

David's Notes on Hand Processing

7363 in SAIC Hand Darkroom:

At school I've been processing 7362 Hi-Con B&W print stock AS NEGATIVE with the school's chemistry (D-19 Developer, Clearing Bath, and Non-hardening Rapid Fix) in the following manner:

DEVELOPER	6 MIN
WASH	30 SECS
CLEAR	30 SECS
WASH	30 SECS
FIX	2 MIN
WASH	3 MIN

To eliminate water marks you may want to mix in PHOTOFLOW or alternate wetting agent in the final wash. Using CLEAR is not essential, nor is washing between the clear and the FIX, though it does help to lengthen the life of both your film and the chemicals.

Information on processing 7363 as REVERSAL is available in the darkroom and/or from Bridgette.

7378 in Phillip & Marion's Barn in Canada, in the bathtub at home, and in the SAIC Hand Darkroom:

According to the Kodak Data Sheet, Kodak's 7378 Sound Recording Film (formerly 7373) is "a high-contrast, orthochromatic, black-and-white film designed for recording variable-area sound-track negatives with a tungsten light source, and/or producing digital sound-track negatives."

However, one may subvert the Kodak directives and instead use the film to capture images! Through careful and exposure and alternative developing techniques, this hi-con film for sound negatives can be turned into a medium-contrast reversal film for use as camera original or print stock. And it is cheap. Very cheap. You have to buy it from Kodak, 2400 ft. at a time, and spool it down yourself, but it **ends up costing only about \$8.50 per 100ft.** What follows are techniques and approaches I was introduced to by filmmakers Philip Hoffman and Rob Butterworth at the Independent Images Workshop and Retreat at Philip Hoffman and Marion McMahon's farm in Mt. Forest, Ontario.

Shooting as Camera Original: When shooting 7378 in Daylight, I've gotten favorable results with rating the film between 10 and 12 ISO (depending on the scale of the light meter I was using). When shooting under artificial light I usually open up a stop or rate the film at a 6-8 ISO. **NOTE:** These ratings are just starting places. The Characteristic Curve on this stock is VERY steep, meaning that small changes in exposure result in dramatically different image contrasts. With experience you will discover the combination of ISO rating and development time that will result in contrasts and graininess most pleasing for your applications. I particularly recommend experimenting with this stock's rendering of flesh tones at various exposures; the results can be quite startling!. Also, remember that 7378 is an orthochromatic stock.

Using in the J-K/for Rephotography: When doing your tests, I recommend making exposure "wedges" in as small increments as possible; no larger than .1 ND. Although you will be able to determine an range after you make your initial tests, you will probably need to make additional tests depending on the range on images you plan to rephotograph. Also, this is a sound recording film, so it is only manufactured **SINGLE PERF!** This is great for exploring the possibilities of creating sound directly on the film and it is not usually a problem when shooting in camera, but it can be a real headache when it comes to matte work. Think ahead!

And, finally, **Processing:** For processing 7378 as a hi-con soundtrack Kodak recommends developing with D-97. In order to lower the contrast of images exposed on this stock, use instead the paper developer **DEKTOL**. Dektol, a "weaker" developer allows for a good bit of control over the grey tones. I almost always process my 7378 as REVERSAL, though I've included Rob Butterworth's recipe for NEGATIVE development as well.

REVERSAL PROCESS

DEVELOPER 3 MIN
 WASH 1 MIN
 BLEACH* 2 MIN
 WASH 1 MIN
 CLEAR 1 MIN
 WASH 1 MIN
 RE-EXPOSURE** 1-2 MIN
 DEVELOPER 2 MIN
 WASH 2 MIN
 FIX 2 MIN
 WASH 3 MIN

NEGATIVE PROCESS (R.B.)

DEVELOPER 4-5 MIN
 WASH 1 MIN
 STOP BATH 1 MIN
 FIX 2 MIN
 WASH 3 MIN

About the chemistry: Dektol is available at almost all photo stores. Mix as directed and THEN DILUTE -- CONCENTRATE : WATER; 1 : 9 The diluted Dektol solution should hold up without replenishing for 300-400 feet. After that you may need to increase development time or discard and use new chemistry. In any case, for a \$6.00 or \$7.00 bag of Dektol you should be able to develop about 3000 ft. of film. Much cheaper, faster, and (to my mind) more satisfying than ANY lab.

*The BLEACH used in this process is Kodak's R-9 B&W Reversal Bleach. It is generally only available directly from Kodak. Be **very careful** when mixing this chemical at home! It is a good idea to wear gloves and an air mask when handling any of these chemicals, but it is **MANDATORY** that you do so when mixing the BLEACH! This is the same BLEACH that Bridgette keeps mixed and stocked in the SAIC Hand Darkroom for processing 7363 as Reversal.

**RE-EXPOSURE can be made with any tungsten or daylight source. When I was in Canada I just went outside and offered the film up to the sun for a couple of minutes. At school I use the bulb in the adjustable lamp over the darkroom timer. In my experience, IT IS NOT POSSIBLE TO OVEREXPOSE THE FILM AT THE RE-EXPOSURE STAGE. Just make sure that you get a good even wash of light over the entire surface of the film (if you want an even image) for at least 90 seconds. Leaving out 5 minutes or more will probably not hurt it, although I don't think I've ever gone over 5 minutes.

FINAL NOTE: Again, remember that these processing times are just a place to start. You'll want to adapt them to your own particular needs. Have Fun!

EXPOSURE: 7222, Tri-X, and Plus-X should be exposed according to standard ASA/ISO rating. Print stocks are not manufactured to be shot in camera, and therefore have not set ASA rating. How you rate the film will depend on the type of image you are after, what chemistry and timings you are using, etc. When I shoot 7378 I rate the film at 12 ASA and process in Dektol for 3 minutes-reversal, 4 minutes-negative. 7363 is generally rated anywhere from 12 to 25 and is usually processed for 6 minutes in D-19.

REVERSAL PROCESS - 7378 in DEKTOL

The following timings may be modified for 7363, 7361, TRI-X, PLUS-X. The chemistry remains the same with the possible exception of Developers, depending on what you are after. The "recommended" developer for 7378 is D-97, and for 7363 it is D-19 or D-97; 7361, Tri-X, and Plus-X are generally processed in D-76 or D-97, though I have gotten good results in Dektol and D-19 as well. Your own experimentation, preferences, and needs will guide you in choosing what works for particular applications.

IMPORTANT NOTE!: A RED safelight may be used with blue-sensitive and orthochromatic films such as 7363, 7378, and 7361. Panchromatic films such as Tri-X and Plus X **MUST BE DEVELOPED IN COMPLETE DARKNESS** until the re-exposure stage.

3 DEVELOPER - constant agitation

2 wash in water

REVERSAL BLEACH - intermittent agitation

1 CLEAR - constant agitation

2 wash in water

1 RE-EXPOSE - ordinary 100w bulb

(from this point on lights may be left on)

2 DEVELOPER - constant agitation

2 wash in water

2 FIXER

1 CLEAR - constant agitation

3 WASH IN RUNNING WATER

Attach paper clips on string above tub, hang film to dry.

NEGATIVE PROCESS - 7378 in Dektol

Again, the following timings may be modified for 7363 and 7222. Developers are variable as well. Remember: a YELLOW safelight light may be used with 7363, but 7222 Double X Negative must be processed in TOTAL DARKNESS.

4 DEVELOPER - constant agitation

1 STOP

2 wash in water

2 FIX

1 CLEAR - constant agitation

3 WASH IN RUNNING WATER

Hang film to dry or

I. BATHTUB FILM PROCESSING

INTRODUCTION

You should read all of these notes carefully before you buy any of the items listed. These notes and this system were developed to suit my needs at a particular time and in a particular space...you'll have to do the same.

There are numerous ways to process and tone your own movie film. I chose open trays in my bathtub because it gave me darkness, running water, and most importantly I could work at any time in my own space, at my own pace. I was also interested in working directly with the surface of the film emulsion by using both suggested chemicals and anything available. At the very least you'll usually be putting some scratches on your film when you use this method — my interest was in working with scratches, water blotches, polarization, split toning and image fragmentation. However, if you're careful and adapt this system slightly (for example, using shorter lengths of film, using a rack system and deeper tanks, etc.) you can get lab quality images. In fact, I've often processed clean, pristine images in my bathtub; it's just that this system lends itself to experimentation and an idiosyncratic, personal approach.

These notes are a revised version of workshop notes I first wrote in 1986. The original notes developed out of a series of workshops given by Jeffrey Paull at Sheridan College in 1982.

THE TOOLS YOU'LL NEED: (INCLUDING CHEMICALS)

4 OR 5 PLASTIC TUBS at least 10 cm deep and about 40 x 30 cm to contain the chemicals, water and film during processing. I use a larger tub for the water — it helps the wash. I put 3 tubs in the bathtub and the others on the floor next to the bathtub (see diagram 1). You'll need 5 tubs if you plan to use a stop bath (more on that later).

1 WATERPROOF THERMOMETER (for darkroom use). It should go to at least 50 C. You don't need a fancy thermometer — a cheap one is fine for mixing chemicals (this B&W processing system doesn't require precise temperatures within a fraction of a degree).

1 PLASTIC FUNNEL for mixing chemicals and NO OTHER USES.

1 PLASTIC 2 GALLON PAIL for mixing chemicals.

1 LONG PLASTIC OR WOODEN SPOON for stirring chemicals AND NO OTHER USES.

1 PHOTOGRAPHIC SAFE LIGHT. You can buy them in all sizes, styles and colours. You'll have to check the info sheets available on film stocks to determine which colour you'll need. I made my safe light for a few dollars with a simple socket and electrical cord and a few inexpensive light bulbs. It's not recommended but it worked for me — I kept the light at least 4 feet away and covered it with a wash cloth to reduce its brightness.

PLASTIC JUGS: 3 or more 1-gallon plastic jugs to store chemicals. You can use recycled jugs (household bleach jugs are good) or buy them for a few dollars each at a darkroom store. You'll need one each for the developer, bleach and fixer. If you use a stop bath you'll need another jug; you might want to store two types of fixer, one with a hardener, one without (I'll explain why later), so you'll need another jug for that. If you're into toning, you'll need a few more jugs.

TIMER OR CLOCK: If you feel relaxed and comfortable and reasonably accurate you can just count. If not, use an expensive darkroom clock or an inexpensive watch that glows green.

A PAIR OF LOOSE FITTING RUBBER GLOVES.

A LINE AND CLOTHES PINS: Clothes line, string, wire — anything on which you can hang your film to dry.

A SPLICER AND PROJECTOR so you can watch your images when you're done.

STOCKS:

You can process most B&W movie film — Super-8, 16mm, 35mm (Kodak, Ilford etc.) I've used mainly Kodak B&W camera and printer stocks. I always ask Kodak to send me their free info sheets on the stocks I use — they give you good starting points for a developer and development times. (Info sheets can also be found on Kodak's website at www.kodak.com)

I'd recommend doing tests and making notes so that you can repeat what you do, if you need to. Printer stocks aren't designed for camera use, but they create great high contrast images, and hi con is best for split toning. With most of the printer stocks you'll have to do tests to find an ISO to shoot at (most of them are around 2 to 12 ISO, so if you're shooting indoors you'll need a lot of light. I've used 3000 watts at 4 feet to get a good indoor image).

I'd suggest you process at least a couple of rolls of film before you begin toning to familiarize yourself with the process and provide images to choose from — stuff you don't mind losing (as you become familiar with toning you'll likely watch the emulsion slide off the film a few times).

EXPERIMENTATION:

You can process neg as reversal and reversal as neg, you can solarize images, you can push and pull development, you can use spray bottles filled with developer to create spotted development. In the beginning you should consider everything you do as a test...experiment, take notes. Film things you care about but that you don't mind losing.

THE CHEMICALS YOU'LL NEED:

DEVELOPER: If you're filming with regular B&W stock check the info sheets for a recommended developer and use it or an equivalent. I use D-19 or other hi-con developers for my hi-con images. I usually put 2 gallons of developer in the plastic tub, and that's enough to do about 400 feet of film or more.

STOP BATH: For a few bucks you get a small bottle of stop bath which helps stop development. I don't use it; I wash my images really well after development and don't worry too much about critical development times.

BLEACH: A REVERSAL BLEACH — 1 litre of water to 9.5 grams of potassium dichromate and 12 ml of sulfuric acid (concentrated). Stir the potassium dichromate into the water, then add the sulfuric acid. You can find these chemicals locally although they aren't immediately accessible — you're dealing with chemical companies and highly toxic and dangerous chemicals. It's probably a good idea to share reversal bleach with others interested. Again, I'd use about 2 gallons, or about 8 litres, of bleach to a tub. I found I could do between 400-800 feet with this quantity.

FIXER: If you intend to tone your film, use a non-hardening fixer; if you don't, use a fixer with hardener to protect and preserve your film. Both are available. Some fixers come with hardener in a separate container that you can mix in. Fixer life is harder to gauge, especially with toning factored in; if you're doing a lot of footage you should have a few packages of fixer around.

Mix the chemicals ahead of time so that they can cool to room temperature before you begin processing. I work with development times based on a room temperature developer (development time decreases as the temperature of the developer is increased).

Leave a bit of space between the different chemicals i.e. between the plastic tubs in your bathtub (see diagram 1) so that you don't splash one chemical into another and contaminate it. I could only get 3 plastic tubs in my bathtub, so the other tubs would sit outside and next to the bathtub.

GETTING STARTED:

Make sure your bathroom (or work area) is light tight. After a few minutes in the dark you may find a bit of light seeping through a crack in the door or window. If you can see your hands or objects around the room then there's too much light leakage (especially for faster films stocks). For regular camera stocks such as Plus-X, Tri-X etc., it's recommended that you work in total darkness; for slow

printer stocks you can work with the recommended safe light.

Always wear rubber gloves! These chemicals are toxic. I had a little pin hole at the end of my glove that let in reversal bleach, and I thought it was insignificant. My thumb turned prunish and took 9 months to heal, not to mention that these chemicals can make their way into your bloodstream. Be careful about splashing chemicals onto your clothes or skin.

PROCESSING:

1. DEVELOPMENT: Determine your development time using the film stock info sheets as a starting point. Reversal is usually processed for about 2-3 minutes, negative about 5-7 minutes. The printer stocks require shorter development times (some require about 3 minutes for neg, or 1-2 minutes for reversal). I've found that printer stocks shot on an optical printer require a longer development than when they are shot with outdoor lighting. Do your own tests.

Set up your darkroom space, get a sense of where things are, then turn off the lights. I take my 100 ft. 16mm roll, or 50 ft. super-8 cartridge, and wind off a portion (you can pull the super-8 out, or break the cartridge open). I usually use 30 ft. lengths at a time because that's what fits comfortably into the tubs of chemicals. If you put too much film into the tub, the film will get tangled and stuck together, causing uneven development (which may be what you want). This system requires that I break off 30 feet indiscriminately and in the middle of a shot — if this bothers you, you can always use bigger tubs and more chemical and do 100 feet at a time.

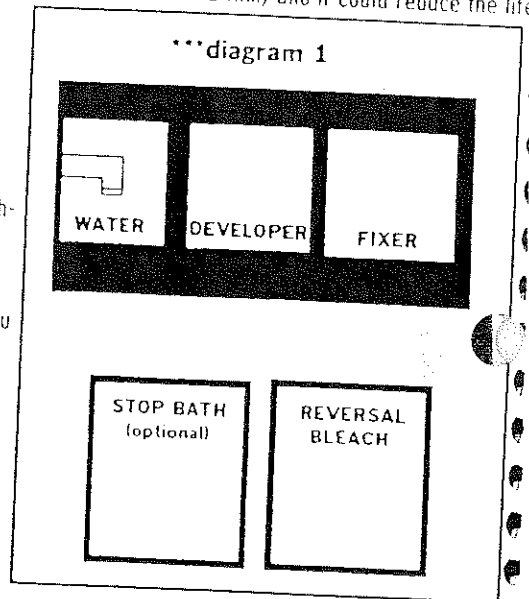
Once you've broken off the length you will work with, put the remainder back into a light tight can, and dump the mass of film you have in your hands into the tub of developer. Start counting immediately. If you want even development, don't wind your 30 ft. off the reel directly into the tub — gather it up in your hands and dump the whole mass in at once. (It may be awkward at first, but it gets easier with experience.) Gently work with the film in the developer — separating it from itself, submerging it (you may have film sticking up out of the developer). You

must keep the film moving to provide fresh developer to the surface of the film, because as the developer's chemicals come into contact with the film they become exhausted.

2. WASH: After development, lift and drain the bundle of film and dump it into the water tub. In your wash you should always use running water (room temperature, like the chemicals). Again, gently move and separate the film in the wash. Wash for 1-3 minutes. If you're using a stop bath, it cuts down on wash time and can preserve the life of your fixer. I skip this step because of space considerations, and I wash a bit longer. There's a tendency to cut down the wash time because of impatience — it may mean you allow the film to overdevelop (because of residual developer on the surface of the film) and it could reduce the life of chemicals that the film goes into next.

Always wash your film before moving on to another chemical.

The next steps depend on what you want — NEGATIVE or REVERSAL images.



NEGATIVE IMAGES:

1. & 2. Develop and wash as above.

3. FIX: After the wash, go directly into the fixer. You're still in the dark, or with the safe light on. Check the info sheets for fixer time — it's usually about 5 minutes. The rule for fix time is twice as long as it takes to clear the film (when the milky whites become transparent), which is usually about 2 minutes. Then you can turn the light on for the remainder of the fix time. The fixer clears the film and rids it of chemical by-products and residual developer.

4. WASH: Wash again for about 5 minutes. The info sheets probably will tell you to wash longer and it's always a good idea. I often wash for just a few minutes because I'm in a hurry to do a lot of footage and because I'm not worried about the longevity of my images because I'm usually reprinting and reprocessing. If you're at all concerned, wash longer — up to 10 minutes — or use a hypo clearing solution to cut down on wash time, help preserve your film, and save water.

5. DRY: Finally, hang your film to dry. It gets all tangled like a mass of spaghetti, so you need a clean surface to do the untangling. I

use newspapers and hang the film to dry on a clothes line strung across the apartment. As the film dries, go back into the washroom and do another 30 feet. It seems difficult and involved at first, but it gets quite easy, and it's really rewarding and a thrill to watch your own images developing.

You can now project, or reprint your negative images. You can also tone them at any time in the future. Remember, a non-hardening fixer works best if you plan to tone your film, and hardening fixer is best to protect and preserve your film.

Finally, a few additional techniques. Instead of dumping your film into the tub of developer, put the film into a dry tub and try filling a spray bottle with developer and spraying the surface of the film, then proceed as usual through the subsequent steps. Or try solarizing with the Sabattier technique — mid-way through the development stage, flick your washroom light on and off very quickly, or use a quick burst from a flashlight. This will cause a partial reversal of the tones — a stunning, radiating effect.

2. TONING

I've experimented with different types of toning techniques. Remember, this info I'm outlining is not a rule — it's a system that worked for me. Experiment for yourself. I prefer toning negative hi-con images. You should try various stocks and techniques to see what you prefer — they work differently.

The best type of film to tone is one with a fair amount of density, i.e. blacks. That's what gets toned. Toning can cost a lot of money. The toners are expensive and don't last that long. If you're doing a lot of footage you'll need a lot of toner to ensure that all of your film will be submerged, or at least enough to swish around periodically and get a good potent colour to take to the film.

What follows is a rough sketch — there is no one method. The process involves looking, studying, guessing, chance and repeated attempts. Experience and note taking are your guides.

BATHTUB FILM PROCESSING (CONT):

REVERSAL IMAGES:

1. & 2. Develop and wash as above.

3. BLEACH: After development and wash, transfer the film to the bleach, and gently move and separate the film. Bleach for 30-40 seconds. Don't splash — remember, this chemical is extremely toxic, so don't get it into your eyes, nose or mouth, or onto your skin. If you do, wash it off immediately.

4. WASH: Transfer the film back into the water. You may now turn on all the lights. Wash for 2-3 minutes. Your water will be quite yellow — I dump it entirely at least once through this wash cycle. Your film will look pale milky white. Don't worry, you haven't lost the images.

What you have done is developed the exposed silver halide particles and turned them black, then removed them through the bleach stage. So what you have is clear transparent areas, and milky white areas. The milky whites are the unexposed silver halide particles.

5. RE-EXPOSE TO LIGHT: After washing, remove the film from the water and hold it near a regular light bulb for about one minute. You are exposing the rest of the unexposed silver halide particles on your film.

6. SECOND DEVELOPMENT: Next, dump the film into the

developer again. I use the same developer (yes, you are working with the lights on now). You are developing the remaining silver halide particles you just exposed to light, turning them to dark silver. The hi-con stocks take only a minute or so; other stocks take a few minutes. It's a process you can watch, so you can determine when your blacks are black enough.

7. WASH AGAIN for 3-4 minutes. You now have dark areas and clear areas, in a reversal image.

8. FIX: Then put your film into the fixer. You don't really need to agitate the film much in the fixer — just a few times is sufficient — but you usually have to sit there with it to make sure all the film is submerged. Fix for 1-2 minutes.

9. FINAL WASH: for 5-10 minutes.

10. DRY.

Once you've done your entire roll of film and dried it, splice the processed lengths together. The first batch goes onto the empty reel first — and remember that the image feeds into the projector upside down, emulsion facing out. (If you wet your fingers or lips and touch the film surface, the emulsion is the sticky side.)

YOU SHOULD ALWAYS DOUBLE SPLICE THE FILM.

FINALLY:

PROJECT YOUR FILM

It takes just over an hour to actually develop 100 feet. The whole process, though, is long and takes a lot of work. I find I need anywhere between 6-12 hours at a stretch to feel good about what I'm doing, since it takes a long time to set up and get organized and it takes time to clean up (stains in the bathtub etc. can be removed with cleanser, water, brush). If you can keep some of your tools set up you can work for shorter periods, on and off.

Remember, this is my method. Yours might be different, tailored to your own needs. Experiment and be prepared to lose work and (seemingly) to waste time. It's all part of the process

Finally, this is all technique. At first you may be able to dazzle people with your images, but it can become empty technique without some thought and feeling involved. That's where your own personal investment has to come into play.

THE TONER'S YOU'VE NEEDED

TONERS: I use Berg toners in sepia, blue, gold and copper. You can buy 1 quart or 1 gallon boxes. Warning: the Berg Colour Toning System is actually a box of multi-coloured tints; tints are dyes that colour the clear areas of your film. Toners chemically transform the black silver of your film into another chemical/colour.

ABOUT 4 PLASTIC JUGS: for containing the toner bleach and the toners. I recommend 1 gallon jugs — even if you don't buy the 1 gallon boxes of toner, you may do so in the future (it's more economical).

3 CONTAINERS: FOR TONING. I've used different systems. The best for me is 3 plastic garbage pails (about 2 feet tall) with lids that can be fastened shut. I use 3 different coloured pails for the 3 different toners I'm using. You can use smaller containers, but I find I need this size. I like to work with about 30 ft. lengths of film.

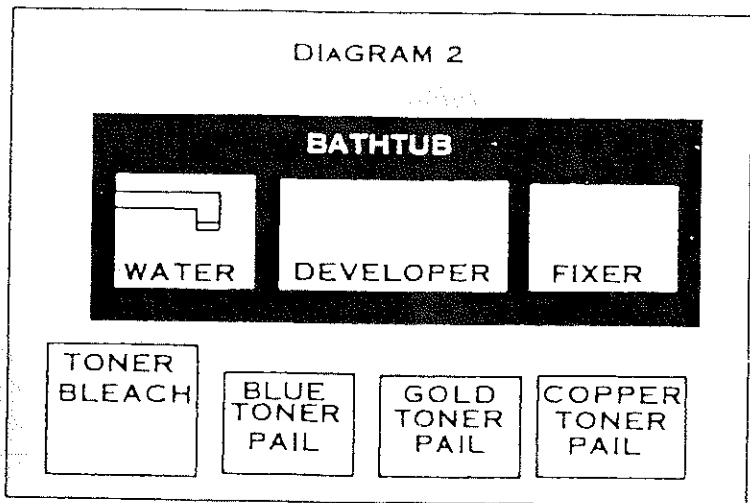
1 PLASTIC 2 GALLON PAIL: you already have this.

1 TUB FOR DEVELOPER: you already have this.

1 TUB FOR FIXER: you already have this.

WEIGHT: Something to keep the film submerged in the plastic pail (I use a 400 ft. super-8 take-up reel).

I only buy the sepia toner for the toning bleach included in the box; I like the other colour toners better, and find less use for the sepia. This sounds like a waste, but the other toners have no bleach included in the box. I have been able to purchase an order of bleach alone in the past because I made a very large order of chemicals — try asking around. Kodak sells a separate toner, but I personally don't like it much; it seems less potent. You can also mix your own toner bleach (I tried but didn't find a formula that worked for me).



INSTRUCTIONS:

USE GLOVES!

Mix the toners according to package directions (later you might want to experiment with greater degrees of potency).

Mix the bleach.

Put each of the toners in separate pails. You don't need to keep these three toner pails in the washroom at all times — it gets cluttered so I carry mine back and forth (see diagram 2).

I start by submerging my film in the pail of bleach, using a super-8 take-up reel to keep all the film submerged. The blacks must be turned to a sort of beige colour. This takes a long time the first time you submerge a particular piece of film — anywhere from 5-20 minutes, sometimes more. The time depends

on the stock and the density, as well as the strength of the bleach. The bleach lasts a long time but it does diminish in strength; once it starts taking 30 minutes or more to work it's time to dump it. You might have to re-arrange the film in the pail of bleach — sometimes the film sticks to itself so tightly that the bleach can't get into some spots to change the black to beige.

Once you've transformed all the blacks to beige, pull the film out, drain it and wash for a few minutes.

Then put the film into one of the toners for about 5 minutes or so. You can then wash for 1-2 minutes, dry, and project your film. You will have whites, and the black will have been replaced by the toner colour you chose.

TONING (CONT.)

You can continue the process. When I begin, I often start with yellow because blue can be too powerful to begin with. In yellow, the film will turn a brownish colour in the first few minutes (it gets more intensely yellow the longer you leave it in the toner).

For the first round of toning I usually leave the film in for a few minutes, then remove it and wash. I then put the film into the developer for just a few seconds — I can't say how long exactly. Sometimes it's 10 seconds or so. The developer will take the toner out and start returning some of the blacks. Quickly remove the film from the developer and wash it. This process will give you split toning and image fragmentation later.

I then put the film back into the toning bleach, which takes away the blacks that have re-appeared and prepares the film for retoning. This bleaching usually takes only a couple of minutes.

Wash again. Now place the film into another coloured toner — try blue.

I continue this cycle of re-developing, bleaching and toning 2-3-4 or more times. After a couple of cycles of yellow and blue, I might reverse the process. That is, I bleach first, then wash, then re-develop, wash, and tone. This further fragments the image. You must experiment and observe. Keeping notes can help.

You can fragment the image so much that you have total abstrac-

tion. Sometimes the emulsion just slides right off (not often). Sometimes the film becomes so heavily scratched that you lose the image. Again, experiment.

Once you feel you've done enough to the image, stop. Wash for a few minutes, dry and project it. You can always continue the process at any time in the future.

If you feel that the image is too dense — i.e. it's thick with developer residue, toner and by-products — you can thin it out. A good test is to see if you can look through the image. Is it semi-transparent? If it's not, if you can't see through it even though it's coloured, the projector light will not be able to pass through and the screen will be dark. By placing the film in the fixer briefly you can thin out the film. If it stays in the fixer too long you lose your image — it slides right off or thins right out. I often fix the film for a few seconds, rinse, and try looking through it again. If it's still too dense, try fixing again. You might lose a few before you get it right; your eye must become experienced.

N.B. AFTER YOU'VE FIXED THE IMAGE YOU CANNOT TONE IT AGAIN. SO MAKE SURE YOU'VE TONED AS FAR AS YOU FEEL IS NECESSARY BEFORE DOING THIS. IF YOU DO TRY TONING AGAIN AFTER YOU'VE FIXED YOU'LL LOSE THE EMULSION — IT COMES RIGHT OFF.

printed before in:



(Reprinted from April 1995, Vol. 14
Issue 6 & May 1995, Vol. 14 Issue 7)

here's my portrait:

010101
010101
010101

good luck
gary

Gary Popovich may be
contacted through LIFT
in Toronto.