REGISTRATION AND ENERGIES

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INTRODUCTION

The purpose of my thesis is to develop an accurate method of multiple plate color intaglio printing. The technical evolution will be exercised through the use of several new images consistent with my interest in high voltage, colored forms. I will deal with the interaction of forms in a cosmic space, much like a stage set.

Many artists have been interested in exploring color use in their prints. Since Rembrandt's time, most color was achieved on a single plate with a heavy reliance on hand coloring. Hercules Seghers, a contemporary of Rembrandt, was an artist who experimented with color use on copper plates. Seghers' panoramic mountain landscapes are thought to be the first experiments with intaglio color printing. Thomas Rowlandson was an Englishman, popular with the public in the early 1800's, whose imagery conveyed biting satire and lewd eroticism. Rowlandson etched his original design, but left the coloring to professional washers. Working at the same time as Rowlandson, but whose etchings were highly innovative and exciting in their color use, was William Blake. Blake's whites were achieved through heavy biting of the plate.
His wide range of colors was executed through relief color rolling, hand coloring, watercolor and sometimes with the application of gold leaf. Edgar Degas' intaglio work of the 1880's conveyed a fresh and direct drawing style. Degas would often print a second, fainter impression from his plate. Watercolor and pastels were applied to the second impression to gain a new interpretation of his original concept. Stanley William Hayter is a printmaker who set up an experimental print workshop in the 1920's, in Paris. Hayter's Atelier 17 is concerned with many new methods of color printing and uses three general methods of register.

Hayter's methods of registration are basically sound, but are not discussed explicitly enough for a thorough understanding of each method. A clear and accurate system for multiple plate color intaglio printing is not encountered through simple discussion with peers or teachers. A system of registration where all details were dealt with in an explicit manner, was necessary to achieve the accuracy I demand in my prints.
I have posed several questions that account for my interest in developing this registration system.

Why was a new or more applicable registration technique important for me? The images that I am involved with demand critical accuracy. This accuracy is necessary for the clarity and boldness of forms in my prints, so that they will achieve their impact and distinctiveness. One soon finds that by attempting to perfect line on line, edge on edge, and form on form precision, much more is involved with this process than first meets the eye. When technical registration problems became overwhelming, I was determined to formulate a simple, workable registration system. This system would allow greater concentration on the image itself, instead of on the process.

What makes this registration technique different in context than previously used systems? It is well documented and presented in an explicit manner, and it presents some uncommon, yet simple methods. The print-making texts that I have researched, cover multiple plate color intaglio printing in an incomplete manner. These texts include techniques that seem workable, but are in need of a better explanation, and often are not
workable. An example of an explanation that is incomplete, and an actual technique which is haphazard is found in Jules Heller's, Printmaking Today.

The most direct solution is obtained by working with plates of equal dimensions. After printing one color from the first plate, ink the second plate with its color. Place the print with the first color face up on a flat, smooth surface. Take the second inked up plate and place it squarely face down upon the print. With some practice, you can acquire the knack of holding plate and paper firmly in place as you turn them upside down to place them on the press bed. The third plate is registered by eye in the same manner.

The possibility of achieving edge on edge, let alone line on line or form on form registration with this method would take years of practice. The never ending, very predictable problems with this technique such as paper slippage, ink smearing, etc., makes considering applying this method unthinkable. An example of technique that is workable but is poorly explained is found in Saff's and Sacilotto's, Printmaking, History and Process. "The plates must all be exactly the same size, with the colors registered in position. All the colors, beginning with the lightest, are printed one after another while the paper remains damp."
The principle of this method is sound, but there are many details that demand further explanation. This method does not tell you how to achieve plates that are exactly the same size, or how to register the colors in position. A satisfactory description of technique I discovered in my research is Stanley Hayter's discussion of registration methods in *New Ways of Gravure*.

In France, it is usual to assemble all plates of the same size in which the image is in register, usually ensured by printing back on to these subsequent plates from a wet proof of the key plate, and to drill two small holes through all of them in positions which will not be conspicuous on the proof. All the sheets of paper to be used are then pricked through with a needle passed through the holes in one of the plates. When the plate is ready on the bed of the press, the sheet is placed by engaging two needles passed through it with the holes in the plate. This method could use a further description of details to clarify the technique.

Gabor Peterdi's investigation of registration methods in *Printmaking: Old and New Methods*, includes simple and complex techniques which are feasible. Peterdi suggests the improvised registering method that was quoted from Heller on page four, for registration of small plates and proofing purposes. Peterdi
also covers registering with pinholes, as Hayter described on page five, but with clear diagrams and greater detail.

Peterdi describes a method of register that is practical, yet lacks the explicit thoroughness I feel is essential for total comprehension. Registering with mat is one example of a workable registration method.

The most often used and most reliable method for registering an intaglio print is by making a tin or cardboard mat for the plate. First, all the paper to be used in the edition has to be cut to the same size. Then take a sheet of 20- or 22-gauge tin and cut it to the same size that your printing paper will be when wet. (For this purpose dampen one paper and check your size this way.) When you cut the metal mat, leave a thin strip on each side of three corners. Folded over, these are going to act as stops once the paper is placed in printing position. The opening in the mat should be cut exactly to the size of your plate. Too much play will affect a delicate register.

If you have room enough on the press and if the paper is big enough, make the mat wide enough so that the printing felt won't have to cover the stops. In this way you can avoid the constant flattening of the stops by the printing pressure.

At this point I should like to emphasize again the necessity of careful, precise preparation. A rushed, sloppy job will result only in great loss of time and material. You have to bear in mind that if you make a mistake in color printing, if it is your second or third color, you lose all previous effort invested in it.
Once everything is prepared correctly, the printing itself is simple. The mat is placed on the press bed; the ink plate is placed in the mat. The paper should be handled carefully, especially avoiding excessive contact with the plate surface, as this might smear some of the colors. Be sure the paper lines up perfectly with the edges of the mat. The plate is then rolled through as usual.

Another example of a practical registration method was developed by Mauricio Lasansky. Lasansky wrote a description of his technique in *Printmaking: Old and New Methods*.

Twenty-three years ago the Museo Nacional de Bellas Artes in Buenos Aires bought a print of mine which I had done in two colors from the same plate by running the print twice through the press to superimpose one color upon another. The idea for this technique came to me as I realized that the tension created by the superimposition of warm and cold colors in perfect register could provide a three-dimensional quality unattained by the traditional method of making color prints with different plates.

However, as I was working with large plates, the considerable expansion and contraction of the paper made the problem of register rather difficult. The diagonal-point method which gave good register for small plates, where the paper was small and changed little in size, was useless here.

Since then, the method I have worked out for obtaining perfect register of superimposed colors with large plates is as follows: First I soak the paper overnight; then, to control the humidity, I
place it for two days in a damp box made of two sheets of metal with heavy weights on top. Then, I take the first print in the regular manner with the plate on the press bed followed by the paper and felts. I print with a cold plate so as not to change the size of the paper. Also, to avoid this paper problem the print should be kept in the damp box under pressure until the next color is printed. I have found that it takes from three to five hours, depending on the amount of glue in the paper, for it to begin to contract.

For the second printing, place the print face up on the felts and use the marks of the plate edge on the length and width of the paper as a guide in placing the newly inked plate over the first print. Then add two felts on top plus a cardboard. This helps to prevent the plate from curling. The principle behind placing the plate over the paper is that there is no chance that the roller should move the paper and ruin the register. If the plate should move, the paper underneath would move correspondingly. However, if the paper were over the plate, it is conceivable that the strain of the roller on the paper could move it, or stretch it slightly, thus ruining the register. In general I like to run a plate through the press twice. For the second time through I turn the plate and print over. This is easy to do since the paper has adhered to the inked plate, and it helps to correct any tendency of the plate to curl. This extra run is not always necessary.

This system of obtaining register works with equal precision when different plates are being used. I have used as many as nine different plates to make a single print with perfect register each time. 5

This method does not apply to the wet-on-wet printing procedure which I used exclusively. If one
includes much engraving or deeply etched lines in the first plates, then management of paper shrinkage and expansion is a major concern thus making Lasansky's method invaluable.

Does the imagery I currently work with utilize the technique fully? The registration method developed maintains the strength of the images involved. The forms I depict in my prints are cartoon-like, sensual forms that clash in a deep, cosmic space much like a stage set. The forms represent feelings or beings that react with one another. The accuracy of this system supports the continuity of tension present in the interaction of lively forms. Continuity is destroyed if even a small strip of white pierces where a form does not overlap another closely. Clarity and precision of line on line, edge on edge, and form on form is imperative to my imagery. This clarity is obliterated if the roundness of a form is blurred or fuzzy. The distinctiveness is upset if the jaggedness of a form is softened by an off-registering of its outline color. The overlapping of opaque and transparent colors that create the forms, must be very close, if not perfect. While some variation can be tolerated, it is not desired and it is sometimes distracting.
The shapes interact in a vast space that is clearly defined by the clean, rectangular edge of the print. If the edge was sloppy or blurry due to off-register plates the resulting space would become confusing and easily misinterpreted.
I have developed a registration system that should clarify any misunderstanding or confusion of how one can achieve accurate multiple plate color intaglio printing.

THE PLATES MUST BE EXACTLY THE SAME SIZE.

1. Cut the number of plates for the print as accurately as possible with a plate cutter, or with a draw tool and straight edge.

2. Glue the plates together. Use a glue that will hold metal pieces securely while they are filed, and then can be cleaned from the metal surface without scratching or harming that surface. I used orange flake shellac (used by metalworkers for the same purpose). When the flakes are melted and sticky, the plates can be placed together and they securely adhere to one another when the shellac cools.

   a.) Warm the plates on a hot plate set at 350°.

   b.) Sprinkle the flakes over the surfaces of all but one of the plates. The flakes will melt after a few minutes and become gooey.

   c.) Using pieces of cardboard or matboard, spread the gooey substance over the entire plate surface.
d.) Stack the plates, one on top of the other, with the clean surfaced plate placed at the top.
e.) Remove the stack from the hot plate to cool, and place it on a flat surface.
f.) Put a weight on top of the stacked plates to insure secure glueing.

3. File the plates.
   a.) Clamp the stack of plates in a vise, and file until all sides are square and even.
   b.) Reheat the plates at 350°, and gingerly slide them apart when the shellac is fluid.
   c.) Clean each plate with a strip-ease type of chemical. Sear's Paint and Varnish Remover, removes the shellac from the plates after several applications.
   d.) Use Putz Pomade to clean any remaining stains of shellac from the plates.

4. Bevel the edges of your plates to exactly the same degree.
   a.) Scribe a line approximately 1/8 to 1/4 of an inch on each plate. The line must be scribed exactly the same fraction in, on each plate. The line is a guide for filing
the bevel at approximately 45°. Scribe the line using an etching tool and straight edge or a caliper tool.

THE IMAGE MUST BE PRESENT IN EXACTLY THE SAME PLACE ON EACH PLATE.

1. Draw a contour line of your design on frosted acetate, within a rectangular outline that corresponds exactly to the bevel guide line on the plates.

2. Coat the plates with positive working photographic emulsion. There are many positive photographic transfer chemicals on the market. I used KPR 3 exclusively in my work with good results.

3. Place the acetate on the plate aligning the outline drawing with the bevel guide line, and photographically expose the image.

4. Transfer this same contour drawing to all the plates in the same manner.

5. Etch the open lines of your image as a guide for further working of the design. If the image you deal with does not call for these lines to be apparent, etch for a very short time (approximately 30 seconds). If the image you deal with would be strengthened by making these lines apparent,
etch them for a longer period of time to achieve the desired depth.

**PROOFING THE PRINT - EACH PLATE MUST BE PLACED ON THE PRESS BED IN EXACTLY THE SAME PLACE.**

1. Ink and wipe all the plates in their various colors. If stencils are used to apply relief colors, roll the plates through the stencils, after they have been wiped with the intaglio color.

2. Trace the outline dimension of the plates on a piece of newsprint, as a guide for the plates.

3. To preserve the guide throughout the edition, cut an acetate sheet that will be large enough to cover the guide, and will also be larger than the paper. Clean the acetate sheet after each printing to insure that the paper's border is spotless. The guide could become dirty and transfer fingerprints or ink blobs to the paper if the acetate is too small.

4. Tear an extra-long piece of printing paper on which to proof the print. If the plate is 8" x 8", and a 3 inch border is wanted, then the paper size would be at least 15" x 25".
   
   a.) Place the guide in the middle of the press bed.
b.) Place the acetate on top of the guide.
c.) Register the first plate to the guide by placing it within the outline, visible on the newsprint.
d.) Center the dampened print paper over the plate and drop it into place.
e.) Run the plate through the press making sure that about 2 inches of the paper is still stuck under the roller and blankets.
f.) Lay back the blankets over the carriage of the press roller.
g.) Lift the paper and lay it back on the blankets while you remove the first plate and place the second plate in position. The paper should remain out of the way (on the blankets) if there is about 10 extra inches on either end of the paper.
h.) Print each plate in the same manner to complete the proof. Speed is necessary so that the paper will not shrink any noticeable amount from one color to the next.
In conclusion, I feel that the purpose of my thesis has been successfully achieved. I think that my success is apparent when one views the accuracy of registration found in my five completed prints. Each print actively displays line on line, edge on edge, and form on form precision, which is imperative to my demands.
FOOTNOTES


THE PLATES
PLATE 1

"ENERGIES"
A.P.
COLOR INTAGLIO
2 3/4" X 3 3/4"

19
PLATE 2

"COME ON, KILL ME"
A.P.
COLOR INTAGLIO
7 3/4" X 7 3/4"

20
PLATE 3

"GOING DOWN FOR THE LAST TIME"
A.P. / COLOR INTAGLIO
7 1/2" X 8 1/2"

21
PLATE 4

"RAM ON"
A.P.
COLOR INTAGLIO
12" X 24"

22
PLATE 5

"LET IT BITE"
A.P.
COLOR INTAGLIO
16" X 7 1/2"

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