

A STUDENT GUIDE TO THE
USE OF SOFT GROUNDS IN INTAGLIO PRINTMAKING

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I. INTRODUCTION

With the possible exception of drypoint and engraving, all intaglio processes involve the use of some type of ground. Though this acid resistant material has many applications, it has but one primary function, which is to protect the plate surface from the action of the acid during the etch.

The traditional hard etching ground is made from asphaltum thinned with gum turpentine and forms a hard, stable surface suitable for work with a etching needle or other sharp tool. Soft ground has had some agent added to it which prevents it from ever becoming completely hard. It adheres to whatever touches it and can be easily removed from the plate by pressing some material into the ground and then lifting it, exposing the plate in those areas where pressure was applied.¹ When the plate is immersed in an acid bath, the exposed areas will etch and the soft ground will repel the acid from all areas where it remains on the plate. The texture of the material used to lift the ground becomes incised in the plate and these depressions will hold ink which is transferred to the sheet of paper when the plate is printed.

When the technique of etching gained widespread use in the the 1600's, the trend was to emulate the crisp line of a burin engraving by drawing through a hard etching ground which resulted in a precise line.² Recipes that have been passed down to us indicate that many of the early etchers added some amount of grease or wax to

their grounds.³ Though this form of soft ground was probably handled in the same manner as the traditional hard ground, these artists realized that a softer ground created less resistance to the drawing tool and allowed greater variation in line quality. A line made through soft ground has a characteristic rough breadth and coarse line quality than the crisp line made through the more brittle hard ground.⁴ This primitive form of soft ground is important because it represents a change in attitude toward etching. Rather than creating etchings which resembled engravings, artists such as Jacques Callot (1592-1635) and Rembrandt van Rijn (1606-1669) were interested in the new effects achieved through the use of soft ground and experimented with the technique for the unique range of possibilities it offered (Figures 1 and 2).

The engravers and copyists of the seventeenth and eighteenth centuries, in their search for perfection, all but lost the expressive character of graphic art and the medium seemed to decline until the later part of the nineteenth century.⁵ At that time, the art of printmaking enjoyed a revival and the impressionists experimented with the newly rediscovered techniques.⁶ As a group, however, they directed their attention more toward the art of lithography than to etching. A generation of expressionists seemed more concerned with the directness of line etch and drypoint and did not experiment with materials to any large extent.⁷ The soft ground formula that is commonly in use today was not developed until the second half of the eighteenth century.⁸ The post cubist artists, in particular Jacques Villon (1875-1963) and George Braque (1881-1964), took up the print-



Figure 1: Rembrandt Van Rijn. Self Portrait by Candlelight.



Figure 2: Jaques Callot, The Lute Player, Etching, 1600's.

makers craft and began to test the boundaries of the medium again.⁹ Experimentation with materials and techniques became prevalent.

Stanley William Hayter (1901-) and the Atelier 17 which he founded, stressed experimentation as an essential aspect of printmaking.¹⁰ His Amazon of 1945 is an exploration into the possibilities of combining many techniques within a single plate (Figure 3). In this example, soft ground etching has been used along with the engraved line. Due to the open weave of the textures involved, a sense of transparency is created and each technique seems to exist on a separate plane. This school of printmaking found new applications for traditional techniques, developed new ones and helped to create the atmosphere of experimentation which surrounds the art of printmaking today.

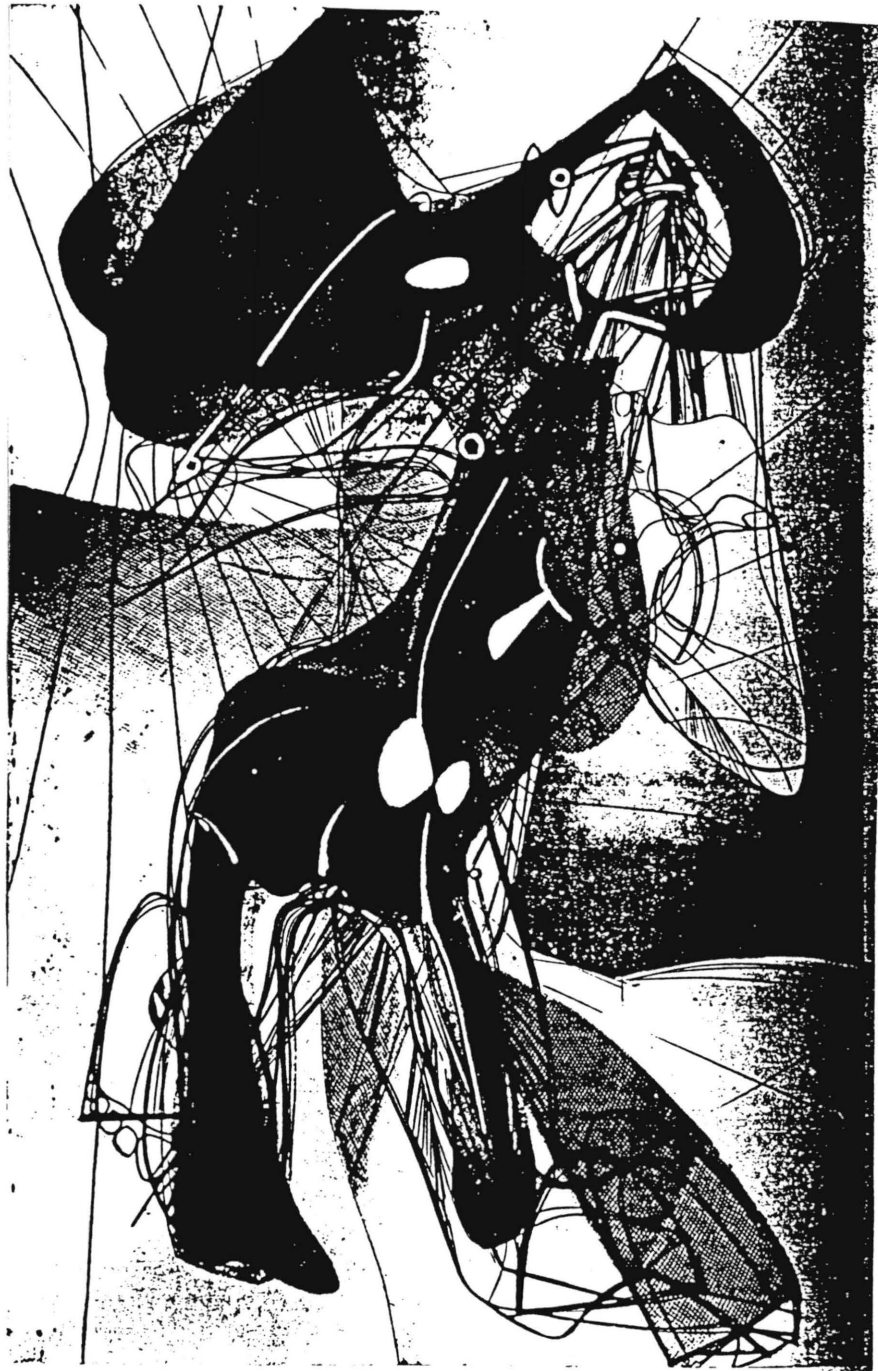


Figure 3: Stanley William Hayter, Amazon, Engraving and ground etching, 1945

II. MATERIALS AND METHODOLOGY

Asphaltum, the basic ingredient in most etching grounds, is a resinous substance, naturally dark in color and impervious to the effects of the acids used in intaglio printmaking. Wax, petroleum jelly and grease are the most common agents used to prevent the ground from hardening. Soft ground in paste or solid form is available through commercial suppliers and is suitable for most work. However, the ground can easily be made in the studio by combining two parts liquid asphaltum and one part of a non-hardening material.¹¹ The ingredients should be mixed, heated in a double boiler and allowed to cool to a paste-like consistency. It can then be applied to a warm plate with a dabber and smoothed with a soft roller as the plate cools. A soft ground in liquid form can be useful in situations requiring a long etch as it is more acid resistant than the mixture mentioned above. Three parts liquid asphaltum combined with one part petroleum jelly will produce a strong ground that can be easily worked.¹² The ground can be thinned with gum turpentine to the desired consistency and applied with a soft brush. If the plate is angled against a wall, any excess ground will run off. This liquid ground will air dry within a few hours or it can be heated on a hotplate to speed drying. Any turpentine present in the ground will evaporate as it is heated and smoke will rise from the plate. After several minutes, the smoking will stop and the plate will be ready to work as soon as it is cool enough to handle. The plate should not be reheated once the drawing is begun as this will cause the ground to

liquify and fill in areas already opened through drawing. ¹³

With both the paste and liquid grounds, a medium thin coating is sufficient to protect the plate from acid and transparent enough to allow any previous work to be clearly seen. A thick coating will be difficult to lift and will tend to smear if the plate is run through a press. ¹⁴ The properly grounded plate will have an even matte finish and be golden brown in color. At this point, it must be handled carefully as foreign matter and fingerprints can smudge the surface. If the plate is to be moved or stored, it would be wise to protect it with wax paper which will not adhere to the ground.

It should be remembered that the relative proportions of the basic ground recipes can be altered to meet a specific need. As a rule, if a greater proportion of the non-hardening agent is added, the ground will be softer. A greater amount of the liquid asphaltum will produce a tougher, more acid resistant ground. The artist must feel free to manipulate his or her materials in any way necessary to achieve the desired result.

Copper and zinc are the most common metals in use in intaglio printmaking and a brief discussion of their characteristics is warranted. Zinc is a coarser grained and softer metal than copper. These qualities make it an ideal choice for soft ground work because when etched in nitric acid, the metal has a tendency to etch horizontally as well as vertically into the plate. This creates a rougher line quality which works well with textures in most cases. Copper plates are generally etched in dutch mordant, a mixture of hydrochloric acid, potassium chlorate and water. This acid tends to etch

more or less vertically. If very crisp textures are desired, then copper would be the best choice. If copper is etched in nitric acid, some horizontal etching will occur but not to the extent that it does on zinc. A separate acid bath is required for each type of metal.

Soft ground lends itself well to direct drawing on the plate and either the paste or liquid ground can be used. This process is similar to drawing through hard ground with a needle, but the soft ground offers less resistance and the possibility of using a wider variety of tools. As the hand cannot rest on the plate surface without creating an impression, the artist is almost forced to draw in a free manner.¹⁵ Bamboo pens, scrapers, stiff bristle or wire brushes, pieces of cardboard or even fingertips can be used to draw through the ground. Should the drawing prove unsatisfactory, the plate can be reheated, the ground smoothed with a roller and the drawing begun again.

The most traditional method of working with soft grounds is known as the pencil or crayon technique because the quality of the resulting etched line resembles a mark made with those materials.¹⁶ Use of a softer paste ground is effective in this technique as it requires less pressure to remove. A sheet of paper is laid over the grounded plate and pressure applied with a bamboo pen, wooden stick, burnisher or other drawing tool, causing the paper to adhere to and subsequently lift the ground in those areas. The appearance of the line will be affected by the type of drawing tool, the tooth of the overlying sheet and the amount of pressure exerted in drawing. In contrast to the etched furrow made with hard ground, a line made with the crayon technique and etched consists of tiny pits created by the tooth of the

paper. ¹⁷ The width of the line is roughly equal to the width of the drawing tool plus twice the thickness of the paper. ¹⁸ Adequately etched, this type of line has great resistance to wear during the printing process.

This technique can also utilize cloth in place of a sheet of paper, the texture of the fabric being evident in the etched line. Care must be taken that the fabric does not wrinkle while the drawing is in progress as that will cause the ground beneath to smudge. Variations in the pressure used in drawing will affect the quality of the etched line and a great variety can be achieved in one overall etch. ¹⁹

An advantage to the pencil or crayon technique is that a preliminary drawing can be taped to the work table over the grounded plate and by tracing the original image, the drawing is transferred to the plate. If the initial drawing is to be preserved, a sheet of tissue paper placed between the drawing and the plate will adhere to and lift the ground. This eliminates the accumulation of soft ground on the back of the original drawing. The plain sheet of tissue paper can be left loose between the drawing and the plate and should be shifted from time to time. While this method is commonly used to produce linear effects, it can also be used to create tonal areas by building up masses of lines. This is a relatively quick way to build tone in small areas.

An alternate way of creating tone on the plate is through the application of texture. A piece of material having the desired texture is laid over the grounded plate and pressure applied. Hand

pressure is used to force the texture into the ground in much the same manner as a woodcut is printed with a burnisher or the back of a wooden spoon. The softer the ground, the less pressure required to lift it. If the textured material is thin enough, pressure can be applied by running it through the press. The material is laid over the plate, covered with wax paper, newsprint and then the printing felts. Less pressure is needed for this process than printing and, depending on the individual press, one or more of the felts should be removed. The wax paper will prevent areas of the ground which are to remain unopened from sticking to the newsprint.

Any number of textures can be employed. Silk, canvas, burlap, crumpled papers and foils are but some of the possibilities and a supply of materials should be kept in the studio. Textures should be chosen with care as to their function within the composition. Initial fascination with the ability to transfer textures to the plate sometimes leads to the use of texture for its own sake, often to the detriment of the image. The technique must conform to the idea being expressed and slick, sentimental handling of materials avoided.

The application of soft ground textures can be approached from two basic viewpoints.²⁰ One is similar to the motivation producing cubist collages. The texture etched into the plate represents the actual material used to create the impression.²¹ The other method uses texture to function as a neutral, tonal area within the print, the original makeup of the individual textures often lost or secondary to the image.²² The use of texture as tone in the print is similar in some respects to aquatint and has the added advantage of great

durability in the process of printing. 23

A surprising amount of detail is possible with this process and fabrics such as burlap or cheesecloth will produce an etched texture closely resembling the original material. The areas of ground left undisturbed by the open weave of a fabric such as burlap, will preserve small points of the original plate surface and create a sense of luminosity and transparency in the printed image. These points can be used to advantage where rich, dark areas are desired. If a coarse texture is etched, the points of the surface left protected by the open weave are available to take further applications of texture. Layers of soft ground impressions will appear as transparent films and can be used to create a sense of depth and richness in the print.

Rich, black areas can be produced on the print if a coarse texture is deeply etched into the plate and subsequent impressions of finer woven fabrics are made. This creates a rough surface on the plate which will hold a large amount of ink when the plate is wiped. If the finer textures are not etched as deeply as the original one, it is relatively easy to scrape just the high points on the plate surface with a single-edged razor blade. In this way, lights can be brought out of dark areas of the image.

Lowering areas of the plate by open etching or direct carving with a scraper to a level below that of the original plate surface and then applying and etching texture in those depressions, creates a sort of reservoir for ink and will print a deep, velvety black. This richness, characteristic of many fine intaglio prints, is made possible in part by the amount, intensity and saturation of the black pigment of

which the printing ink is made.²⁴ It is also due to the fact that the depth of the lines and the tonal areas is actual depth, that is, the inked line is a sort of cast taken from the plate and stands in relief above the surface of the paper.²⁵

The mechanical nature of most fabrics can be broken up by making two or three applications of texture onto the grounded plate and changing the direction of the weave each time. Paper and fabrics such as burlap and canvas can be torn, frayed or have threads removed to produce a more irregular pattern.

At any point, the ground can be removed from the plate with mineral spirits and the plate inked and printed to check progress. Drawing can be done on the proofs and the next step in the development of the image determined. If the soft ground is reapplied over an etched surface, it will seal all previous work and be opened only in areas where new impression is made. Soft ground etching can be combined with other techniques such as aquatint, drypoint and hard ground etching. Whenever possible, it is beneficial to consider the order in which these various techniques will be employed. For example, it would be difficult to etch a fine texture over an already rough area of the plate with little or none of the original surface remaining, and to have that texture appear distinct in the printed image. It is not always possible however, to plan the complete succession of techniques involved in image development, and often the artist must make a decision at each stage as to the next operation.

Once the desired lines and marks have been opened on the plate and before etching, it may be necessary to selectively stop out areas

of the plate which are to remain unbitten in the acid. Corrections can be made by covering unwanted marks with an acid resistant material. Protected from the effects of the acid, the stopped out areas will preserve the original plate surface and appear white in the finished print. Stopping out offers a degree of flexibility as it is often more convenient to cover large sections of the plate with texture and selectively stop out any that should not be etched, than to cut textures to conform to desired shapes within the image. ²⁶

Soft ground, by nature, is less acid resistant than hard ground. If a printing press is used in applying texture, the entire surface of the ground will become somewhat porous. ²⁷ During and extended etch, the soft ground may begin to break down, allowing the acid to seep through and create pits in the plate known as foulbite. This can be used to advantage and made to deliberately occur by combining impurities such as powdered soap, with the soft ground.

A varnish made from lump rosin suspended in denatured alcohol is commonly used as a stop out material and forms a clear, brittle layer which is highly resistant to acid even during a long etch. It can be applied with a brush or small pieces of matboard to a clean dry surface and left to air dry. Normally, this takes only a few minutes. When dry to the touch, the plate is ready to be etched. The rosin varnish dries to a hard edge which can appear very distinct in the printed image. ²⁸ The artist must be sensitive to the placement of these bright areas made by protecting the plate with varnish.

Rosin varnish has the characteristic of spreading across the plate surface beyond the intended areas. Where very detailed areas

are to be protected, liquid hard ground may be used as a stop out. Do not heat the plate at this point as the soft ground beneath the hard ground will melt and destroy the drawing. The hard ground will take longer to air dry but it will remain more precisely where it is laid on the plate.

Due to their high grease content, intaglio inks are also acid resistant. The advantage of using ink as a stop out material is that it can be feathered onto the plate with the fingertips or a piece of cardboard, leaving a softer edge than can be made with varnish or hard ground. Ink can be employed to create a subtle transition from a dark passage into a light one. It will however, begin to break down in the acid bath causing foulbite if left for too long a time.

After the soft ground impression is made and the desired areas stopped out, the image can be further altered by the manner in which it is etched. If a very soft ground is used in a thin layer, every variation in pressure will be evident, but the overall range of value will appear uniform and grey.²⁹ If a harder ground is used, such as the liquid soft ground previously discussed, only the stronger impressions of texture will leave enough metal exposed to etch, but these textures will be clearer and more distinct.³⁰

If a groove in the plate is to hold ink and print black, it must be etched to a depth proportionate to its width. A broad line should be bitten deeper than a fine line. If the furrow is too shallow, only the edges of the line will hold ink and the space between will print a dull grey.³¹ This effect is known as creve.

When a large variety of values is desired, it may be necessary to

etch the plate in stages. The plate can be placed in the acid for a short period, removed and the lightest portions of the drawing stopped out. The plate is returned to the acid and the next darkest value is etched. This process is repeated until the darkest areas are etched to the desired depth. Another method of achieving a range of values is to first draw only the darkest areas, etch the plate and then draw the next darkest value. This can be done in as many stages as necessary. The first lines drawn will be exposed to the acid for the greatest amount of time and therefore will print the darkest value.

A great deal of variety is achieved in one etch by incorporating the technique of spit biting. Traditionally used with aquatint, it is also effective in etching soft grounds. Rather than placing the entire plate in an acid bath, small amounts of acid, generally one part acid to two or three parts water, are poured onto the plate or applied with a brush. If a small amount of gum arabic is added to the etch, the acid will not bead up on the plate and can be pushed about with a brush. In this manner, the etch is concentrated in those areas to be etched most deeply and will create a gradual transition to lighter areas of the image. When the desired etch is achieved, the plate should be rinsed with water as the acid will continue to etch as long as it is left on the plate.

The best method of controlling the etch is to check the plate frequently while it is exposed to the acid and to carefully observe the effects of the acid on the plate.³² The greater amount of metal that is exposed, the faster the attack of the acid. A plate with large areas exposed to the acid will etch faster than one with only

small areas opened. The exact amount of time needed to obtain the intended etch is difficult to determine because the strength of the acid is constantly changing under various conditions. A magnifying glass is useful for reading the depth and quality of an etch. The plate should be removed from the acid bath, rinsed thoroughly and an etching needle used to test the depth of the lines.

A sharp scraper can be a valuable tool when working with soft ground as well as with most other intaglio techniques. Etched textures on the plate can be readily removed either completely or in varying degrees. If the scraper is kept sharp, it will cut a fairly clean path on the plate. A dull scraper will make a rougher mark, but this may be more desirable in certain instances. The smoothness of the marks made with a scraper on the plate determines the amount of ink that will remain in that mark. It is also used to create directional lines and establish a feeling of movement in the print. Areas of the plate can be lowered by direct carving with the scraper to take applications of texture or to stand in relief in the finished print. There are limitless possibilities which can be discovered through the use of the tool in the creation of one's own imagery.

A steel burnisher is employed to further polish areas of the plate already worked with the scraper, but it is also used alone to manipulate texture. The plate should always be lubricated with oil to prevent the burnisher from scratching the surface. Textures can be softened and modified. The pressure exerted on the tool tends to force the metal down, rounding the edges of the textures and giving them a warmer, more weathered and worn appearance. Areas of the plate

that are to print a bright white may be further polished with a commercial compound made for that purpose.

By incorporating the use of a scraper and burnisher into one's repertoire of techniques, the artist has the added flexibility of working dark to light as well as light to dark. The physical labor of scraping and burnishing is rewarded with a rich array of interesting and lively surfaces.

Those printmakers who are interested in working back into etched surfaces with a scraper or burnisher will find exciting examples of what is possible with these techniques in the work of Mauricio Lasansky (1914-). He took full advantage of the thickness of the etching plate when he etched and carved deep into the metal. Dachau of 1945 illustrates the sculptural possibilities inherent in intaglio printmaking (Figure 4). He used the scraper to create shimmering lights in many of his multiple color prints. Amana, done in 1967, is a fine example of the subtleties that can be realized when varying degrees of the original soft ground etch are scraped away (Figure 5). His Study-Old Lady and Bird of 1971 shows several uses of soft ground in one print (Figure 6). He incorporated soft ground techniques as tonal areas and also allowed texture to represent itself in the lace of the woman's bonnet. Lasansky used soft ground with great freedom and in varying combinations with other techniques.



Figure 4: Mauricio Lasansky, Dachau, Engraving and soft ground etching, 1945



Figure 5: Mauricio Lasansky, Amana, Engraving, soft ground, scraping and burnishing, 1967.

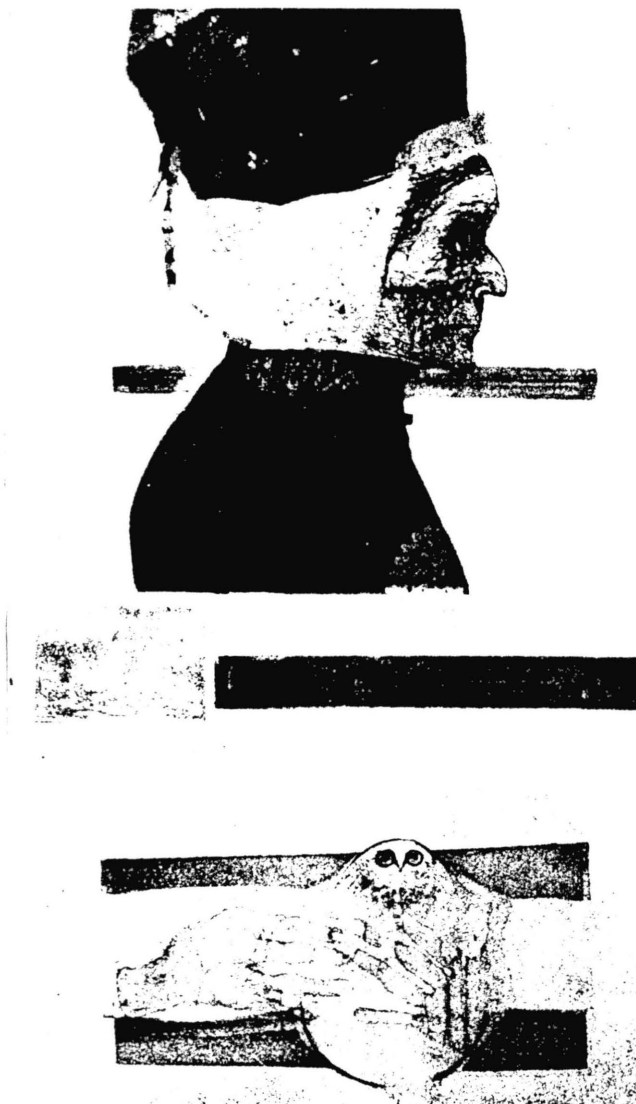


Figure 6. Mauricio Lasansky, Study- Old Lady and Bird, Etching, engraving, soft ground, drypoint, open bite, embossment, scraping and burnishing, 1971.

III. CONCLUSIONS

It is hoped that the student of printmaking has found in this text information to enable him or her to better understand the technical aspects of the medium. A certain amount of understanding and skill is necessary before one can gain enough control over materials to turn them towards the realization of a personal imagery. The techniques themselves can be a constant source of inspiration as new ways of working with them are discovered. There is still and will always be room for experimentation and the development of new techniques. The possibilities are endless and limited only by the imagination of the artist.

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