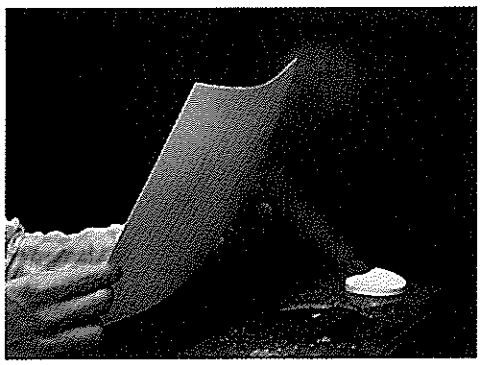
esthetic choice. Of course you could add brush marks for visual effect after coating with a tube if you really wanted to. You can also mask your negative to leave no black border at all: the illustration (left) shows what these different edge effects look like.

To mix the emulsion in proper proportions you'll measure the different components by counting out drops with standard-measure plastic eye droppers. Do not use glass droppers: these give inaccurate results because the drop size isn't consistent from one dropper to the next. Pipettes, as used in chemistry labs, are a better choice for really large prints where it would become quite tedious to count out nearly a hundred drops of solution. With a bit of practice you can also learn to use "dropper shoots"—a good full squeeze of the dropper bulb will pick up a surprisingly consistent quantity. For a large print you could use three "shoots" of ferric oxalate. and three "shoots" of metal solutions. It's convenient to keep a dropper-cap on each of your chemical bottles, as shown above.

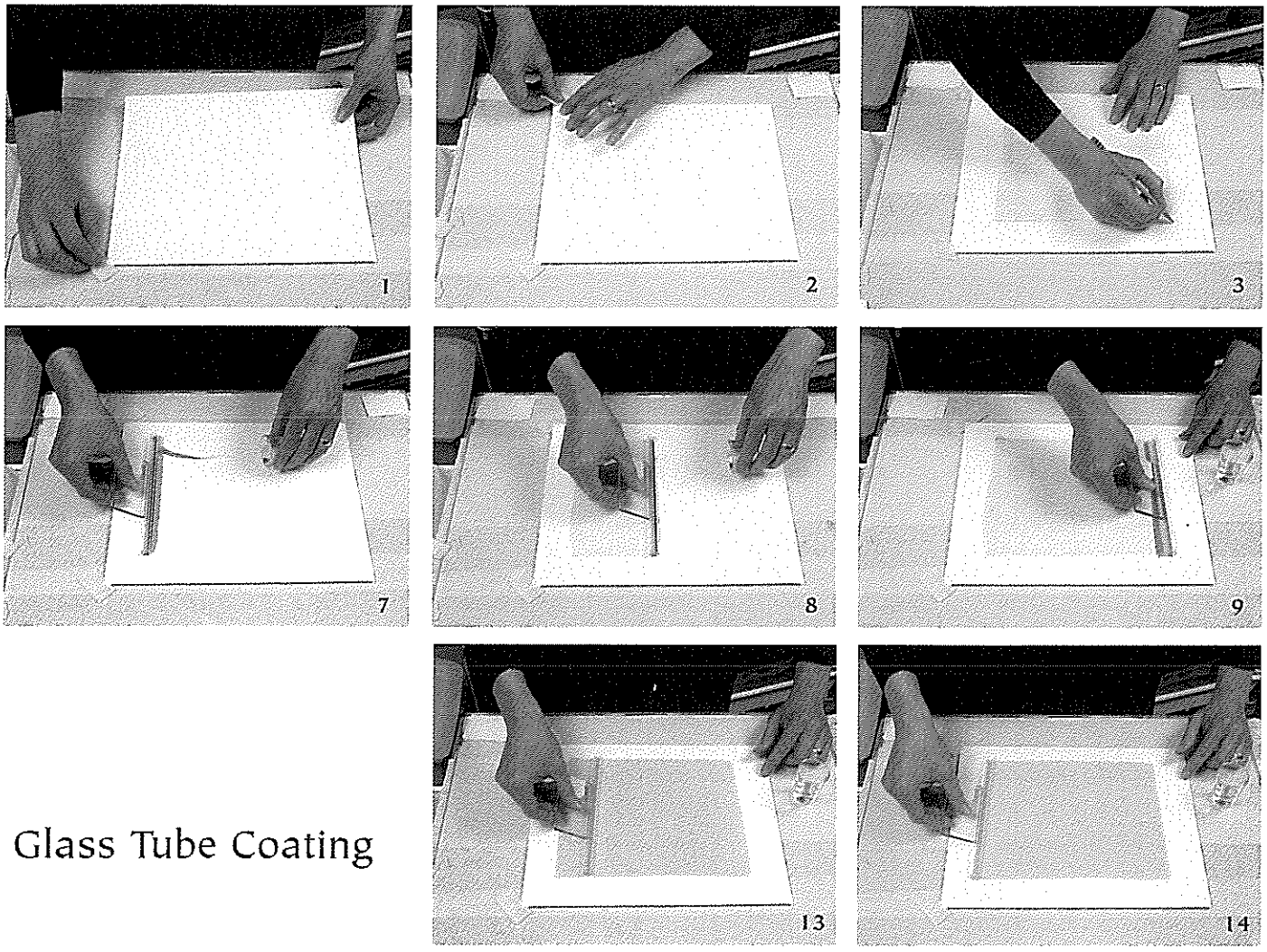
We'll describe specific emulsion components in the chapters on each of the printing methods, and here we'll detail the steps of the basic procedure used in all methods. Begin by lining up bottles with the necessary emulsion components on a clean counter along with a shot glass or small plastic cup. Some solutions need to be used warm, so a simple coffee mug warmer is also useful. This work area should be well separated from your sink and from the counter where you will coat the paper. Plate glass makes an ideal counter top: convenient and easy to keep clean. In all of the printing methods there are three types of chemical solutions which are combined to make the emulsion—sensitizer, metal, and additives. The number of drops of sensitizer and metal will usually be equal, though in some cases you may use one drop more metal than sensitizer. If there are two sensitizer solutions, their total must equal the total drops of metal solution. Likewise, when you use more than one metal component, the total will equal the total of ferric sensitizer. Additives, as the term implies, are used in minute quantities in addition to the basic components.



Preparation

Before mixing emulsion for a print, you'll need to prepare a sheet for coating. Choose an appropriate paper for the negative you will print (see Paper for Platinum chapter). Coating tends to work best in the presence of significant humidity in the paper so unless your workroom feels like a tropical rain forest, it usually is helpful to humidify your paper by holding it in the mist from a "cool mist" humidifier for ten or twenty seconds (see illustration below). It's convenient to keep one of these machines on a counter near your paper supply. When you pick up a sheet of paper, switch on the humidifier, mist the sheet, then take it to your coating workstation and place it on a smooth, flat surface for coating. A plate glass countertop again is ideal. Use a carpenter's level to be sure your glass countertop is perfectly level. If it isn't you'll find it difficult to spread the coating mixture evenly with a glass or acrylic rod. Dabs of clay or small squares of cardboard can be used to level the glass sheet.

The paper must be larger than the negative you plan to print: at least 8.5x11 inches for an 8x10 inch negative, and most printers prefer larger borders than that. You need some extra paper well outside the image area for handling the sheet. A narrow border will suffice once the paper is dry but will tear easily



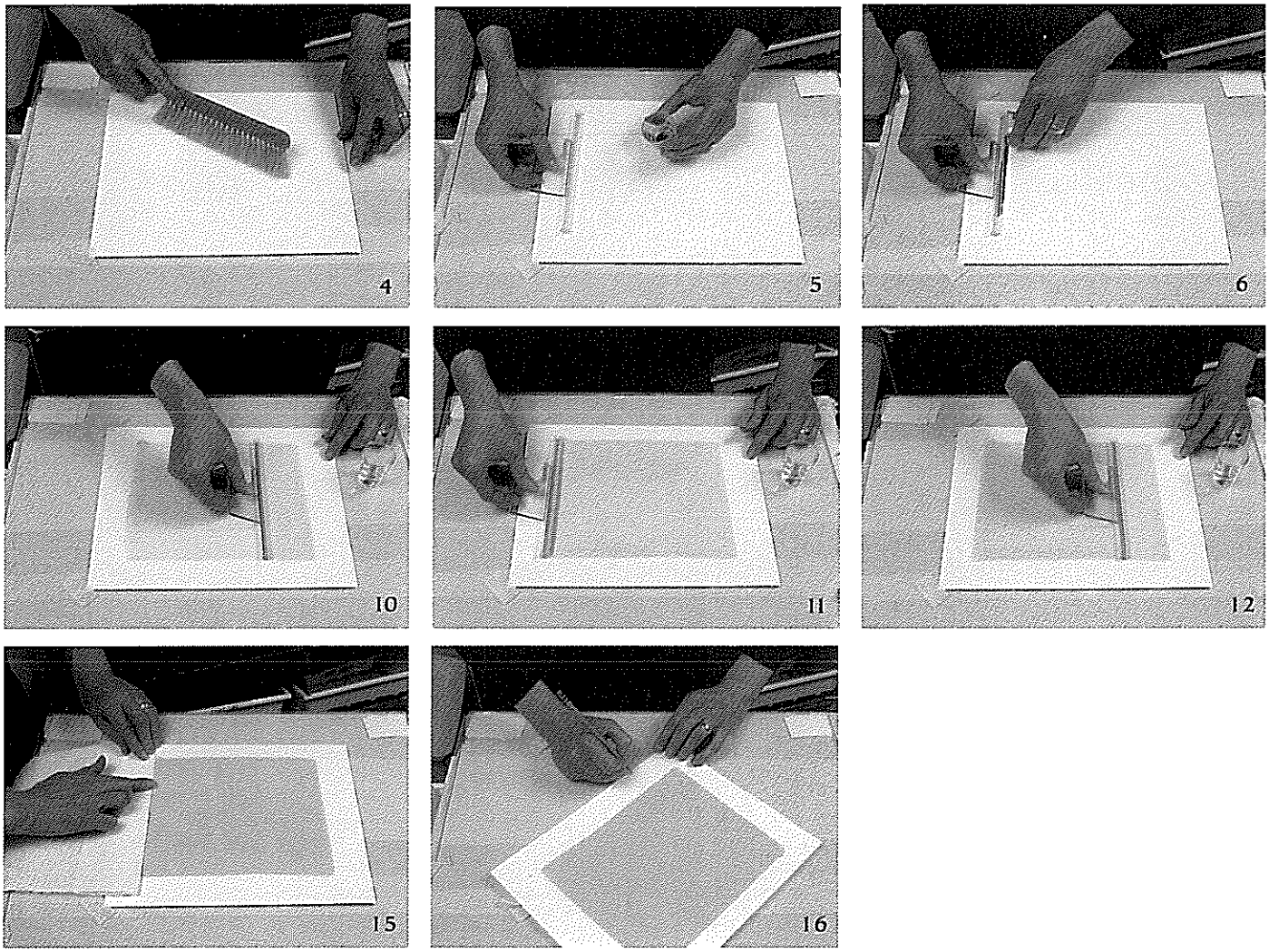
Glass Tube Coating

during wet processing. A wide border is an excellent safety factor, and generally looks good too. Tape two corners of the paper to the glass, and then use a negative-size template to make four light pencil marks indicating an area just bigger than your negative. Using a drafting brush or compressed air, carefully clean the glass and the paper because any dust may cause a defect in the print. The amount of emulsion needed depends on whether you will coat with a brush or a glass or acrylic tube and, to a lesser extent, on the absorbency of the paper and the specific emulsion components you are using. As a starting point for an 8x10 negative, a total of 40 to 48 drops should do with a brush while 24 to 30 will suffice with a tube. For a 4x5 figure on 6-8 drops with a tube, 10-12 with a brush.

Tube Coating

First we'll describe hand coating with a glass tube. You can use this approach with any of the New Platinum Print methods, choosing the appropriate emulsion components for the method you want to use and the correct quantity for the size print you want to make. See the chapters on specific printing methods for details.

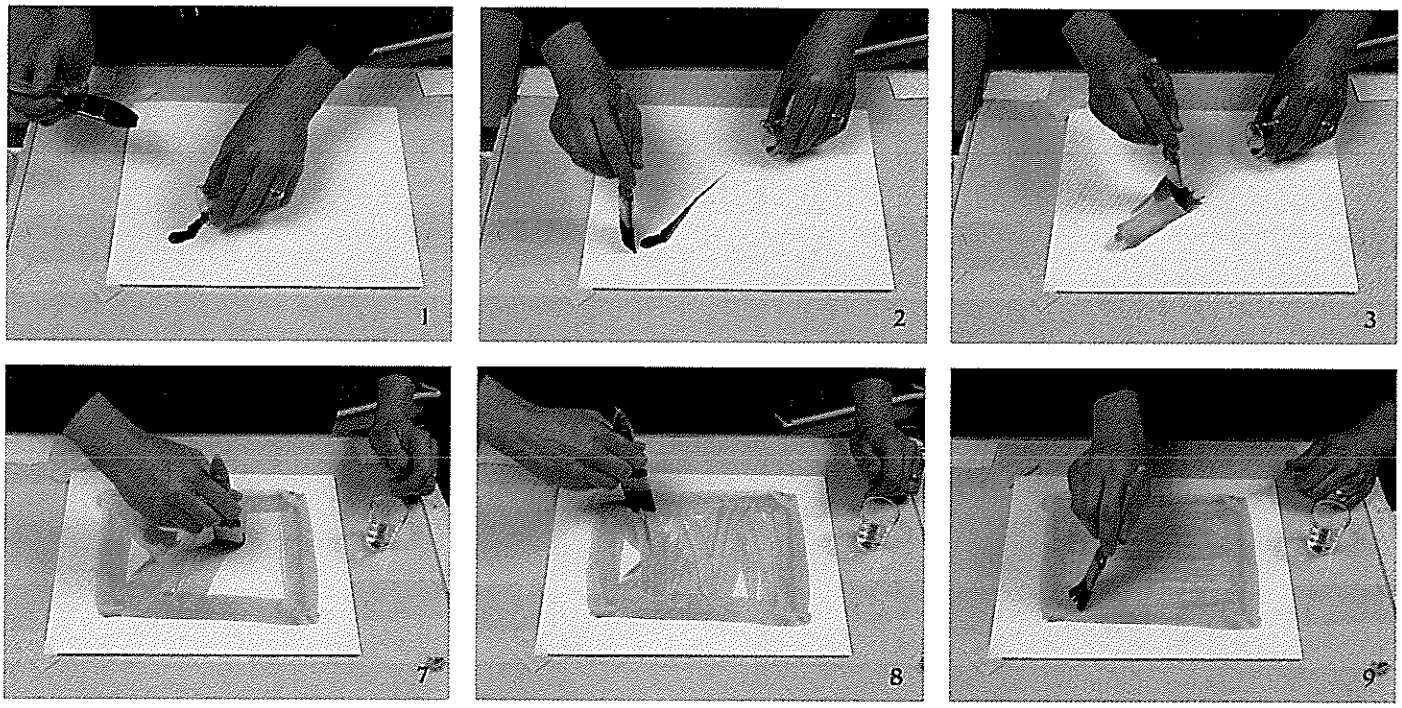
When your sensitizer mixture is prepared swirl the shot glass for a generous count of ten seconds to make sure the components are completely mixed, then move to your coating counter where you've set, marked, and cleaned a sheet of paper (illustrations 1-4). Place the glass tube on your paper at one side of the marked area, just outside the pencil marks (5). In a single smooth motion, pour the solution from the shot glass along the paper just at the edge of the glass tube, trying to place the liquid along the center half of the tube's length (6). Now wiggle the tube in a small circular pattern: the coating mixture will seem to "stick" to the glass from surface tension, and will spread out evenly from top to bottom of the tube (7). When it has spread along the full length of the tube, sweep it across to the opposite edge of your



marked area (8). Don't hurry, don't press down, just slide the tube across, stop, and move it back the other way just about one inch. Lift it gently, leaving a puddle (the trade name of one glass tube is "The Puddle Pusher"). Move it back behind the puddle, and then pull it to the starting point again. (9) If you lose the puddle behind the tube, you're moving too fast.

Relax, and don't try to be a human coating machine: small irregularities in the coating are not important. Five to ten swipes across the paper will distribute the mixture (10-13). Keep lifting the tube and placing it behind the puddle to avoid leaving most of the material at the edges of coated area. When so much solution has been absorbed that there is only a thin line clinging to the rod, you can reverse direction without lifting. When the paper stops absorbing more liquid, push the coating rod just past the marked area (14) and lift it away from the paper. Blot any remaining solution along the edge with a paper towel (15). It's a good idea to make use of those wide margins to make notes of exactly what mixture is used in the print (16). Let the sheet "rest": the coating will be drawn down into the surface fibers of the paper—which is where you want it—and the surface of the sheet will change from shiny-wet to matt-dull. The next step will be to dry the sheet, but drying techniques will be individually covered in the chapters on each of the printing approaches since the methods vary greatly.

Sometimes the bead of liquid along the tube will "break" and leave streaks behind: this means too little liquid was left, or you were moving the rod too quickly. Stay calm, and make one more sweep across the whole marked area, bearing down slightly. This will squeegee the streaks away. With practice, you'll learn to stop coating one stroke before losing the bead. With most papers it helps to start out moving the rod quickly, and then slow down as you near the end of the process (progressively slower from step 10 to 14). Thin papers may buckle and swell as they absorb the emulsion. With prints up



Brush Coating

to 8x10 you can deal with this by moving the rod very slowly, keeping contact with the flexible wet paper. To use thin papers for prints larger than 8x10 you may need to switch to a brush. You can also experiment with using a tube to get the initial spread of material, and then switching to a brush when the paper begins to buckle.

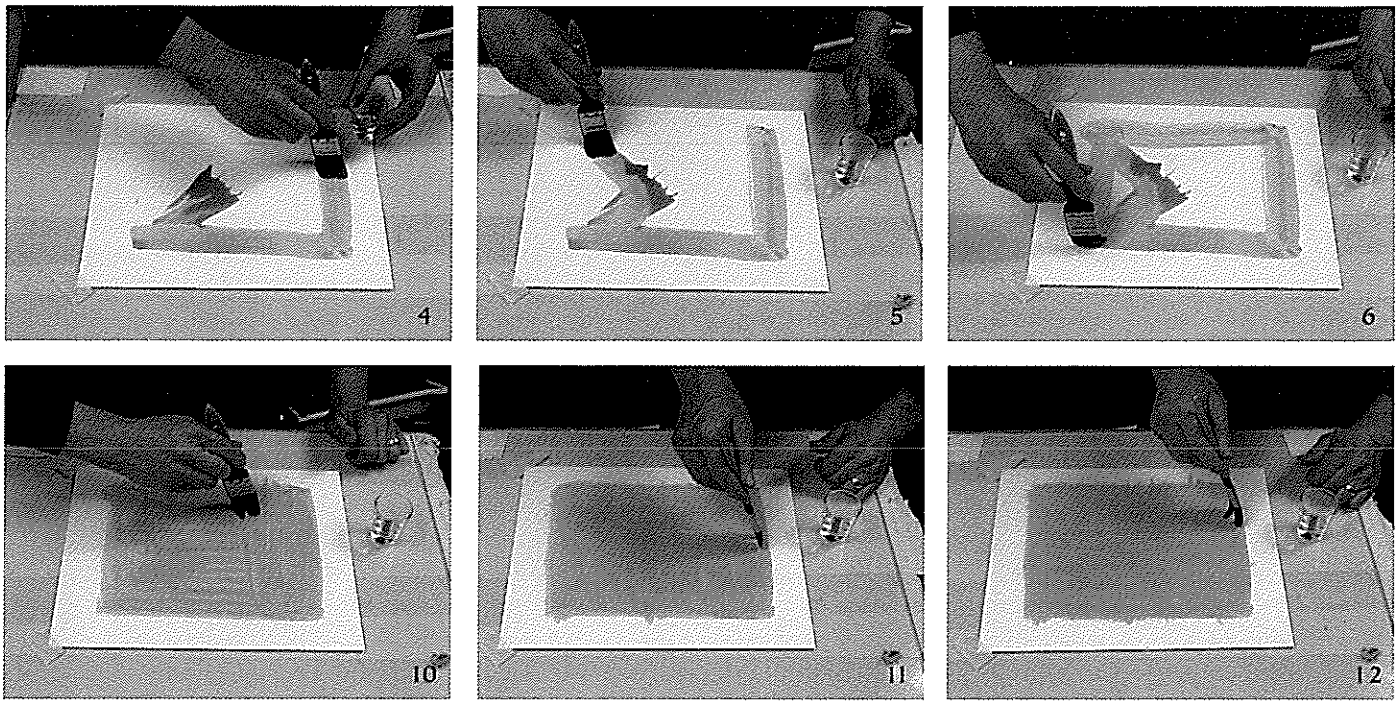
Brush Coating

Brush coating can also be used with any of the New Platinum Print methods. Prepare your paper at the coating counter the same way as for tube coating. Remember to use about 50% more solution than for rod coating, or about 40-48 drops total for an 8x10. Pick up your coating brush, pour the coating mixture from your shot glass onto the paper in a line within the marked area (illustration 1 & 2), and lightly spread it out with quick strokes of the brush (3 & 4). It helps to define your borders first (5 & 6), then continue to spread the solution to cover the whole rectangle within the pencil marks (7, 8, 9). Don't worry if it isn't even, you can continue to smooth and even out the coating with more brush strokes (10, 11, 12). It's important to realize that you are not trying to "paint" a layer of material onto the surface of the paper, but instead to spread the solution and allow it to sink into the paper surface. You're done when there are no more puddles of liquid and the color of the coating is fairly smooth and even. Don't look for it to be perfect; small variations in the coating won't affect your print. Now rinse out your brush and shot glass: sensitizer left in the brush can spoil your next sheet. As with rod coating, let the paper "rest" before you begin the indicated drying procedure for the printing method you are using.

Inspect the paper closely at this point. If you see a stray speck of dust or tiny hair on the surface, which happens pretty often, you can usually lift it off by gently touching it with the sticky side of a small tab of masking tape. Use a fresh piece of tape each time, or you'll just move the dust from one place to another.

Variations

While both rod and brush coating can be used with all the formulations of The New Platinum Print, some variation will be needed. A thin, hard-finished paper will be relatively non-absorbent and so require the least coating mixture but may buckle away from a coating tube and work best with a brush. If you find you've got too much solution, just use fewer drops for the next print, while keeping the relative proportions the same. A soft paper with an open surface may absorb much more liquid. You'll need to count out more drops of emulsion



components, and also be very careful not to abrade the softer paper with your coating tool. A tube is usually best here. The Ziatype chemicals are comparatively "heavy" and cover more paper, so you'll use your smallest drop-counts with Zia. The standard Pt/Pd compounds will require 10%-20% more material. Pt #3, potassium chloroplatinite, is the "thinnest" of the metal solutions and so a pure platinum print will require the highest drop count of all.

Don't expect to become completely proficient at hand coating in just a session or two, but with practice you will quickly begin to achieve consistent results.

Masking

Before you can expose your print you have to decide whether or not to mask the negative. If you wish to mask your pictures, the process is the same with all printing methods and comes after the coating and drying procedures, so we'll examine it here. A mask is a thin frame of material that is opaque to ultraviolet light, cut to the exact size of the image area you want to print. Black, exposed, offset-printer's film works well, as does the Rubylith® material used by strippers in traditional printing prepress plate-prep operations. There are a number of advantages to masking, the first of which is that the masked area is an automatic clearing test on every print. The freshly developed or rinsed print will plainly show a yellow stain in the masked area, and you can observe the progressive disappearance of the stain during the clearing stage of processing.

There are more subtle advantages as well. The nature of hand coating makes for rather wide black borders around the negative, and these large areas of black distort the appearance of the image. All that black makes the print seem lighter than it will look under a mat. Unless your intention is to display the print with the full black border area showing, you will need to adjust your evaluation of prints to compensate for this. When judging dry prints it's simplest to use a mat as you view each print, but obviously this won't work while examining wet prints in the rinse tray. A masked print lets you evaluate your image without the distorting black environment. In addition, masking lets you determine once and for all the exact "crop" of your negative. If you print the full negative including black border, then generally the overmat will determine the final edges of your image, which can be imprecise.

So there are good reasons to mask your prints. One drawback is that the procedure is a bit of a nuisance, an extra step. But the real objection comes if, like many

people, you like the look of the black border and consider it an inherent part of the hand-crafted look of a platinum print. In that case, all the advantages of a mask count as nothing.

To mask your negatives, it's easiest to place the mask on a slide-viewing lightbox, in your printframe if it fits, and then place the negative on top, emulsion side up (see illustration, right). Tape the two together being careful not to get your tape on the image area of the negative. Be sure your borders are exactly the way you want them. You may want to have several masks that let you customize the edges of individual prints—say 7½ x 9½ and 7⅜ x 9⅜, or you may even occasionally cut a mask specifically for the desired crop on an individual picture.

Placing the masked negative correctly on the coated area of your paper can be a bit tricky, and the easiest method is to use templates. Make your masking material the exact size of your final paper, and make a template of the same size with an opening placed exactly like the one in your mask, but half an inch bigger on all sides. Use this to mark your sheet for coating. When you place the mask/negative over the coated sheet and align the edges, your negative will be where it belongs: a primitive registration system that will work fine for this purpose.

Cold Snap Phenomenon

While hand coating prints for platinum is a skill that can be learned with relative ease, it is not entirely without its pitfalls. Coatings can have a number of failings that will ruin a print. Some potential problems are uneven coatings resulting in streaking, unexplained graininess in the print, failure of the paper to absorb the coating solution—or its opposite, a paper that soaks right through when the sensitizer is applied. Small or large dark or light spots can appear, as can little black specks. Once in a while, it seems that all these things happen at once—in which case it's a good idea to go for a nice long walk.

Recent experiments have led us to believe that a great many physical problems with coating have to do with what we've dubbed "The Cold Snap Phenomenon" (CSP). The Bostick & Sullivan company maintains a trouble-shooting hotline for its customers, and in the fall of 1997 the authors considered the fact that hotline activity picks up every year just as winter arrives. RS was fielding calls as cold weather set in, most of the calls complaining about printing troubles that all seemed to have a common link: all sounded like problems stemming from poor coating. Meanwhile, CW was having some of those exact problems in his darkroom in Connecticut. We noted that you could actually tell which part of the country was having its first severe spell of plunging temperatures, because RS could see that was the location of the current hotline calls.

We did some thinking about what might be so special about the fall season. Obviously, the temperature falls. While we don't imagine many people try to make platinum prints in unheated workshops, darkrooms and platinum workrooms do tend to be situated in basements and other areas that often don't receive the best climate control. In fact it's very common for a darkroom to be left minimally heated when not in use, with the heat jacked up when the space is needed for work. We experimented with coating on cold surfaces—heating up a cold room quickly may make the air comfortable, but tables, counters, and sinks stay cold. Glass counters, which we recommend for coating, are especially difficult to warm up. Surprisingly, many of our efforts at heating workrooms and counter tops seemed to make coating problems even worse!

Then it occurred to us that almost everything we did to bring a chilly workroom up to a temperature near 70° also resulted in a loss of humidity. Heating the air dries it out. A big hint seemed to be that Ziatype prints, which generally are more forgiving of coating errors than some of the other platinum methods, were being particularly hard hit by CSP. The simple experiment called for was to use humidifiers to raise the workroom's relative humidity to 60%. We also tried heating the glass coating counter, using the hair dryer that's already on hand for drying prints. This improved things quite a bit, but there were still more coating errors than normal. On one occasion CW ran out of paper in the middle of a session and got more from a storage area that happened to be extremely dry. Trying to coat on these sheets was a complete disaster. Attempting to get around this, he tried bathing a sheet in the fog from a electro-static humidifier before letting it rest for a minute and then coating. The sheet coated beautifully, and printed extremely well in the moisture-dependent Ziatype method.

We tried printing in a very dry darkroom, around 30% relative humidity, with "misted" paper and got consistently satisfactory results. At the same time we found that the smoothest and most trouble-free results of all came from working in a room kept at a humidity level between 50% and 60%, with paper that is stored at the same RH. Elaborate equipment isn't needed. The simple humidifiers that consist of little more than a bucket of