

# WILSONWERKS ARCHIVES

This camera manual is for reference and historical purposes, all rights reserved.

This cover page is copyrighted material. This document may not be sold or distributed without the express consent of the publisher.

©2008-2025 wilsonwerks Llc

## FEDERAL ENLARGERS

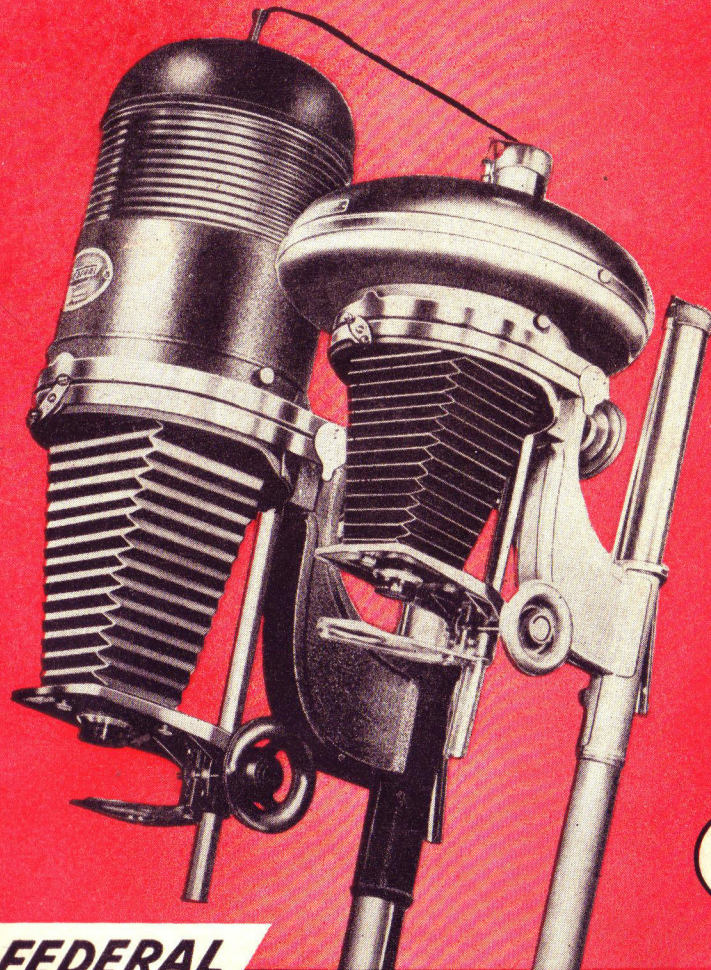
are sturdy, precision instruments, with a rugged, re-inforced welded steel construction that insures a lifetime of satisfactory performance. Built by the world's largest manufacturers of photo enlargers, Federal enlargers are available in a variety of sizes and models to meet every requirement.

Ask your dealer for the complete Federal catalog, containing the article entitled "How to Buy an Enlarger" — or write to Federal for your free copy.

FEDERAL MANUFACTURING & ENGINEERING CORP.  
*Manufacturers of Photographic & Electronic Equipment*  
199-217 STEUBEN STREET • BROOKLYN 5, N. Y.

**FEDERAL**

# ENLARGING FOR BEGINNERS



10¢

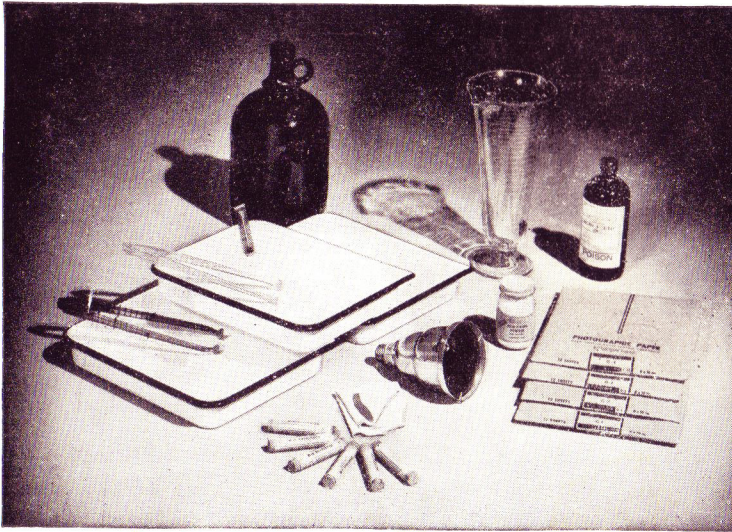
**FEDERAL**

FEDERAL MANUFACTURING & ENGINEERING CORP.  
BROOKLYN 5, N. Y.

PRINTED  
IN  
U.S.A.

# ENLARGING FOR BEGINNERS

by Don Herold



## All You Need to Start Enlarging is:

- |   |   |
|---|---|
| 1 enlarger (doesn't have to cost much)  | 1 32-ounce graduate                                       |
| 3 8x10 trays  | 1 thermometer (stirring rod or hook type)                 |
| 1 11x14 tray for washing (or use sink bowl)   | 2 print tongs   |
| 6 tubes M-Q Developer   | 1 safety lamp   |
| 1 package Fixing Powder (enough for 1 gallon)   | 1 camel's hair brush or piece of good chamois about 12x12 |
| 1 bottle Stop Solution (acetic acid)—this is chemically pure concentrated vinegar             | 1 gallon bottle (wine-jug or equivalent)                  |
| 4 dozen sheets 5x7 paper (1 dozen of each of 4 grades of contrast No. 1, No. 2, No. 3, No. 4) | 1 box thumb tacks for holding paper down                  |
|   | Several glass stirring rods                               |
|   | 1 piece plywood, about 11x14                              |

This whole bunch of stuff need not cost you more than \$10 plus the cost of the enlarger, depending on the type of enlarger you want.

The only other nice thing to have is a stop watch or a timing clock of some kind with a big second hand.

I own a Federal Enlarger. There is a picture of it on page 4. I like it because it is sturdy, dependable, easy to operate — *and it makes swell pictures!*

I've been fooling around with cameras for years, and I thought I was having fun.

But I didn't really know what photographic fun was until I got an inexpensive enlarging outfit and started to shoot my little ones up into big ones.

The kick I get out of seeing one of my own comparatively small negatives loom up large and beautiful in my enlarging tray is the biggest thrill that photography gives me.

Look! Did I do that? Am I the daddy of that pip of a picture? *Am I a genius!*

\* \* \*

I always thought I'd have to be a graduate chemist and an optical engineer to do my own enlarging—and I've always thought it would cost me a barrel of money to get the equipment.

But I've found that enlarging is almost as simple as washing my face—and that a complete enlarging-outfit can be bought for about the cost of a couple of evenings out at one of the duller night clubs; also that it soon pays for itself in the dough it saves on account of you don't have to lay out any more coin for "store" enlargements. And this is to say nothing about its being cheaper to stay home for an evening of enlarging than to go out somewhere for a "time." (*And the chemicals are better.*)

\* \* \*

You see, you can really work miracles on your pictures when you enlarge 'em. You don't merely make your pictures bigger; you glorify 'em because you can select the heart out of 'em, crop 'em, eliminate, emphasize—and bring their real beauty out, even though some of them may look pretty crummy in their original form. Yes, enlarging brings out the best in your negatives (and brings out the best in you.)

Enlarging is where you can put the "real you" into your photography. It's where you can express your own personality.

You, too, can feel like a genius . . . after very little practice with your simple enlarging equipment.

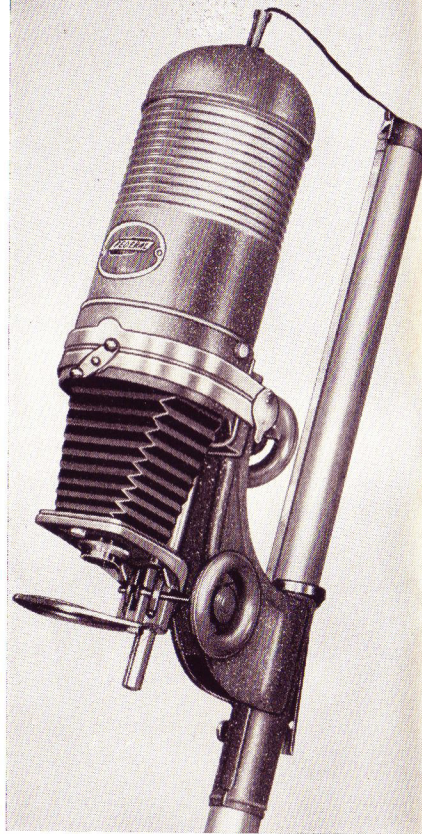
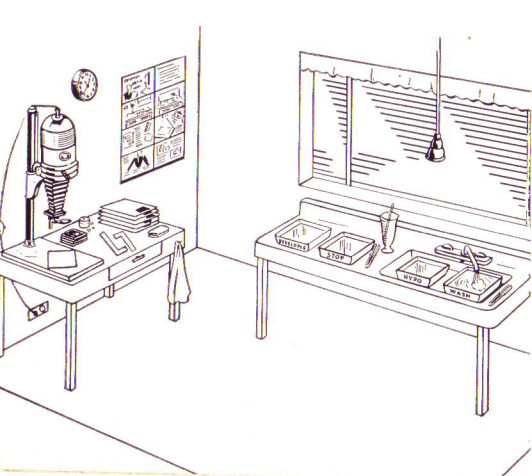
## Where to Enlarge

Your family may resist you a little at first in your hobby of enlarging. But if they do, you just gotta be a man (or an iron woman) and go ahead. A life without a hobby or two is hardly worth living. You have a right to enlarge!

Kitchens are usually the rooms selected for enlarging. All you need is space for your trays, a steady table for your enlarger, a little table space for paper and negatives and some kind of basin in which to wash prints. That's not asking too much of any family.

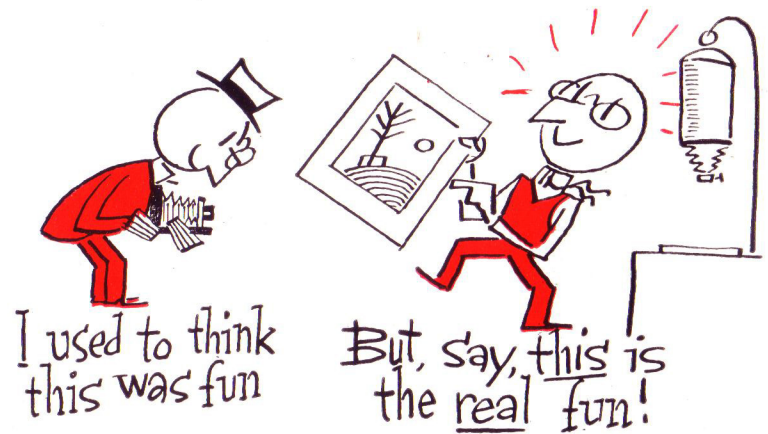
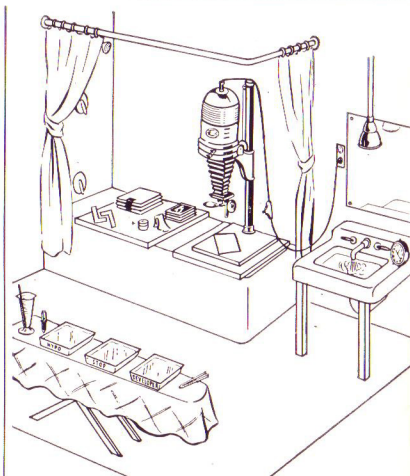
Bathrooms are second best, but not nearly as convenient as kitchens. Here are diagrams of convenient arrangements in kitchens and bathrooms. (Figures 1 & 2.) You'll soon learn how to group your equipment around you, like a trap drummer.

Fig. 1



*This is my Federal Enlarger. It makes good enlargements, almost in spite of me.*

Fig. 2



Just follow directions. *And I mean follow them.* Follow them to a "T." If the books say to do something for a minute, don't do it for a minute and a half or three-quarters of a minute.

And don't slop! Keep things clean!

Start out by having your negative perfectly clean. (Use a camel's hair brush or chamois.) A speck on your negative may be as big as a pants button on your enlargement.

Keep your trays clean. Keep your fingers clean. It is better to use tongs than fingers in handling prints. Mark one tong "DEV" and use it always in the developer tray. Mark the other one "HYPO" and use it always in the stop bath and fixer trays. If you do get your fingers into the fixing solution, wash 'em good before you put 'em in the developer.

Wash your trays after you are through for the session and rinse thoroughly. Don't use a towel to dry them. Just turn them over and let them drain dry. Thus you'll be sure not to get any stop or fixing solution into our developing tray.

Sinks in kitchens are usually built with drain-boards on one side. It is good practice to place developer tray on the drain-board and the stop and fixer trays in the sink. You can set your enlarger, negatives and papers on a nearby kitchen table.

If you're going to work at night, it's all pretty simple.

You just block out stray lights from each window with an opaque cloth or an ordinary thin blanket, which you can thumb-tack over the window frame. Then set up your safety light. Be sure no light is leaking in from other rooms.

Label your trays with paint or maybe with little patches of adhesive tape: "D" for developer. "S" for stop. "F" for fixing bath.

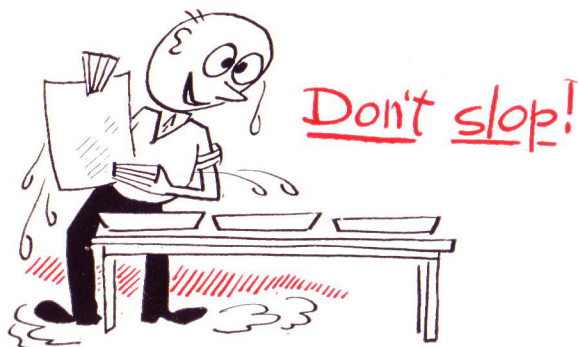
And use the same tray for the same operation each time.

Incidentally, wash out the kitchen sink or bathroom basin with soap and water when you finish, so you will leave no developer stains.

\* \* \*

But the big ideas are: Follow instructions and don't get careless.

If you'll do that and can't make good enlargements, I'll eat your prints!



## All Set! Go!

Put your three trays out in a row. (Figure 4.) Put the fixing solution tray nearest the water faucet. Put the "stop" tray in the middle and the developing tray on the other end of the row.

You should work with each tray about half full of its proper solution.

I'll talk first about the mixtures that go in the trays, and then I'll come back and go through the process with you step by step. It's as simple as falling downstairs.

## Developer

I believe the beginner should use a 5 cent tube of developer and make fresh developer solution for each session, and then

throw the stuff out after the session. Developer solutions in large quantities oxidize unless certain precautions are taken.

As soon as your developer is in the tray, hang your thermometer in the corner of the tray. For best results, it should be exactly 68°.

Developer stains, but will wash out if washed right away.

It's smart to wear old clothes or a kitchen apron in your dark room.

## Stop Solution

The stop solution in your middle tray is to stop the developing process dead in its tracks.

Get yourself a bottle of 28 per cent solution of Acetic Acid. Put 1 oz. of this into 21 oz. of water.

If you happen to get some acetic acid on your hands while mixing, it may sting, so just wash it off with running water and the sting will disappear. In diluted form in the tray, it won't sting at all.

Throw your stop solution away after each session.

## Fixing Solution (Hypo)

Fixing powder (usually called hypo) is cheap as dirt, so you'll find it more convenient to throw it away after each session.

When preparing your solutions, figure that each 5x7 print requires 1/2 oz. of each solution. (Follow manufacturers' instructions.)

Now, you're all set, chemically speaking, to start enlarging. It's simple, isn't it? If it isn't, I just haven't explained it as plainly as I should. Sue me.



Fig. 4

## Your Negatives

Now, study your negatives a little.

There's no sense in trying to enlarge a negative that is no good in the first place. Has it life, good contrasts, plenty of details?

Can you see the whites of their eyes, the pattern in the clothes, neckties, strands of hair, leaves on the trees, sharpness in the center of interest? The negative should be neither too dense (dark) nor too thin (light). And there's no sense in enlarging a negative with scratches or blemishes on it. A scratch on a negative will look like a black comet on an enlarged print.

Look at the contact prints of the negatives you want to enlarge. If the contact prints are clear, the negatives are usually all right for use for enlargements. If the negatives are a little dense (dark) or thin (light) either condition can be corrected by using the right grade of enlarging paper. It's easier than it sounds—I'll explain it in a minute.

Pick some good negatives, and prepare to dive in! If you want to enlarge a pet negative which isn't too sharp, don't attempt to make too great an enlargement. Many beginners make the error of trying to blow up a poor negative too big.

(A)



(B)



(C)



(A)—CONTRASTY

*A contrasty negative looks like this one, requires a No. 1 or No. 2 paper for making prints.*

(B)—NORMAL

*A negative as shown here has full gradation of tones and should be printed on a normal grade paper, such as No. 2.*

(C)—FLAT

*A negative such as the one illustrated at the left is flat and soft. To insure sufficient contrast use a hard paper (No. 3 or No. 4).*

## Choice of Paper

What grade of paper to use? Don't let this throw you.

I suggest you get four grades or contrasts of one kind of paper. These should take care of any kinds of negatives that you have. Many brands of paper are made in several grades of contrast and surfaces. Choose one brand and surface and stick to it.

You can lay your money on any well-known paper and be sure of good results.

Most papers stack up in four grades about as follows:

No. 1 — for negatives with extreme contrast.

No. 2 — for average negatives.

No. 3 — for flat negatives.

No. 4 — for weak or extra flat negatives.

If this is Greek to you, I'll try to turn it into American.

It will help you to study the reproductions of negatives A, B and C herewith. A is a contrasty negative. B is a normal one and C is a flat one. Match your own negatives with these and follow the paper selection indicated under the one which most closely matches. After a few tries, you'll be able to grade your own negatives without this bother of matching.

Sometime, just for your own education, make a print from the same negative on each of these four grades of paper. It will be a vest-pocket course in enlarging for you. (See Fig. 5 on these pages.)

## Take Aim! Fire!

You'll get an instruction book with your enlarger which will tell you how to set it up for business. All I say is, keep it clean. Clean the lens with lens tissue. Clean the negative carrier glass plates on both sides with lens tissue or with a soft lintless cloth or chamois. Gently dust the negative on both sides with the camel's hair brush.

Dirty lens give you flat, gray enlargements, and dust or fingerprints on the glass or negative loom up like the devil on your print.

Put your negative in the carrier with its emulsion or dull side down. Use a paper mask to keep any stray light from passing down around the edges of the negative. Some of these masks may come with your enlarger. If not, you can cut them from the black paper. Now place the loaded carrier in the enlarger with the dull side of the negative towards the lens.

Fig. 5 HOW GRADE OF PAPER AFFECTS PRINT QUALITY  
*All the prints below were made from the same negative.*

To focus and set the enlarger, use a white card or sheet of paper same size as the enlarging paper on the baseboard. Lay it on a piece of plywood which is a little larger than the enlarging paper, and put four thumb tacks in the board so that the heads of the tacks will overlap the top and bottom edges of the paper near the corners. Leave just enough clearance to enable you to slip the paper under the tacks.

Move the enlarger head up and down until the image is approximately the right size. Focus with your enlarger lens wide open. Be sure your focus is sharp as a knife. You might keep an old dense negative handy, on which you've made a few sharp scratches. Use this in focusing. Get the scratches sharp.

My Federal enlarger has a focusing target built into it to make focusing easy. This target is a geometric pattern of lines, dots and circles on a strip of film—all easy to sharpen. (Figure 6.)

After focus is set, reduce the lens aperture to increase sharpness and increase exposure time. Increasing the time is a good idea because an error of a split second will vary the result much more in a short exposure than in a long exposure of about ten seconds.

Use f:16 stop for very thin negatives like C on page 11 . . . for normal negatives like B use f:11 . . . for dense and contrasty negatives like A use f:8. FOLLOW INSTRUCTIONS THAT COME WITH YOUR ENLARGER.

*No. 1 grade is soft. Print is flat and dull.*



*No. 2 grade is normal. Print is brilliant.*



*No. 3 grade is contrasty. Print is hard.*



*No. 4 grade is very contrasty. Print is harsh.*



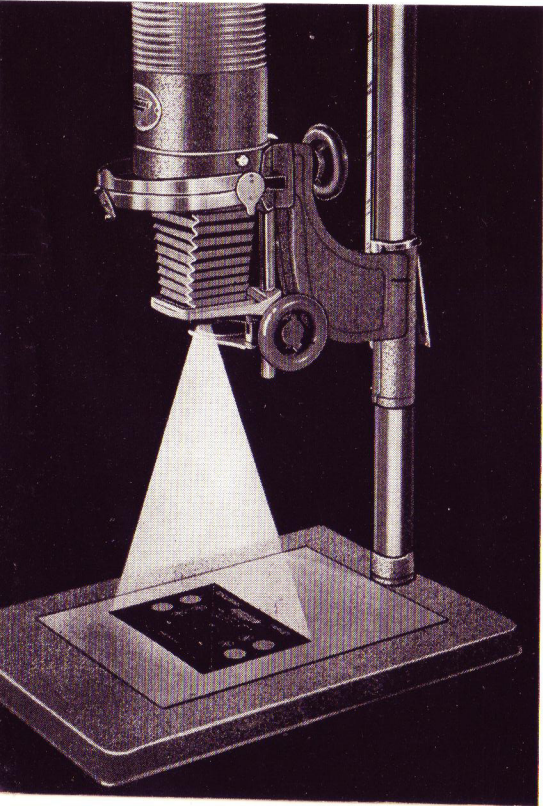
"This test printing makes enlarging almost foolproof—and do I need it!"



Now you're ready to turn off the ordinary electric light and turn on your safety light and ENLARGE.

Don't have a nervous chill. It might jiggle the enlarger while you are shooting.

Fig. 6



My Federal Enlarger has a focusing target that makes focusing a snap. With split-second speed it indicates the degree of enlargement being obtained as well as point of sharpest focus. Sure is a handy gadget.

## Feeling Your Way

Now we come to an important step in enlarging which I never dreamed of in my prehistoric, pre-enlarging days. But I enjoy it immensely.

It's the test printing.

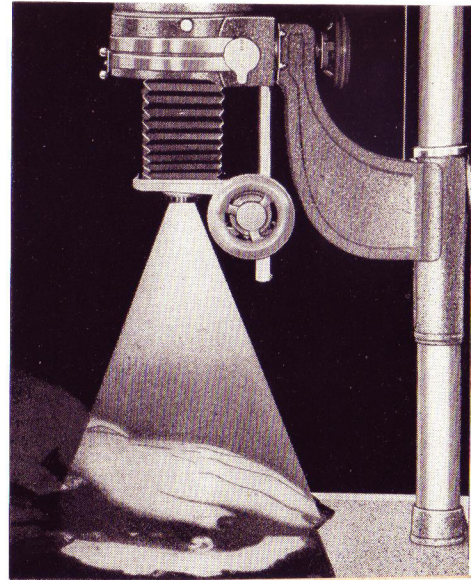
After you've decided which grade of paper to use on a given negative—1, 2, 3, or 4—you cut a sheet of it into about 5 strips (the long way). Keep one strip out and put the balance back into the package and close the package carefully. Of course, your white light is off and your safety light on during this operation.

Lay your test strip across the most important part of your negative—the center of interest. If your enlarger has a red filter on the lens (my Federal does) you can employ this for a short time to help you locate the vital part of your negative.

Then with a card or big opaque sheet, cover up all of the strip but about one-third from the top down. Expose this for 15 seconds. Then move your cover down the strip another one-third of its length and give it another 15 seconds. Lastly, remove the cover entirely and expose the full strip for the final 15 seconds. (See Figure 7.) This will produce a print with segments representing exposures of 15, 30 and 45 seconds respectively. (For a full sheet with these three exposures, see Figure 8.)

Develop your test strip or sheet for the full time specified on the package. Swish it in the stop tray for a few seconds. Put it in the stop bath for 5 seconds, and then into the fixing tray, and, after a minute or

Fig. 7





two, turn on the “house lights” and you can easily decide how much exposure your print is to have. If none of your exposures is satisfactory, make another test strip with more or less time.

Pick out the segment that gives you nice values up and down the scale. Flesh should look like flesh, not chalk. Blacks should be rich. Highlights should sparkle. You’ll quickly get judgment in such matters.

Don’t give in to the temptation to skip this test printing step.

Don’t mind a few spoils at first. It may take you a few sessions to get a real “enlarging” sense, and to get over a little initial clumsiness with your equipment. But it will be fun from the very start, even with the blunders.

For instance, don’t go turning the house lights on with a bunch of unexposed paper lying around out of its envelope. (One friend of mine has a light-tight drawer into which he throws paper, to save fooling with those darned envelopes. Otherwise it’s a good idea to remove only one sheet at a time from the envelopes.)

## The Big Thrill - Developing

Then developing!

After printing your paper as long as your test indicates, pick it up with the “DEV” tongs, pinching it at one corner, emulsion side up, and slide it quickly and smoothly into your developer—making sure that it is instantly covered *all over* by the solution and approximately at the same time. (This to prevent uneven development.) Then rock the tray gently—and leave the print there for  $1\frac{1}{2}$  to 3 minutes, depending upon the paper maker’s instructions.

Watch out for air bubbles in the developer. If they appear, disperse them by swishing the tongs over the print, without scratching the print.

At the end of that moment, you’ll have your first big, joyous spinal chill. *There* will be your little picture as big as life—and

in just the right tonal scale, nine times out of ten.

Of course, sometimes you’ll decide to try another print with just a little more or a little less exposure.

Sometimes, too, you’ll decide to yank the print from the developer before the full time is up, and maybe you sometimes should, but you will have lost something by shortening the developing process. A correctly exposed print should remain in the developer for the full time indicated. Less development means an unfinished print with loss of quality and strong rich tones.

In judging wet prints, remember that the safety light makes them look slightly darker than they’ll be when dry and in ordinary light.

I’m assuming, also, that your developer is approximately 68°. If the temperature of your developer is under 68°, you will have to leave the paper in the developer a little longer. If your temperature is over 68°, develop a shorter period of time.

To cool developer, put it in a graduate and set the graduate in a bowl of ice water or in the refrigerator for a while.

To warm it, empty it into a graduate that has been preheated with hot tap water. And warm the tray under the hot tap before returning developer to it.

At the end of development, remove the print from the developer with the tongs, let it drip in the developer tray for a second or two, then pass it to the . . .

## Stop Bath

After development, whisk your print into the stop bath with the same motion you used in dunking it into the developer. Don’t get any stop solution on the developer tongs. (If you do, rinse them thoroughly in running water.) Now agitate it for five seconds in the stop soup with your hypo tongs.

This insures abrupt ending of the developing process.

It also keeps developer out of the fixing solution. The next step is fixing. Lift prints into the hypo with hypo tongs.

## Fixing in Hypo Bath

The fixing bath is just what its name implies. It keeps your enlargement from changing tone—it fixes matters.

After the print is in the fixing bath for a minute or two, you can turn on an ordinary light without affecting it if you leave it submerged.

But the print should remain in the fixing bath for 15 minutes. Agitate the tray occasionally. Don't leave it there much longer, for prolonged fixing will bleach the print and produce a colder tone.

Be sure not to carry fixer or stop bath into the developer, or the developer will be spoiled. It doesn't hurt to get hypo into the stop bath or vice versa . . . but don't get either into the developer, or else!

## Washing

After fixing your prints for 15 minutes, put them in water in a large tray or wash basin and change the water every 5 minutes for an hour. Or if you can put them in running water, leave them there for an hour.

If you can use a clean sink which drains at the top, use a rubber plug with a hole in it to allow the fixing element (which is heavier) to drain off the bottom slowly while the water ripples off at the top.

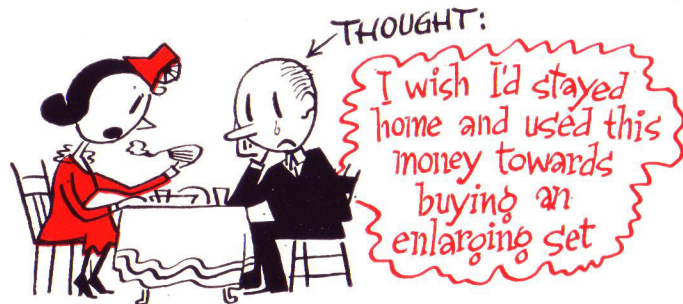


Fig. 9.—Special photo blotter album like this, is fine for drying prints.

It is possible to buy an automatic tray siphon for a few dollars which you can attach to any faucet and apply to any tray.

Thorough washing is necessary to get all the fixing solution out. If any is left it will fade and turn your prints yellow in time.

Keep the prints in motion. If they stick together, they won't get clean behind the ears. Don't cheat on washing.

## Drying

When baby's bath is finished lay it flat . . . and run a squeegee or sponge over it to remove excess water; or you can just blot the water up with a photo blotter (not ordinary) or between the pages of a photo blotter book (Figure 9) or face down on a clean white table cloth with another cloth on top.

To prevent prints curling (after they are dry), prepare a solution of half alcohol and half water, and sponge this very lightly on the back of prints with a piece of cotton. Then place the prints between lintless blotters under a weight, and in about 15 minutes they will be as flat as pancakes—and will stay that way.

Now you are ready to put your enlargement in your family album or in a frame—or to send it to your Aunt Emma.

# Diaversal Paper

If you are a color slide enthusiast, you can make black-and-white enlargements from your favorite slides for your album or to hang on your wall.

All you have to do is to use the new Diaversal paper, which is made expressly for that purpose. You can get a kit, complete with the necessary chemicals and instructions, from your regular photographic dealer.



The material in this book is condensed from the first section of Don Herold's book, "Enlarging Is Thrilling"—48 pages of complete details and essential information about every phase of photographic enlarging, written in non-technical, easy-to-follow language. A valuable addition to every photographer's library. A complete course in enlarging, and worth many times its modest price.

25 cents at camera stores everywhere—or send coin, check or money-order (no stamps, please!) to Federal Manufacturing & Engineering Corp., Brooklyn 5, N. Y.

