackle-effect had a very controlled end-product--very effective in some designs. Others appeared quite rigid. The crackle-effect has a tendency to soften the lines and over-all effect of the work.

This experiment proved to be less time-consuming than the first one, and the students were much freer and creative. Several of the students used many different scraps of cloth to experiment with various color combinations, overdyeing, and wet-on-wet techniques. Many students experimented at home and brought their work back to school for the other students to see. The interest, enthusiasm, and creativeness displayed by the students in this process proved it to be highly rewarding.

Drawing Through the Wax with a Sharp Tool

This method was accomplished by brushing the wax

directly onto the cloth without a preliminary design. The versatility and creativeness of the students in this process was extremely rewarding.

In some areas the wax was brushed on thinly so that the dye could penetrate to show the brush marks. In other areas, the wax was applied heavily and then drawn through with a sharp instrument such as a pin, knife, or toothpick (care was taken not to cut the cloth with the tool), to get a fine line design.

Using any of the commercial dyes or food coloring, the color was applied either by brush or immersion.

The fabric was then gently crushed, straightened out, and run quickly through a dark dyebath to achieve the crackle-effect.

After completely waxing the fabric, the wax was then removed by use of the hot iron.

This is an extremely exciting method, for it leaves room for very intricate design, much freedom and creativeness.

Cold Wax Application

Three different types of cold wax were used for experimentation. The first experiment was done with ordinary floor wax as the resist. Thin cotton cloth was again used. This wax did not resist the color as readily as beeswax or paraffin, and the color effects were much more muted and subtle. The students thought it fun to experiment

in a different medium, but they were unwilling to try it again because of the dullness of the finished product in comparison to the bright colors obtained with use of paraffin and/or beeswax. Yet they were interested in the very subtle effects obtained from this type of wax.

Another experiment was done with cold ceramic wax resist. Cotton fabric was again used along with the same type of colorants. Ceramic wax is not as resistant to color as the paraffin or beeswax; however, it is more resistant than the floor wax. It is advisable to apply two or three coats of this wax (letting it dry between applications) in order for it to build up enough resistance to serve as a good wax resist. This finished product, also, had colors much less brilliant than with use of paraffin or beeswax.

The third experiment with cold wax was done with Whip-wax, a liquid wax used for candle-making. This wax was applied to thin cotton fabric, either by dripping it on the cloth, spraying, squirting, or brushing. This allows for a bold and free approach. The same type of dyes were used, and the results were comparable to those with the use of the other cold waxes.

Being allowed such freedom in applying the wax and dye (it could also be done with the hot wax method), the students found this to be a very rewarding experience in creativity.

Use of Melted Crayon

This, too, is a quick process which allows for much innovation and creation on the part of the student. Crayons of brilliant hues were melted in a muffin pan which was placed over a pan of hot water. Approximately a half-inch cube of paraffin or beeswax was added to each color. When the crayons were melted, they were painted directly on the fabric (preferably cotton), leaving some areas between the colors. When the wax was dry, the cloth was gently crushed between the hands and then immersed in a very concentrated dark dye (for accent) and left for ten minutes. After removing the fabric from the dye, it was allowed to set for about five minutes before blotting off the excess moisture with a piece of cloth or paper towel. The wax was removed by ironing. These batiks may be used for beautiful pillow covers, wall hangings, etc.

The students thoroughly enjoyed this method because it could be done so quickly and the brilliant colors resulting were very pleasing to the students. This method was done at home by a good share of the students, and reports from the parents proved that they, too, were excited about the batik process because it was so colorful and could easily be done at home.

Batik with a Felt-Tip Pen

Another quick and satisfying method was accomplished

by use of felt-tip pens containing strong alcohol dyes. Burlap was used for this process (white, natural, gold, yellow, blue, turquoise, tangerine, grey, lavender, etc.). Burlap is such a heavy material that the wax has to be applied to both sides of the fabric in order to completely penetrate.

Some of the students merely outlined areas with the black pen, protected most of the areas with hot wax, then dipped the burlap into a black dyebath. This was a very controlled process if the wax was not cracked before the dyeing. However, other students crumpled the wax and obtained a partially controlled product. A few of the students used the colored felt-tip pens in conjunction with the black pen and the one dyebath. Each finished product was different and very effective as a quick and different method for doing a batik.

The finished products made very beautiful wall hangings, and the students were very enthusiastic and tried more of these at home. The wax leaves a high sheen on the burlap, and this makes it beautiful with its jewel-like finish.

Batik with Inkodye

This process was different from others because the dyes did not exhibit their final colors until they had been processed in direct sunlight or were subjected to dry steam.

It was necessary to test color blends during the mixing process and subject them to sunlight to obtain the desired color. Clear Inkodye was used to reduce the color value.

After the first application of wax, the dye was applied by brushing, stamping, squirting, or dripping it on the fabric. Then it was placed in direct sunlight to dry. The true colors did not appear until it was processed in the sun. (Sunlight was used because of lack of facilities to dry steam the fabric after application of the dye. Dry steam may also be used to process this dye.)

The fabric was then rewaxed and dyed several times in order to complete the design. When the dyeing was complete, the wax was ironed out of the fabric (as previously described).

If the fabric is to be used for wearing apparel, it is important to subject the fabric to a solvent bath to remove all traces of wax.

This is an expensive dye, but it is rewarding because of its bright colors which are permanently registered in the fabric.

Tie-Dye and Batik

This process included a combination of the tie-dye process and batik. It was tried in order to use up the dye which remained after the other batik methods were completed.

Tie-dye is a resist technique whereby the pattern is

obtained by tying, folding, knotting, or sewing the fabric with waxed thread so that dye cannot penetrate in these areas. After the cloth (cotton or silk) was firmly tied, knotted, sewed, or folded very firmly, the cloth was dipped into the dye, or the dye was painted on the edge of the folds. The thread was not removed until the fabric was dry.

When the tie-dye was completely dry, the threads were removed and the entire piece of fabric was waxed, crumpled, and then quickly run through a dark dyebath (to achieve the crackle-effect).

The students were very interested in this process and most of them tried this process at home, achieving some very ingenious and creative designs.

Paper Batik

The butcher paper which was used to remove the first traces of wax from the cloth batik in the first experiment was used for this paper batik. The student inspected the areas of waxed and unwaxed portions, decided where to apply watercolor to the best advantage, then proceeded to paint in areas, using India ink and/or a felt-tip pen for accents. The results proved to be very creative and interesting and had a parchment-like quality to them. Much experimenting was done with this project.

Another type of paper batik was tried in which the design was applied on butcher paper with wax or wax crayon

(crayon very heavily applied). When the design was completed, the paper was crushed, then completely painted with tempera paint. When the tempera was partially dry, the paper was thoroughly washed under running water. The tempera adhered to the cracks caused by the crumpling, and this gave a crackle-effect to the work. This interested the students very much and they tried many different types of this batik.

The students also tried the "scrape-off" method which was very satisfying and interesting. The design was first heavily waxed (with crayons) on pebble board. Then the entire piece of pebble board was covered with black India ink. The ink obliterated the color, so it was dried and then scraped off the colored areas. The first scraping was merely a light one used to discover the colored areas underneath. Heavier scraping was done in certain areas. Interesting little cracks and valleys of ink remained in some areas, creating a very subtle appearance, much like that of a block print.

Another interesting paper batik technique was tried in which the design was made by use of a very thick solution of white tempera--thick enough to form mounds on the paper. After it was dry, waterproof color was brushed over the design in selected areas. This color was allowed to dry before the entire paper was washed under running water

to partially wash off the thickly painted white areas. Beautiful effects were obtained in this way. (White glue could be substituted for the white tempera paint.)

The "roll-off" technique is accomplished by use of wax or waxed crayons. Butcher paper is a good background for this. After the waxed areas are filled in, the entire paper is painted with watercolors, inks, fabric dyes, or thinned tempera paint. The painting should be accomplished quickly and smoothly so that the paint will roll off the waxed areas (except for occasional drops on the paint) and silhouette the waxed areas against a background of solid color.

This same technique may be used in quite a different way. In place of completely covering the background, dark washes may be used over the crayons and in selected areas of the white paper, leaving much of the white paper exposed.

One of the simplest and most effective paper batik methods is to place the butcher paper over a textured object and repeatedly rub over the surface of the paper with a wax crayon until the design comes through. It should be heavily coated with crayon. Black watercolor wash can be applied to the paper, leaving the waxed design exposed and silhouetted against the dark background.

Other types of resists can be used for paper batik. Rubber cement is excellent for this. The design is drawn

on the paper with rubber cement, then it is allowed to dry. Watercolor, inks, or thin poster paint can be applied over this. When they are dry, the cement can be gently rubbed off with the fingers. Masking tapes can also be used for the resist in much the same manner.

Starch, paste, and glue resists could be used in the same way; however, they were considered but not executed in this study.

II. FABRICS

A great variety of fabrics can be used with the batik method, each resulting in a different effect according to its ability to absorb the waxes and the dyes.

Sheer cottons are perhaps the easiest to work with since they absorb the media readily and the cloth does not have to be waxed on the reverse side. Organdy and batiste are excellent to use. Unbleached muslin is good, but it does not absorb the wax as readily as sheet cotton, and it is wise to wax it on the reverse side, too, just to make sure the dye will not creep up under the wax from the wrong side.

Chiffon and crepes (silk) are excellent materials to use if the use of the batik adapts to this sheer type of material. Sheer silk can be folded as many as four times and the wax can be stamped on the top layer and will

penetrate to the bottom layer, thus saving a great deal of time in the process. Raw silk has an interesting texture which enhances the finished product.

Terry cloth also renders an interesting effect. This type of material has to be waxed on both sides because the nap interferes with the absorption qualities of the material. If the finished product is to look as soft and fuzzy as the original material, it is necessary to completely remove all traces of wax after ironing by immersing it in a solvent. The dye on this should be of a permanent type so the color will not be lost in the solvent.

Cotton velvet should be stopped out by waxing on the reverse side. Permanent dyes should also be used with this fabric. When the batik is completed, the pile on the velvet can be raised by steaming, or it can be dipped in a cleaning solvent. This material retains a beautifully soft look after the wax is completely removed. This particular product is excellent for wearing apparel, pillow covers, or wall hangings.

Burlap is an exciting material to batik because the wax which remains on after the ironing gives it a jewel-like sheen. It is such a heavy fabric that the wax should be applied to both sides so that the dye will not creep under the wax on the reverse side and obscure the pattern. It is best not to submit this product to a cleaning solvent

because the wax which is retained after ironing gives the cloth a firm body appropriate to wall hangings.

Linen comes in many weights, thicknesses, and textures. This, too, is an excellent material to use for batik. It is necessary, here again, to wax on the reverse side after waxing on the top if the linen is of a heavy consistency. The finished product in linen usually has a firm body to it.

Rayon and acetate dress lining fabrics will not accept commercial dyes readily but will take waterproof inks and food coloring. These inks come in various brilliant colors. When the wax is ironed out of this fabric, it is left very stiff and has a parchment-like appearance. The effect is beautiful.

III. OTHER MATERIALS

Other materials which can be used for batiking are wood, parchment, leather, and vellum. Batiking on wood is accomplished by applying hot wax with the brush or the tjanting. The dye can be sprayed or painted on the wood. Then wax is applied over areas of this color which are to be retained; dye again and proceed as you would for a cloth batik. When the work is completed, the wax can be scraped from the wood and shellac and polish can be applied for a finished surface.

IV. DYES

Batik dyeing requires a "cold" bath. Most wax resists will withstand heat up to 100 degrees Farenheit. Dyes usually adhere to the fabric better if they are as warm as possible when applied. The warm dyebath (called a "cold" bath) should be as concentrated as possible, so it is important to keep the fabric moving continuously in the bath to avoid spots and streaks. However, in some of the work, it is interesting and desirable to retain these spots and streaks.

Fabrics dyed in a cold bath are not fixed permanently until they are steamed, so the cloth should be dried before it is steam-pressed.

Rit Dye

Dissolve one package of Rit Dye in one pint of hot (not boiling) water. Stir until it is dissolved. To dilute the color for a lighter value, add a small amount of dye to a pan of warm water. It is more economical to add the dyestuff to the water than to add clear water to a concentrated solution because there is no waste.

Putnam Dye

Put the water soluble bag in a quart of hot tap water and stir until the bag and dye are completely dissolved, usually about one and a half minutes. Immerse the fabric

in the desired color bath and move it about freely in the solution.

Remove the fabric from the solution and rinse well, first in warm and then in cool water. To improve the color fastness, add a little soap or detergent to the first rinse. Iron before dry.

Craftool Batik Dye

Dissolve the dye powder in a small amount of hot water, using more or less powder to obtain the desired shading of color. To increase the fastness of the color, add a few drops of acetic acid if the fabric to be dyed is silk; add a pinch of plain salt if the fabric is cotton.

Wet the fabric before immersing it in the dyebath, then keep it gently in motion until the desired color is reached. Remove the fabric from the dyebath, rinse thoroughly in lukewarm water, then let it dry thoroughly before ironing.

Waldcraft Batik Dye

This dye comes in a liquid form. Add the required amount to warm water. Immerse the fabric in the dye and move it about in the dyebath constantly. Instead of using concentrated dyebath, obtain a darker color by repeating the dyeing process. For darker color, allow the fabric to remain in the dyebath longer.

If the color is to be painted on with a brush, do not use the dye directly from the bottle, but dilute it so that it will penetrate the fibers of the fabric. Add more color for a darker value.

Allow the fabric to dry before it is ironed.

Inkodye

This dye comes in a liquid form and is of two types: (1) dyes for cotton and linen, and (2) dyes for silk. (It was originally compounded for silk-screen application.)

The dye may be applied with a brush or squeeze bottle directly to the fabric. This dye is developed by subjecting it to direct sunlight for ten to thirty minutes, or it may be developed by use of dry steam. Conditions for developing with dry steam are not available in the classroom, so it is recommended to use sunlight instead.

After the dye is processed, it can be waxed, then re-dyed, as in the batik process. To complete the process, iron with a hot iron to remove the wax and set the dye. As a final touch, iron with a steam iron to make the colors more brilliant.

Waterproof Ink

These inks come in a variety of colors and can be used in the same way as watercolor paint. These inks are not as permanent as commercial dyes, so it is advisable not

to subject the fabric to a boiling bath to remove the wax.

Melted Wax Crayon

Crayons can be melted and used directly on the cloth for the combination of color and wax. A small amount of paraffin or beeswax added to the melted crayon will make it more pliable for use. The color of the crayon will dye the cloth. After the crayon has been painted on and allowed to set, iron the fabric as you would for any other batik.

Felt-Tip Pen

The felt-tip pens which contain a permanent dye (the ones which smell like carbolic acid) can be used for color on the batik. Do not subject this dye to hot water before ironing.

Food Coloring

For a quick batik which is not going to be put through a hot water bath, this coloring is good because it is very concentrated and leaves a brilliant color to the cloth. This coloring is also less expensive than commercial dyes.

Tempera Paint

This is used for paper batiks. It is water soluble so it will not withstand much water. This paint can also be used effectively on cotton fabrics.

Water Color

Water color is used for paper batiks. This is not a permanent fabric dye so cannot be soaked in hot water.

V. TOOLS

Brushes

An assortment of inexpensive brushes is needed for the wax and dye processes. Large bristle brushes may be used for painting large areas with wide and bold strokes. Small soft brushes are good for outlining and for small areas. Bamboo brushes are good for fine lines, too. Wax may be removed from the brushes by cleaning them in kerosene or mineral solvents.

It is well to use a different brush for each dye color in order to make sure no other dye color from the brush has remained in the brush to mix with the new color.

Electric Hot Plate

A covered electric hot plate is used for melting the wax. (The wire element should be covered with an asbestos pad if the hot plate is not covered with metal, because wax is highly flammable and will ignite on contact with the hot wires of the plate.)

Tin Can Containers

The wax should be placed in small tin cans for melting.

Several of these can be placed on the burner at one time. While they are being used by the students for the actual work, other tins of wax can be set on the hot plate to melt so that hot wax is available at all times.

Small tin cans may also be used to hold the dye for the painting method.

Electric Iron

The iron is heated to the correct temperature for the fabric, then it is used in conjunction with paper to remove the wax from the completed batik. The colors seem a little more brilliant if a steam iron is used directly on the batik after the wax has been removed.

Paper

Butcher paper is used directly under the batik during the waxing. (Waxed paper can be used for this purpose, also.) Butcher paper is also used on top of the completed batik to remove the first traces of wax for a certain type of paper batik.

Newspapers are used for a base (at least one inch in depth) on which to iron the wax out of the batik. After the butcher paper is removed from the first wax removal, newspapers are then used to absorb the wax remaining in the batik.

Do not place fabric directly on printed newspaper

when waxing it or it will take up the print and leave it permanently in the cloth.

Pans

A large enamel, glass, or copper vat is used to contain the dyebath. The pan should be large enough so the fabric can be moved about in it freely and easily, using a stirring rod or stick.

Talcum Powder

Talcum powder sprinkled on the hands just before putting on the rubber gloves helps the hand go into the glove more easily and keeps from tearing the glove. Before the rubber gloves are removed, it is well to rinse them under water, dry them thoroughly, then remove them.

Clothesline

Plastic or wire lines are used for hanging the fabric to dry.

Clothespins

Plastic clothespins are used to fasten the fabric to the line. Wooden clothespins absorb the colors and may discolor another cloth.

Acetic Acid

Acetic acid (household vinegar) is used to fix the dye.

Solvents

Gasoline, kerosene, mineral spirits, or cleaning solvents are used to completely remove all wax. These solvents may also be used to clean the brushes which have been used in wax.

Mixing Sticks

Small sticks (popsicle sticks, skewers, etc.) may be used to mix the dyes.

Swatches of Cloth

Small swatches or strips of cloth of the same material as the batik are good for testing the colors.

Rubber Gloves

Rubber gloves are used to protect the hands from the dyebath when the immersion method is used.

VI. WAXES

Paraffin

This ordinary wax can be obtained in any local grocery store. It is an inexpensive wax and adheres easily to fabric. It is applied hot. The fact that it crushes easily makes it especially good for use with a crackle-effect. This wax seems best for use in the schoolroom because it is not expensive, and it is good for the crackle-effect which the students seem to prefer.

Beeswax

This wax is very flexible and pliable and will hold up under several immersions in the dyebath. It, too, is applied while hot. It is more difficult to obtain a crackle-effect, if at all, with this wax. This wax is very expensive. It is a good wax to use for a very "controlled" effect.

Special Formula Waxes

These waxes are usually a combination of beeswax and paraffin. A half and half mixture is good. These special formula waxes can be obtained from most batik supply houses.

Mobil Wax

This is a soft wax which can be used with beeswax, about three parts beeswax and one part Mobil wax. It is a standard 128/130 AMP (American Melting Point) FRP (Fully Refined Paraffin). It comes in 55-pound cartons and is approximately $0.1475 per pound.

Floor Wax

This is a liquid wax which can easily be applied with a brush. However, its resistance to color is not as good as paraffin or beeswax.

Ceramic Wax

This is also a liquid wax, easily applied but not as

resistant to dye as the paraffin and beeswax. It can be obtained from a ceramic supply house, and it is more expensive than floor wax.

Whip-Wax

This is a wax which is used in candle making. It is in a liquid form and is rather expensive. It is not as resistant to dye as the paraffin or beeswax.

Crayon

This wax also contains the color. A small amount of paraffin or beeswax should be added to the melted crayon to make it more pliable and easier to brush on the fabric.

For suggested suppliers of these media and tools, see the appendix.

VII. USES

Batiks may be used in an unlimited variety of ways for many different types of projects. The size of the usual project done in the classroom is perhaps best used for a wall hanging. However, this batik process may be used to decorate fabric for costumes, scarfs, mats, handkerchiefs, ribbons, bags, millinery, table covers, evening gowns, interior draperies, pillow tops, etc. It may also be used in screens, room dividers, or lamp shades. Since it can be done on wood, it could be used to decorate furniture, too.

CHAPTER IV

SELECTIVE EXAMPLES

1.

DYEING BY IMMERSION NINE TIMES. DESIGN MADE WITH TJANTING NEEDLE. VARIATIONS OF ONE COLOR.

2.

DYEING BY IMMERSION USING BLUE AND OVERDYEING WITH RED. WHITE AREAS WAXED IN WITH TJANTING.

3.

DYEING BY IMMERSION.

4.

DIRECT PAINTING OF DESIGN
ON BURLAP.

5.

COMBINATION OF DIRECT PAINTING AND IMMERSION. VERY CONTROLLED EFFECT WITH NO CRACKLE.

6.

SHARP TOOL USED TO DRAW THROUGH THE WAX.

7.

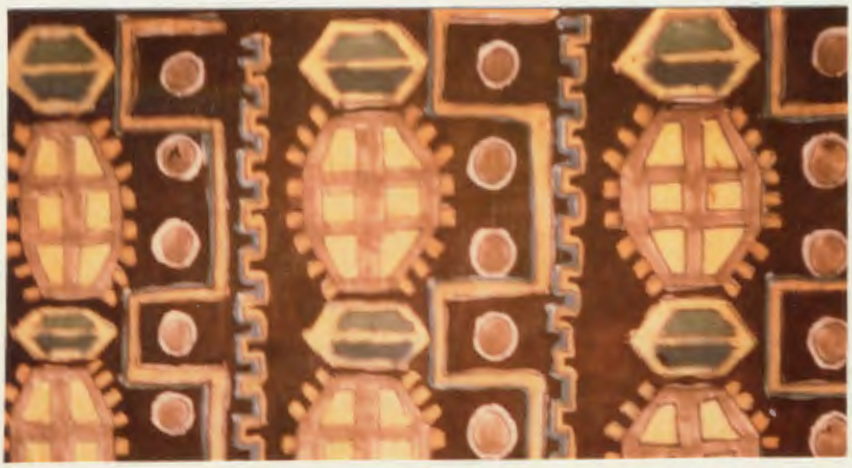
BASIC DESIGN MADE BY RUBBING WITH WAX CRAYON. ADDITIONAL COLORS PAINTED ON, WET-ON-WET TECHNIQUE, USING DYE. SHARP TOOL USED TO REMOVE LINES FOR BLACK INDIA INK ACCENT.

8.

COLD CERAMIC WAX AND DYE PAINTED ON BURLAP.

9.

BATIK WITH BLACK FELT-TIP PEN ON BURLAP. ONE WAXING AND ONE DIPPING.



10.

BATIK WITH COLORED FELT-TIP PENS ON COTTON.

11.

WET-ON-WET TECHNIQUE, LETTING ONE COLOR BLEND WITH ANOTHER WHILE STILL WET. DIRECT PAINTING.

12.

DIRECT PAINTING ON RAW SILK (TEXTURED FABRIC).

13.

DIRECT PAINTING ON TERRY CLOTH.

14.

WET-ON-WET BACKGROUND. WAX APPLIED BY USE OF SYRINGE.

15.

PAPER BATIK. DESIGN HEAVILY APPLIED WITH WET CRAYON ON BUTCHER PAPER. PAPER CRUSHED, THEN COMPLETELY PAINTED WITH TEMPERA. WHEN DRY, TEMPERA WAS WASHED OFF UNDER RUNNING WATER.

16.

DESIGN LEFT ON BUTCHER PAPER (UNDER THE FABRIC) WHEN WAX WAS APPLIED TO FABRIC. COLORED AREAS WERE FILLED IN WITH WATERCOLOR.

17.

DESIGN OF WAX OBTAINED BY PLACING BUTCHER PAPER OVER COMPLETED BATIK AND REMOVING AREAS OF WAX BY TOUCHING PAPER LIGHTLY WITH HOT IRON. COLORED WITH WATERCOLOR.

18.

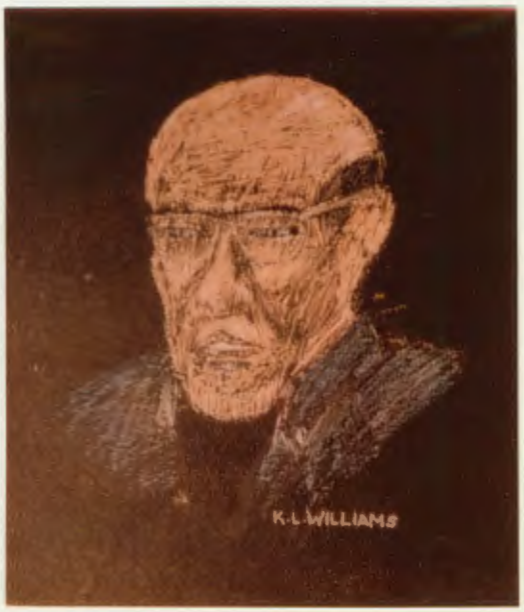
DESIGN DRAWN ON BURLAP WITH FELT-TIP PEN. WAX WAS APPLIED ONCE, CRUSHED, THEN DIPPED IN ONE DYEBATH. VERY CONTROLLED.

19.

DIRECT PAINTING, WET-ON-WET, ON UNBLEACHED MUSLIN.

20.

CRAYON HEAVILY APPLIED TO PEBBLE-BOARD. ENTIRE PAPER WASHED WITH INDIA INK. PORTIONS OF INK SCRAPED OFF WITH KNIFE.



CHAPTER V

SUMMARY AND CONCLUSIONS

This study was compiled from information gathered over a period of approximately five years, from grade level four to nine. The experiments shown in photographic form were done over a year's time with students from the eighth and ninth grades. These students (approximately one hundred) were divided into four class periods. Each class was assigned a different experiment; and in some instances, one student was assigned several different experiments. All of the students had a part in critique of the different techniques. They were permitted to do as many projects as they desired over and above their regular assignment.

The study was done for the purpose of determining if the art of batik is a craft which promotes creativity and prolonged interest.

How does one judge creativity? Paul Smith (Teachers College at Columbia University) defines creativity in this way: "It appears to be a deliberate process of making a new combination or patterning of materials, movements, words, symbols, or ideas and somehow making the product available to others, visibily or otherwise."[31] From Jerome S. Bruner (Harvard University) comes this summary of creativity: "An act that produces effective surprise--this I shall take as

the hallmark of creative enterprise."[32] Another authority, J. P. Guilford (University of Southern California), feels that "novelty" is the key word in the recognition of creativity: ". . . a novelty within the context of the person's own development. Novelty and creativity differ only in degree. We should not restrict the level 'creative' to those things that are socially new."[33]

I. SUMMARY

With this in mind, the results of the student experiments support a recommendation for teaching batik at the middle school level. The work was judged to be creative because: (1) the students combined their background knowledge with new materials and processes; (2) they produced various responses and final products with this knowledge; (3) they displayed a great deal of excitement and spontaneity in their approaches to this craft; (4) they learned the fundamental and contemporary processes of batik; and (5) they learned the use of the application of the materials and tools.

The students were reluctant to move from this craft into another art area because their anticipation for using new ideas, materials, and combinations had never been quite satisfied and they were still eager to try many different combinations in an effort to come up with other individualized,

surprising, and satisfactory results.

Prolonged interest was very evident when the students tested their creative ability by making a batik at home and bringing it back to the classroom for other students to see.

Most of the students felt that batik was the most interesting craft they did all year. To testify to this, here are some typical responses from the students:

One student made this statement:

> Batik was more fun than any other craft we did. It gave me a chance to experiment, discover, and test. I especially liked it because I could do it at home without having to buy a lot of expensive tools and equipment. I made several of these batiks for my parents and friends.

One of the ninth grade boys said:

> I have had a lot of fun making batiks at home and at school. I made several batiks at home and for our friends who saw the batiks and wanted to own one. It's a craft I know I'll always enjoy doing.

"Batik was one of the most interesting crafts I did during the whole year," commented another boy, "because of the variety of designs I could make, the different types of batiks, and the materials that I had to work with."

Another ninth grade student had this to say:

> Doing a batik was a very interesting challenge. It presented the problem of creating your own design, trying various ways of using the materials and tools, and doing something in your own way. I was glad to know how to do this craft so I could do it at home in my spare time.

Still another student had this to say: "Batik is a craft I really enjoyed because I used it at home to design scarfs and some of my own clothes. All of my friends want

me to show them how to do it."

Evidence of the interest and enthusiasm of the parents was also very interesting. These are the comments from one mother:

> My husband and I were very pleased with the skills our son learned in his art classes this year. We were especially delighted with his work in batik. He completed one project at school and then applied the same technique to make one at home, using very simple materials. The two batiks are on display in our home and make a distinctive contribution to its decor.

Another mother made this statement:

> I have a son and daughter who were fortunate enough to have had the opportunity to learn how to do batik. Both of my children have made many batiks at home and we are proud enough of their work that we have hung three of them in our home.

II. CONCLUSIONS

With all of the evidence from the students and parents, plus the interest exhibited by the students in class and the tone of the periodicals included in the bibliography, it seems conclusive that the art and craft of batik has a distinctive pedagogic value in the school art program. It broadens the scope of the student knowledge and ability to apply this knowledge. The craft also provides the individual with an insight into cultural development, broadens the aesthetic and sensitivity scope of the student, and stimulates the desire to be creative. It is rewarding because it gives assurance to the student that a fine piece of art work is within his realm.

BIBLIOGRAPHY

BIBLIOGRAPHICAL ENTRIES

A. BOOKS

Batik-Weaving. Wood-Ridge, New Jersey: The Craftool Company, 1967.

De Leeuw, Dendrik. Crossroads of the Java Sea. New York: Garden City Publishing Company, 1931.

Design by the Yard. New York: The Cooper Union Museum for the Arts of Decoration, 1956.

Gruber, Howard E. (ed.). Contemporary Approaches to Creative Thinking. New York: Atherton Press, 1962.

Hunter, George Leland. Decorative Textiles. Philadelphia: J. P. Lippincott Company, Grand Rapids, The Dean-Hicks Company, 1918.

Johnston, Meda Parker, and Glen Kaufman. Design on Fabrics. New York: Reinhold Publishing Corporation, 1967.

Kafka, Francis J. The Hand Decoration of Fabrics. Bloomington, Illinois: McKnight and McKnight Publishing Company, 1959.

Krevitsky, Nik. Batik: Art and Craft. New York: Reinhold Publishing Corporation, 1964.

Langewis, Laurens, and Frits A. Wagner. Decorative Art in Indonesian Textiles. Uitgeverij C. P. J. Van Der Peet/Amsterdam, MCMLXIV, 1964.

Maijer, Pieter. Batiks and How to Make Them. New York: Dodd, Mead, 1925.

Keenach, Leon, and Randall P. Williams. Batik and Other Pattern Dyeing. Lexington, Kentucky: Waldcraft, 1964.

Osumi, Tamezo. Printed Cottons of Asia. Vermont: Revised and adapted from an English translation by George Saito, Bijutsu Shuppen-Sha and Charles E. Tuttle Co., Tokyo, Japan and Rutland, 1963.

Powell, Hickman, Jonathan Cape and Harrison Smith. The Last Paradise. New York: Reinhold Publishing Corporation, 1930.

Proud, Nora. Textile Printing and Dyeing. New York: Reinhold Publishing Corporation, 1965.

Rouffair, G. F., and H. H. Juynball. De Batik-Kunst en Hare Geschiedenis. Haarlem, 1900-1914.

Smith, Paul (ed.). Creativity. New York: Hastings House, 1959.

Steinmann, Dr. Alfred. Die Ornamente der Ikat Gewebe von Sumba; Batik, A Survey of Batik Design. Zurich University, F. Lewis, Publishers, Ltd., England: The Tithe House; Leigh-on-Sea, 1958.

The Writing of Batik. Wood-Ridge, New Jersey: Craftools, Inc., 1968.

B. PERIODICALS

Adams, Alice, "Batiks by Kavabata," Craft Horizons, Vol. XXII, No. 1, January, 1962, p. 14.

Adams, Tassilo, "The Art of Batik in Java," American Fabrics, No. 59, Winter, 1962.

Almyda, "Art Appreciation," Arts and Activities, October, 1964, p. 34.

"Bright Batik," American Fabrics, No. 59, Winter, 1962.

Brockway, Edith, "Batiks Fashioned Javanese Style," Arts and Activities, Vol. 57, No. 4, May, 1965

Brown, Audrey, "Instant Batik," Family Circle, Vol. 75, No. 2, July, 1969, pp. 53 and 86.

Davis, M. V., "Beas Batiks Mean Business," Arts and Activities, Vol. 56, No. 11, January, 1965.

Dumas, Mary, Craft Horizons, December, 1953.

Elledge, E. B., "Textile Adventure," School Arts, Vol. 50, No. 279, April, 1951.

Gordon, H. H., "Textile Printing for the Grade Children," School Arts, Vol. 50, 172-3, January, 1951.

Guilford, J. P., "Creativity in the Secondary School," High School Journal, Vol. 48, No. 8, p. 451.

Jones, Jessie H., "Paint a Batik," Arts and Activities, March, 1967, p. 31.

Horne, Lois T., "Take the Work out of Batik," Arts and Activities, Vol. 57, No. 3, April, 1965.

Knudsen, "Batiks," School Arts, Vol. 64, 3-8, May, 1965.

Krevitsky, "Art of Batik Today," Art Education, Vol. 17, 3305, November, 1964.

Lasher, "Cold Wax Batik," School Arts, Vol. 67, No. 40, December, 1967.

Retivov, Elizabeth, "Batik Designs and Colors, An Important Coming Influence on Fashion," American Fabrics, No. 48, Winter, 1960.

Rydin, Maud, "Batik II," American Fabrics, No. 49, Spring, 1960, p. 72.

Teixeira, Warren, "Batik for Contemporary Backgrounds," Craft Horizons, January, 1952.

Webb, Alice G., "Batik as a Painting Technique," School Arts, Vol. 68, No. 9, May, 1969, p. 6.

Yates, Barbara A., "The Art of Batik in Indonesia," School Arts, January, 1961.

Yohler, Suzanne, "Bats About Batik," Arts and Activities, Vol. 47, No. 5.

FOOTNOTES

FOOTNOTES

[1]Dendrik De Leeuw, Crossroads of the Java Sea (Garden City, New York: Garden City Publishing Company, 1931), p. 146.

[2]The Writing of Batik (Wood-Ridge, New Jersey: Craftools, Inc., 1968), p. 1.

[3]G. F. Rouffair, and H. H. Juynboll, De Batik-kunst en Hare Geschiedenis (Haarlem, 1900-1914), p. 1.

[4]Meda Parker Johnston, and Glen Kaufman, Design on Fabrics (New York: Reinhold Publishing Corporation, 1967), p. 10.

[5]Ibid.

[6]Ibid.

[7]Ibid., pp. 12-13.

[8]George Leland Hunter, Decorative Textiles (Philadelphia: J. P. Lippincott Company; Grand Rapids: The Dean-Hicks Company, 1918), p. 3.

[9]Leon Meenach, and Randall P. Williams, How to Do Batik and Other Textile Arts (Lexington, Kentucky: Waldcraft, 1964), p. 3.

[10]The Writing of Batik (Wood-Ridge, New Jersey: Craftools, Inc., 1968), p. 5.

[11]Johnston, op. cit., p. 10.

[12]Tamezo Osumi, Printed Cottons of Asia (Revised and adapted from an English translation by George Saito, Bijutsu Shuppan-Sha and Charles E. Tuttle Co., Tokyo, Japan and Rutland, Vermont, 1963), p. 12.

[13]Johnston, op. cit., p. 14.

[14]Nik Krevitsky, Batik Art and Craft (New York: Reinhold Publishing Corporation, 1964), p. 7.

[15]Johnston, op. cit., p. 21.

[16]Dr. Alfred Steinman, Die Ornamente der Ikat Gewebe von Sumba Batik. A Survey of Batik Design (Zurich University: F. Lew, Publishers, Ltd., The Tithe House; Leigh-on-Sea, England, 1958), p. 1.

[17]Johnston, op. cit., p. 24.

[18]Ibid.

[19]Batik (Wood-Ridge, New Jersey: The Craftool Company), p. BW3.

[20]Laurens Langewis, Decorative Art in Indonesian Textiles (University of British Columbia). Uitgeverij C. P. J. Van Der Peet/Amsterdam MCMLXIV, 1964. Printed by N. V. Mouton and Company, Den Haag and Nederlandse, pp. 22-23.

[21]Ibid., pp. 27-30.

[22]Osumi, op. cit., p. 22.

[23]Ibid.

[24]Ibid.

[25]Ibid., p. 21.

[26]Steinman, op. cit., pp. 17-18.

[27]Krevitsky, op. cit., p. 8.

[28]Hunter, op. cit., p. 1.

[29]Steinman, op. cit., pp. 27-28.

[30]Krevitsky, op. cit., pp. 9-13.

[31]Paul Smith (ed.), Creativity (New York: Hastings House, 1959), p. 18.

[32]Howard E. Gruber (ed.), Contemporary Approaches to Creative Thinking (New York: Atherton Press, 1962), p. 6.

[33]J. P. Guilford, "Creativity in the Secondary School," High School Journal, Vol. 48, No. 8, p. 451.

APPENDIX

APPENDIX

LIST OF SUPPLIERS

The Craftool Company
1 Industrial Road
Wood-Ridge, New Jersey 07075

- Chinese bamboo brushes
- Tjanting needles
- Bristle brushes
- Batik formula wax
- Batik formula dyes
- Alcohol lamp
- Batik frames
- Books about batik

Sax Arts and Crafts
207 N. Milwaukee Street
Milwaukee, Wisconsin 53202

- Batik formula wax
- Alcohol lamp
- Bristle brushes
- Bamboo brushes
- Dye concentrates
- Tjanting needle
- Stretcher frame
- Batik books

Screen Process Supplies Mfg. co.
1199 East 12th Street
Oakland, California 94606

- Inkodye, vat dye for cotton or linen
- Dye mixing sticks
- Discharge paste
- Inkodye resist
- Beeswax
- Tjanting needle

The Waldcraft Company
P.O. Box 8202
Lexington, Kentucky 40500

- Waldcraft batik dye
- Waldcraft batik formula wax
- Tjanting needle
- Bristle brushes for wax application
- Batik frame
- Mixing cups

Arts and Crafts Material Corp.
9520 Baltimore Avenue
College Park, Maryland
or
321 Park Avenue
Baltimore 1, Maryland

Tjanting needles
Batik formula dyes
Batik formula wax
Alcohol lamp
Wooden stretcher frame

Dick Blick
P.O. Box 1267
Galesburg, Illinois 61401

Batik dyes
Batik wax
Electric wax melters
Tjanting needles
Stiff bristle brushes

Nasco House of Crafts
P.O. Box 3837
Modesto, California 95352

Tjanting needles
Batik dye for silk
Batik formula wax
Alcohol lamp
Bamboo brushes
Stretcher frame
Instruction book

Mobil
612 South Flower Street
Los Angeles, California 90054

Source for standard 128/130 AMP FRP (fully refined paraffin)

ICI America, Inc.
151 South Street
Stamford, Conn. 06904

Cellulose dyes

America Wax Corporation
Azusa, California

Suppliers for Whip-Wax

Western Ceramics Supply Company
1601 Howard Street
San Francisco 3, California

Ceramic wax