Inexpensive approach to printmaking

Aaron J. Schenck

The University of Montana

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AN INEXPENSIVE APPROACH TO PRINTMAKING

By

Aaron J. Schenck

B.S., Montana State University, 1952

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Approved by:

[Signatures]

Chairman, Board of Examiners

Dean, Graduate School

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CHAPTER I

INTRODUCTION

"In recent years printmaking has reached a turning point in its development. Along with other activities, change, radical change, is taking shape and new streams of vitality are finding their way into the print studios. Artists are exploring untried ways of expression, and some entirely novel sources of imagery and printing materials have been uncovered."¹

Ceaseless and often violent change is one of the characteristics of our time. Change is always magnified in art by the search for individual expression. Shifting historical styles and contradictory theories may cause the teacher and student to wonder if there are any reliable standards in art. In general terms there is a major contrast between the concepts of the past and those of the present. Art as imitation was the basic attitude from the Middle Ages to the mid-nineteenth century, while in the revolutionary period since the mid-nineteenth century the emphasis has shifted to values other than representational.

In the early centuries there was a steady march of art as surface realism, a gradual refinement of means by which the aspects of nature could be imitated. The creative aspects of art were more narrowly confined within closely defined boundaries and restrictive theories. The advent of impressionism in 1870 brought change that

broke the boundaries and shifted the artist's attention to new concepts and values. Whereas the early centuries had relied upon the means or the amplification of set principles, the new trend took direction in many ways. In general it sought a simplification of means with a new attitude towards a created reality or expression of its own.

One direction of the modern period is based on the claim that it is the artist's feeling that counts, his emotion in the presence of the object, not the object itself. Another direction or theory is that there are elements of rhythm, order, or plastic vitality that can be secured in a work which mean far more, or are more profoundly moving to the spectator, than the values transferred from nature. Still another approach of the modern is that which seeks decorative ends. These adherants claim new sensuous and melodious values for their rhythmically patterned and richly colored compositions. The modern approach is one of great variety and often conflicting theories.

The contrast and change between the past and the modern places the printmaker in a unique new role. During the early centuries the printmaker was closely tied to illustration. Printmaking was primarily a means of communication in which the reproductive aspects of the print were accepted and there was little demand upon the personal touch of the designer. The invention of the camera in the nineteenth century became the most influential factor in bringing about change. Since the camera could duplicate and show unlimited detail, the printmaker was released from the hold of illustration to work in other directions. With the shift in attitudes from the past to the present it has become increasingly important to understand and differentiate
between the reproductive and the original print.

"In conclusion, one may summarize the problem of reproductive versus original prints somewhat as follows: Owing to the impact of photography and photomechanical processes, a new attitude toward printmaking has developed that stresses the original, the creative factor. In general, one may say that handwork is bound up with art and original execution, as opposed to automation and mechanical processes."

As our contemporary world changes, the art teacher is challenged to find new ways to meet change. Wider horizons and new concepts mean new approaches are necessary. The information and approach offered by this project are designed to aid both the artist and art teacher. The approach is designed to provide a starting point and eventual expansion to broader knowledge of the printmaking field. An atmosphere of creative excitement is always the most important step toward meaningful art instruction.

Creative growth cannot be engendered by constrictive approaches to teaching. To serve the new role of printmaking, the approach should not be limited to a single phase, but rather it should be one that can provide the student with stimulation from which they can progress to other processes and to an expression of their own ideas. They should be free to choose and experiment under direction and guidance that will promote desirable attitudes, habits, and character. Creative growth is closely related to creative teaching. Victor D'Amico states the following:

\[\text{[Footnote]}\]

"To create then, is to invest, a moment, a place, or a thing with the new rank of one's uniqueness, to say it your own way. Being creative means to discover or invent something new, a new organization of things, a new basis for thinking, a new insight into art or a way of living, even only a new expectation. It doesn't have to be new to the world, but new to the person."\(^3\)

An important part of the approach offered here is that it is an inexpensive one. A problem faced by many art teachers is that more frequently than not their budgets are low and space is limited. Expensive processes, media, or equipment are often prohibitive. The short length of the art period in most high schools is another factor that does not lend itself to extensive projects in technical areas. New methods of scheduling and programming are being initiated today that hopefully will lengthen the art period, but the cost factor is one that will probably remain constant.

The following material on printmaking is offered as a means of helping teachers and students to adapt to changing times. The means and devices can be justified only if they work toward the end of producing results which will reflect valued contributions to the total of creative achievement.

CHAPTER II

TERMS RELATED TO PRINTMAKING

In order to establish a common ground of understanding between those using this material, the following terms are defined and described. References in the text to these terms will imply the meaning given here. There is much variation among art people as to the significance and interpretation of terms, and often it is difficult to find agreement. Some knowledge and understanding of terms is necessary in any approach to a technical area.

I. MAJOR PRINTMAKING TECHNIQUES

Relief

Relief is the first and oldest method of making prints known to man. The image is removed from raised or relief surfaces of a plate. The ink is rubbed or rolled only on the top surfaces and the image is removed onto paper under pressure which can be exerted by hand means or by a press. Woodcut and wood engravings are the most well known relief methods. Other materials that are used include linoleum, lucite or plastic, cardboard, chipboard, composition board, plaster, and cut paper. Relief plates can be made by either cutting away or building up.

Intaglio

Intaglio printing is the opposite of relief. This method depends on ink being removed from the low portions of a plate under heavy pressure. Lines or wells are incised into the surface of the
plate, either by hand or by biting with acid. Ink is then placed on the entire surface and the plate is wiped to leave the ink only in the low or depressed areas. Since this method requires a great deal of pressure to push the paper down into the ink, a press is used for printing. This method includes the techniques of etching, gravure, aquatint, mezzotint, and drypoint.

**Lithography**

Lithography or planographic printing makes use of a flat surface for printing and relies on the principle that grease and water will not mix. A greasy substance is used to draw or create images on the flat surface of fine limestone. The surface is then covered with water which is retained by the open porous areas, but is rejected by the greasy image. While the plate is still wet, ink is rolled over the surface. The ink being greasy will adhere only to the original greasy image and the water prevents the ink from sticking to the remaining surface. The prints can then be removed by applying a scraping pressure to the back of paper which has been placed over the plate or by means of special presses. Modern planographic methods have become more sophisticated with offset presses and a wider use of material for plates such as metal, or paper.

**Stencil**

Stencil methods of printing make use of an open surface in which the ink passes through openings onto paper that is placed under the plate. Stencil printing varies from completely open surfaces to partially closed surfaces. The ink is either brushed or forced through
the stencil openings onto the paper. The most widely used method of stencil printing is silk screen or serigraphy. This method uses a piece of silk or finely woven material stretched over a frame to provide a partially open working surface. The surface is then blocked by use of a variety of materials such as paper, tusche, glue, water mask, or lacquer film. The name serigraph refers to the number of artists who make original prints in the medium as opposed to the commercial silk screen reproductions.

Collograph

The most recent development in printmaking is called collograph. Collograph can be either relief or intaglio and is often a combination of both. The distinguishing characteristic that separates it from either relief or intaglio is that it employs a mixture of many materials on one plate. With a mixture of materials there will be a variation in the ink absorption rates and thus a greater variety of values or darks and lights. The ink is placed over the whole plate in both high and low portions and then wiped. The wiping will remove more ink from some places than others depending on the absorption capacity of the materials as well as the high or low parts. In pure collography a press is used, but prints can be made simply by rubbing the back of the paper which is placed over the inked plate.¹

II. TERMINOLOGY

Print

The word print literally means anything that is printed. In this sense it would mean the entire realm of printed images that are made by processes which are capable of producing a number or volume of exact duplicates. Such images cannot be made directly by hand for they depend on a process to transfer the image. Since all prints do not have equal or intrinsic value, the word print can imply a different level of understanding to different groups of people.

Reproductive Print

The reproductive print refers to those prints in which the sole purpose is to gain images that are likenesses or copies of original forms. The original forms may include works by artists or material taken direct from nature. The duplicating process becomes an end in itself in which the quality of the print is determined by its faithfulness to detail or the photographic image. The reproductive print is used primarily as a means of verbal communication, and there is less stress upon aesthetic values. Reproductive prints have less intrinsic value and little nourishment for the mind or imagination.

Original Print

The original print is one in which the artist alone has made the image and the process employed becomes more of a means toward an end. The artist designs, cuts, and builds the plate, and the impressions are taken by the artist himself directly from his own original material. The original print is a creative entity which becomes an
aesthetic or visual communication in its own terms or language. These fine prints are given value by the aesthetic intentions that create works of art.
CHAPTER III

A BRIEF HISTORY OF PRINTMAKING

"It may be said, therefore, that prints in general—what William M. Ivins called the precisely duplicable image—have played a major role in the shaping of our culture. Prints over the ages have been appreciated or found useful for many reasons, some of which are not necessarily aesthetic. But fine or original prints, made by artists themselves, have all the characteristics and virtues of original works of art; and, owing to the nature of the graphic processes, are multi-originals; that is to say, they exist in more than one example, each of which is an original."¹

Printmaking throughout history has been quite varied with many periods of ups and downs. The material presented here will include only that which is considered to be necessary or helpful to understand the approach to be developed later. Certainly a well planned approach cannot be devoid of the past or ignore the historical factors which led to the present.

The duplicate image aspect of a print is a unique feature of printmaking. The fact that a print can range from the monotype or single original, to a volume or edition of many original images, tends to separate printmaking from other art areas. The painter or sculptor generally produce only a single original, although the sculptor can produce several likenesses by means of casting or molds. The duplicate image feature of printmaking has played an important role in history. From the beginning the duplicate nature made it a natural means of greater communication. In the early centuries it became more

closely allied with verbal communications. Impressions made from objects found in nature or man-made pictures have historical backgrounds that date back thousands of years.

EARLY PRINTS

The first actual print produced by man is generally unknown or in doubt. A probable early influence was the stamping of textiles. In this process the end result was an all over design and the blocks were thus only an auxiliary tool. The singular print however, may have been a result of such stamping.2

The first prints were of necessity made by hand by two distinct methods.3 The earliest was a stamping method done by laying the block face down over the paper and applying pressure upon the block. The second method was to lay the block face up with the paper placed over the inked surface. Pressure was applied to the paper by rubbing or various other means to get an impression from the block. It is obvious that from the beginning the artist or craftsman experimented with technique and methods of getting impressions.

Stamping influences date even further back into history. Printing on surfaces other than paper include textiles of the Phoenicians before Alexander the Great. Papyrus was in use in Egypt over 4,000 years ago, and it was most likely some sort of stamping was done on it. There is a wooden stamp in existence with a hieroglyphic design cut in the face of it to impress on unbaked bricks. It was found in a tomb


3 Ibid., pp. 3-5.
in Thebes. The stone and ivory seals used by the Sumerians to make imprints in clay were probably preceded by carving or engraving in wood. Even earlier were the seals of clay and stone used to make designs on the human body during the Neolithic age. There is again the probability that these were carved first in less durable wood. Going back even further there is an imprint of a human hand, in red paint on the walls of a cave in Altamira, France. It was apparently a premeditated act leaving a stamped imprint dating anywhere from 10,000 to 30,000 years ago.  

The earliest dated woodcut is a Japanese production of the 8th century. The invention however, is accredited to the Chinese much earlier. In 868 a block-book called the "Diamond Sutra" was printed in China from engraved wooden blocks. The work consisted of six sheets of printed text and one shorter sheet with a woodcut illustration. The sheets were pasted together to form a continuous roll sixteen feet long.  

Two human activities set the stage in Europe for the woodcut on paper. These were pilgrimages and the use of playing cards. In the first the faithful were rewarded with a momento for a pilgrimage. The reward was usually a Saint print. Saint prints were also made for sale by the church officials. The playing card was very popular at the time, but it was a slow process to make them by hand. The woodcut

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helped both because of its capacity for easier duplication.6

The introduction of paper in Europe rendered a natural developmental step for the woodcut and printmaking. The importation of Oriental paper into Europe about 950 is first found in Spain. Two centuries later the first paper mill was established at Xativa, near Valencia in Spain. France followed before the end of the twelfth century, and Italy founded its first factory at Fabriano about 1276. In the last decade of the fourteenth century the first manufacture of paper started in Germany.7

15th CENTURY

The renaissance period with its new awakening and thirst for knowledge meant the need for better communication methods. The woodcut advanced from playing cards and Saint prints to dated blocks, rubbing methods, block-books, and book illustration. A block-book is a book whose pages (whether text only, or text and pictures combined) are printed entirely from wood blocks, the text being cut on the block. Most of the block-books appear to have originated in the Netherlands, though a few copies appeared in Germany and elsewhere.8

An important event of the 15th century was the invention of the screw-type press, which led to the movable type press generally attributed to Gutenberg in 1450. It was a great advancement over either stamping or rubbing and ushered in an entirely new era of block

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7Ibid., pp. 78-79.

8Ibid., p. 207.
printing. At first the new presses did not attract the ablest artists and much of the printing was still done by the craftsman.⁹

Much of the effort with the movable type press centered on the production of the Bible. The Cologne Bible of 1478 had 109 designs. Also many chronicles and histories were produced at this time. One chronicle published in 1493 had 2,000 cuts. It was supervised by William Pleydenwurff and Michel Wohlgemuth. The later was a teacher of Albrecht Dürer (1471-1528). During the last part of the 15th century Dürer found the woodcut the perfect medium. Although he became a master of woodcut, his greatest achievements were in engraving and etching.¹⁰

A natural outgrowth of woodcut was engraving in metal. Line engraving was the earliest of the intaglio processes, and the earliest dated print occurred in 1516 in Germany. Engraving quickly spread to other European countries with the fastest growth in Germany and Italy. In Italy master artists such as Finiguerra, Mantegna, and Modena did notable work with engraving.¹¹

16th CENTURY

Engraving continued to grow rapidly in the early years of the 16th century with Dürer dominating the medium. He produced his first metal engraving in 1517. In 1512 Dürer became one of the pioneers of dry-point when he produced his first three prints. In 1513, Urs Graf introduced the first etching. Two years later Dürer made his first

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⁹Kent and Watson, op cit., p. 9.


attempt at etching and soon became the main pioneer of the process. The extraordinary power of his first works placed him in the vanguard of etching and as one of the foremost of all times. His mastery of line is unsurpassed. Although copper was introduced in 1520, Dürer did all of his early work in iron.\(^{12}\)

After the death of Dürer the etching process spread and reached a peak of development by the middle of the century. The influence of Dürer on those who followed was extensive, but the character of the work gradually declined as the demands of reproductive needs increased. Some of the important followers of Dürer were Altdorfer, Lucas van Leyden, and Marcantonio. In the last half of the century etching was reduced to a virtual reproductive process. Some portraiture work during this time did contain a creative effort.

In the woodcut field Hans Holbein (1497-1542) did some creative work with a series of illustrations and the "Dance of Death" cuts, which were a series of 41 small blocks. In the Netherlands, Lucas van Leyden and Pieter Brueghel the Elder took a leading role in the production of block-books, but they were generally inferior to those produced in Germany.\(^{13}\)

The general decline in printmaking in the last half of the century tended to follow quite close to the styles and techniques of the painters. As painting moved from classical tendencies of the Renaissance to the more flamboyant Rococo and Baroque, there is a striking parallel in printmaking.

\(^{12}\)Ibid., pp. 71-81.

\(^{13}\)Kent and Watson, op cit., p. 10.
17th AND 18th CENTURIES

In the 17th and 18th centuries the woodcut was greatly overshadowed by the development of copper engraving. There was little technical advance in woodcuts and few occasions of artistic innovation. The woodcut was used primarily for cheap popular books, and journals.

Two masters of etching stand out during the 17th century. They were Anthony van Dyck (1599-1641) and Rembrandt (1606-1669). In the range of genius Rembrandt stands alone for he rarely failed to have a power that touched the heart of things. He did his first etching at the age of twenty-two using a pure etching method to produce a print two and one-half inches square. From this meager beginning he went on to extend the boundaries of the art until it encompassed effects of tonal contrasts, of massed lights and darks, not before considered possible to the medium.14

In 1643 a German soldier named Ludwig von Siegen is credited with the invention of mezzotint. Mezzotint is a toning process in which a rocker or graining tool is used to roughen and pit the entire plate. By scraping away or combining with dry-point the artist can vary his tones. The improvements by Abraham Blooteling later in the century were more decisive in furthering the technique.15

The last half of the 17th century saw another general decline in printmaking. By this point engraving had spread to all parts of Europe and its use was starting in America.


The introduction of aquatint in 1768 was another event of great importance. It is generally regarded as the invention of Jean Baptiste Le Prince in France. Aquatint is an intaglio method for producing more or less uniform tones on an etched plate. By dusting powdered rosin on the plate through a cloth bag or in a specially designed dustbox, the plate can then be heated to melt and adhere the tiny particles of rosin. The grain of the rosin can be fine or coarse depending on the tone desired. The dusted plate is then placed in acid which eats away the exposed areas of metal. By using repeated bitings a gradation of tones is possible.

A return to original etching occurred with the work of Francisco Goya (1748-1826) of Spain. He became one of the greatest etchers of all time. His plates are almost entirely bitten, with dry-point used occasionally to strengthen the etched lines. He made much use of the aquatint grain with his line and he still stands as the leader of the aquatint method. Goya was a realist who was outside the routine history of painting and etching in the 18th and 19th centuries. The life of Goya was one of violence, vividness, and audacity which gave him a wide scope of subject matter. He observed and brooded, and scorned mankind, and put down in his etchings a record of what he saw and thought. His etchings on war scenes are among the most moving and horrifying documents about man's inhumanity known to art. Goya made realism an instrument whereas other artists used it for its own sake.¹⁶

19th CENTURY

Most of the nineteenth century was a continuation of the eclecticism that prevailed in the 18th century. Towards the end of the century there occurred revolution in politics, science, and industry that would be reflected in all the arts.

In 1796 the process of lithography was discovered by Alois Senfelder in Bavaria. The discovery was quite by accident, but was quickly accepted, and within half a century it was challenging both wood and metal processes for prominence. Lithography began on stone and works on the natural repulsion of grease and water. Drawing can be done directly on the block or by the transfer method which was devised later. Lithograph became a tool of many of the great masters with the work of Goya in a leading role. Others who made some creative use of the process during the early part of the 19th century were Gericault, Ingres, Delacroix, Corot, Turner, and Daumier.

Another new printing process came into use about 1800 in England with the introduction of wood engraving. Wood engraving is a variant of the woodcut. In woodcut the cutting is done on the plank or grain side of the wood, while in wood engraving the carving is done on the end or crosscut surface of the wood. It permits a finer line and also introduced the use of white lines against a black background.

Exceptional in the field of wood engraving was the work of Thomas Bewick (1753-1827) in England. Bewick worked primarily in the area of reproduction, but did spend many years experimenting with technique. He may have lacked the genius of Durer or Holbein as a

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17 Gaehde and Zigrosser, op cit., p. 58.
designer, but he was a talented creative engraver. A contemporary of Bewick, William Blake (1757-1827), who was also a copper engraver, is noted for his unique creative designs in wood engraving.  

Reproductive art reached a fever pitch just prior to 1870. Facsimile printing in most books was no better than it had been in previous centuries. The work was popular, but there was virtually no thought given to the formal values of art. Two new developments occurred during the 19th century that were destined to be of the greatest importance in exerting a major change in the direction of printmaking.

The first of these developments was the invention of the camera. Although the earliest experiments with cameras date back to the 17th century, and certain photosensitive silver compounds were known in the 18th century, it wasn't until 1839 that a truly functional camera came into being. The experiments of a French painter, Louis Daguerre, and an English inventor, Fox Talbot, resulted in a reliable process and a rapid increase in photography. The second development of importance was the introduction of photo-mechanical reproduction by Fox Talbot in 1852. This process made it possible to transfer an image onto metal by means of a photographic process. For the first time the whole process of making a printing plate could be done completely by mechanical means.

The above developments had tremendous impact upon the position

18 Kent and Watson, op cit., p. 10.

of the artist in printmaking. For the first time the artist was released from the demands of reproductive printing and could turn to the aesthetic aspects of making original prints. The success of his efforts could now be determined by his own creative ingenuity in the use of any particular process, not whether it would provide detail or narrative values.

LATE 19th AND 20th CENTURIES

The stage was now set for a true creative revival of the printmaking art. In the wake of this revival has come an increased interest by the collector in the original print, thus giving the art further impetus. Work with the various processes continued, but the shifting attitudes were reflected in a more truly aesthetic spirit. Virtually all of the modern artists have experimented in one or more areas of printmaking. The work of most of them has been in the creative vein which exemplifies current trends. There are too many to be listed here, but a few deserve special note.

In the woodcut area the work of Paul Gauguin (1848-1903) is outstanding. Much of his work was done in Tahiti where there were no reproductive ends to be served. His cuts on the plank side of wood show an intensity of personal expression, both in handling of subjects and in cutting methods. 20 Edvard Munch (1863-1944) of Norway was another who used the woodcut in a very imaginative way. He was never fully understood or appreciated during his lifetime, but his work is some of the most expressive of all times. Munch made subtle use of the natural grain to produce effects of great power and imagination.

In lithography and engraving the work of Odilon Redon, Degas, and Henri Toulouse Lautrec are significant. They worked in metal as well. Following these were the more recent works of artists such as, Rouault, Picasso, Maillol, Matisse, Dufy and many others.

The changes since the 19th century have also been reflected in the use of materials. The rapid advance of technical processes and industrial capacity has brought a flood of new materials for the artist to choose from. Paper quality and variety has been vastly improved and a host of synthetic products such as plastics and acrylics are now available. Before the nineteenth century the materials used for print-making were severely limited. Wood, metal and stone were the most generally used materials and normally prints were confined to rectangular blocks and smooth surfaces. The printmaker today is likely to use a much wider and more varied range of materials to secure his images. Any material that will withstand the pressure of printing becomes a part of the printmakers resources. While still using the hard materials of the past, the modern artist adds variety with the use of soft material as well. His plates can be anything from crumpled paper or embroidered cloth to bits of string or leaves from nature. The myriad of found objects can be combined to perform the clearest or most potent expression desired by the artist. The printmaker today need not assume the use of any one material, any more than the painter assumes a limit to his ideas by using oil paint alone. A wider means of expression through materials have been available ever since Picasso and Braque first experimented with the collage21 about the year 1915.

CHAPTER IV

AN INEXPENSIVE APPROACH TO PRINTMAKING

With the wide variety of approaches to printmaking in use today it would be prohibitive to attempt to describe or work with all of them. The approach offered here is an inexpensive one, which will be confined to experiments conducted with roll-up printing as a starting point. From this point on students can advance and build a knowledge of further and more complicated printing techniques. The process starts without the use of a press, but eventually by combining the roll-up technique with other printing methods such as Serigraph or Collograph, much can be discovered about the nature of printmaking and materials.

Roll-up Printing

The roll-up print is perhaps one of the simplest forms of printing, yet it offers the artist a variety of possibilities for creative work. The roll-up technique of printing has one unique feature in that it is one of the only printing methods in which the block or image surface is not inked. Paper is placed over the plate surface and the print is made by moving an inked brayer or roller over the exposed side of the paper. Depending on the variations on the plate surface and on the pressure applied upon the brayer, the ink will be deposited in varying amounts, thus producing an image of the original plate surface. The transfer of ink to the surface is indirect since the paper is between the ink and the printing plate. This is the opposite of other printing methods.
The basic concept of the roll-up print is not new. The small child is fascinated with placing paper over coins and rubbing the paper with a pencil. The cylinder seal used by the Mesopotamian civilizations as early as 2,500 B.C. are examples where a round object was used to transmit an image. Another early technique that had a partial similarity was the impressions made from tomb tiles by the Chinese during the Han Dynasty, 206 B.C. - 220 B.C. Rice paper or other soft absorbent paper was placed over the tile and wetted down with a sponge until the paper molded itself smoothly around the relief figures and into the incised lines. When the paper was dry, an inked dauber was pounded over it. The raised surfaces received more ink and therefore appeared darker. When the ink was almost dry, the paper was carefully removed and stretched out flat.1

Roll-up printing can be done from any surface that is firm enough to support the necessary pressure. Students should be encouraged to seek a variety of found objects and surfaces to gain a wider means of expressing themselves. It must be held in mind however that the artist should not be tempted to use found objects or wild materials simply for their own sake.

"The vigour of texture, the latent force and density of these discovered fragments, may tempt the artist to use them for their own sake. Without a firm purpose, their use in the printmaker's studio may well lead to a new form of romanticism, a sort of nature-whimsy, that has often proved the weakness of a narrow regional art. Without the power to absorb images taken from such objects - to absorb them securely in the nature flow of vision - the use of found materials can only be a danger."2


The number of found objects that could supply printing surfaces is of course infinite. Fragments for printing can be found anywhere. Wood, paper, cloth, string, stone, plastic, metal, etc., are but a few of the objects available at little or no cost to the artist. These objects can form a printing base as they are found or brought together to form a desired compositional effect. They can be either placed loosely upon a flat surface or glued to any suitable stiff material such as cardboard to form a plate.

**Equipment and Materials**

The tools and equipment necessary for roll-up printing are inexpensive and therefore quite adaptable in school situations where budgets may be limited. Basically all that is needed is a brayer, ink or paint, a supply of paper and cardboard, found objects, and a table or working surface.

For ideal printing several brayers of different size and firmness give a wider variety of results. Brayers are made out of a variety of materials such as wood, rubber, gelatin, and plastic. Experimentation will help to determine the type that will do a specific job best. A hard brayer for example will tend to ride on the raised surfaces and will produce a sharper edge or line with more areas left white. A soft brayer being more flexible will leave ink on the surface at varying amounts according to the pressure that is used. Both the high and low areas will be printed in subtle value changes.

An ordinary oil block printing ink that can be purchased at art stores or school supply firms is generally the most suitable for roll-ups, but good results can also be obtained with tempera, oil paint,
or latex. With any ink or paint it may be necessary to make an adjustment in the consistency to get a desired result. With printers ink the addition of a few drops of kerosene will make the ink more workable. Latex or tempera can be thinned with water. Most oil printing inks have the added advantage that they are semitransparent which permits more varied applications of color.

While any kind of paper would probably work, a lightweight paper is generally the most suitable. A light paper is more flexible and permits a clearer or more distinct result. With experimentation it is possible to get very fine textures and tones, and even with heavy papers a patient approach can get results. In any case the general character of the ink image will be a slightly fuzzy appearance which is part of the nature of the roll-up print. In some instances the fuzzy appearance may be desirable so experimentation with all types of paper should take place.

A 16 to 20 lb. bond paper which can be purchased at any printing firm is an inexpensive paper that is ideal for school or experimentation work. Lightweight butcher paper will also work well. For better quality printing a lightweight Strathmore or charcoal paper is quite practicable. For special effects there is a variety of textured papers such as oatmeal paper or watercolor papers that can give interesting and unusual results. A range of materials can be used for the base for building plates. Corrugated boxboard or a heavy paper is suitable for some work. The base can also be various weights of cardboard, upson board, or fiberboard. If the plate eventually is to be used on a press the heavier boards are more desirable.
Working Area and Work Procedures

A large work or lab table that permits plenty of room for ink, paper supply, brayer inking, and a printing area is the most ideal for roll-up printing. A large piece of heavy glass is the best for spreading the ink and preparing the brayer, but other smooth surfaces can be substituted such as smooth cardboard or formica table or counter tops. The cardboard method has an advantage in that there is less clean-up problem since the board can be discarded after each use. This could become expensive, however, over extended periods of printing. In a school it is both necessary and desirable to set up good working procedures. Without them the resulting messes can interfere with quality printing.

The procedure for making a roll-up print is basically simple, but a few things should be kept in mind for better results. Only a small amount of ink or paint should be placed on the glass or rolling surface at one time. Large amounts smear and cause the brayer to slide or leave edges, lines, and laps through the print. If the ink is too heavy it should be thinned first with an appropriate thinner. The ink should be rolled out as evenly as possible before working on the print. If there is an excessive amount of ink it is helpful to have a supply of old newspapers on hand to test the consistency first and to roll off the excess.

Once the ink has been prepared a sheet of paper is placed over the material or plate from which the image is desired. Care should be taken that the paper does not slip or move. To prevent slipping several methods can be used. The simplest way is to hold the paper with one hand while rolling the ink with the other. This can be quite
clumsy in some cases so it is perhaps preferable to tape the paper to the working surface or to the plate itself. Another method is to construct a type of folder in which the plate can be attached with tape and the paper hinged over the plate surface. If several different plates of the same size are to be used a mat can be cut out of material that is slightly thinner than the plates. By cutting the opening the same size as the plates, the plates can then be held in place with the paper fastened over the top.

The actual inking process should take place slowly at first. The ink laden brayer is rolled over the surface of the paper until the image appears. By starting slowly with a light pressure the values can be controlled and there is less chance of getting heavy laps in the work or an uneven appearance. Since the brayer is generally smaller than most prints it is desirable to roll the ink on in all directions to produce a more even tone. As the image darkens the pressure on the brayer can be increased until the desired tone has been achieved. With practice the artist can learn to control pressure and ink consistencies and thus control the print. Literally in the inking process the surface of the plate should be "felt" through the brayer.

The color approach in roll-ups can be by two methods. In the first all the printing is done with the three primary colors, red, yellow, and blue. If the ink is of the transparent type, a blue ink over yellow will change the color to green. Areas of different color that are overlapped from different plates will produce a similar result. The second method is to pre-mix the color before starting to print.
Stencils can become an effective and interesting way to vary the roll-up approach. The stencil can be placed directly over the plate surface or over the paper printing surface. Stencils can be cut from any type of paper. The result with heavy paper will vary from the use of fine or thin paper. A thick stencil permits a more clear or concise image whereas heavy papers leave a fuzzy or indistinct edge. If the stencils are going to be used several times they should be coated with an acrylic painting medium before use. The stencil will last longer and is less apt to tear. The paper stencil technique is a common serigraph printing method, thus serigraph is a natural media to combine with roll-up printing.

The use of several stencils or more than one plate in making a print may require special care with problems of registry. Where it is desirable to have the image of one stencil or plate fall in an exact position over a previously printed image from another plate, it becomes necessary to employ a registry system. The main thing in solving registry problems is to plan the work ahead to avoid mishaps. One simple way is to use plates and stencils that are the same size, taking care that the images are placed in matching positions. This can be done by making tracings from a master drawing. During the printing each plate or stencil can then be placed in the same position each time. Simple guides for placing the paper or plates in the same position can be made with heavy paper or masking tape.

An Inexpensive Press

The foregoing plan for an approach to printmaking is based on printing without a press. As student interest in printmaking grows,
however, there will be a natural desire to move to more advanced and sophisticated methods. For low budget operations the cost of a commercial press can often be too great. A suitable press can be built at little cost by employing an ordinary clothes wringer.

The wringer press can do a remarkable job within limitations. The rubber rollers will not build as much pressure as metal, but it is suitable for relief, some collography, and lithograph printing on a small scale. Its size limits the artist to small prints, but this may be a desirable feature where space is a problem.

The wringer press can be as simple or sophisticated as the owner wishes. A new wringer is not expensive, but used wringers will work if the rollers are not worn or uneven. All that is actually necessary is to add a moving bed between the rollers to provide a printing surface. Plywood or tempered fibreboard cut to the length and width desired is suitable for the bed. A simple adjustment in the size of the spacing blocks on the rollers may be necessary to allow for the thickness of the bed.

The press can be made more efficient and easier to handle by adding support rollers for the bed on either side of the main rollers. This keeps the bed level and provides more freedom while printing. The support rollers can be made from ordinary wooden dowels or a broomstick. Guides such as roller skate wheels or casters can be added on each side to keep the bed centered. An example of a wringer press is shown in Figure 8, page 42. An example of a print done on a wringer press is shown in Figure 9, page 43.
CHAPTER V

EXPERIMENTS IN PRINTMAKING

The experiments conducted were mainly concerned with the roll-up technique. Roll-up printing is very versatile and with experimentation unusual effects can be found. Since the printing surface itself can be made from found objects, the possibilities for variety are unlimited. Another advantage is that the image is always in view to the artist during the printing process. In other processes the print cannot be seen until the paper is removed from the plate. Building plates adds further chances for variety and experimentation. If the plates are built substantially they can also be used for relief or collograph printing. In this way the student increases his knowledge of printmaking processes.

The following is a brief explanation of the printmaking experiments conducted in connection with the foregoing research. The first four examples are all roll-up prints from plates with a variety of materials. In Figures 1 and 2 the basic material was string arranged on a cardboard plate. In Figure 1 the string was used in a continuous line design. A background was printed first from plates made with acrylic modeling paste and the string plate was superimposed over the top. In Figure 2 the string was cut in varying lengths and placed to suggest value changes. The line character could be further increased by carrying the experiments on to combining different sizes of string or thread.
In Figure 3 the basic shape of the found material was emphasized with the use of washers imbedded in modeling paste. The background plates were made from chicken wire and modeling paste. Figure 4 is an example of the use of stencils with a roll-up. Parts of the printing surface were blocked with paper stencils. Several plates and stencils were used in the printing stages.

A further extension of experimentation is demonstrated in Figures 5, 6, and 7. In the previous examples the base of experimentation was confined to combining various materials. All of the printing itself was roll-up. Interesting results can also be gained by combining roll-up with other printing techniques.

Figure 5 is a serigraph print using four paper stencils to complete the range of final tones. An edition of several prints were run to provide a supply of prints with which to conduct further experiments. To combine the serigraph with roll-up a plate was constructed using cut paper in the same composition as the serigraph. A texture was added to the plate with modeling paste. Figure 6 is an example of the resulting combination.

Figure 7 also combines the original serigraph print, (Figure 5), with roll-up. In this case however, the roll-up was printed from a plate with a different composition. The serigraph tones become a subtle part of an unusual total effect. The roll-up plate was constructed with modeling paste, sawdust, Zonalite insulation, and carborundum. Collograph prints were also taken from the plate.

The above experiments may help to emphasize the infinite range of possibilities in the printmaking field today. To date little has been done by artists in the crossing of different printing media. The
changes of the modern period are serving to heighten awareness of the possibilities. The student who is given the chance to experiment may prove that combining different print media will offer something of unique character in our future world.
CHAPTER VI

CONCLUSION

Today the printmaker is more conscious of execution and the personal touch as a standard of value for the print. The artist who now makes prints speaks not as a copyist, but as a creative artist working directly in a graphic medium. In view of current trends the original print today is placed in a position where it may have to stand or fall as an independent art, thus placing it on a level similar to painting and sculpture. The modern print defies translation in words since it speaks in its own aesthetic language. The narrative reproductive character of most early prints made them much easier to describe in words.

"Like painting or sculpture, printmaking should mean an exposure to new experience, a chance of expansion into a world without frontiers. Printmaking should never signify a contraction, a closing down, an involvement with narrow technical problems. Though it may well be necessary for the graphic workshop to devote itself to one aspect of printing, we should always attempt to consider its activities as a broad study, broadly related to the basic problems of visual communication."

The break from traditions of the past has also given the printmaker a much wider freedom of choice in both the technical and aesthetic areas. The change has not made the technical or aesthetic problems of the artist or teacher any simpler however, for as systems become more sophisticated and visual communication images more varied, the questions and problems are apt to become more complex. Freedom

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must be backed by self discipline and responsibility on the part of both the teacher and student. The student will soon tire of superficial techniques and processes that get fast results. Without knowledge of techniques and processes the student cannot become aware of the limitations, the blind spots, or distortions, that are an inherent part of each process.

One final thing should be pointed out. This is only one solution or one approach devised by one artist and teacher to fit a more valid printmaking situation as he sees it. There can be little doubt that in our complex modern world there are many avenues open to exploration. Just as the artist who decides he has found an "absolute" or an "ultimate" solution may decay on the vine and eventually die in a creative sense, the teacher must be open to the wide possibilities for engendering creative growth.
Figure 1

"Fret and Meander"
Roll-up
"Cells"
Roll-up
“Flowers”
Roll-up
"Space Motion, No. 1"
Serigraph
Figure 6

"Space Motion, No. 2"
Serigraph and Roll-up
Figure 7

"Amoeba, No. 2"
Serigraph and Roll-up
Figure 8

Wringer Printing Press
"The Dinner"
Collograph
BIBLIOGRAPHY


