The Elements of Black-and-White Printing,
Second Edition

Going Beyond Darkroom Basics
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For Judy and Neal
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Preface

The Elements of Black-and-White Printing is a resource for photographers who already have some experience in the darkroom but who want to understand more about the processes they are using. The benefit of this understanding is the ability to assume a greater control over what appears on the final print.*

In addition to explaining procedures, this book contains exercises to help you calibrate these procedures in your own darkroom and with the materials you prefer using. Use this book to guide your own experience and practice in the darkroom. The reward for this effort will be an understanding of printing that is both practical and flexible.

Two concepts, print statement and expressive print, help explain the purpose of this book:

• A print statement is the way that an image is crafted. It includes all of the choices that you make about an image in the darkroom, such as the materials you use, the print size, and even the print exposure. These choices, as much as the subject matter, affect how a viewer sees the image. Every image can have many technically correct print statements. Usually, however, only one print statement accurately expresses the content of a negative. In other words, some print statements are appropriate; others are not.

• An expressive print combines carefully seen subject matter with an appropriate print statement. The result is a print that satisfies a viewer on both an emotional and an intellectual level. Such prints radiate energy and luminosity while communicating the feelings and intentions of the photographer.

The Elements of Black-and-White Printing will help you make expressive prints by teaching you the techniques you need to produce appropriate print statements.

* For readers interested in brushing up on their basics, several useful books are available, including Into Your Darkroom Step by Step by Dennis Curtin and Steve Musselman, Focal Press, Boston, MA, 1981.
HOW TO USE THIS BOOK
There is no need to proceed through this book all at once. There are three points where you can pause, take what you have learned into the darkroom, and then continue only when you feel ready to learn more.

• The first pause is at the end of Chapter 3, “Changing Contrast for the Shadows.” At that point you will have learned how to make correct decisions about exposure and contrast for your prints. These are the foundations of making an intentional print statement rather than an accidental one. If these techniques are new to you, practice them until they feel comfortable before proceeding.

• The second pause is at the end of Chapter 5, “Choosing a Paper and a Developer.” This chapter and Chapter 4, “Photographic Chemistry—Creating a Developer,” explain how print developers are formulated and how they interact with printing papers. These chapters are the basis of making an informed choice about which papers and developers are best for your print statement.

• The third pause is at the end of Chapter 8, “Toning.” This chapter, Chapter 6, “Special Contrast Solutions,” and Chapter 7, “Salvage Techniques,” describe techniques that you can use to fine-tune your print statement. You may want to use some of these techniques right away. Others, you might want to use in the future. Skim the material first and concentrate on what interests you.

• Finally, Chapter 9, “Archival Processing,” and Chapter 10, “Preservation and Presentation,” instruct you on how to give your prints (and negatives) the best chance for long-term survival. This information will be increasingly important as you begin to produce prints that you want to keep and display.

The Elements of Black-and-White Printing concludes with appendices that provide information on darkroom safety; testing for and correcting enlarger alignment problems; making chemical conversions; annotated formulas for developers, toners, and other darkroom processes; suppliers for hard-to-find chemicals, darkroom equipment and safety information; and books containing additional information about black-and-white printing.

PREFACE TO THE SECOND EDITION
Many changes have been made to the text of the second edition to bring it up to date and to add more formulas and techniques. In addition, new for this edition is an appendix on safety in the darkroom, reflecting today’s greater awareness of health and safety issues. In spite of this, the basic concepts of the black-and-white process that are the foundation of this book have not changed.

ACKNOWLEDGMENTS
As with the previous edition, a great number of people have made significant contributions to this book. These people include Maxim Muir for his encouragement and kind “loan” of two of his excellent developer formulas, Howard Etkind for his expertise in health and
safety issues, and Wendy Erickson of Ilford for publishing the first
draft of what was to become the appendix on darkroom safety. Also
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advice. Finally, my enduring appreciation to Judith Canty and
Arnold Gassan for their years of friendship and support, and to all
the photographers who gave their images for illustrations and
whose contributions are listed in the back of this book.
Many photographers actually make worse prints after a year or two of experience in the darkroom than they did when they first started. It is so easy to expose and develop a piece of printing paper that they give in to the temptation to relax and begin taking short cuts without realizing the difference between convenience and bad habit. The resulting loss of print quality can happen so gradually that it isn’t even noticed.

In a field as controlled by technology as photography, you need to periodically review your working procedures and discard any bad habits. If you neglect basics, such as developer temperature or enlarger alignment, then no amount of additional effort will produce a truly fine print.

This chapter covers the areas of basic darkroom technique, which is where most people create problems for themselves, and includes suggestions that you can follow to improve your own technique. The areas covered are:

- darkroom safety
- enlarger basics
- variable-contrast paper
- burning and dodging
- handling prints
- proper agitation
- chemical capacities
- temperatures and timing
- inspection lights

**DARKROOM SAFETY**

Every discussion of darkroom procedures should begin with making the darkroom a safe and comfortable working environment. Your safety and health require more of you than just reading the warning labels and liability disclaimers on a developer package, they mean learning about the ways that photographic chemicals can cause harm and how to protect yourself while using them.

Appendix A, “Darkroom Safety,” contains important information you need to take common-sense precautions in the darkroom. Take time to study this appendix and then adapt your darkroom and working procedures as needed. In addition, where this book describes processes, such as toners and intensifiers that require special precautions, take note of the additional warnings that accompany the descriptions.

**ENLARGER BASICS**

All but budget-priced enlargers and enlarging lenses produce good results. Each, however, has individual characteristics that you should take into account. The same negative printed on different enlargers will have a different contrast and sharpness. There are three enlarger types:

- The most common is the *condenser* enlarger. This enlarger uses a tungsten light source, much like an ordinary household light bulb, which is focused by large lenses (condensers) before it passes through the negative.
- A second type is the *diffusion* enlarger. This enlarger uses a piece of frosted glass or plastic to scatter light nondirectionally before it passes through the negative. A variation of the diffusion enlarger uses a special fluorescent tube as a light source and is called a *cold-light* enlarger.
- Less common, but used by people working with graphic arts materials, is the *point-source* enlarger. This enlarger projects highly focused light from a bright, small-filament bulb through the negative.

Each of these enlarger types is capable of producing excellent black-and-white prints, but with certain tradeoffs. A condenser enlarger provides the best sharpness for the least cost. Diffusion enlargers are best at hiding dust spots and negative flaws but at the cost of slightly reduced print sharpness. A diffusion enlarger also produces prints with lower contrast than a condenser enlarger, requiring the use of higher contrast enlarging paper to produce equal results. Point-source enlargers produce the sharpest prints but are typically more expensive and more difficult to set up correctly.

You can adapt some enlargers to accept each of these light sources, so it is possible to experiment with more than one enlarger type to determine which is best for you. In spite of some claims to the contrary, no one enlarger type is inherently better than another.
**Enlarger Alignment**

For a print to be uniformly sharp, the planes of the negative, the lens, and the easel must all be parallel. If you haven’t checked your enlarger for proper alignment, you should do so. Even new enlargers are rarely in proper alignment. See Appendix B, “Enlarger Alignment,” for instructions on how to check an enlarger for alignment and for suggestions on how to adjust the alignment if necessary.

**VARIABLE-CONTRAST PAPER**

Many photographers appreciate the convenience of variable-contrast paper. This is printing paper that has several different contrasts built into the emulsion. Manufacturers of variable-contrast papers supply sets of differently colored filters that change the paper contrast. Although the contrast grades for each manufacturer’s filters are slightly different, you can use filter sets from different manufacturers for most papers.

If you use variable-contrast paper, try to place the filter above the negative in the enlarger’s lamphouse. Whenever you place a filter between the negative and the printing paper, you lose a small amount of sharpness due to dust and the accumulation of small scratches that are inevitable as you handle the filters. Placed above the negative, these flaws do not affect image sharpness as much. Not all enlargers permit the use of filters above the negative, however, and some photographers even claim not to be able to detect any difference in sharpness caused by the filter location.

When you use variable-contrast paper, always focus the enlarged image using white light. If you focus through a filter, especially one of the higher-contrast filters, the image you see with your eye will be in focus at a slightly different point than the image the paper sees. The result is an unsharp print.

**Color Printing Filters and Variable-Contrast Paper**

Instead of the filter sets designed specifically for variable-contrast papers, you can use the filters built into enlargers intended for color printing. This has the advantage of giving you many more contrast options than you have with the standard filter sets. Appendix C, “Variable-Contrast Filter Equivalents,” lists color printing filter equivalents that you can use as a starting point for many popular variable-contrast papers.

**BURNING AND DODGING**

Done properly, burning and dodging enhance the details in a print. **Burning** is the adding of exposure to selected areas of a print to make them darker than they would be with only the main exposure. **Dodging** is the opposite: withholding part of the main exposure from selected print areas to make them lighter. Effective burning and dodging don’t call attention to themselves and are invisible parts of the print statement. Unfortunately, inexperienced photographers either reveal their burning and dodging technique in the print or waste sheet after sheet of paper in an attempt to make their efforts look natural.
Problems generally occur because most photographers don’t think about burning and dodging until they need a salvage technique for a print that is badly exposed or printed on paper of the wrong contrast. One of the goals of this book is to teach you ways to determine the correct print exposure and to select the right paper contrast. Proper exposure and contrast alone will eliminate a lot of burning and dodging and allow you to concentrate on using these techniques to enhance fine details.

There are as many methods for burning and dodging as there are people working in darkrooms. As long as the technique you use is comfortable and effective in adding exposure or withholding it, there is no reason to change. You should, however, keep in mind the following:

- Reflections in the darkroom are a significant problem. Examine the area around your enlarger, and either cover or remove possible sources of reflections. Any light-colored or shiny object near the enlarger can project stray reflections onto the print. The resulting loss of detail and added density (called fog) may not be immediately noticeable, but they have a significant impact on the subtle qualities that separate a good print from an average one.

- What you use to manipulate the light during burning and dodging is important. Always use a nonreflective and completely opaque object. Don’t use a sheet of typing paper or an old print because a small amount of light is transmitted through the thin paper. This diffuse light can cause fog. Hands are also too reflective to use. If you like to use your hands to burn and dodge, try wearing a pair of black, nonreflective gloves. Inexpensive white cotton gloves sold by most cameras stores to handle film can be dyed black with India ink mixed in water.

- Limit the time the print is exposed to any light, even supposedly “safe” light. For example, if you use a red filter over the enlarger lens to determine which areas of the print to burn and dodge, remember that the light from a red filter can cause fog if left on too long.

- With variable-contrast paper, you can burn highlights and shadows through different contrast filters. When you burn a highlight through the lowest contrast filter, you minimize the “spillover” effect on the adjacent midtones and shadows. Likewise, you can burn a shadow tone through a high-contrast filter to avoid problems with nearby highlights and midtones. See Chapter 6, “Special Contrast Solutions,” for more information on two-filter exposure of variable-contrast paper.

**HANDLING PRINTS**

Many good prints have been ruined by photographers who touch the printing paper with their bare hands while the print is being processed. Fingers contain many ridges and pores, and handling prints while they are in a chemical solution transfers that chemical from one print to another and from one tray to another. The result is contaminated trays of chemicals and stained prints. Instead, you should use print tongs (one per tray) to handle prints during
processing. Using tongs saves money by preventing ruined prints and keeps chemicals fresher for a longer time.

An even more important benefit of using print tongs is protecting your skin from direct contact with darkroom chemicals. Developers are alkaline, and stop bath and fix are acidic. The change in pH caused by dipping your hands in developer and then in stop bath causes the skin to dry out and eventually crack. Dry, cracked skin invites chemical absorption, which in turn increases the chance of your developing an allergic reaction to developers commonly known as metol poisoning.

At best, metol poisoning is a painful rash, and at worst, it can keep you from ever working comfortably in the darkroom again. Gloves and skin preparations, such as barrier creams, are good supplements, but nothing can replace the proper use of tongs both for print quality and personal comfort. Protecting you skin from contact with processing chemicals is discussed at greater length in Appendix A, "Darkroom Safety."

PROPER AGITATION
The purpose of agitation during development is to replace exhausted developer at the surface of the print emulsion with fresh developer. Letting a print sit still in the tray produces unevenly developed tones. This is why it is important to keep the print moving. How you do this is less important than making sure that you do it at regular intervals.

Effective agitation methods include rocking the tray (although in a small sink it is easy to spill developer into the stop bath), turning a print over at regular intervals, holding a print by one corner and moving it back and forth, or any combination of these. The important thing is using a consistent technique.

Regardless of how you agitate the print, pick it up approximately every 30 seconds and let it drain from the corner for about 5 seconds. Physically removing the print from the developer in this way breaks the surface tension of the liquid and ensures that fresh developer reaches all parts of the emulsion evenly when you place the print back in the tray.

Agitating a print in the stop, fix, and washing aid is equally important. Each step is a chemical process that must occur evenly and completely. It is never acceptable to leave a print in a solution while you are doing something else.

CHEMICAL CAPACITIES
Chemical solutions in the darkroom have short effective lives. As these chemicals are inexpensive relative to the cost of printing paper, it pays to plan your printing sessions around the capacities of your working solutions. The following suggestions are useful for standard print processing. For maximum print life, additional care is needed. See Chapter 9, "Archival Processing," for details.

Developer
Although individual developers vary, a general rule is that for a quart of working solution, develop a maximum of 20 8 x 10-inch prints. Be sure to include your test strips in the total. After reaching
this maximum, prints will no longer have a full, rich scale of tones. Also, a developer diluted to working strength oxidizes within a couple of hours even if it hasn’t been used. Mix working developer only as you need it.

**Stop**

Although many commercial stop baths contain a dye that changes color to indicate exhaustion, these indicators change only after the solution is no longer working effectively. This allows developer by-products to contaminate your fixing bath. To maintain the efficiency of your fix, don’t wait for the stop bath’s indicator to turn color; replace the stop bath every time you change your developer.

**Fix**

Used properly, a silver iodide test solution (available commercially from Edwal Scientific Products as Hypo-Chek) gives a good indication of when a fixing bath is exhausted for normal use. A drop or two of the test solution in the fixing tray will indicate by the presence of a milky white precipitate that the fix is no longer usable.

If you use a rapid-type fix, you must remove an ounce or two of the fix from the tray and test that rather than testing the entire tray of solution. Putting drops of the test solution directly in a tray of rapid fix won’t indicate exhaustion until well after the fix has gone bad.

Many photographers leave open trays of partially used fix in their darkroom for days at a time. Unfortunately, water and acid evaporate from fixer, upsetting its pH balance and its ability to fix prints properly. Cover the fixing tray between printing sessions, or better yet, store the working fixer in an air tight bottle reserved especially for that purpose.

**Washing Aid**

Most commercial washing aids, such as Heico Chemicals Corporation’s Perma Wash or Kodak’s Hypo Clearing Agent, contain a chemical that replaces the thiosulfate in a print (left over from the fix) with a more water soluble compound. This shortens the time needed to wash the print. A washing aid doesn’t substitute for actually washing a print; the chemicals left in the print after treatment are still harmful to the image.

As you process prints in a washing aid, its effectiveness is decreased. Follow the manufacturer’s capacity recommendations for the particular product you are using. Pay special attention to any instructions about the tray life of the product.

**CHEMICAL TEMPERATURES**

Although photographers are usually very careful about the temperature of their film developer, few pay much attention to the temperature of their print developer. This is a common cause of poor prints.

Chemical reactions, such as development, are temperature sensitive. They are more active at higher temperatures, and less
active at lower temperatures. The ideal temperature for most
darkroom chemicals is 70° if you are using a Fahrenheit
thermometer or 20° if you are using a Celsius thermometer. The
two temperatures aren’t exactly the same, but each represents a
major mark on darkroom thermometers, and thus are easier to see
(and maintain) under normal working conditions.

Most developers contain two active ingredients, called
developing agents, which have different temperature sensitivities.
These ingredients are metol (also known as Elon, a Kodak
proprietary name) and hydroquinone. Metol develops the mi-
drange and light tones in a print, and hydroquinone enhances the
dark tones. Together, they produce a full-scale image (one with a
complete range of tones), but only under the correct temperature
conditions.

Metol reacts in a predictable way to changes in temperature,
increasing and decreasing in activity gradually and at an even rate.
Hydroquinone is less predictable. At temperatures higher than
75° F, it is aggressively active, overemphasizing dark tones. As the
temperature drops to less than 65° F, hydroquinone loses its ability
to develop tones at all, leaving a print gray and muddy in the
shadows.

If you try to compensate for a developer that is too hot or too
cold by changing exposure or development times, you can end up
with a print that has either dark muddy tones, or one with chalky
white highlights and dense featureless shadows. If you use a
developer that is only a little too warm or a little too cool, you affect
your prints in a less drastic way, probably without even realizing it.

The other chemicals in a black-and-white darkroom aren’t as
temperature sensitive as the developer, but it is a good idea to keep
them within 5° F of the developer temperature. This is especially
ture of the wash water. A cold water wash (below 65° F) is almost
completely ineffective for removing residual fix. A warm water wash
(over 80° F) will actually cause the emulsion of a print to float off
the paper base if the print is washed too long.

**Maintaining Even Temperatures**

Check the temperature of your chemicals frequently. If the air
temperature of your darkroom is much higher or lower than the
ideal chemical temperature, use a water bath.

You can make a water bath by placing trays containing your
processing chemicals inside larger trays of water at the correct
temperature (Figure 1-1). The larger mass of water cools down or
warns up more slowly than the smaller volume of the chemical. As
the temperature of the water bath rises or falls, adjust it by adding
more hot or cold water until it is correct again.

Some photographers use their sink as a large water bath,
putting a raised lip around the drain so that they can fill the
sink with two or three inches of water in which to place the
processing trays.
TIMING

Careful timing ensures correct print processing. The chemical reactions that occur as a print moves from developer to stop to fix require a certain amount of time to complete. They can also harm a print if allowed to continue too long. Use the following processing times when you print. Note that all of the times assume a temperature of 70° F.

Developer

Use 2 minutes as a standard for developing a print, even for resin-coated paper, which tends to produce a visible image more quickly than fiber-based paper. Having a standard development time gives you the option of using different development times to produce predictable changes in contrast and density. The usefulness of this is discussed in Chapter 3, “Changing Contrast for the Shadows.”

Developer-Incorporated Papers and Developing Times

Some enlarging papers are manufactured with components of the paper developer already present in the emulsion. These papers are designed for use with automatic processors where speed is an important factor, although they can be used in ordinary tray processing. Most developer-incorporated papers are labeled as such on the box.

In normal tray processing, a developer-incorporated paper produces a visible image more quickly than conventional paper. In spite of this, you should adhere to a standard development time, as the subtle tones of the image still take time to appear.

One additional precaution to observe when using developer incorporated paper is not to develop conventional paper in a tray after you have processed developer-incorporated paper in it. Residual chemicals left behind from the incorporated developer components can stain conventional paper, especially if it is fiber-based.

Stop Bath

Agitate a print in stop bath for 1 minute if you are using fiber-based paper and 30 seconds if you are using resin-coated paper. Most photographers don’t keep their prints in the stop bath long enough.
because they think that the only purpose of a stop bath is to neutralize the alkalinity of the developer. Although it is true that this process takes only a few seconds, another function of the stop bath is to remove the residue of bromide compounds created in the emulsion of the paper while it is developing. This requires the full recommended time. If any bromide compounds are left in an emulsion when the print goes into the fix, they appear as permanent gray stains.

**Fix**

Fix a print for 5 minutes in a standard fix (one containing sodium thiosulfate) or for 2 minutes in a rapid type-fix (one containing ammonium thiosulfate). Less than the recommended time incompletely fixes the emulsion, and more than the recommended time can cause the emulsion and paper fibers to reabsorb the chemical residue of the fixing process. If you are developing test strips or work prints that you don't intend to keep, you can remove them from the fix for inspection after only a minute.

**Washing Aid**

Three minutes in a washing aid is enough for most conventional fiber-based papers if you agitate the prints properly. Resin-coated papers require only 1 minute.

**Washing**

After treatment in a washing aid, wash resin-coated paper for 10 minutes and fiber-based paper for at least 20 minutes. Be sure that prints are kept separate and given adequate agitation.

Washing times assume a system in which there is a complete change of water every 5 minutes. You can check the efficiency of a print washer by adding \( \frac{1}{2} \) to 1 ounce of food dye to the wash water and timing to see how long it takes for the color to go away. It should disappear in 5 minutes. Washing efficiency isn't helped by increasing the flow of water beyond this point. You will only waste water.

**INSPECTION LIGHTS**

A darkroom should contain a white inspection light so that you can evaluate a print as soon as it is fixed. The type and intensity of this inspection light are very important. It should simulate the conditions under which you will normally view your prints when they are finished.

If the inspection light is brighter than your normal viewing conditions, you will tend to make prints that are too dark. If the light is too dim, your prints will tend to be too light. If the inspection light is a standard fluorescent tube, the blue rich color spectrum of that light will cause you to make prints with too much contrast.

It is important to stress that the inspection light should simulate your normal viewing conditions, not duplicate them. There are many differences between your darkroom and the average living room wall or art gallery and you must make allowances for these differences. Start by making some observations.
about what viewing conditions you prefer for your photographs. In
general, the most satisfactory lighting seems to come from tungsten
bulbs with perhaps a small mixture of fluorescent light or indirect
daylight. Take a light meter reading off of a neutral-density gray
card in conditions you consider ideal.

Once you discover an optimum intensity for your viewing light,
adjust your darkroom inspection light to have the same intensity at
the location where you normally examine your prints. You want to
duplicate the intensity of light falling on the print, not the wattage
of the bulb itself. A low-wattage bulb at close range will cast as much
light as a higher wattage bulb at a greater distance.

Finally, when you are printing, allow your eyes at least 30 to 45
seconds to adjust to the inspection light after you turn it on.
Remember that under a dim safelight your pupils are highly dilated
and must have time to contract under the relatively bright illumina­
tion of the inspection light.

Confirm the correct intensity of your inspection light by
making three prints from the same negative. Make the first print
for what appears to be the correct exposure under your inspection
light. Then make a second print with about 5% to 10% more
exposure than the first, and a third print with about 5% less
exposure than the first. When the prints are fully processed and
dry, compare them to see if the first print still represents the best
exposure. If the print with more exposure now looks better,
increase the intensity of the inspection light. If the print with less
exposure looks the best, decrease the intensity of the inspection
light. Repeat the test until what you see under your inspection light
matches what you expect in the dry print.

Figure 1-2 Examine wet prints under
an inspection light that duplicates
the intensity and color spectrum of
your ideal print viewing light. Note
that it helps to squeege the print
on a flat surface to remove excess
liquid that could affect how you
judge the tones.
"Dry Down" in Prints
Most photographers have experienced a situation in which a print looks fine when they inspect it in the darkroom but somehow loses the sparkling highlights and detailed shadows they originally saw when the print dries. This phenomenon is commonly called dry down and can happen even when you have carefully adjusted your inspection lights.

Dry down occurs because the gelatin emulsion of a print swells when it is wet and contracts when it is dry. Highlight tones are less visible in a wet and swollen emulsion than they are when the emulsion is dry. In the same way, shadow tones that are distinct and separate when a print is wet become compressed and lose their separation when the print is dry.

Differences in the composition and manufacturing of print emulsions explain why some types of printing papers exhibit a greater dry down effect than others (and why some photographers debate the actual existence of dry down). If your paper exhibits a noticeable dry down, you can minimize the effect by taking the print out of the fixing tray, rinsing the print in water, and squeegeeing the surface dry on the flat bottom of an unused tray or a piece of Plexiglass before you inspect it. This, combined with a careful use of your inspection light, will allow you to accurately judge how a wet print will look when it is dry.

SUMMARY
• Your health and safety in the darkroom requires that you learn more about the chemicals you use than just reading the warning labels on the products. You must become informed about the ways photographic chemicals can cause harm and what you must do to minimize the risks from handling them.
• There are three enlarger types: condenser, diffusion, and pointsource. Each has specific characteristics and produces different print statements, although no one system is inherently better than another.
• Proper enlarger alignment is critical for making uniformly sharp prints.
• Variable-contrast papers, when used with the appropriate filters, are convenient ways to have access to a variety of contrast grades at minimal expense. Placing the filters above the negative stage generally produces sharper prints than placing the filters between the negative and the printing paper.
• Burning and dodging are two techniques that can improve the tones in selected areas of a print. Successful burning and dodging aren’t noticeable.
• Print tongs reduce the possibility of contaminating a print and eliminate the necessity of bringing your hands into contact with darkroom chemicals.
• Proper agitation and correct timing ensure even development, and prevent stains and other contamination.
• Processing chemicals are inexpensive relative to the cost of printing paper. Know the capacity of the different chemicals you use and replace them before they cause problems.
• You can maintain even chemical temperatures by using a water bath. A water bath uses a volume of water surrounding the processing trays to hold them at a constant temperature for a longer time than normal.

• Carefully time each step of the printing process. The chemical reactions that occur as a print moves from developer to stop to fix require a certain amount of time to complete. They can also harm a print if allowed to continue too long.

• The type and intensity of your inspection light should simulate the viewing conditions of your finished prints. Too bright or too dim an inspection light can make your prints darker or lighter than you want.