



Abelardo Morell, *Six Dictionaries*, 2000

Many of Morell's photographs depict ordinary things, such as this looming stack of dictionaries, in a way that makes them seem fresh. He also is painstaking about his craft, putting as much effort into making expressive and rich prints as he does into taking his pictures. © Abelardo Morell; courtesy of Bonni Benrubi Gallery, New York, NY.

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Making the Print

Some photographers pay labs to make their prints. Many labs do an excellent job, but for ultimate control and satisfaction, nothing matches doing the work yourself. The darkroom experience is not for everyone; it takes work, patience, and attention to detail. However, many photographers will tell you that printing your own work is essential for getting the results you want. And it can be a lot of fun, as well.

Equipment

What you will need

enlarger
 enlarging lens
 negative carrier
 variable-contrast filters
 timer
 focusing magnifier
 trays
 apron
 towels
 tongs
 safelight
 easel
 negative cleaner
 print washer
 print dryer
 paper safe
 paper trimmer
 print squeegee
 glass
 graduates, funnels,
 beakers
 storage containers

You can develop film on your own with a makeshift darkroom, but for printing you will need much more equipment and you should really have a dedicated space to work. It's generally less expensive and more convenient to use an existing darkroom than to build your own. Perhaps someone you know has a darkroom to share. You also may be able to rent space at a school darkroom or take a photography class just to use the school's facilities. Search online or ask at your local camera store about classes, community centers, or camera clubs in your area that offer darkroom use.

Here's a list of darkroom equipment you'll need whether you set up your own darkroom or use an existing one.

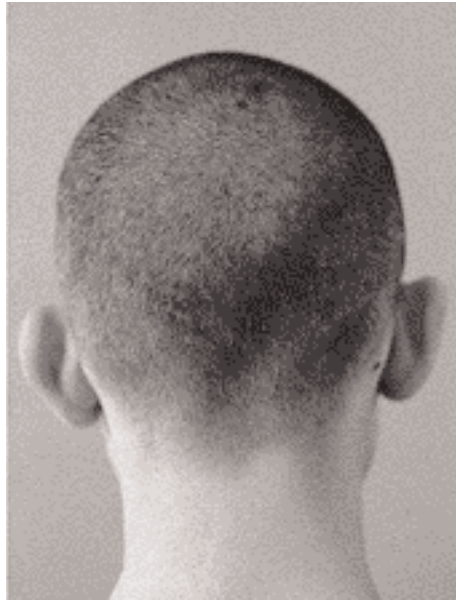
Enlarger. An enlarger is your primary tool for making photographic prints. Its purpose is to make **enlargements**—prints that are larger than the negatives they are made from. An enlargement may be as small as commercially made snapshots (3½" x 5" or 4" x 6") or much larger (16" x 20" or 20" x 24" or bigger). Most beginning photographers start out making 8" x 10" prints.

Enlargers are available for different-size negatives, and they are categorized according to the largest size they can handle. For example, a **35mm enlarger** will print only 35mm negatives (and obscure smaller sizes), while a **4" x 5" enlarger** handles negative sizes up to 4" x 5" (including 35mm and medium format).

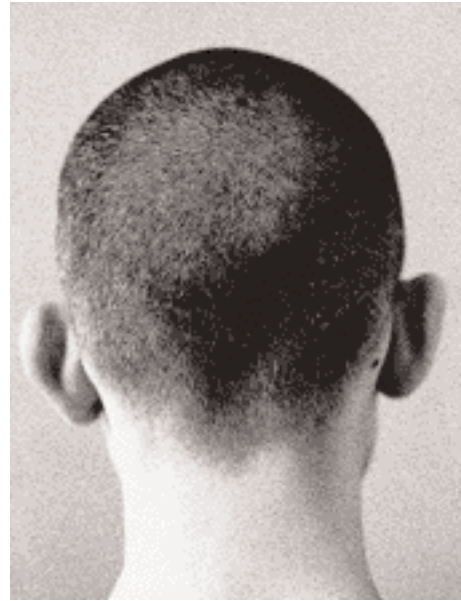
The guts of an enlarger are an adjustable mechanism called a **head**, which projects the negative image onto a sheet of printing paper. The head moves up and down along a rail (or between two parallel rails) that attaches to a **baseboard**, a flat board that sits on a table or counter. As you move the head up and

Print Contrast

Variable-contrast papers give you a lot of control over print contrast—the difference between the highlight and shadow areas. If a print made with a #2 filter is too gray (upper left), increase contrast by making a new print with a #3 filter (upper right). On the other hand, if a print made with a #2 filter has too much contrast (lower left), decrease contrast by making a new print with a #1 filter (lower right).



#2 filter



#3 filter



#2 filter



#1 filter

Summary: Print Processing

These are times and capacities for standard print processing. They are intended as guidelines only and vary according to the brands used, dilution, and other conditions of use. Times and capacities also vary depending on whether you use RC or fiber-based (FB) papers.

Step	Time	Comments	Capacity*
Developer	1-1½ min (RC papers) 2-3 min (FB papers)	Agitate constantly; dilute according to manufacturer's instructions; develop for at least the minimum recommended time.	50-100 8"x10" prints (or equivalent) per quart of working solution.
Stop bath	15-30 sec (RC papers) 30 sec-1 min (FB papers)	Agitate constantly; dilute according to manufacturer's instructions.	50-75 8"x10" prints (or equivalent) per quart of working solution.
Fixer	3-5 min (RC papers) 5-10 min (FB papers) About half these times with a rapid fixer.	Agitate constantly; do not overfix.	40-60 8"x10" prints (or equivalent) per quart of working solution.
Water rinse	5 min (FB papers)	Not needed with RC papers.	Not applicable.
Fixer remover	2-3 min (FB papers)	Not needed with RC papers.	50-75 8"x10" prints (or equivalent) per quart of working solution.
Holding bath	For the length of the printing session, or until the bath is filled with prints.	Keep fixed prints in bath until ready to proceed to final wash.	Change water every 15-30 min or so.
Final wash	5-10 min (RC papers) 20-30 min or longer (FB papers treated in fixer remover)	Agitate; make sure wash water is constantly changing; don't wash more than 15-20 prints at a time; time varies with the effectiveness of the wash.	Not applicable.

*The following are approximately equal to 50-100 8" x 10" prints: 100-200 5" x 7" prints; 25-50 11" x 14" prints; and 12-25 16" x 20" prints.

Test Strip

Make a test strip to determine your print exposure. The strip on the left shows a progression of exposures from 4 to 20 seconds. The 4-second exposure is too light and the 20-second exposure is too dark. The correct exposure is somewhere in between—here, 12 seconds, as seen in the print on the right.

20 seconds

16 seconds

12 seconds

8 seconds

4 seconds



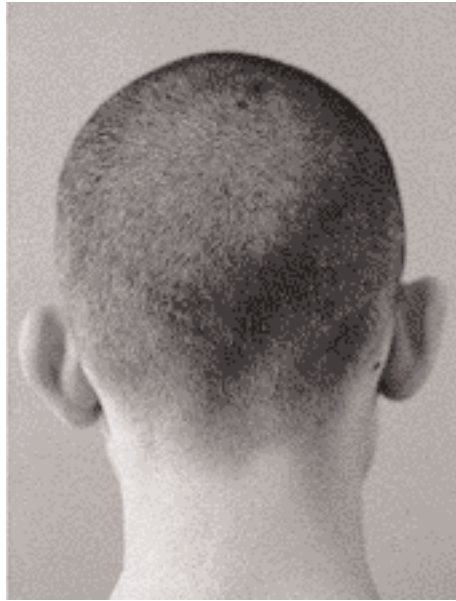
12 seconds

*Fogged paper example:
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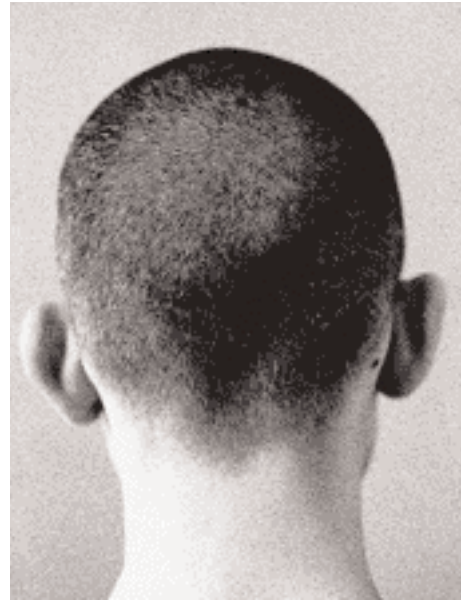
- or feel it click to your desired opening. If the maximum f-stop of a lens is $f/4$, three full clicks bring you to $f/11$: first to $f/5.6$, second to $f/8$, and third to $f/11$. (With lenses that click every half stop, you'll need to click twice for a full-stop adjustment.)
2. *Remove a sheet of paper from its package.* Use the same size and type of paper as you will be using to make the final print, as different types of paper will provide different test results. When opening a package of paper, be sure that no light other than safelight strikes the paper. Even slight exposure to stray light will cause the paper to fog (darken) upon development. Before closing the package, rewrap the paper in the protective bag that came with it. Or place a quantity of paper in a paper safe, which is easier to access than having to open the package and repack the paper every time you need a sheet. Also, never leave unexposed paper out any longer than you need to, even under a safelight.

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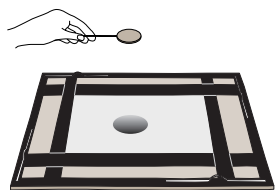
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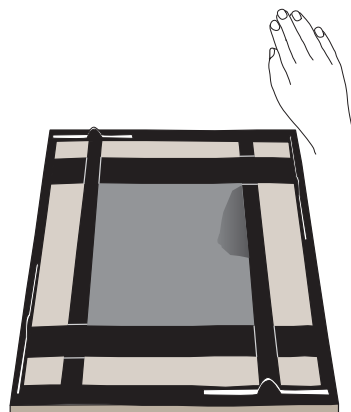
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Dodging

After establishing the correct print density and contrast, you may have to selectively lighten one or more sections of the image, a technique called dodging. Here the print on the left, exposed for 10 seconds, looks good except for an area on the right that is too dark. A second print was made, again exposed for 10 seconds, but during exposure light was held back from the right side for 2 seconds to lighten it.



To dodge an area in the middle of your image, use an opaque piece of cardboard on a wire handle to hold back light during an exposure.



Troubleshooting: Making a Print



Problem: Print gray or dark and muddy, either overall or unevenly (in streaks)

Reason: Paper fogged—exposed to light, usually before exposure or development, but possibly during development before fixing.



Problem: Right side of the print too light and muddy in relation to the rest of the image

Reason: Right side dodged for too long. Expose a new sheet of paper, limiting your dodging time to no more than 30 percent of the initial print exposure time.



Problem: Edges of image not sharp or cleanly delineated
Reason: Easel blades not fully covering the edges of the image. Make another print, taking care to position the easel blades so they completely cover the edges of the projected image.



Problem: Rectangular image tilted, not square on the printing paper
Reason: Paper not centered in the easel correctly. Make another print, taking care to squarely position the paper before closing the easel and exposing the paper.



Problem: Top right corner of the print is darker than the rest of the image, showing a straight line across
Reason: Corner burned-in for too long with a stationery mask used when burning-in. Expose a new sheet of paper using a shorter burning-in time and keep the mask in motion when burning-in—or when dodging.