

# Polaroid Image Transfers Tools and Techniques

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# 1 OVERVIEW

Do you remember, as a kid, Polaroid cameras and peel-apart pictures? You aimed-focused-squeeeeeezed the shutter release, grabbed the camera handle in one hand, the film tab in the other, and ripped out of the camera two melded pieces of white photo paper. You waited, counting seconds, then peeled the paper apart and with any luck at all, you had a picture on one piece of paper and some type of gunky stuff on the other. You threw away the gunky stuff side and kept the picture as some sort of representation of family values and modern technology—snapshots!

With Polaroid image transfers you throw away the picture side, slap the gunky stuff side on a piece of watercolor paper, you wait, counting minutes, then you peel the gunky stuff side off, throw it away and keep the resulting picture as an artistic expression, exemplifying your personal interpretation of the medium—art!

Welcome to the World of Polaroid Image Transfers!

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## The Beginning of Polaroid Image Transfers

The perennial story about the origins of Polaroid image transfers usually goes like this: It was the mid-1960's, and someone in a Polaroid research lab had left the negative side of an exposed piece of peel-apart Polacolor film face down on a countertop. When the negative was removed, it had transferred its positive image to the counter.

Did you ever meet a photographer who could resist trying something different with film or processing? Of course not! So, the legend further relates that Polaroid researchers/photographers began to experiment with this new-found alternative process until upper management (allegedly, Dr. Land himself) discovered what was going on and ordered them to cease and desist. Luckily, experimentation continued, allowing image transfers to evolve into the photographic art form that today is frequently seen in galleries, upscale advertising, annual reports, Audio CD covers, editorials, computer art, and books.

Polaroid upper management now demonstrates and encourages the transfer technique at every opportunity. Most often they describe it as a simple process, and image transferring is simple—you peel apart a sheet of exposed Polacolor print film, separating the negative from the positive before the developer-dyes have a chance to complete their migration to the positive film layer. You then place the negative face down on a receptor surface, usually watercolor paper, so that the dye emulsion transfers onto the receptor surface as a positive image.

Although image transferring is a straight forward process, the results are sometimes sporadic and film consuming. The emulsion might indiscriminately peel away from the receptor paper revealing the cyan under-image in the most crucial part of your subject, the colors might be muddy, the image might shift and blur, the paper might tear, and so on. What worked at the demonstration you attended at a camera show or workshop, may not work at home because you either were not told all the subtle secrets of the process, or you couldn't take notes fast enough.

My first fumbling attempt at creating image transfers went through a \$20.00 pack of Polaroid Type 669 film faster than Kleenex at the height of allergy season, and with about the same results. Each feeble image ended in the trash! This can be very frustrating, and for any starving artist, very costly.

I continued to experiment, and I was able to find the technique that permitted me to consistently produce twenty, ready-to-be-framed images out of twenty pieces of film, and no matter how dark the background of the original image, all of the emulsion transfers and adheres to the receptor paper. You can easily produce the same results.

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What Makes Image Transfers so Special?

I wrote this not only because I felt there was an immediate need for a complete, step-by-step guide to image transferring, but because I also wanted to share with other photographers the feelings of delight, and artistic and emotional fulfillment, I experienced when I first peeled a Polacolor negative away from a piece of watercolor paper. The image that was revealed was so mysteriously evocative and beautiful it took my breath away.

There is the sensation of tactile appearance to Polaroid image transfers that is unique—part watercolor painting and part photography; they are often impressionistic and somewhat ethereal; and on occasion they are fresco-like or obviously manipulated. “Provocative,” “moody,” and “sensuous” are terms often used to describe the visual characteristics of image transfers, yet the subject matter ranges from flowers to cowboys, from architecture to nudes.

Your imagination can run free producing works of art that are very individual and very personal representations of your own creative vision. Your initial image transfer can stay in its final form, or it can serve as the base medium for further enhancements and/or manipulations. Its appearance can be altered by using papers with different surface textures or by using different receptors—anything from fabric to ceramic tiles. You can embellish your transferred image by painting or drawing on it, scraping off or scratching onto the emulsion before or after the transfer. You can also transfer one image on top of another, or you can transfer onto a pre-painted or manipulated surface. You can also transfer several images onto a single, large piece of watercolor paper to create an entire series of images.

What makes image transfers so special? Your creativity and artistic vision.

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Technical  
Stuff—What  
Happens When You  
do a Transfer?

Polaroid Polacolor print film makes use of the same subtractive color process as other color negative films, using the primary colors red, green, and blue. The major difference, besides the idea of an instant print, is that all the chemicals, including the developer and the color dyes (referred to as a developer-dye) are enclosed within a very thin sheet of film.

The negative side of the film has six layers, plus a base and two spacers. There are three layers of emulsion made up of silver halide grains. Each emulsion layer is sensitive to a specific primary color—red, green, or blue. Adjacent to each emulsion layer is a layer containing the complement color molecules of developer-dye—cyan, magenta, and yellow. The positive side of the film contains four layers. There is also the layer that contains the small pod of developing gel.

The negative is exposed when the colored wavelengths of light, passing through each layer, is finally seized by its respective primary color layer, which sets up molecular traps for its complement color dye chemicals.

Development begins when the film is pulled out of the camera or film holder. The sac of developing gel is broken first and evenly spread between the positive and negative sides of the film as they travel through the rollers. Even distribution of the gel ensures a better transferred image; therefore, when you pull the film, do not use jerky movements, pull in one slow, consistent motion.

Once the developing gel is released, it seeps into the negative side of the film and begins to activate the molecules of the cyan, magenta, and yellow developer-dye. These molecules begin, at the same time, to immediately migrate toward the positive side of film. As the molecules move, they connect with and then develop only the exposed silver halide grains in their own counterpart emulsion layer.

It is the migration of the developer-dye molecules that allows you to prematurely separate the negative from the positive and use a different receptor surface. Since the molecules must interact between both the positive and the negative sides of the film, it is imperative that you do not pull the film apart too soon. If you pull the film through the rollers and immediately peel it apart and place the negative face down on the receptor surface, the resulting transfer will be very yellow/brown or sepia in color. It will also be flat and monotone—the deep reds, greens, blues, and yellows that are possible in image transfers will be absent.

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Permanence Will an  
Image Transfer  
Last Forever?

As a fine art photographer, I am very concerned about how long my images will remain faithful to their original appearance. This is not just artistic conceit, it is also a sense of responsibility to the people who purchase my images. Art is an investment that should not self-destruct!

Polaroid Corporation states that the dyes used in its films are inherently stable. In other words, Polaroid suggests that if you store your images “in dark or in moderate tungsten or subdued natural light [the] transfer images will last for many years without any noticeable degradation... .”

Bright, indirect light, direct sunlight or high-intensity fluorescent lights will cause your images to fade over time; the fading will be noticeable first in the magenta, then the yellow, and finally, the cyan dyes. You can slow down the fading by displaying your transfers under UV-absorbing covering.

There are many other factors that can also destroy the appearance of your transfers, but you can take precautions to help your image remain as close to its original appearance as possible. Your initial objective is to be certain that everything that comes in contact with the negative is archival. Start with the transfer receptor; if it is paper, it should be acid free, neutral pH, 100% cotton rag, and preferably buffered. Any water that comes in contact with the paper should be distilled. After you remove the negative from the receptor paper, dry the image transfer emulsion-side up on clean plastic screening.

When the image transfer is completely dry, mount it on acid free, neutral pH, 100% cotton rag Museum Board, using archival tape. Make the mat from the same board. Frame it using metal or sealed wood.

If you store your images in plastic sleeves, make sure it is either polyester (Mylar), polypropylene, polyethylene, or triacetate, since these will not give off damaging gas. Do not store your images, negatives, or slides in polyvinyl plastic.

Many transfer artists use paper towels to blot their receptor paper before doing the actual transfer. Paper towels are not archival. I remember looking at a photographer’s handmade book of beautiful black and white images that she had meticulously printed on fiber photographic paper. She had printed them in class and before they had fully dried, she transported them home layered between paper towels. When I saw the images they were ten years old, and you could easily discern the paper towel pattern in a yellowing stain that marred each picture in her book.

Some literature recommends that you spray the surface of your images with lacquer to further protect them, but be aware that lacquers can, and often do, turn yellow with age.

If you live in an area of high humidity, you must also be on the lookout for mildew and bugs. Termites are especially voracious critters; they will eat anything, even art!

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Subject Matter  
Detailed or Simple?

Your transferred image will never be as fine grained or as crisply defined as your original image. That is part of the charm of the medium. But don't discard an elaborate image in favor of one that is less complex, because you do have some control over the amount of distinct detail that will be apparent in your transfer.

You will get finer detail by using a smooth surfaced paper such as hot press watercolor paper. You can also control the painterly effect of the final image transfer by regulating the wetness of the receptor paper.

You do not have to limit yourself to one particular type of subject matter to make stunning transfers. You can use day or night shots, sunrises or sunsets—the subtle and delicate color gradations that can be achieved with transfers are astounding. You can use an original image that is finite sharp or one with a very shallow depth of field. Architecture or lace, landscape or portrait, abstract or straight shot, still life or football scrimmage, photo journalism or... whatever—you can do it all with excellent results.

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Health Precautions

Each of the Polaroid films mentioned in this text contain chemicals that are combined into a developing gel used to activate the film dyes. Polaroid literature warns that there is a caustic paste in the developing gel that can, with frequent skin contact, cause an alkali burn; therefore, you should wear protective gloves if you repeatedly get the gel on your hands.

You are most likely to come in contact with the developing gel when doing the actual transfer—after placing the negative on the receiving medium. As you squeegee or roll the back of the negative, the developing gel may ooze out of the lower edge of the negative and appear as a brownish, semi-translucent substance. It will sting if you get it in an open cut, but I'm not sure what other damage it will do to you; however, if you have sensitive skin, and/or you do not want to come into direct contact with any unknown/alien substance, wear surgical gloves.

SX-70 films contain a white paste-like developing gel that Polaroid also warns is caustic. You would come into contact with it if you split open the film and separate the positive image from its backing. The procedure for this type of manipulation is usually to wash the white developing gel off the positive—wear surgical gloves to do this.

If you get any developing gel on your skin, wash it off immediately. If you get it in your eyes or mouth, wash the area with plenty of water and contact your doctor.

Also, please keep chemicals and discarded materials away from food, children, and animals.

## 2 ZEN AND THE ART OF POLAROID TRANSFERS

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### Know Your Materials

The results that you achieve with your image transfers will have as much to do with your own talent as an artist, as it does with the medium itself. Like most creative processes, the outcome may not always be predictable because of the many variables involved; therefore, every transfer you create will be a unique and original work of art. Some of these variables, however, can be controlled by gaining a thorough knowledge of your materials.

### Film

Polaroid Corporation no doubt has excellent Quality Control; but, if you're producing millions of sheet of film there is bound to be a glitch once in a while. For me, the glitches always seem to be in pack film with the negative and positive layers misaligned so that I either get a partial image or sometimes no image at all. I usually toss all the mismatched film into a zip lock bag and ship it back to Polaroid for a credit coupon good for an entire box of new film, or I take it back to the store where I purchased the film and get a new box.

There may be some inconsistency in your film because of an error during the manufacturing process, but it also can be the result of how the film was handled after it left Polaroid. Was it exposed to severe heat? Was the film stored flat or on edge? Is the film close to its expiration date? Sometimes the film will easily pull apart without leaving any narrow paper strips on either side of the negative layer; other times it will not. All factors, no matter how inconsequential they may appear, will effect how the film behaves and will influence how your subsequent transfers will look. You can, however, control the film and your results to some degree by being aware of the following:

- For optimum results, work with the freshest film possible; therefore, always check the expiration date of your film in the store, before your purchase. Also make sure the film is stored under refrigeration; if it isn't, go to a different store.

Film should be stored in its unopened foil wrapper in the refrigerator (not in the freezer). Once the foil wrapper is opened, store the film in a cool, dark place (continued storage in the refrigerator can dry out the emulsion).

Cold weather slows down film development times; therefore, if you winter in North Dakota or try to use the film straight out of the refrigerator, it will not produce the same results it did at its optimum temperature of 70° to 80°F. Plan on approximately two hours to bring the film up to room temperature (about 75°); leave the film in its foil wrapper to prevent condensation.

- If the film was stored on its edge, instead of flat, the emulsion may slip, and your results will be uneven.

- Handle the film along its edges only. If you press your thumb into the middle of the film, you may shift the emulsion and get uneven images; but if you press in the correct place you might get some interesting art!
- If you use pack film, pull out the white tab in a straight and continuous motion after exposure. Then firmly grip the film tab and pull it out, at moderate speed, also in a straight and continuous motion. Pulling the tabs at an angle will cause uneven development, pulling the film tab too aggressively can cause a static electrical discharge that will result in small white specks on your negative.

The film will begin its development process as soon as you pull out the film tab. Wait at least ten seconds and then rapidly pull the film apart, starting at the film tab end. Once the film is apart, do not allow the two sides to come into contact with each other again, and do not touch or bend the negative side of the film before you place it on the receptor (unless you intentionally do these effects for art).

- If you use pack film, keep the spreading rollers on your film back clean. Dirty rollers may cause the following problems: spotting on the negative and then onto your transferred image; misplaced film tab; or uneven development.
- Outdated film is not a bargain unless you love the unknown, or you are purposely doing some deeply personal and truly esoteric art.

## Paper

I once purchased a few sheets of high quality watercolor paper and started doing dry transfers. The paper worked to perfection, and the transfers were distinct and perfect. I hurt my arm patting myself on the back, secure in the knowledge that I had discovered the secrets of the universe as they pertained to dry Polacolor transfers. I confidently went back to the store to buy more paper, a new shipment as it turned out, but I could not for the life of me repeat my efforts; the negative side of the film stuck to the paper, and I ended up with blotches of torn paper and no matter what I did, I could not duplicate my previous results. Was it the paper, a new coating perhaps, or the weather, too humid or too dry, or was it my timing? Or perhaps Karma? I don't know; but I did learn one thing—keep notes on exactly how you achieve a result and the paper you use to achieve it, the weather conditions, and so on.

If you are a professional artist and doing your transfers with 8" x 10" film, buy a ream of paper and store it under optimum and consistent conditions. The price of 8" x 10" film does not allow a very large margin for errors.

Humidity, the water in which you soak your paper, how thoroughly you soak your paper, the dryness or wetness of the paper, and even a particular batch of paper, may effect the outcome of your images. Some artists believe that the pH level of the water in which they soak their paper will influence their results, so they add everything from Lysol to vodka to the water! If you are concerned about

the pH level in your water, buy a test kit. Neutral pH is 7.0, below that is too acidic above is too alkaline. Once you determine whether your water is too acidic, too alkaline, or just right, you can add either white vinegar (acid) or baking soda (alkali). I'm not quite sure about the vodka, but then I'm a California red wine person, myself; however, you can experiment to see if any of these make an appreciable difference; my concern would be how such additions would effect the permanence of the transferred image.

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## Typical Problems

There are always problems that seem to be inherent to every photographic process, and I've attempted to cover those here. If you come across a more unique problem, please let me know.

### Hot Spots

While using the Vivitar Slide Copier, I have noticed hot spots—a small dark circle that is unexposed on the negative leaving a blank spot on the image transfer. If this happens to you, try reversing the slide; also shut the copier off and then turn it back on again. If the hot spot still appears in the same location, then I would suspect that the film is at fault.

### Muddy Colors

The receptor paper you use can effect image color. You can test various papers by choosing a very colorful transparency and transferring it onto different papers. Save your results in a notebook for reference. Then use the same papers with a black and white positive image and compare those results.

Your choice of filters can also effect the color of your transferred image. Refer to the section, **Using Color Correction Filters** for information on how to correct the colors in your image.

If the saturated colors of your subject are absent from your transferred image, you may have peeled the film apart too soon. Wait at least ten seconds before you pull the negative side from the positive side of the film.

### Emulsion Dye Won't Stick to the Receptor Paper

This is the most common problem with Polaroid image transfers—the dark portions of the image may not stick to the receptor paper, and you are left with a cyan patch of under-image on your transfer where you wanted rich black, blue, or brown emulsion.

Some artists take advantage of this problem by scrapping away additional areas of emulsion, creating a look that is very fresco-like in appearance.

If you want the dark emulsion to stick, the solution is fully detailed in the section, **How to Create Image Transfers**. Briefly, here is what to do: Just before you peel the negative film away from the receptor paper, slowly pour about two cups of water, which has been heated to just below the boiling point, over the back of

the negative. Repeat this procedure on the reverse side of the receptor paper. Then slowly peel the film from the paper, starting at the brown paper end of the Type 669 or 559 negative (either end of the Type 59 negative).

Much of my subject matter consists of bright areas surrounded by dark, subtle shadow; yet, using the method described above, I have had consistent success with transferring all the emulsion onto the receptor paper.

### Movement of the Negative During Transfer

If you want to see what your transfer will look like as a 3-D image, just move the negative slightly after you've laid it on the receptor paper. The registration of your image will be a bit misaligned giving the impression of multiple edges.

To prevent misregistration, place the negative on the receptor paper in one continuous motion by putting one end on the paper and then allowing the rest of the negative fall in place. To ensure that the emulsion is in even contact with the receptor paper, firmly hold down one end of the negative with your finger tips and either rub or roll the back of the negative, pressing it into the receptor paper.

### Uneven Distribution of Developer Substances

A typical indication of this problem is a portion of the film, usually one corner, is blank and doesn't show an image. It is caused by the failure of the developer to spread all the way across the film when it is pulled through the rollers. Check that you are pulling the film tabs out of the holder in a straight and steady motion. If this does not eliminate the problem, return the film to your dealer for a refund or another box of film.

### Lost Film Tab

When using pack film, it is possible to pull out the white film tab, and somehow have your fingers in the way so that the end of the film doesn't eject from the film holder. This usually happens during an extremely traumatic art session, when nothing else has gone right anyway, and when you are rethinking your entire life and chosen career. But all is not lost.

Make sure the dark slide is in the film holder, then take it into a darkroom, or light-proof closet. In total darkness, open the film holder and by feel, find the film tab (it will be heavier and wider than the white tab) and slip it between the rollers of the film holder. Close the film holder, turn on the lights and check that the film tab is now protruding from between the rollers. If it is, you can pull it through and it should develop normally. If you do not have it going through the rollers and you just say to hell with it and pull it out anyway, the next sheet of film will be lost also.

## Over-Confidence

Art has a way of slapping you down as soon as you get the least bit cocky. When doing image transfers, it is easy to get on a roll; and having decided that your filtration or your timing is just the way you want it, you might decide to knock off eight or ten transfers all at once without checking the first one to make sure everything is just the way you want it. *Always check.*

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### Advantages of Testing

One of the best ways to ensure consistent images, is to have a thorough knowledge of your materials and the results they will produce. Test and experiment and then record your notes and transfers in an example book.

A good reference table can be created in your example book by taking a black and white and a multicolored transparency, making a series of image transfers on different types of paper, both wet and dry, using different times for film separation, and different lengths of time the film is in contact with the receptor paper. Put all the resulting transfers in a note book and label each example. As you continue working with transfers, you may want to add to the examples in your notebook; put in your failures (if you have any, of course), as well as your successes. Be sure to add detailed notes. Your note book will then become your source for consistency and experimentation.

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### Push the Limits

I encourage you to constantly push the limits of the medium and always explore and record your results. Lately, there has been a lot talk about pioneers, usually in relationship to succeeding in modern business. I think it is easy to push limits when you know you will get something in return; but as artists, we are more comparable to the pure adventurers— the Amelia Earhart's, the Sir Edmund Hillary's, or the John Muir's, who pushed the limits simply for the joy of discovering what was beyond.

## 3 FILM

When it comes to selecting the brand of film to use for image transfers, there seems to be only one game in town—Polaroid.

Fuji manufactures a peel-apart film, but at the writing of this book, it didn't transfer for me. I tried various ways to get a transferred image from it—soaking the receptor paper in an acidic solution (adding white vinegar to the soaking water), in an alkali solution (adding baking soda), and in plain distilled water. I also experimented with the length of time the film stayed together before peeling the negative from the positive. The results ranged from a solid square of green, to a very, very faint and indistinct image, to all green again. The times before I peeled the film apart ranged from ten seconds to two minutes. The faint image appeared in the transfer when I peeled the film apart at about ninety seconds, but the next piece of film, which I peeled apart at two minutes, produced a solid green transfer.

I have heard rumors about some photographers who have transferred Fuji film, but no one has volunteered any information beyond the rumors. My next experiments with Fuji will involve applying heat to the sandwiched image as described under the Pro 100 heading below.

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What Are Your Choices?

So that leaves Polaroid and its Polacolor ER "9" series and Polacolor Pro, the only print films available that can be used to make image transfers. Both films have a negative side and a positive side that must be peeled apart after exposure and development. It is the peel apart feature and the migration development process that enables the creation of image transfers.

### Polacolor ER "9" Series Print Film

Polacolor ER is an extended range film, able to handle an exposure range of about 5 1/2 f-stops, producing good shadow and highlight detail. The film is manufactured as pack or as sheet film. (Although Type 809 film could be considered a sheet film, the user is responsible for combining the negative and positive sides of the film for exposure; therefore, I treat Type 809 as a separate category.)

Sheet film only comes in the 4" x 5" size and must be exposed using the Polaroid Model 545 film holder. The holder can be fitted onto most standard 4" x 5" camera backs, the O&ER ProPrinter, or the Daylab II Printer.

Sheet film is sold as a single exposure packet, twenty packets or sheets to a box. Each exposure packet contains four layers of material. The two gray outside sheets of paper, firmly attached at the paper tab end, enclose the negative and positive film layers, like an envelope, protecting it from light. The side of the gray envelope, that will face away from the lens, displays the name of the film, its ISO rating, its size and optimum exposure temperature. The other side, that will face the lens, has the positive attached to its underside.

The negative has a metal strip on one end that allows it to lock into the holder. After you slide the packet into the holder and firmly engage it, you pull the gray tab partially out of the holder. This draws out both sides of the gray envelope, with the positive side of the film tucked safe and dark within the envelope, while the negative is uncovered under the lens for exposure. If you are using an older holder, be careful not to pull the gray envelope all the way out of the holder, it is very difficult to reinsert. The Model 545i has a built-in auto-stop that prevents the envelope from being pulled out all the way.

After exposure, the gray tab is pushed back into the holder. The exposed negative and positive sides of the film now face each other within the gray envelope. The film can now be released from the holder and developed later, or it can be immediately developed by locking down the holder and drawing the gray envelope through the holder's rollers. After development, the gray envelope is pulled open and the film peeled apart.

#### **Advantages of Using Sheet Film**

- It is less expensive than pack film.
- You can expose a single sheet of film at one time without having to develop it immediately. This can be very advantageous if you are shooting live in the field and want to do your transfers at a different location.
- It is very dependable—the negative and positive are already facing each other, so there's no chance for misalignment; therefore, less lost shots.

#### **Disadvantages of Using Sheet Film**

- If, when you are ready to make an exposure and you are using an older holder, you pull the gray envelope out too far, it is very difficult to get it back into the holder. This probably won't happen if you are shooting live with a camera, but if you are projection printing in total darkness, it is more difficult. Hint—draw out the envelope with your right hand, put the index finger of your left hand on the edge of the film plane opening. As you pull out the envelope, you'll be able to feel it move under your index finger and you'll know when it has totally cleared the opening.
- When you are ready to peel the negative from the positive side of the film, you have to first peel off one side of the gray envelope, then peel apart the film. This is an extra step that may take some getting used to.

Pack film comes in two sizes. The 3 1/4" x 4 1/4" size is sold in a box containing two cartridges, each holding eight pieces of film. The 4" x 5" size is sold in a box containing one cartridge, holding eight pieces of film.

In the cartridge, there are eight negatives stacked together facing the lens and held in place above a pressure plate. On the other side of the pressure plate is a stack of eight positives. After loading the cartridge into a camera or special film holder, the black paper masking strip is pulled out of the film holder. A white paper tab will then protrude from the end of the cartridge (the tab has a blue imprint of the current "frame" number) The first negative is now uncovered under the lens and ready for exposure.

After you make an exposure, pull the white tab out of the cartridge. It is important to pull the tab out in a straight and continuously steady motion. When you pull the tab the exposed negative is transported to the back of the pressure plate so that negative and positive are sandwiched together face to face. Another tab, the black end of the film, will now protrude from the end of the cartridge. The film will not begin its development process until this black tab is pulled out.

Pull out the black tab just as you did the white one, in a straight, continuous and steady motion. Pulling the black tab leads the positive and negative layers of film through the camera's or film back's rollers. The pressure of the rollers breaks the developer pod and spreads developing gel evenly between the negative and positive sides of the film.

#### **Advantages of Using Pack Film**

- Using pack film allows you to work very fast.
- There are eight pieces of film loaded at one time.
- You don't have to worry about sliding a masking envelope in and out.
- When you pull the film out of the cartridge after exposure, you can peel it apart without having to handle extra sheets of paper.

#### **Disadvantages of Using Pack Film**

- It costs more than sheet film.
- You have to develop each piece of film when you expose it, because you cannot remove it from the cartridge without breaking the developer pod.
- Not as dependable as sheet film. The way pack film is constructed there is the opportunity for the negative and the positive to be misaligned.

#### **Types of Polacolor ER "9" Series Print Film**

Type 669 pack film, has a print size of 3 1/4" x 4 1/4", with an image size of 2 7/8" x 3 3/4". It is rated at ISO 80/20° and color balanced for 5500°K daylight and electronic flash. It is sold in a box containing two individually foil wrapped packs, each with eight sheets of film.

Type 669 is the film used with the Vivitar Slide Printer, the O&ER ProPrinter, older Polaroid cameras, and the newer ProPack or 600SE cameras. You can also project an image onto the film by using an enlarger in a darkroom.

Type 59 sheet film has a print size of 4" x 5", with an image size of 3 1/2" x 4 1/2". It is rated at ISO 80/20° and color balanced for 5500°K daylight and electronic flash. It is sold by the box of twenty sheets.

Type 59 must be exposed using the Polaroid Model 545 Film Holder which can be fitted onto most standard 4" x 5" camera backs, the O&ER ProPrinter, or the Daylab II Printer. You can also project an image onto the film by using an enlarger in a darkroom.

Type 559 pack film has a print size of 4" x 5", with an image size of 3 1/2" x 4 5/8". It is rated at ISO 80/20° and is color balanced for 5500°K daylight and electronic flash. It is sold by the box of eight sheets.

Type 559 must be exposed using a Polaroid Model 550 Pack Film Holder which can be fitted onto most standard 4" x 5" camera backs, the O&ER ProPrinter, or the Daylab II Printer. You can also project an image onto the film by using an enlarger in a darkroom.

Type 809 has a print size of 8" x 10", with an image size of 7 1/2" x 9 1/2". It is rated at ISO 80/20° and is color balanced for 5500°K daylight and electronic flash.

Type 809 is probably best described as divided sheet film. It is sold by the box that contains a tray of negative sheets, each in a light-proof envelope, and a tray of positive sheets, each with an attached developer-dye pod.

Type 809 is exposed using a Polaroid 8" x 10" Land film holder which can be used with the Daylab II Printer, Polaroid 8" x 10" Polaprinter, or the TTI 8" x 10" Camera Head. You can also project an image onto the film by using an enlarger in a darkroom. The film must be processed in a Polaroid 8" x 10" film processor.

## Polacolor Pro 100 Print Film

### **New Pro 100 film**

In late 1996, Polaroid changed the chemical composition of Polacolor Pro 100, and it was thought that Pro 100 could no longer be used for image transfers; however, the Fall/Winter 1997 issue of Polaroid's *Test* magazine includes an article about how one photographer, Larry Gerbrandt, produces transfers with Pro 100. His process involves keeping the transfer "sandwich" warm during the transfer process combined with an acidic clearing bath after separation.

You can follow the normal process of projecting an image onto Pro100 film, then transfer onto a dry, smooth surface receiver paper. After the transfer, rub the back of the paper, then run the transfer through a laminating machine at very low heat. Gerbrandt runs the image through 3 to 5 times in rapid succession, flipping the image "sandwich" after each run. Gerbrandt also recommends using an iron on a very low setting if you don't have a laminator. You might also consider using a dry mount press set at low heat.

After the heating process, separate the image "sandwich." At this point, the image is muddy looking, but you can "clear" the image in a bath made up of one-third each of distilled water, white vinegar, and hypo clearing agent. Gerbrandt mentions that there is a problem with image highlights which leaves a yellowish coating on the image; these can be mostly eliminated by submerging the image in the clearing bath for about two minutes while agitating the bath. Then, with the image still submerged, use an artist's brush to gently brush away the yellow coating. After the clearing bath, wash the transfer in running water for about 15 minutes.

Since the yellow is mostly in the highlights, you might want to consider using this process on low key images. Gerbrandt indicates Pro 100 transfers are best for images with strong colors such as red and blues (greens tend to shift to blue); he also feels that detailed images transfer better than ones with large areas of solid color.

I wonder if you can use this process on Fuji's pull apart instant film?

### **Pre-1996 Pro 100 film**

I'm also including the following directions for those of you who might be hoarding the original version of Polacolor Pro film:

Because pre-1996 Polacolor Pro employed a new dye technology, you will have to handle it a little differently than the Polacolor ER films discussed above. In order for a Pro image to transfer, the receptor paper must be soaked in either acidic or alkaline treated water. To create an acidic water solution, add about one-half cup of white distilled vinegar to about one cup of water. To create an alkaline water solution, sprinkle baking soda in your soaking tray so that it generously covers the bottom, then add simmering water. Mis to dissolve the baking soda. Continue as you would with the Polacolor ER "9" series film.

I prefer to soak the paper in vinegar because it is easier to handle, and it does not feel gritty on the paper as does the baking soda.

Pre-1996 Polacolor Pro produces an image transfer with greater color saturation than Polacolor ER, especially in the greens and reds, and fine detail, with less of an impressionistic look. However, the resulting image transfer is on the warm, or yellow, side. You can color correct the warm tint with the addition of color correction filters. Although Polaroid recommends adding a cyan filter for this correction, it is not quite as straight forward as that. The margin is very narrow, and too much cyan will produce transfers with a decided green cast. You will need to analyze each original to determine which filter will bring out its best qualities.

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A Word of Caution

For optimum results, work with the freshest film possible; therefore, always check the expiration date of your film in the store, before you purchase it! Also make sure the film is stored flat, and under refrigeration; if it isn't, go to different store.

## 4 PAPER—THE FOUNDATION OF YOUR IMAGE

Artists who create image transfers use a variety of materials as receptor surfaces—fabric, ceramic tile, wood, plastic, photographic paper, vellum, paper grocery bags, and leather, are just some of the possibilities. However, the most commonly used receptor surface is high quality watercolor paper.

Traditionally, the finest watercolor paper was made from linen rags that were pounded into pulp and then formed in molds by hand. Today, most superior quality watercolor paper is either handmade or cylinder-moldmade, and the fiber is now cotton, preferably 100% rag. The best paper is acid free, and has a neutral pH, to ensure long term stability without discoloring or becoming brittle. Some mills also buffer their paper with calcium or magnesium carbonate (chalk) claiming that this will further preserve the paper's original beauty by absorbing atmospheric acidity before it reaches the paper.

You can buy watercolor paper in tablets, and you may wish to experiment with some of the most popular brands, but I suggest you go to an art store that carries individual sheets of fine quality hand- and moldmade watercolor paper and feel the difference—good paper has a tactile sense of depth and soft richness that is reminiscent of sueded silk.

Characteristics that are inherent to certain types and brands of watercolor paper will effect how your completed image transfer is visually perceived, how long your work will last, and how true it is to your interpretation of your subject as art.

Although there are numerous papers to choose from, there are certain characteristics that are common to all watercolor papers.

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### Paper Characteristics

A piece of paper is a piece of paper, right? Of course not! In every art department there are paper books filled with wonderful samples of available paper for almost every medium. You have your choice of

- Weight
- Surface Texture
- Sizing, and
- Color

### Weight

The thickness of watercolor paper is indicated by its weight per 22" x 30" 500-sheet ream—90 pound, 140 pound, or 300 pound.

The thinnest paper is 90 pound, it is generally not used for transfers because it is more likely to stretch, crease, or rip, especially when wet, while you are transferring the emulsion onto its surface.

The thickest (and most costly) paper is 300 pound; initially this weight seems ideal because it is stiff and heavy, but when doing a dry transfer, I was disappointed to find that when I removed the film negative from the transferred image, the surface layer of the paper had separated from a sub-layer, creating a large blister beneath the image (no amount of steaming or rewetting repaired the injury).

Now I only use the medium weight paper, 140 pound, because it is heavy enough to resist buckling and creasing during the transfer process, yet thin enough not to separate.

### Surface Texture

The surface texture of watercolor paper is classified three ways—cold pressed, hot pressed, and rough. There is no standard as to what these three surface textures will be like from one brand to another, but generally, hot pressed paper will have the smoothest surface because during production its fibers are compressed between two hot rollers; cold pressed (called Not surface in Europe) is produced under less pressure and with cold rollers, so it has a more noticeable texture; rough has more texture than cold pressed because it is subject to the least amount of pressure between cold rollers.

Surface texture makes a significant difference in the results you can achieve with your image transfers. Hot pressed paper produces the most distinct images and is the easiest surface to work with. Cold pressed and rough papers produce a less distinct image, one that is more impressionistic in appearance; therefore, this type of paper might be used for bold images that do not require much recognizable detail. Experiment so that you know which surface will work to your image's best advantage.

An individual sheet of paper may also have two textures, in that one side of the paper will be slightly more smooth than the other. You discern this by touch after the paper has been soaked in hot water and air dried for a half hour or so. Some papers, such as Arches, are smoother on the front side (if you can read the watermark, you are looking at the front side of the paper).

### Sizing

Watercolor paper is sized with gelatin, glue, rosin, or Aquapel, to control its absorbency. Some papers are internally sized by adding the sizing material to the wet pulp, before it is formed in the mold (this technique is also referred to as being sized in the beater). Many papers are tub sized—after it has been formed and dried, the paper is dipped in a tub of sizing and redried. There are also papers that are both internally and tub sized.

Sizing makes the paper hard by reducing its absorbency. This is especially important to watercolorists, but I wondered what the effect of sizing would be on image transfers. To do a test, I purchased Arches 88, also known as Arches Silkscreen. This paper is hot pressed and unsized, it's very smooth and extremely

absorbent, it is 100% cotton rag, neutral pH/acid free, and calcium carbonate buffered. It is rated by Arches to be especially archival (denoted by the infinity symbol in the watermark). I had grand hopes for its performance!

Unfortunately, the results, after many transfers, were very disappointing. Without the sizing, the dark emulsion would not adhere to the paper, no matter how warm the paper was kept, whether I poured boiling water over the paper, or if I did a dry or a wet transfer. On the basis of on these tests, I only use paper that has been sized.

Having said what works best for me, however, is not the golden rule for you or your images. Your tests may produce different results. Perhaps it is not the sizing; perhaps it was just that particular paper. Do tests and experiments and pass along your findings!

## Color

The color or tonality of your final image can be influenced by how your paper reacts to a number of factors—the color of your subject matter, your choice of filters, the length of time before you separate the film negative from the positive, the mineral content of the water in which you soak your paper, and the variations in the whiteness of the paper itself.

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## Brands of Watercolor Paper

There are several brands of watercolor paper on the market. Each will produce varied results depending on the paper's surface texture, weight, color and absorption qualities. Below are descriptions of some of the most popular brands of moldmade watercolor papers—consider this only as a guide; experiment with as many different papers as you can, and decide for yourself which one will work best with the particular image you want to transfer. Keep in mind that there is no such thing as the perfect paper; your subject matter, and the mood you want to convey, will dictate what paper and procedure is most appropriate for your final image.

### Arches (Aquarelle)

Made in France since 1492, Arches watercolor paper is the favorite of photographers doing transfers, platinum prints, and Scitex Iris prints. The history of Arches as a paper company, and its concern for user satisfaction is very impressive. The paper is moldmade and hand inspected assuring artists of its reliability and consistency.

Aquarelle is 100% cotton rag, neutral pH/acid free, and buffered to ensure stability and longevity. It is gelatin sized in the beater and after the sheet is formed. It is a gray/blue white when wet, but appears neutral when dry. It is slightly thinner than the other 140 pound papers, but it's strong and the image can be manipulated or reworked without bringing up large bits of the paper surface or changing the surface quality. Arches is deckle on the lengthwise edges. Watermark "Arches France" and embossed "Aquarelle Arches."

### Fabriano (Artistico)

Made in Italy, Fabriano is one of the oldest, continuously operated paper mills in Europe, making paper since 1268 and making moldmade paper since the 19th century.

Artistico has a creamy base tonality that works very well with images requiring an understated warm tone. It is surface sized, 100% rag, and neutral pH/acid free. The fact that it is surfaced sized and not internally sized may make it a bit more difficult to work with. It is slightly softer than Arches, although I am unable to discern any noticeable difference in image or edge sharpness between the two papers. Fabriano is deckle on the lengthwise edges. Watermark “C M Fabriano 100/100 Cotton.”

### St. Cuthberts (Saunders Waterford)

Made in Somerset, England, Saunders Waterford is 100% rag, neutral pH/acid free and buffered. It is surface and internally sized. The paper has an excellent reputation for high quality and carries the Royal Watercolour Society’s seal of approval. Watermark “T. H. Saunders.”

### Winsor-Newton (Artists’ Watercolour)

Made in England since 1830, Winsor-Newton Artists’ Watercolour is 100% cotton rag and neutral pH/acid free. It is internally and surface sized and very white in appearance. The paper has four deckle edges. I prefer this paper when transferring black and white images. It produces a lovely color without the use of a magenta filter, and shows remarkable detail and latitude. Watermark with company logo and “Winsor Newton” also embossed.

### Whatman (Watercolour)

Made in England since 1740, Whatman Watercolour is 100% cotton rag and neutral pH/acid free. It is moldmade and is internally sized without gelatin to preserve the pure whiteness of the paper; it is very soft and absorbent. It would be a good choice if you want slightly more texture than the standard hot press, yet less texture than cold press or rough. Whatman advertising also makes a point of mentioning that its paper contains no animal by-products (presumably a reference to the lack of gelatin sizing). The paper is deckle on the widthwise edges. Watermark “Whatman.”

### Lana (Lanaquarelle)

Made in Lorraine, France since 1590, Lanaquarelle is 100% Egyptian cotton, neutral pH/acid free, and buffered with calcium carbonate. It is cylinder moldmade and surface sized with gelatin and also internally sized. The paper is deckle on the lengthwise edges. Watermark “Lanaquarelle.”

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## Handmade Paper

Handmade paper is expensive and it is beautiful, but it is not always possible to know its ingredients, and that may be a problem if you are concerned about image permanency. But, it is beautiful, and when you buy a sheet of handmade paper, you are buying into a craft tradition that has continued relatively unchanged, for several hundred years.

Hand producing paper allows for the creation of unique individual sheets with varying appearances and characteristics. Be aware that inconsistencies are more likely to occur in handmade than in moldmade paper, but you may wish to emphasize these subtle imperfections to remain faithful to the look and feel of a totally handmade art process.

Of the large European paper mills listed above, only Fabriano makes handmade paper. It has an excellent reputation for quality and consistency, and all of Fabriano's handmade papers are archival.

Japanese handmade paper can be some of the most exquisite paper ever made, but the large variety of surfaces, patterns and colors can be very challenging to an artist. Look for the finest quality and purest papers you can find—Japanese papers have a reputation for being strong and are said to improve with age, thereby allowing the paper to continually express its materials and craft.

Never forget that your art deserves the best paper you can afford! Choose 100 percent cotton rag, neutral pH/acid free to ensure that as the paper ages, it stays as close to its original appearance as possible.

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## Other Receptors

There are times when creative aesthetic takes precedent over traditional performance, and you just have to let yourself go. That's the time to think about doing transfers on other materials beside paper.

What about transferring onto fabric? Almost any natural fiber material, such as silk, cotton, or a fine weave linen, would be suitable. Wash the fabric first to ensure the removal of any sizing or additives. It will be easier to do the transfer if the fabric is stretched flat, say, in a large embroidery hoop.

Florida photographer Patti Bose does her stunning image transfers onto silk; its fine weave and soft appearance complement the mood of her fashion photography. Ms. Bose often applies paint to her transfers to enhance their appearance. She also discovered that the Polacolor dyes are fairly permanent and able to withstand repeated cleaning.

You don't have to be limited to the obvious transfer receptors, one artist, Steve Wilson, uses wood veneer. Another artist, Myron, has experimented with transferring images onto unglazed ceramic floor tiles. He washes the tile then dries it until it is just damp. The rest of his process is the same as for a paper receptor, but afterward he manipulates the image by washing off the emulsion and then rubbing the remaining image with fine grade steel wool creating the look of patina on a fine, old painting. Myron also experiments with using photographic paper as a receptor.

There is one surface that Polaroid does not recommend that anyone use—your own body—as in transfer tattoos. The caustic developer can irritate or burn your skin, so please don't do this to yourself or your friends.

## 5 BASIC TOOLS

I've listed below the basic tools I use when doing Polaroid image transfers. As you can see, you won't require anything that is too specialized or expensive.

**Photographic squeegee**—I use two. One, to wipe excess water from the receptor paper. I want the paper and squeegee to be free of any contamination, so I don't use the same squeegee to rub down the negative because it might come in contact with developing gel.

I use my second squeegee to evenly rub the back of the negative to ensure that the emulsion will bond to the paper. I also use my second squeegee to clean off any developing gel that might have leaked from the negative onto the receptor paper.

I have been very satisfied with Saunders' squeegees; mine are 7" and 12" wide; they fit comfortably in my hand, they have held up very well, and they come with a hole on the back of the handle so I can hang them up on a tool pegboard.

I've heard of some people who use the back of a soup spoon to rub their transfers, and certainly try this. But be careful that you do not apply uneven pressure.

**Brayer or rolling pin**—Can be used instead of a squeegee to roll the back of the negative, pressing the emulsion into the paper. However, some artists consider a rolling pin to be too hard causing problems with wet transfers.

**Two hard, smooth working surfaces**—Use one surface to support your paper when you squeegee off the excess water. I prefer to keep this surface separate so my paper won't accidentally be contaminated by developing gel from earlier transfers. It should be about the size of a breadboard.

Use the second surface to support your receptor paper while you do your transfer. Also use it to hold the receptor paper when you pour hot water over the negative just before peeling it from the receptor paper. It should be able to fit into your work sink and be long enough so you can prop it up at an angle against the side of the sink.

I use 1/4" clear acrylic, it is easy to keep clean and it won't break.

**Blotting paper**—One technique for doing wet transfers is to thoroughly blot the receptor watercolor paper after removing the excess water with the squeegee, so that the paper is just damp, thereby allowing finer image detail. Use blotting paper that is comparable to your receptor paper—it should be archival.

Photographic blotting paper comes in tablet form and should work very well. Please do not use paper towels to blot your receptor paper.

**Drying screen**—Made of plastic screening, use a drying screen to air dry your receptor paper and final images. You can make a screen out of 1" x 1" wood, use brass corner brackets to hold it together, and staple on plastic screening; or buy metal framed fiberglass replacement screens.

When drying your images or air drying your paper, prop up one end of the screen to ensure complete air circulation around your transfers. Periodically clean the drying screen with a powerful jet of water from your garden hose.

**Soaking tray**—Used for presoaking your receptor paper. You don't want a tray that is too large because you have to fill it with a lot of near boiling water, but you do want one that is large enough to accommodate the size and amount of paper you will be using in one session. White plastic photographic trays work very well because they are reasonably priced, come in a variety of sizes and have ridges along the bottom to ensure that your paper will be exposed to water on all sides and won't get stuck to the bottom of the tray.

**Scissors**—Used to cut the developer pod or the metal strip from the film before peeling it apart. You could also use your scissors to cut your paper to size, but this is not a very exact method. It would be better if you had a paper cutter that allows straight and accurate cuts.

**Electric tea kettle or coffee maker**—Used to produce a steady supply of simmering, near boiling water. To ensure that the negative's dark emulsions adhere to the receptor paper, I gently pour simmering water over the back of the negative and then the back of the receptor paper, before you peel the negative from the paper. You'll need about a cup and a half of water per side, so it is a good idea to have a fairly large pot.

Louise Roach, a Santa Fe fine art photographer, has developed her own technique for keeping the emulsion warm. She uses a marble pastry board. She soaks it in hot water for a few minutes and then places it over a tray of boiling water so that the marble completely covers the tray. The marble generates both heat and humidity without adding additional moisture to the paper. She prefers this method with wet transfers; with dry transfers, she uses a blow dryer to heat the back of the receptor paper before she removes the negative.

My next darkroom is going to be equipped with the type of kitchen faucet that automatically dispenses an instant and continuous supply of 190°F water!

**Waste bin**—You are going to be working quickly, and peeling apart the film will produce some messy bits and pieces, so choose a waste container that won't get in the way but has good capacity and is not easy to miss.

**Timer**—Sometimes I can get an assembly line operation going, and I find I could use a second timer to keep track of the different images. However, timing is not critical when you are doing transfers.

You soak the receptor paper for approximately twenty minutes or until the paper is thoroughly wet; if you are doing wet transfers, you air dry the paper for about thirty minutes or until it feels slightly damp; after processing you peel the film apart in about ten seconds or after you've quickly cut the metal end or the developer pod off the bottom of the film (which takes about ten seconds); and you leave the negative pressed to the receptor paper for about twenty minutes for a wet transfer and about a minute and a half for a dry transfer. This is not a

precise science—it's art. So you don't need a stop watch, but it is handy to have a time piece handy as a guide, and one that is easy to see and operate.

**Miscellaneous**—I always keep a towel handy. When dealing with the developer gel, it is good to be near running water so you can wash it off your hands.

People with very sensitive skin might want to wear surgical gloves while doing transfers. You can usually purchase them by the box in pharmacies. I prefer surgical gloves to photographic gloves because they have a better fit, they're snug and therefore less cumbersome, they're also powdered inside, making them easier to put on.

A traditional or rotary paper cutter is very handy for cutting your receptor paper in exact sizes with straight edges. Louise Roach, a fine arts photographer in Santa Fe, rips her paper for a deckled edge and then frames her works so that the edge shows. Be aware, that this requires that you place your transfer precisely on the paper so it lines up with the edges of the paper.

## 6 USING COLOR CORRECTION FILTERS

You have the power of controlling the color of your image transfers by using filters either when you do a live shoot with Polaroid film or when you project your transparencies onto Polaroid film.

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### Color Review

There is a tendency when creating image transfers to only use yellow and magenta filters for color correction. This is because some image transfers have a cyan bias and adding magenta and yellow will correct this. Before you make any color adjustments, however, consider the color of the most important area of your image, then base your color correction on how you want that area to appear. Also, consider how you want your memory colors, such as sky, grass, and skin tones, to look. If you need help deciding how to enhance the color of your transfer, review the following paragraph on color basics.

Color photography uses a unique three color system—cyan (a green/blue), magenta (a purple/pink), and yellow. These colors can be combined to produce the more familiar RGB palette of red (mixture of magenta and yellow), green (mixture of cyan and yellow) and blue (mixture of cyan and magenta). Depending on how the colors are mixed (added or subtracted), you can create almost any color you want.

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### Choosing Color Correction Filtration

Follow the Color Correction Table below to color correct your transfers. Use this method whether you are using an enlarger, a Daylab, or a Vivitar to project your images onto the film.

<b>If you want</b>	<b>Add</b>	<b>Or Subtract</b>
Less Yellow	Cyan and Magenta	Yellow
More Yellow	Yellow	Cyan and Magenta
Less Red	Cyan	Yellow and Magenta
More Red	Yellow and Magenta	Cyan
Less Magenta	Cyan and Yellow	Magenta
More Magenta	Magenta	Cyan and Yellow
Less Blue	Yellow	Cyan and Magenta
More Blue	Cyan and Magenta	Yellow
Less Cyan	Magenta and Yellow	Cyan
More Cyan	Cyan	Magenta and Yellow
Less Green	Magenta	Cyan and Yellow
More Green	Cyan and Yellow	Magenta

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 Exposure Times

As the Color Correction Table above indicates, when you work with color positive film (slides or transparencies) you think in positives; in other words, to get more of a particular color in your print, you add the same color or subtract its complement color. This is also true with exposure times, to make a print lighter (less density), you add more exposure time, and to make a print darker (more density) you give it less exposure time. If you add more filters, or take away filters, you need to compensate for change in filter density by adjusting the exposure time. Follow the chart below, increasing exposure time by the suggested percentage when you add filters and decreasing exposure time when you remove filters. Therefore, if you add magenta filters with a factor of .50, increase the exposure by 110%.

**Percentage to Change Exposure When you Add or Subtract Filters**

Filter Factors	.05	.10	.20	.30	.40	.50
Add Yellow	+10%	+10%	+10%	+10%	+10%	+10%
Subtract Yellow	-10%	-10%	-10%	-10%	-10%	-10%
Add Magenta	+20%	+30%	+50%	+70%	+90%	+110%
Subtract Magenta	-20%	-30%	-50%	-70%	-90%	-110%
Add Cyan	+10%	+20%	+30%	+40%	+50%	+60%
Subtract Cyan	-10%	-20%	-30%	-40%	-50%	-60%

As you can see in the table above, adding filtration can lengthen exposure time; therefore, it's a good idea to use as few filters as possible by subtracting filters to make a correction rather than adding filters and unnecessary neutral density.

## 7 EXPOSING POLAROID POLACOLOR PRINT FILM

Polaroid Polacolor print film is the one constant in image transferring; without it, there is no transfer. However, you do have many choices on how to expose Polacolor print film.

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In Camera—One of a Kind Original Art

All of the Polacolor ER “9” series and Polacolor Pro print films can be used directly in a camera to produce a one-time original transfer. Some of the older hand held Polaroid cameras (such as a converted 110B Pathfinder or the Automatic 220), and the newer ProPack and 600SE cameras, will take Type 669 film and produce a 3 1/4” x 4 1/4” print. You can also use large format cameras and shoot either 4" x 5" or 8" x 10" film with the appropriate Polaroid film holders.

### Shooting Live

Film Type	Polaroid Camera or Film Holder
108	Any camera that accommodates the corresponding film size. Polaroid Model 405 film holder.
669	Any camera that accommodates the corresponding film size. Polaroid Model 405 film holder.
64	Any camera that accommodates the corresponding film size. Polaroid Model 405 film holder.
59	4 x 5 view camera. Polaroid Model 545 or 545i Sheet Film Holders.
559	4 x 5 view camera. Polaroid Model 550 Pack Film Holder
809	8 x 10 view camera. Polaroid 8 x10 Land Film Holder

Many artists prefer the sense of immediacy and the instant feedback they get from shooting live. They expose the photograph of their subject directly onto the peel apart film. If the result is not to their liking, they make appropriate changes and reshoot.

Even if you decide to use a large format camera and shoot live onto sheet film, you don't have to create your transfers immediately after exposing the film. You can remove the exposed sheet from the film holder and put it aside for later development.

There are some disadvantages to shooting live. You cannot make any additional transfers from the same image (as you can with a transparency), it is more time consuming to shoot and transfer, reshoot and retransfer, and it may be more costly.

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## Color Positive Film Transparencies

Many artists who create image transfers, start by photographing a subject with color positive film. The resulting 35mm slide, or medium or large format transparency, can then be projected onto Polacolor print film, and the image transferred onto a receptor surface, which is most often watercolor paper. The advantage of using color positive film is that you can make multiple transfers from the same image.

### Proportion

Keep in mind that unless you are using a 4" x 5" transparency, you will not be able to get a full frame image if you project a 35mm slide onto 4" x 5" or 8" x 10" film because of proportional differences—you are going to lose about 3/4" from the horizontal width of the transparency.

You will also have to consider the proportional difference when projecting a medium format transparency onto 4" x 5" film.

You can easily compensate for proportional differences when you are shooting your original slides in camera, by composing your subject matter so that it does not fill the entire frame. If shooting vertically, leave some non-crucial space at the top or bottom of the frame. I also do not fill the frame edge to edge.

### Which Brand? What Speed?

There are a variety of color positive films available. Your choice of which one to use will depend on your subject matter or your own personal preference. You don't need to shoot any special brand of film to do good transfers; nor do you have to worry about the film's speed or grain. All film will make a good basis for a transfer. Your main concern will be which film will give you the results you want to have in your final piece of art.

There are, however, two other considerations you might want to think about. How rich or saturated are the colors of the film? How long will the slide or transparency keep its color? With those questions uppermost in my mind, I shoot color on either Fuji or Kodak, but I lean more toward Fuji because of price and the way Fuji looks. I did a comparison test between Fuji's Velvia and Kodak's Lumiere—to my eye, and for my use, there was no appreciable difference between the two except for price.

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## Variations

One quality that will assist a process to evolve is dissatisfaction with the ordinary.

### Cross Processing

You don't have to transfer only straight, color shots. You can also transfer cross processed film for some very interesting results. Cross processing is accomplished by shooting a roll of color positive or slide film, which is ordinarily processed in E-6 chemistry, and having it processed as if it were color

negative film in C-41 chemistry. The results can sometimes be amazing and unpredictable. I love what it does to landscapes—all the green grass and leaves are magenta!

### Black and White

Black and white positive images can also be transferred. Shoot positive black and white transparencies using Polaroid's PolaPan or Polagraph 35mm instant slide film. The slides are then projected onto Polacolor ER film just as you would a color transparency.

You can also have copy slides made from your own black and white photographs; again, project the slides just as you would a color transparency. Or you can set up your black and white photographs on a copy stand and photograph them with a 4" x 5" or an 8" x 10" camera directly onto Type 59, 559 or 809 Polacolor ER print film.

I have seen images, such as Vic Huber's magnificent 1992 Alfa Romeo calendar, where the blacks appear to have taken on a cast of dark teal blue. Other black and white images appear more sepia in tone. Although Polaroid literature claims that black and white transfers will have a blue-green cast, all of my test images on various types of paper, and without color correction filters, had a noticeable sepia cast.

The tonality of your transferred black and white images will depend on the following factors:

- The tonalities of the original image
- The brand of receptor paper
- The color correction filter you use while transferring.

Choose filters as you would toners—blue will cool the image, magenta and amber will make it warmer and more sepia.

Santa Fe photographer, Louise Roach uses PolaBlue film for an interesting negative effect.

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#### Projection Printing With an Enlarger

If you have access to a darkroom equipped with a color or black and white enlarger, then you can projection print your transparencies directly onto Polacolor ER "9" Series print film using either pack or sheet film. Use your enlarger for projection printing onto Polacolor film as you would for printing onto paper, but instead of an easel to hold your paper, use a template to hold the film holder level and in place.

I projection print with an Omega D5500 black and white enlarger, and use an Ilford Ilfochrome filter set. I can achieve complete coverage when printing from 35mm slides onto 8" x 10" film using the 3 1/2" x 3 1/2" filters.

## The Template

If you are going to project onto sheet film, take the Polaroid Model 545 Sheet Film Holder and cut a piece of stiff white paper, such as Bristol Board, so that it fits into the film holder and extends about two inches beyond the end of the holder. The paper acts as your focusing surface. It should fit snugly to protect the film from light, yet be able to easily slip in and out of the holder (a thin sheet of opaque plastic will last longer than Bristol Board).

Since the film holder does not lie flat, it has to be supported with a film box or a piece of 2" by 4" wood. It is imperative that the holder and the film are on exactly the same plane as the enlarger head. If they are at a slight angle to one another, your projected image will be distorted.

Now, here comes the tricky part—you are going to focus your image onto the white piece of Bristol Board you slide into the film holder. After focusing, slide the Bristol Board out of the film holder, and slide in a piece of sheet film in its place. Now shut off all the lights (no safelight). In total darkness, slide the gray film masking envelop out of the film holder. This uncovers the negative that can now be exposed by projecting the transparency onto it.

If you accidentally moved the film holder during the focusing procedure, your image is going to be crooked or partially off the film. So you may have to create some sort of a template to make sure that your film holder doesn't move before you project the transparency onto the film.

I've tried several different templates, but the easiest for me is resting the film holder on an eight inch long piece of 2" x 4" lumber. To ensure that the wood stays in place, I wrap it, once around, with duct tape, sticky side up. This method also prevents my holder from being accidentally knocked out of alignment.

If you are going to project onto pack film, using the Polaroid Model 550 Pack Film Holder, the procedure is basically the same as it is with sheet film; however, the 550 Film Holder already comes with a white dark slide that you can also use for focusing. You have somewhat less potential for movement because you don't have to slide the gray envelope in and out as you do for sheet film.

## How to Projection Print onto Polacolor 559 Pack Film

- 1 Load your film holder with Polacolor Type 559film.  
Make sure the dark slide is in place and the film's masking safety cover has been removed.
- 2 Select the slide or transparency that you'll project.  
Remove it from its mount. Place it in the negative carrier with the emulsion side up (the emulsion side is the dull side of the film).
- 3 Load the appropriate color correction filters, then turn off all the lights in your darkroom, including the safelight.

- 4 Adjust the film holder so that it is directly under the enlarger lens, then turn on the enlarger and focus the projected image onto the focusing slide, cropping if necessary.  
You will not get full frame from 35mm or medium format transparencies that are projected onto 4" x 5" film because of the proportional differences.
- 5 Turn off the enlarger.  
Determine proper exposure time and set your timer and adjust the enlarger's aperture.
- 6 Remove the dark slide from the film holder and expose the film for the appropriate time, then replace the dark slide in the holder.
- 7 Turn on the lights in your darkroom.
- 8 Pull the white tab from the holder, then pull the end of the film tab to begin development.

#### How to Projection Print onto Polacolor 59 Sheet Film

- 1 Slip the white Bristol Board that you cut as the your focusing surface into the film holder.
- 2 Select the slide or transparency that you'll project, and remove it from its mount. Place it in the negative carrier with the emulsion side up (the emulsion side is the dull side of the film).
- 3 Load appropriate color correction filters and turn off the lights in your darkroom.
- 4 Adjust the holder so that it is directly under your enlarger lens, then turn on your enlarger and focus the projected image onto the focusing slide, cropping if necessary.  
You will not get full frame from 35mm or medium format transparencies that are projected onto 4" x 5" film because of the proportional differences.
- 5 Turn off your enlarger and turn on the lights in your darkroom.  
Determine proper exposure time and set your timer and adjust the enlarger's aperture.
- 6 Remove the focusing slide from the film holder and slide a sheet of Polacolor Type 59 film securely into the film holder.
- 7 Turn off all the lights in your darkroom, including the safelight, then slide out the gray paper envelope so that the negative is completely uncovered.
- 8 Expose the film for the appropriate time, and cover the film by sliding the gray paper envelope back into the film holder.
- 9 Turn on the lights in your darkroom and lock down the film holder and pull the film from the holder to begin development.

## Projection Printing Exposure Recommendations

The chart below lists exposure times Polaroid Corporation suggests for enlarger projection printing.

### Color Head Enlarger

Original Transparency	Exposure Time	F-Stop
35 mm	10 Seconds	11 1/2
2 1/4 x 2 1/4	10 Seconds	16 1/2
4 x 5	10 Seconds	22 1/2

### Condenser Head Enlarger

Original Transparency	Exposure Time	F-Stop
35mm	10 Seconds	
2 1/4 x 2 1/4	10 Seconds	
4 x 5	10 Seconds	

The times are based on full-frame, 35mm magnification onto 4" x 5" Polacolor ER "9" Series print film. All the times and settings should be used as a reference or as a starting point only, since the age of your enlarger lamp and the density of your original transparency can radically influence the timing. Always keep in mind that more light gives you a light final image; less light gives you a darker final image. The times I use for my enlarger and lamp are sometimes six second less than those times indicated in the chart.

For filter recommendations, refer to the section, **Using Color Correction Filters**.

### Advantages of Projection Printing

- You can do test strips to determine your exposure time.
- You can crop your image.
- You can burn and dodge the image.
- You can easily add color correction filters on a black and white enlarger, or dial in the corrections on a color head.

### Disadvantages of Projection Printing

- You have to remove transparencies from their mounts.
- There's the possibility of moving the film holder between focusing and exposure.
- Working in total darkness.
- Lack of portability.

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## The Daylab II Slide Printer

The Daylab II Slide Printer is a self-contained daylight enlarger that allows you to print from 35mm slides onto any size Polacolor print film. The standard features of the Daylab II include image preview, focusing, cropping, and built-in color head with filters that permit color adjustments of up to 80cc's in cyan, magenta and/or yellow. The Daylab II also has print and paper speed settings and automatic and manual exposure control. You should be able to do timing test strips on one piece of film by controlling how far out of the holder you pull the dark slide (for pack film) or gray envelope (for sheet film).

The Daylab II weighs only eight pounds, so it's fairly portable. It operates on standard household 110-volt current. If you use it in the field, it can run off a 12-volt battery. If you live overseas, there's a 110-volt and 220-240-volt transformer available.

The unit is completely modular, so if you buy the standard Daylab II enlarging head, you can choose a different base model for each film size you use.

Daylab II Model 34 has a built-in film holder to accommodate 3 1/4" x 4 1/4" Polacolor Type 669 film.

Daylab II Model 45 has a built-in 4" x 5" Graflok Adapter that accepts both the Polaroid Model 545 Sheet Film Holder or Polaroid Model 550 Pack Film Holder, so you can use either Polacolor Type 59 Sheet and Type 559 Pack print film, or Polacolor Pro sheet or pack film. .

Daylab II Model 55 has a built-in Polaroid Model 550 Pack Film Holder taking the Polacolor Type 559 Pack print film.

Daylab II Model 810 comes with an 8" x 10" base so you can use a Polaroid 8" x 10" Land film holder with Polacolor Type 809 print film.

The Daylab II comes with instructions and following them makes the unit fairly easy to operate.

### **Advantages of Using a Daylab II**

- It's portable.
- It's versatile.
- You don't have to remove your slides from their mounts.
- It's less expensive than setting up a darkroom.
- You can work in daylight.
- You have the use of a color head for color correction and manipulation.

### **Disadvantages of Using a Daylab II**

- Focusing can be very awkward since you must do it by eye rather than with a grain magnifier. Throwing a focusing cloth over your head helps enormously.

- The viewing image is not extremely bright, so alignment of the image can be a problem, especially if you are dealing with the straight lines of architecture or a dark image background. These problems are even more annoying if you wear reading glasses.

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### The Vivitar Instant Slide Printer

The Vivitar Slide Printer is what most people first use when they begin to create image transfers. It's inexpensive, easy to operate, and relatively foolproof.

The Vivitar projects a 35mm slide onto Polacolor Type 669 film. The unit itself is compact and runs on four type "C" batteries. Basically, it is a flash unit; turn it on and it hums, press the blue print button and it flashes. The Vivitar has a sliding scale that gives you some control over exposure—average exposure is the third line up from the bottom of the exposure scale. Placing the slide above the average line will lighten the image, placing it below average will darken it.

Cropping is limited to how the mounted slide is placed in the holder. There is a backlit 35mm viewing window with a holder that you can adjust approximately an eighth of an inch to the left or right. The adjustment allows you to decide which side of the slide will lose the 3/4" of proportional difference.

As soon as the composition on the viewing holder is to your liking, insert the 35mm slide into the slot just above the viewer. The slot is attached to the viewer adjustment, so what you saw in the viewer will be close to what is projected onto the Polacolor film.

Color correction is limited to inserting a cut-to-size color correction gel inside the unit itself so that the gel rests directly over the lens and under the film holder. If you have film loaded, you can only insert the gel in total darkness.

Once you have all this set up, press the blue print button; the flash unit flashes and your Polacolor film is exposed. To develop the film you pull the tabs just as you do for any other Polacolor pack film.

I now use my Vivitar Slide Printer as a proof printer to see how certain transparencies are going to look as transfers. It is a lot cheaper to test on Type 669 film than it is on Type 59.

#### **Advantages of Using a Vivitar Instant Slide Printer**

- It is inexpensive.
- You can work in daylight.
- It is portable.
- It is easy.
- You do not have to remove your slides from their mounts.

### Disadvantages of Using a Vivitar Instant Slide Printer

- What you see is what you get—manipulation of the image is very limited.
- You are restricted to one film size.
- Color correction is not easily accomplished, although you can add a color gel inside the box just above the lens.

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#### O&ER Proprinter Slide Copier II

I have not used the O&ER Proprinter; however, Optical & Electronic Research was kind enough to send me their literature, and I will pass the information along to you.

The Proprinter accepts the Polaroid 3 1/4" x 4 1/4" and 4" x 5" camera backs, and the 4" x 5 Graflok-type film holders, permitting you to do dupes or internegs. It comes with a manually adjustable lens (f3.5 to f16); it also has an electronic lightness to darkness override, and an on-board computer that adjusts exposure for varied magnifications. The Proprinter also has a built-in filter drawer, and a built-in slide previewer on the outside of the copier. By adjusting the setting of the film cartridge, you can project your slide either full frame or cropped. Full frame results in a slightly smaller image surrounded by a black mask. There was no mention of any manual focusing features.

Since I have not actually tested this equipment, I do not feel it would be fair to list its advantages and disadvantages. If you have tried it, I would like to hear your opinions.

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#### Polaroid Polaprinter 8" x 10" Slide Printer

This is the next-to-ultimate Polaroid image transfer—the ultimate being, of course, the 20" x 24" Polaroid camera—if you cannot use that, there's 8" x 10" transfers using Polacolor Type 809 film. You can shoot it live, if you have an 8" x 10" view camera, you can projection print 35mm, medium format and 4" x 5" transparencies onto 809 in your darkroom, or you can use the Daylab II.

Whichever method you choose, you will need two additional accessories

- Polaroid 8" x 10" Land film holder
- Polaroid 8" x 10" Polaprinter to process the film.

Transferring 8" x 10" images is a bit different from other transfer methods. The most obvious difference is that each box of film contains two covered plastic trays—one holds the negatives (each in a light-tight envelope) and the other holds the positive sheets (each with an attached developer pod).

Please note that it is more difficult to prevent emulsion lift with an 8" x 10" transfer than with smaller film; therefore, if you are just beginning to create image transfers, you may want to do your 8" x 10" series on damp receptor paper.

Exposing and Processing 8" x 10" Film—To load 8" x 10" film, insert the

dark slide into the film holder, then in subdued light, load the negative side of the film into the film holder, making sure that you don't bend or press the negative envelope. Carefully remove the negative envelope and put the film holder into whatever imaging equipment you are going to use—an 8" x 10" camera, the Daylab II, or under your enlarger head (if you are using an enlarger, the next step will have to be done in total darkness). Remove the dark slide from the film holder, expose the negative and reinsert the dark slide.

Put the positive side of the film face up (the side the developer pod is on) in the processor loading tray and place the negative holder face down on top. (Be sure to follow the directions for your particular processing model.) The timer on the processor is meant to extend from the time you begin processing to the time you would normally separate the negative from the positive, but since you'll peel the film apart prematurely, either ignore the timer or set it to about fifteen seconds.

Pressing down the Start button begins the development process by drawing the negative and positive sheets together through the rollers that break the developer pod and spread the chemicals evenly between the positive and negative sides of the film.

As soon as the film advances through the rollers and into the processing tray, remove it, wait about ten seconds, then peel the negative from the positive, and apply the negative to your receptor surface. Proceed as you would with any other transfer following the step-by-step directions in the section, **How to Create Image Transfers**.

**8" x 10" Direct Transfer Method**—There is a second image transfer technique you can try with 8" x 10" Polacolor film. This method allows you to transfer directly onto your receptor paper as you process the film. To do this method, however, you will have to trim your receptor paper so that it is the same size as the processing tray. This does not leave much of a border around your image.

Make your exposure as noted above, then place the positive side of the film face up in the processor loading tray. Gently lift up the developer pod and slip your damp receptor paper under the pod. Release the pod so that it now rests on the upper portion of the receptor paper. Place the negative holder face down on top of the paper. Press the Start button.

After the film has been transported through the process, set it aside for about twenty minutes if it is a wet transfer and about ninety seconds if it's a dry transfer. Following the directions in the section, **How to Create Image Transfers**, you would pour the simmering water on the back of the negative, turn the film layers over, remove the positive later, then pour simmering water on the back of the receptor paper. Peel the receptor paper from the negative layer. Using this method, your image is transferred directly from the negative onto the receptor paper, thereby eliminating the need of going to the positive side of the film first.

### **Advantages of Using the Polaroid Polaprinter 8" x 10" Slide Printer**

- Image size and the resulting image detail.
- All the other advantages that go along with using an enlarger or the Daylab II.
- The ability of doing an image transfer directly from the negative to the receptor paper.

### **Disadvantages of Using the Polaroid Polaprinter 8" x 10" Slide Printer**

- Cost.

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## Computer Imaging

Some photographers are creating digital image transfers. This technique consists of taking a digitized image, enhancing, retouching and/or combining it with other digitized images, then outputting it back into slide film, and finally transferring it onto a receptor surface.

An image is digitized when its analog information, consisting of its color tones that go from black to white, is converted into a series of digital values. There are two types of equipment that can do this—a digital camera or a scanner. Within these two categories there are many variations.

There are now studios where you can rent the use of a view camera or a Hasselblad equipped with a digital back. Take a picture of a table top set-up or a red Ferrari and the resulting image appears on the monitor of the Macintosh you've set up next to the camera. Or you shoot with a 35mm SLR equipped with a digital back that instantly store digitized images that are later down loaded into a computer.

There are many different types of scanning devices—from desktop slide scanners, to high-end pre-press drum scanners, to Kodak's new PhotoCD scanner. Depending on the type of scanner you use, it's possible to convert a black and white or color negative, a color slide or transparency, or any flat art (photograph, oil painting, watercolor, lithograph, silk screen print...) into a digital file.

Once you have a digital file of the image, you can import it into an image editing computer software program, such as Adobe Photoshop. In Photoshop, you can alter colors, delete, move or add objects, apply special effects, or add text to your digitized image. You can then import the manipulated image into another software program, such as Adobe Illustrator, and further enhance the image with an entirely different set of graphic effects. When you have the image looking the way you want it, output the digital file to 35mm slide film, and do your image transfer.

## Related Equipment

Digital imaging sounds great and it is. But it is not within everyone's reach to be able to do this. It is a lot easier if you work for a prepress service bureau or if you have all of the equipment at home. But it's important to discuss this method, because photography is continuously moving very rapidly into the digital age.

I've listed below some of the equipment you will require if you decide to create digital image transfers. The recommendations are based entirely on my own preferences and experience.

**Computer**—Although I've worked with both Mac's and PC's, I am totally devoted to the Macintosh for graphic arts. It has a type of logic I understand; one that is extremely intuitive and consistent, and its operating system doesn't get in the way of whatever software I'm using. I also use Windows NT 4, and although it is an improvement over previous Windows' operating systems, I am constantly aware of the OS, and it gets in the way. So guess which computer I'm going to recommend?

If you are going to be doing a lot of work with software such as Photoshop and Illustrator, and if you can afford it, you will be very grateful for the processing speed and potential RAM of a Macintosh G4. If that is beyond your current budget, your Mac of choice should have as much RAM and internal storage as you can afford (actually, you should probably have more RAM than you can afford and at least a 1 Gig hard drive). You will also need a 24-bit color graphics card, and portable storage, such as Iomega's Zip drive.

**Monitor**—You might pay a small fortune for a monitor that will allegedly give you accurate color; however, what you see on an RGB monitor will never be exactly what you see either on CMYK film, on CMYK dye-sub prints, on CMYK match prints, on CMYK color copier prints, or on prints from a CMYK 4-color printing press. In other words, there are four ways to see color—the color you see around you in the natural world, the color on photographic film, the color on computer monitors (and TVs), and the color printed on a piece of paper. Also, how you see the color on your monitor will be influenced by the ambient light in your office or studio.

So what is accurate color, and how do you get it? It is a complicated issue that is best explained in a book about prepress; but this is how I handle it—A Photoshop palette displays colors in percentages. If I require a particular color, I refer to a swatch from the Trumatch Color Matching System to determine the color I want for a particular area, then I enter the correct percentages. This is the best method I have found to get accurate color.

I recommend you buy a monitor that has 24-bit color, has a large image size, very small dot batch (.25 or less), is distortion free, and has at least seventy-two dots per inch—although you can get monitors with up to eighty or ninety dots per inch which will give you a super fine image. The only concession I make to color is to make sure my monitor is calibrated at 5500°K (daylight).

**Portable Storage Media**—If you have your slide or image scanned into a digital file at a service bureau, you will require some type of portable storage to transfer the digital file back to your own computer (service bureaus hate it when you bring in your own hard drive!). Your digitized image file will be too large for a floppy disc.

Why do you need such a large file? Because if you are going to digitally retouch your image you want as much information as you can get, which means high resolution; and if you then output the retouched file to a film recorder, and then to color slides or transparencies, you will again need high resolution. High resolution means large files.

There's a variety of portable storage devices out there, purchase one that is reliable, cost effective, and compatible with your service bureau's equipment.

**CD-ROM Player**—If you want to scan your images using Kodak's PhotoCD technology, you will need a multi-session CD-ROM drive. PhotoCD is an efficient and inexpensive way to archive your slides and negatives (color and black and white). It might also do an admirable job if you scan in a slide, retouch it, and then output the digital file to 35mm slide film for an image transfer. If you are going to output to any type of printed format other than, say, a small image mail order catalogue, use a high end scanner.

**Scanner**—You really do not need to purchase your own scanner, although they are now more affordable, a machine that would scan at the color depth, resolution, and file size needed for digital manipulation and film output would be expensive.

A slide or transparency contains a very full range of color and tonal information, about fifteen bits of color data per pixel. A scanner system must be able to distinguish as much of this information as possible in order to fully replicate your original image.

Some scanners are advertised as being 24-bit color, but this can be very misleading. A desktop scanner collects data by scanning your original film, slide, or flat art, three times—once for each primary color (red, green and blue). Therefore, a 24-bit color scanner is only distinguishing eight bits of information per color (and your slide has fifteen bits). That means that your scanned image is going to be missing some seven bits of color data that was in your original image. The missing color information is usually in the shadow areas of the image (there won't be any detail because the shadow is now totally black), and in the light areas (again, no detail because the highlight is now totally white).

Traditionally, the best scans were done on drum scanners, however, there are some highend flatbed scanners that are 36- or 48-bit color, which means they distinguish 12- or 16-bits of information per color, providing you with a digital image that is very close in tonality and color to your original image.

Inquire at your service bureau what the bit depth is of the scanner they will use to scan your original. Be aware that your scanned image must contain as much

color and tonal information as possible before it is brought into an image editing program such as Photoshop, so don't feel awkward about asking a service bureau questions; it is your art, it is your reputation, and you are paying for the service.

And finally, a word about **service bureaus**. The digital prepress business is becoming a big money maker these days, and there are a lot of new service bureaus out there that may or may not be very knowledgeable or reliable. I would pick my service bureau based on the length of time it has been in business, its reputation with professional printers and designers, and its willingness to teach its clients. (I'd also take a very good look at their own output—what does their catalogue or price list look like?). In San Francisco, there is a service bureau, Rapid, that offers client training, at a nominal fee, that includes a tour of their entire operation. The willingness of Rapid to share its knowledge instills confidence that they will also care about their clients and their clients' output.

## 8 HOW TO CREATE IMAGE TRANSFERS

If you've read this far, you probably already know what brand, texture and weight of receptor paper you're going to use for your first transfer and what size and type of Polacolor film you're going to use. If so, skip ahead to the steps listed below and get started. By the way, if this is the first time you've done transfers, the wet method is the easiest and most reliable way to transfer, so you might want to start with that method.

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### Quick Review

If you could not wait to get started and skipped everything before this chapter, then I recommend that you start out by using Arches Aquarelle Watercolor paper, 140 pound, hot press. The size and type of film you use will depend on how you're going to expose it—camera, enlarger, Vivitar Instant Slide Printer, Daylab II Slide Printer, O&ER Proprinter, or the 8" x 10" Slide Printer and processor.

If you are just starting out and want to experiment, and you do not want to invest a lot of money either on film or equipment, then use Polacolor ER Type 669 film with a Vivitar Instant Slide Printer. If you already have a darkroom and an enlarger, projection print onto Polacolor ER Type 59 or Type 559 film.

Note—If you are using pre-1996 Polacolor Pro 100 film, you must presoak your receptor paper in either an alkali or acidic water solution. If you are using new Pro 100 film, see the special instructions in the section, **Film**.

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### Preparation

Set out all of the equipment, tools and supplies you will need to create your image transfer; all the equipment you use should be clean to prevent contamination of your image transfer.

- Polacolor ER Type 108, 559, 59, 64, 69 or 809 film
- Distilled water
- Photographic squeegee, brayer or rolling pin
- Two hard, smooth working surfaces made from about 1/4" acrylic
- Blotting paper
- Drying screen
- Soaking tray—either a glass baking dish or uncontaminated photographic tray
- Scissors
- Electric tea kettle or coffee maker (or anything else that will produce a steady supply of boiling or near boiling water—about 190°F)
- Waste bin
- Timer

- Towel
- Paper cutter
- Surgical gloves (optional)
- Projection device—enlarger, camera, Vivitar, Daylab, O&ER, or the 8" x 10" Slide Printer and processor

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Wet Image Transfer  
Method

Approximately 2 hours before you want to begin

- Remove the Polacolor ER film from the refrigerator and allow it to come up to room temperature—preferably about 75° degrees. Do not take the film out of its foil wrapper.

Approximately 1 to 1 1/2 hours before you want to transfer

- 1 Cut rectangles of receptor paper so that each piece measures at least one inch larger on all sides than the film size you are using. (If you are using 4" x 5" film, your paper will measure at least 6" x 7".)
- 2 Place the cut paper into a glass baking dish or an uncontaminated photo tray.
- 3 Bring distilled water to a boil. The amount of water depends on how large of a container you use to hold your receptor paper.
- 4 Pour simmering water over the paper, making sure each piece is wet.
- 5 Soak the receptor paper for approximately twenty minutes.

Check to see if the paper is completely wet by holding a piece up to the light. The paper will appear translucent where it is totally saturated and opaque where it isn't. If there are still opaque areas of your paper, drain off the water and pour additional simmering water over the paper for another ten minutes, or so.

- 6 Using one of the acrylic boards, squeegee each piece of receptor paper to remove excess water.
- 7 Air dry the paper on a plastic screen drying frame until the paper is damp (about thirty minutes in 75° weather). If it is a hot day and the receptor paper gets too dry you can use a sprayer or plant mister to re-dampen the paper.

You can also thoroughly blot the receptor paper between two pieces of archival paper, either watercolor paper or photographic blotting paper. Do not use paper towels.

While the receptor paper is drying

- 1 Remove the film from its foil wrapper and load it into your film holder or camera.
- 2 If you are not shooting live, select the slide or transparency you will project onto the Polacolor ER film. Put the slide or transparency into your projection device.
- 3 Prepare to expose the Polacolor film, by adjusting the projection device for color, density and size. (This procedure will be different for each projection device; follow the manufacturer's directions or review the section, **Exposing Polaroid Polacolor Print Film.**)

### The Transfer

(Read this section through one time before you actually begin to do the transfer)

- 1 Place one sheet of receptor paper on the acrylic board. Does your paper have one side that is smoother? Which side do you want your transfer to be on?
- 2 Straighten the receptor paper, aligning its edge to the straight edge of your board. (This will make it easier to place the negative side of the film onto the paper so that the resulting transfer is not crooked.)
- 3 Expose the Polacolor film. You can take your time; nothing starts until the film is drawn through the rollers of your holder.
- 4 Develop the film by drawing it through the rollers of the film holder, being sure to use a straight and steady motion.

You have 10-15 seconds to separate the film and put the negative side face down on the receptor sheet.

- 1 Cut off the trap end of the film, leaving about one inch, with a scissors. (On 4" x 5", Type 59 film, the trap is the end with the metal strip; on 4" x 5", Type 559, and on 3 1/4" x 4 1/4", Type 669 film, the trap end is the end you pulled out of the carrier, it is marked with the yellow arrows, and contains the white, flattened developer pod.)
- 2 Grasp what is left of the trap end of the film, using one hand to grip the negative side, and the other hand to grip the positive side.
- 3 Pull your hands apart so that the film is separated in a single, straight, uninterrupted motion.
- 4 Put the negative face down on the receptor paper by placing the remaining trap end of the negative on the paper, holding it there and then, making sure the film is taut, firmly placing the other end on the paper. This is sort of a rocking motion for me—one end down, pull the film straight, then the other end down. Use whatever motion that will prevent slippage and subsequent blurring of the image.
- 5 Follow through by smoothing out the negative with the knife edge of your hand.

- 6 With one hand, hold the negative down on the receptor paper so it will not move.
- 7 With your other hand, squeegee or roll the back of the negative for about a minute. Use even pressure and make sure to squeegee all of the negative—side to side, up and down and diagonally. You can also turn the receptor paper over and use the squeegee three or four times on the back of the receptor paper.
- 8 Put the receptor paper/negative sandwich aside for about twenty minutes. (If you live in a very hot, dry climate, you will have to use a less time.)

### The Separation

You will use approximately three cups of simmering water during the separation process (approximately six cups are required for an 8" x 10").

- 1 Place the receptor paper/negative sandwich on the acrylic board, so that the negative side is up. Place the board in the sink, propping up one end on the edge of the sink.
- 2 Gently and slowly, pour about a cup and a half of simmering water back and forth over the negative starting at the brown paper end of the negative if you are using Type 669 or Type 559 film; the almost black paper end of Type 809 film; and either end if you are using Type 59. (The idea is to get hot water on top of the negative, not under it.)

As an alternative to pouring hot water over the negative, you may want to try the hot marble method described on page 22.

- 3 Turn the receptor paper/negative sandwich over and pour simmering water, again back and forth, gently and slowly, over the receptor paper. On an 8" x 10", I usually pass the squeegee over the back of the receptor paper once or twice to ensure emulsion bonding.
- 4 Turn the receptor paper/negative sandwich over so that the negative is facing you.
- 5 Lift up the paper end of the Type 669, 809 or 559 negative (either end of Type 59) and gently peel the negative from the receptor paper.
- 6 Pour the remaining quarter of a cup of simmering water very gently over the face of the transferred image.
- 7 Use your squeegee to carefully remove any developing gel which might have squeezed out of the end of the negative.

Do not try to squeegee off anything else but the clear brownish gel. The black lines that may appear beside the transferred image will streak and degrade the appearance of your transferred image.

- 8 Place your transferred image face up on the drying screen until it's completely dry. Be aware that the emulsion on a newly transferred image is very fragile while wet, but it becomes fused to the paper when it dries.

Congratulations! You did it, and it looks better than great, doesn't it?

### Advantages of Wet Transfer

- It is easier to transfer all of the emulsion to the receptor paper, even very dark shadow areas.
- If the paper has been air dried until it is just damp, you can still get very fine detail.

### Disadvantages of Wet Transfers

- Sometimes the wet images produce a cyan strip on either side of the image. I happen to like this, but some people may not.
- If the receptor paper is too wet, the transferred image will appear to be somewhat mottled. Also, the wetter the paper, the more watercolor-like the image and the less fine detail.

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### Dry Image Transfer Method

Most of the instructions for Dry Transfers are exactly the same as the ones for Wet Transfers, but I want to repeat them completely, and in order, so you don't have to keep jumping back and forth between the two methods. So here goes.

Note—If you are using pre-1996 Polacolor Pro 100 film, you must presoak your receptor paper in either an alkali or acidic water solution. Thoroughly dry the paper on plastic screening before using. If you are using new Pro 100 film, see the special instructions in the section, Film.

Approximately 2 hours before you want to begin

- Remove the Polacolor ER film from the refrigerator and allow it to come up to room temperature—preferably about 75° degrees. Do not take the film out of its foil wrapper.

Just before you begin to transfer

- 1 Cut rectangles of receptor paper so that each piece measures at least one inch larger on all sides than the film size you are using. (If you are using 4" x 5" film, your paper will measure at least 6" x 7".)
- 2 Remove the film from its foil wrapper and load it into your film holder or camera.
- 3 If you are not shooting live, select the slide or transparency you'll project onto the Polacolor ER film. Put the slide or transparency into your projection device.
- 4 Prepare to expose the Polacolor film. by adjusting the projection device for color, density and size. (This procedure will be different for each projection device, so follow the manufacturer's directions or review the section, **Exposing Polaroid Polacolor Print Film.**)

## The Transfer

(Read this section through one time, before you actually begin to do the transfer)

- 1 Place one sheet of receptor paper on your acrylic board. Does your paper have one side that is smoother? Which side do you want the transfer to be on?
- 2 Straighten the receptor paper, aligning its edge to the straight edge of your board. (This will make it easier to place the negative side of the film onto the paper so that the resulting transfer is not crooked.)
- 3 Expose the Polacolor film. You can take your time; nothing starts until the film is drawn through the rollers of your holder.
- 4 Develop the film by drawing it through the rollers of the film holder, being sure to use a straight and steady motion.

You have 10-15 seconds to separate the film and put the negative side face down on the receptor sheet.

- 1 Cut off the trap end of the film, leaving about one inch, with a scissors. (On 4" x 5", Type 59 film, the trap is the end with the metal strip; on 4" x 5", Type 559, and on 3 1/4" x 4 1/4", Type 669 film, the trap end is the end you pulled out of the carrier and is marked with the yellow arrows, and contains the white, flattened developer pod.)
- 2 Grasp what is left of the trap end of the film, using one hand to grip the negative side, and the other hand to grip the positive side.
- 3 Pull your hands apart so that the film is separated in a single, straight, uninterrupted motion.
- 4 Put the negative face down on the receptor paper by placing the remaining trap end of the negative on the paper, holding it there and then, making sure the film is taut, firmly placing the other end on the paper. This is sort of a rocking motion for me—one end down, pull the film straight, then the other end down. Use whatever motion that will prevent slippage and subsequent blurring of the image.
- 5 Follow through by smoothing out the negative with the knife edge of your hand.
- 6 With one hand, hold the negative down on the receptor paper so it doesn't move.
- 7 With your other hand, squeegee or roll the back of the negative for about a minute. Use even pressure and make sure to squeegee all of the negative—side to side, up and down and diagonally. You can also turn the receptor paper over and use the squeegee three or four times on the back of the receptor paper.
- 8 Put the receptor paper/negative aside for sixty to ninety seconds.

## The Separation

You will use approximately three cups of simmering water during the separation process (approximately six cups are required for an 8" x 10").

- 1 Place the receptor paper/negative sandwich on your acrylic board, so that the negative is facing you. Place the board in the sink, propping up one end on the edge of the sink.
- 2 Gently and slowly, pour about a cup and a half of simmering water over the negative starting at the brown paper end of the negative if you are using Type 669 or Type 559 film; the almost black paper end of Type 809 film; and either end if you are using Type 59. (The idea is to get hot water on top of the negative, not under it.)

As an alternative to pouring hot water over the negative, you may want to try the hot marble method described on page 22.

- 1 Turn the receptor paper/negative sandwich over and pour simmering water, again back and forth, gently and slowly, over the receptor paper. On an 8" x 10", I usually pass the squeegee over the back of the receptor paper once or twice to ensure emulsion bonding.
- 2 Turn the receptor paper/negative over so that the negative is facing you.
- 3 Lift up the brown paper end of the Type 669, 809 or 559 negative (either end of Type 59) and gently peel the negative from the receptor paper.
- 4 Pour the remaining quarter of a cup of simmering water very gently over the image.
- 5 Use your squeegee to carefully remove any developing gel which might have squeezed out of the end of the negative. Do not try to squeegee off anything else but the clear brownish gel. The black lines that may appear beside the image will streak and degrade the appearance of your transferred image.
- 6 Place your transferred image face up on the drying screening until it's completely dry. Be aware that the emulsion on a newly transferred image is very fragile while wet, but becomes fused to the paper when it dries.

### Advantages of Dry Transfers

- Extremely fine detail and more photo-like appearance.

### Disadvantages of Dry Transfers

- More likely to have ripped or lifted emulsion.
- Receptor paper might lift or tear when removing the negative.

## 9 MANIPULATIONS

*You can always do more.* That should be your motto when doing image transfers because you can rework, alter, and enhance a transferred image to get it to the point where it is uniquely expressive of your own personal artistic style. You can continually experiment and discover something new before and after the process.

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### Before Exposure

You can alter a transferred image even before you expose the Polacolor ER film. To modify the inherent color structure of the film itself firmly scratch or abrade the negative's surface. You can also try sprinkling the negative, again before exposure, with pastel dust, or salt, or even New Year's Eve-type sparkles—try everything!

Pre-exposure manipulations must be done to the negative layer in total darkness, after you have focused, and just before making your exposure. If you are using sheet film, put it in the film holder, shut out all of the lights (including the safelight), pull out the gray envelop, and do your manipulation. If you are using pack film, shut out the lights, pull out the focusing or dark slide, and do your manipulation. Then expose the film as you normally would. Be sure to make a note of your results. (Make sure the film holder is free of any residue after you've completed your experiments.)

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### After the Transfer

Once you have the image transferred onto a receptor surface, such as watercolor paper, you can further alter the image while it is still wet or after it has dried.

The most common modification to a transferred image is to selectively remove some of the emulsion to reveal portions of the cyan under-image. This will impart a distinct fresco-like appearance to the transfer. Removing emulsion is the most popular method used by transfer artists to rescue an image with ripped or missing emulsion.

You can also enhance your finished image transfer by increasing the intensity of your colors with an assortment of colorants such as pastels, retouching dyes, watercolors, air brush, and/or Prismacolor or Berol color pencils. I handcolor black and white photographs, and I've found that coloring black and white transfers can create wonderful effects also.

Another method to try is washing all of the emulsion off the image transfer after it completely dries. You can then either leave the resulting muted image as is or re-color it. Some artists even use a hand sander, with extra fine sandpaper, to burnish certain parts of the image.

Added color and other enhancements need not be restricted to the image itself, you can also add color, designs and or objects to the area surrounding the image. You can also extend the transferred image beyond its own border with penciled drawings. Or draw or paint a complementary image or design on the receptor

paper before you transfer an image onto it. You can also try sprinkling pastel dust onto damp receptor paper, and then placing your transfer on top of the different hues. Also try sprinkling salt or sparkles on the receptor paper.

You can have your transferred image scanned into a photo editing computer software program, such as Adobe Photoshop by using a flatbed scanner. Once your image is in a digital format, you can use it as a basis for a collage by combining it with other images, lettering, or your own drawings or illustrations. You can have your final digital image output to film, and it can be printed as a photograph. If the digitized image is output to 35mm slide film, you can transfer it again! Or you can have your digital file output as a large Scitex Iris print on watercolor paper.

You can also import your digital file into a QuarkXpress document and create an ad, or a poster, or a corporate annual report. Then copy the file to portable storage media and send it off to your printer or ad agency.

You don't need a computer, however, to create a collage. You can transfer images on top of one another. Another idea is to transfer portraits into a grid on a large sheet of watercolor paper, then manipulate the portraits so that they become a cohesive unit.

This is just a small sampling of all the possibilities available to you. I hope you take advantage of them all and add your own creative ideas to the process.

## 10 DON'T THROW ANYTHING AWAY!

Bet you thought that was all you could do with a transferred image! Look around your work area—what's left over? There is the positive side of the film, and after you finished shooting all of your pack film, there's the empty film holder. If you threw these away, dig through the trash and retrieve them, all this can be valuable stuff!

The cover for Tab Bengit's *Nice and Easy* CD, shows on the title side of the jewel box three manipulated image transfers, but on the back side there are four positive sides of the film left over from the transfers!

Because you peel apart the Polacolor ER or Pro film before the dyes complete their migration to the positive side, the tonality of the positive is usually a delicate, monotone sepia print. These prints can be brought together in a collage on their own or combined with other art mediums. As art, the positives can be left in their original state or enhanced and/or manipulated just as much as image transfers. It might also be interesting to put in the same frame an image transfer next to its positive. Even the negative that you peel away from the transferred image has a detectable latent image.

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### Slipped Emulsion Transfers

With this process, you use the positive side of Polacolor ER Type 108, 669, 59, 559 or 809 film or Polacolor 64 Tungsten film. You remove and then transfer the positive image emulsion layer onto a receiver of glass, paper, metal, or any other surface that is smooth and stable. Use film positives that have been completely exposed for a final emulsion transfer of rich, saturated colors, or use the positives that remain from image transfers to produce a final emulsion transfer of delicate, sepia hues. If watercolor paper is going to be your receiver, experiment with different surfaces; I found that the rough or cold press surface gives a result that is personally satisfying.

### Creating a Slipped Emulsion

Slipped emulsion transfers are fast and easy.

- 1 Expose, develop, and peel apart a sheet of type 108, 669, 59, 559, 809, or 64 film and let it dry for at least eight to twenty-four hours.  
You can quickly cure a positive by using a blow dryer on it to set the emulsion. I have also done a slipped emulsion transfer on a positive that was over two weeks old without any noticeable difference.
- 2 Cover the back of the cured print with Contact paper.  
This prevents the film support from dissolving.
- 3 Trim the print to the image or leave a white border around the print.  
The white border will be translucent on the finished transfer.
- 4 If you are slipping the emulsion onto watercolor paper, soak the paper in

water for about a minute then put the paper on a hard, smooth surface and squeegee off the excess water.

- 5 Set out two photo trays—one filled with cold water, the other with very hot water (at least 160° F).

Use distilled water for archival purposes.

Polaroid recommends that you place a sheet of acetate or Mylar on the bottom of your cold water tray to use as a support for the emulsion.

- 6 Soak the print image-side up in the hot water for about four minutes, making sure the image is totally covered with water.

If you soak the print too long the emulsion will disintegrate or fragment. If the positive is very dense, it may require additional soaking time.

- 7 Remove the print from the hot water and put it in the cold water.

- 8 Starting at the edges, gently remove the emulsion from the film support.

I find I can peel the emulsion off easier if the image is face down in the cold water. I hold it with my fingertips while using my thumbs to gently push the edges of the emulsion away from the edge of the film support. Then I continue to use my thumbs to gently push the rest of the emulsion from the film support.

When the emulsion is finally free of the film support, let it float in the water and discard the film support.

- 1 To remove the emulsion from the water, use the acetate support or slip a piece of wax paper under it and ease the emulsion onto the waxed paper with your finger tips.
- 2 Flip the emulsion back into the water so the acetate is on top (so your image “reads” correctly when it is transferred).
- 3 Slip the acetate beneath the emulsion once more again.

Once on the acetate, you can gently straighten and stretch the emulsion to align it and remove (or artistically add) wrinkles.

Polaroid recommends that you hold the emulsion onto the acetate while lifting it in and out of the water. Repeat while holding the different sides of the emulsion.

- 4 When the emulsion looks the way you want it, turn it onto the receiver paper.
- 5 Gently rub the emulsion to remove any air or water pockets from beneath it. You can also roll the emulsion with a soft rubber Brayer. Start at the center of the emulsion and roll outward. There will also be a gel-like substance to remove. The emulsion is very fragile and easy to tear. You can roll the emulsion or simply use your finger tips.
- 6 Dry the completed print image-up on a clean screen.

## Getting Creative with Slipped Emulsions

Try slipping emulsions onto surfaces other than paper, such as steel, glass, rice paper, or stretched canvas.

- Create a collage or a panel by slipping more than one emulsion onto a surface.
- If you transfer onto rice paper, you can crumple the paper to create an antiqued effect.
- You can slip a series of emulsions onto individual pieces of glass. Place each piece of glass on top of the other (perhaps with separators) and frame as one piece.

Paco Ojeda, a Boston artist, does emulsion transfers onto the smooth side of frosted glass. He then takes four pieces of glass, joins them at the side so the smooth side is facing inward, and makes them into voltives. The flickering light from a low heat candle glows through the emulsions giving them a wonderfully warm and delicate quality. You could protect the transfer by backing it with a piece of clear glass and using leading (as used in making stained glass) to hold the pieces together.

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Free Picture  
Frames?

Robert Mapplethorp used empty Polaroid pack film holders as picture frames! Sometimes individually and occasionally several mounted within a larger frame. The holders can be painted and decorated to complement the image it will hold.

## 11 FINISHING

Once you have gone through all the work to produce a unique and distinctive image transfer, and you are finally satisfied with it, you will no doubt want it to retain its pristine appearance. If handled with a certain amount of caution, your transferred images should last a long time with little deterioration.

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### Handling

Despite the delicacy of the emulsion when a transfer was wet, it's fairly tough when dry. As the emulsion dries, it seems to sink into, or bond with the receptor paper, and it is no longer surface-suspended as it was when it was wet. You can actually scratch the surface of a dry transferred image with your fingernail and not see any noticeable abrasion or marking.

Without proper handling, however, the surface may eventually become scratched or abraded, so the images should be stored individually to protect them from any damage. Light Impressions, a mail order retailer of archival supplies, has a very informative catalogue filled with safe storage items for precious objects, most especially flat art and photographs. See the section, **Suppliers and Other Related Addresses**, for their phone number and address).

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### Retouching and Spotting

No matter which method you use to do your transfers, the result will never achieve the perfection of a photographic print. There will be small pinholes in the emulsion or there may be a hot spot that leaves a quarter inch dot of white paper showing through the emulsion.

Some imperfections are inherent to transferring and give the viewer a sense of the process itself; these include the strips of emulsion on either side of the image, or the transferred impression of the perforated metal bar along the top of a 4" x 5" transfer. I like these "imperfections" and I don't retouch them.

You can retouch an image transfer in much the same way you would any other paper based art, by applying the same techniques you would use when adding more intense color to the image with watercolors or photo retouching dyes. (Polaroid transfers will eventually fade, keep in mind that there is the possibility that the retouch method you use will not fade or will fade at a different rate.) Employ whatever medium you are most adept at handling. If you have just started doing retouching, practice on a similar piece of receptor paper to determine how the paper absorbs color and how the colors look when dry.

I use Marshall's Photo Retouch Colors. I make a palette out of a piece of standard size window glass by taping a piece of white Bristol board to one side of the glass and dropping a circle of each color, about an inch apart, on the other side of the glass. When the dyes on the palette are dry, I take a brush, appropriate in size for the area I'll be working, and dip it in water. I then touch the brush to the color I want and drag the color out onto the clean glass space between each circle of color. Because of the palette's white background and the space left between the

colors, I can mix custom matching colors right on the palette, or I can use a small saucer. You can lighten or darken a color by using a wetter or dryer brush. As with traditional photo retouching and spotting, start light and gradually build up the color, making sure you do not overlap the emulsion that is on either side of the area you are retouching; if you do, it may end up with a darker ring of color surrounding the repair.

If you scan your image on a flatbed or drum scanner into a digital format, you can bring the digitized image into Adobe Photoshop and retouch it in the computer.

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## Displaying Your Transfers

Image transfers are stunning on their own, but when they are mounted and matted with 100% cotton Museum Board, and surrounded by a complementary frame, they are truly exquisite.

### Flattening Transferred Prints

The first step toward a suitable presentation is flattening the transfer itself. I have the dubious good luck of possessing a solid cast iron dry mount press that weighs in the vicinity of two hundred pounds. I place my transfers between two sheets of archival watercolor paper and press them, without heat, overnight. In my monster press, that's all it takes to flatten them. You can do the same thing with any heavy object. Just protect the transfers between sheets of archival paper and then weight them down.

If you own a somewhat less formidable dry mount press, you can very lightly mist the back of the transfers and put them in your press for about sixty seconds at 180°F to 200°F. Take the transfers out of the press, if they feel damp, return them to the press for an additional thirty seconds. When they are dry, remove them from the press and place them under a weight until they are completely cool.

### Mounting Transferred Prints

The object of archival mounting is to make sure that nothing that can damage your print ever touches it; therefore, avoid brown kraft paper, cardboard, plastics such as polyvinyl chloride or styrene, construction paper, cellophane tape, white glue or rubber cement, or ball-point pen ink. All of these items contain chemicals that will eventually be harmful to your art.

It is fairly easy to mount the prints on Museum Board; here are some recommended techniques.

#### Using Mounting Paper

- Square up the transfer so that the edges of the image are parallel to the edges of the receptor paper.
- Attach the print to archival paper (you can use the same paper as the receptor paper) that has diecut or diagonal corner openings

- Carefully slip the corners of your print into the diagonal cuts.
- Attach the archival paper to the Museum Board mount with archival linen or Filmoplast tape.

### **Using Hinges**

- Square up the transfer so that the edges of the image are parallel to the edges of the receptor paper.
- Attach the print directly to the Museum Board using linen or Filmoplast tape hinges. (This method works best with small or lightweight prints.)
- Position your print on the board, then with a pencil, lightly tick mark the upper edge of the print. Turn the print over, by flipping it up, so the upper edge is still aligned with your tick marks.
- Apply two strips of linen or Filmoplast tape so that each strip is half on the Museum Board and half on the print (but not directly behind your image). Flip the print down and press along the top to crease the hinges.

### **Using Corner Mounts**

- Square up the transfer so that the edges of the image are parallel to the edges of the receptor paper.
- Attach the print directly to the Museum Board mount by using corner mounts. You can make your own out of archival tape or buy them ready made.

### **Dry Mounting**

You can also dry mount your print. Seal Products makes an acid-free dry mounting adhesive that is removable when reheated; it's called ArchivalMount Plus.

There is an ongoing controversy regarding the pros and cons of dry mounting. Some galleries prefer dry mounted prints because the print will remain flat, and it cannot fall off the back board and become damaged. However, many historic photographs are being slowly destroyed because of the acid in dry mounting papers. (If you are a collector, be sure to examine the corners of any print you are considering for purchase; that is the first area where you are most likely to see deterioration.)

If you talk to a museum professional about dry mounting, they will be adamant in their opinion that dry mounting should be avoided, not only because of possible future damage, but also because nothing permanent should be done to a work of art. In other words, you should always be able to take the work back to its original state by removing the frame and removing the image from its support.

### **Matting Your Transfers**

Art is matted not only to enhance and complement the image, but also to provide air space between the image and the glass or acrylic covering. Personal preference and artistic statement determine how wide and how thick your mats will be. I prefer small prints mounted and matted on a large surface because it tends to isolate the print and bring the viewer in to the print for closer study. A large mat is especially useful if you are in a group show—it separates your print from the surrounding works.

I generally mount on 2-ply Museum Board and mat with 4-ply Museum Board; but with large images, or an image I particularly want to emphasize, I use either 6- or 8-ply mat. I also prefer a natural, non-ornate frame that will complement and not detract from the image. (I have actually been a judge in juried shows where images were eliminated because the frame was not suitable to the image, or the frame was so ornate or so ugly it overwhelmed the image. Keep it elegantly simple.)

### **Framing Your Transfers**

Framing your art places it in a closed environment. This can work to protect your image, but if you use toxic materials, you can intensify the harm. Aluminum or stainless steel frames with a baked enamel finish are about the safest to use, and that is probably why they are so prevalent. However, if you love the look of real wood as much as I do, go ahead and use wood frames, just make sure the wood does not come in contact with your image. There is a difference of opinion as to whether the wood should be sealed or allowed to breathe. I prefer that wood frames be sealed, because I really don't care if the frame survives, I want, most of all, to protect my images.

Use acrylic as the glazing that covers your print; it will absorb some of the ultraviolet radiation that fades the color in your image. There is also Museum-grade Plexiglas that filters out about 90% of the ultraviolet radiation. Glass should be your last choice; since it absorbs the least amount of ultraviolet radiation. Glass can also easily shatter and damage your image.

## 12 OTHER POLAROID FILMS

Before I became involved with image transfers, I thought of Polaroid film only as pre-proofing for 4" x 5" shots. I was wrong; there are many photographers using a wide assortment of Polaroid films as the final shots for both fine art and commercial applications.

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### Time-Zero Film

Time-Zero film has probably received the most attention lately as a film that can be manipulated by two different methods. Time-Zero was originally made for use in the SX-70 camera. Although SX-70 cameras are no longer manufactured, they are readily available used and can be found at camera swap meets, garage sales, and so on. You can also use the film in any of Polaroid's 600 Series OneStep cameras by making a quick and easy modification (explained below), in a Polaroid 600 BE camera, or you can projection print a slide or transparency onto the film.

Film size is 3 1/2" x 4 1/4", with a square image size of 3 1/8" x 3 1/8". It is rated at ISO 150, and it's sold by the pack with ten sheets of film.

### Manipulating the Surface of the Image

Time-Zero film does not peel apart; it uses a self-developing process, with its dyes, emulsion, and developer substances enclosed between a black film backing and a clear polyester film facing. When the film is fresh, these enclosed substances do not harden immediately after exposure, making it possible to rearrange the color and shape of the image by applying pressure to the polyester film facing. The results you achieve are dependent on how you move, push and/or imprint the enclosed substance, and what you use to move it. You do not have to rush and manipulate the film as soon as it's exposed; in hot weather, the substance will stay pliable for a couple of days!

The instruments used for manipulating the enclosed substances can be anything as long as it is not sharp—you don't want to punch a hole in the polyester. Clay modeling tools work well, a burnishing tool, an orange stick, or any small, blunt, rounded, or pointed instrument that feels comfortable to you. Work on a hard, smooth board; if you shoot live out in the countryside, don't forget to take along the board.

As I mentioned above, your results are entirely dependent on how you move, push and /or imprint the enclosed substances and the amount of pressure you apply. With one method, the entrapped dyes and emulsion are gently pushed around in such a manner as to create an image that gives the impression of being viewed as a reflection in water. Another method uses a stylus, the added pressure produces dark lines, allowing you to draw on the image.

## Manipulating the Back of the Image

Suppose you expose a sheet of Time-Zero film and put it aside for a couple of days and forget about it. The enclosed substance hardens, and you can't move it with a pick ax. Don't throw it away; there's another method you can experiment with. It requires that the film age for a couple of days.

When the enclosed substance is dry (it won't move when pushed from the surface), take an X-Acto knife, and with the back of the film facing you, slit open the bottom edge of the film (you could also use scissors to cut along the edges, but you may want to keep film's white border intact). Once the lower edge is split, you can separate the film by pulling the front and the back apart. The white chalk-like processing material that is between the film and its backing can be caustic, so you might want to put on surgical gloves.

After you have separated the front from the back, take the front part (the one with the image) and gently rinse the back side under warm water to get rid of the white processing material. Don't be too vigorous with this, or you'll rinse off part of the image also. After rinsing, you will be left with a transparent image—a fragile transparency.

You can now begin to alter the transparency by scratching away sections of the image and either painting or coloring in different designs or colors. Or you can paint on the surface of the image.

## Finishing

Manipulated Time-Zero film is beautiful framed as is or copied and enlarged. Of course you can also copy it onto slide film, project the slide onto Polacolor ER or 64 Tungsten film, and then transfer it!

## Modifying a Polaroid 600 Series Camera to Accept Time-Zero Film

- 1 Cut a stiff piece of cardboard, similar to Bristol Board, slightly smaller than the Time-Zero film pack.
- 2 Insert the cardboard about halfway into the film chamber of the 600 camera. There is a small, metal bar in the chamber that must be covered with the cardboard in order to allow loading of the Time-Zero film pack.
- 3 With the cardboard still in place, slide the Time-Zero film pack along the top of the cardboard and into the chamber until the film is firmly in place.
- 4 Pull out the cardboard and close the film chamber door.

There is a two f-stop difference between the 600 and the SX-70 camera; in order to ensure getting the correct exposure, tape a one- to two-stop neutral density filter over the light meter of the 600 camera.

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Spectra High  
Definition Film

This is a high-speed color print film rated at ISO 600. The image is rectangular, 3 9/16" x 2 7/8". I have not experimented with this film; however, Polaroid suggests that it be used without manipulation in collages or manipulated along the same lines as Time-Zero film.

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Type 665 and Type  
55 Film

Both are black and white films with a negative and positive. Image size for Type 665 is 3 1/8" x 3 1/8", for Type 55 it's 4" x 5". I've seen some very interesting work done with this film's negative by Jeri Lawson, an artist who also teaches in the Art Studio at UC Berkeley. She uses a large format pinhole camera to create an image on Type 55 film, she then manipulates the negative in various ways (sometimes by partially melting it), and finally contact prints it onto photographic paper.

Polaroid's suggestions about how to use this film creatively include marking and scratching the negative before printing, and solarizing the negative in the darkroom with a strobe. If the positive is left uncoated for a very long period of time, it will gradually solarize, producing very interesting results. You can also scratch the positive side of the film.

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PolaPan

Black and white, 35mm, positive/slide film, sold in 36-exposure cartridges. PolaPan is an instant slide film and is processed in the Polaroid AutoProcessor. The film is ready to mount five minutes after you begin processing it. The images that I've seen from this film are very striking in their grain and contrast. PolaPan can be projected onto Polacolor ER or Pro film and then transferred onto a receptor surface.

PolaPan has an extremely delicate emulsion surface and should be glass mounted as soon after developing as possible.

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Polagraph

Black and white, 35mm, positive/slide film, sold in 12-exposure cartridges. Polagraph will produce high-contrast slides after processing in the Polaroid AutoProcessor. The images are very striking. It can also be projected onto Polacolor ER or Pro film and then transferred onto a receptor surface. Take the same precautions with mounting as PolaPan—the emulsion is very delicate; however, this can also be an advantage for manipulation—you can scratch, scrub or paint the surface fairly easily before projecting.

## 13 GOING TO PRESS WITH IMAGE TRANSFERS

No matter what the current cyber-hype says about affordable tabletop scanning, if your image transfers are going to be printed as a quality document such as an annual report, a fine art book, or an art poster, you should take your original transfer to a reliable and reputable prepress house, and have it scanned on a high-end prepress drum- or CCD-scanner, such as Linotype-Hell or Scitex, for optimum reproduction quality.

What will a highend scan produce that a tabletop scan, at half the price won't? A high-end scan will more readily distinguish the subtle and muted colors of your image transfer. Also, a prepress house will have qualified specialists, competently trained in color output.

An image transfer is a new and unusual art medium. This could pose a problem to an inexperienced scanner operator whose expertise and machine standards are limited to producing separation files from more traditional media. In order to produce precise color reproduction, the scanner operator may have to manipulate the scanner's color calibration settings to accurately match the colors of the scanned image to your original image transfer.

After the prepress house scans your image, you'll have the option of having them return it to you as a low resolution digital file that you can import into your document layout, say in QuarkXpress, for placement only (FPO). Once your page, poster, or book is arranged to your liking, you can send the digital file back to the prepress house, and their equipment will automatically substitute the low resolution version with the high resolution image, and then output the entire file to the press.

You can also have the prepress house send you the high resolution file so you can digitally retouch it (the prepress house can also provide that service), and then send it back with the page layout program, and have it output to a prepress proof print.

Your prepress proof will not exactly match the color or contrast of either your original image transfer or your final printed piece. However, you can check the neutral areas of the proof with a loupe to make sure these areas are not contaminated with either a blue or green cast. In addition you can check the proof for the usual items of sharpness and registration; size and position; scratches, spots, and overall cleanliness; and broken screens and broken type. If the prepress proof passes your inspection, you're ready to go to press.

There is one more proof that you must examine before your job is run on the press; it's called a press approval proof. This is a proof that is run through your printer's presses just before the final run of your job. You view the press approval proof at the printers, in a 5,000°K balanced viewing booth, and with a loupe.

The press approval proof is your last chance to ensure that the final output is correct and the way you want it to look. You should make sure that the ink is going on correctly (not too heavy or too light), and that the plates are in register and producing a clean print. Also at this time, you can make some final color corrections (bring your original image transfer with you).

Press approvals call for a certain amount of technical expertise; if you are not familiar with press approval proofs, bring along a designer who is, because once you sign-off on the press proof, the press starts, and you pay.

## 14 PUBLICATION LISTING

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Polaroid Corporation publications

*Polaroid Guide to Instant Imaging: Creative Uses for Polaroid Films*

Features most of the films mention in the section, Other Polaroid Films. Includes a gallery illustrating the use of the films along with comments by the artists who created the works. Has instructions for projection printing, clearing Type 55 negatives, and the use of Time-Zero film in current Polaroid cameras. 52 pages.

*Polaroid Guide to Instant Imaging: Advanced Image Transferring*

This is the guide that I started with, and up until now, it was the only imaging guide available. It features the work of several artists, who use various techniques and formats. It has instructions for projection printing and basic image transferring. It also discusses how to reproduce image transfers. 39 pages. Polaroid has since replaced this guide with another one Inspiration—A Step-by-Step Guide. This is also available from Polaroid Corporation.

Both of the above guides are out of print; you might find them in used bookstores or camera shows. As of December 1999, Polaroid is publishing a new *Creative Techniques Guide* that is available free by calling 1 800 225 1618.

*Test*

An online periodical published by Polaroid. Features articles about the creative use of Polaroid films. <http://www.polaroid.com/work/pro-photo/index.html>

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Other publications and articles

**Image Transfers.**

“The Transforming Power of Transfers,” Step-By-Step Graphics, pages 64-71, November/December 1991, Volume 7, Number 6.

“Polaroid Transfers—The Soft Transformations of Jose Picayo,” Photographic, pages 44-75, February 1991.

“Polaroid Transfers, Art for the Nineties,” Camera & Darkroom, pages 23-29, July 1992.

“A Damaged Beauty,” Print Magazine, pages 62-69, 1991 or 1992.

“John Reuter—Contemporary Frescos,” View Camera, pages 25-31, September/October 1992.

*French Dreams*, Steven Rothfeld, 1993, Workman Publishing Company, Inc., New York, New York. (A book filled with lush image transfers of France, accompanied by literary passages. Unfortunately, not much is said about the transfers.) 86 pages.

Rothfeld wrote a companion book, *Italian Dreams* in 1995. Collins Publishing Company, Inc., San Francisco, California.

### Related Interest.

*Painterly Photography: Awakening the Artist Within*, Elizabeth Murray, 1993, Pomegranate Artbooks, Petaluma, California. (The book features sixty-six of the author's SX-70 manipulations. It also includes a tool and resource listing.)

*Instant Photo Instant Art*, Dominic Sicilia, 1977, Price/Stern/Sloan Publishers, Inc., Los Angeles. (How-to book discussing SX-70 transfers.)

## 15 SUPPLIERS AND OTHER RELATED ADDRESSES

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Polaroid  
Corporation

Corporate Offices  
784 Memorial Drive  
Cambridge, Massachusetts 02139  
<http://www.polaroid.com>

**To request free Polaroid Guides**

8:00 A.M. to 8:00 P.M. (EST) Monday through Friday 800 225 1618

**Polaroid's Technical Assistance Hotline**

8:00 A.M. to 8:00 P.M. (EST) Monday through Friday 800 225 1618

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Archival Supplies

Light Impressions  
439 Monroe Avenue, P.O. Box 940  
Rochester, New York 14603-0940  
800 828 6216

<http://www.lightimpressionsdirect.com/lightimpressions/index.icl>

Light Impressions has a very interesting catalogue; They also carry matting material and equipment, frames, and photography books.

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Equipment

Daylab, Ltd.  
400 East Main Street  
Suite E  
Ontario, California 91761  
800 235 3233  
<http://www.daylab.com/>

Optical & Electronics Research (O&ER)

11501 Sunset Hills Road  
Reston, Virginia 22090

1 703 471 1645

<http://www.oerinc.com/cameras/index.html>

### Mail Order Photo Supplies

B&H Photo

119 West 17th Street

New York, New York 10011

1 800 606 6969

1 212 444 6615

<http://www.bhphoto.com>

### Pre-Press

Rapid

One Jackson Place

633 Battery Street

San Francisco, California 94111

415 989 5820

<http://www.rapidgraphics.com>

Rapid also offers inexpensive classes, in San Francisco and Santa Clara, on a variety of pre-press subjects.

### Software

Adobe Systems, Inc.

1585 Charleston Road

Mountain View, California 94039

<http://www.adobe.com>

## 16 THE FINAL WORD

In Steven Rothfeld's most beautiful book of Polaroid image transfers, **FRENCH DREAMS**, the following statement is inside the cover

"...Polaroid transfer[s] whose muted colors and soft lines seem to arise not from a camera, but out of memory itself."

It has been my privilege to share with you the joy of Polaroid image transfers, and I hope this book inspires you to create many of your own memories through the use of this fascinating medium.

Holly F. Dupré  
Walnut Creek, California