

Additions and Deletions to *The Darkroom Cookbook*, 1st edition.

NOTE: All of the changes listed below are in the 2nd edition.

There have been six printings of *The Darkroom Cookbook*, 1st Edition. The following changes apply only to the 1st edition, which has a plastic binder spine (the 2nd edition has a green cover and is perfect bound).

NOTE: A Printing is different than an Edition. A printing is simply another press run of the same book with minor changes. An Edition is a major revision of the original book.

If you have the first or second printing, you will need to make *all* of the following changes.

If you have the third printing you don't need to make any changes until page 6, as the changes found in pages 1 through 4 have already been made in the third printing.

If you have the fourth or fifth printing you make the changes which begin on page 11.

To identify which printing you have turn to the copyright page (facing the dedication). The second line from the bottom contains a row of numbers descending from 10. Whichever number appears at the end of the row is the printing you have.

For example:

10 9 8 7 6 5 4 3 2

indicates the 2nd printing.

If you have the first or second printing make all of the following changes:

CHAPTER 3, PAGE 20 - Add the following listing:

Liquid Orthazite

See benzotriazole.

CHAPTER 3, PAGE 32 - ADD

Thiocarbamide

See thiourea

CHAPTER 3, PAGE 32 - CHANGE

Thiocarbamide -to- Thiourea
CHAPTER 4, PAGE 35

The phenomenon is even more pronounced when Phenidone and hydroquinone are combined (PQ). Phenidone on its own is almost useless as a developing agent, one exception being the low contrast developer, POTA, formula #31. Phenidone is fast acting but the contrast of the negative is extremely low. By adding a comparatively small quantity to a hydroquinone developer, Phenidone retains its high activity and combines with it the contrast of hydroquinone. The optimum amount of Phenidone to hydroquinone is said to be 7%.

CHAPTER 4, PAGE 36

NOTE: Potassium metabisulfite will sometimes be encountered in formulas. For photographic purposes, there is no practical difference between potassium and sodium metabisulfite except that the potassium salt is more expensive! They can be exchanged weight for weight in most formulas.

CHAPTER 4, PAGE 40

Using a wetting agent directly in the developer results in fast and even wetting of the film, and safeguarding against air bubbles. This is of special importance when using daylight developing tanks in which the spiral reels leave little space for contact between film and developer. A suitable wetting agent for use directly in the developer is Edwal's LFN.

CHAPTER 9, PAGE 69 to 70 - Print Reduction: Formulas #114 through #115, ADD to the end of the section:

Selenium toned prints should only be reduced by the overall method, as the color of the print will change somewhat in the area reduced. Gold-chloride blue-toned prints should not be reduced at all as the color will usually change to green-blue. It is better to reduce the print before toning.

Print reduction takes time and patience to master. You can expect a high percentage of failure in the beginning. This is normal. In time, you will be able to judge reduction more precisely. Have extra prints on hand.

There are dozens of reducers available for print reduction, but, as in negative reduction, the easiest and most versatile is still Farmer's.

CHAPTER 9, PAGE 70 - Overall Reduction Technique, paragraph 4

Slide the wet print, face up, quickly and completely into the reducer. Do not agitate, as this will cause reduction to proceed faster on the edges than the center. The print

should remain in the solution for 5 to 10 seconds. Pull the print from the solution and submerge it face down under the fresh water. Do not try to judge the print until it has been soaked for a minute in the fresh water. If standing water is used, use constant agitation, and change it often.

FORMULAS

PAGE 111, Formula #7, Windisch Extreme Compensating Developer

For further compensation (contractions), use less of B. Conversely, for expansions, use more of B.

PAGE 120, Formula #25, Crawley's FX-1

This developer was formulated for extreme high definition on small films. It results in a "soot and chalk" tonal scale, which was once popular with many photographers, particularly those working in the urban landscape. It is capable of maximum sharpness and highlight detail due to the soft working properties of metol and the compensating action of the dilute developer.

Water (125_F/52_C)	<u>16</u> oz	500.0 ml
Metol	<u>7.3</u> grains	<u>0.5</u> grams
Sodium sulfite, anhydrous	<u>73</u> grains	<u>5.0</u> grams
*Sodium carbonate, anhydrous	<u>44</u> grains	<u>3.0</u> grams
+Potassium iodide, .001%	1 1/4 <u>fl. drams</u>	5.0 ml
Cold water to make	32 oz	1.0 liter

*5.0 grams of Balanced Alkali may be substituted resulting in slightly finer grain and lower contrast.

+To make a 0.001% solution of potassium iodide, add 1 gram to 1 liter of water. Take 100 ml of this solution and dilute to 1 liter. Again take 100 ml of this solution and dilute to 1 liter (this is equal to 1 mg per 100 ml).

Use undiluted. Developing time is between 7 to 14 minutes at 68_F/20_C. This developer may be diluted 1:3 for extremely contrasty scenes. Develop a test roll before committing important subjects.

PAGE 131 - Formula #40, Gordon Hutchings's PMK Formula (final NOTE)

NOTE: The addition of a "pinch" of amidol (approximately 0.5 grams), immediately prior to development, will increase the activity of the developer and create an apparent speed gain of 1/4 to 1/2 stop without altering development times. Gordon Hutchings calls this PMK plus. I highly recommend it.

PAGE 155 - Formula #91, Ansco 231 Blue Gold Toner

This formula is one of the fastest and easiest to use. It is capable of creating a deep blue color on warm-tone chlorobromide papers. It can also be used in combination with Ansco 221, formula #98, to create a vivid red tone.

<u>Distilled</u> water (125_F/52_C)	24 oz	750.0 ml
* <u>Ammonium</u> thiocyanate	3 oz 219 grains	105.0 grams
Gold chloride, 1% solution	2 oz	60.0 <u>ml</u>
Cold water to make	32 oz	1.0 liter

*110 grams of sodium thiocyanate or 135 grams of potassium thiocyanate may be substituted.

Blue-black tones.

After fixing and thorough washing tone prints for 10 to 20 minutes with occasional agitation. The prints should then be thoroughly washed and dried.

Red Tones

First sepia tone the print in Ansco 221. After washing, place the prints in the above solution until toning is complete (15 to 45 minutes.) For redder tones use one-half the specified amount of thiocyanate.

After red toning, wash the print for 1-2 minutes in running water then refix in a 10% solution of sodium thiosulfate. Wash the print for 10 to 20 minutes in running water.

Mixed Tones of Blue and Red

Mixed tones of blue and red can be obtained if the print is first partially toned in a hypo-alum toner (e.g., Ansco 222, formula #99, Kodak T-1a, formula #101) without initially bleaching the image.

NOTE: Refixing is not necessary for blue-toning.

NOTE: With either technique, prints that have been fully exposed and developed in dilute developers tend to give the best results.

PAGE 158 - Formula #96, Kodak Blue Toner T-26

For solid deep blue tones on warm-tone papers, and soft blue-black tones on neutral-tone papers.

Gold chloride, 1% solution	1 1/4 fl. oz	40.0 ml
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Add to 937 ml of water at 125_F/52_C.

Stirring, add:

Thiourea	15 grains	1.0 gram
Tartaric acid	15 grains	1.0 grams
Sodium sulfate, anhydrous	1/2 ounce	15.0 grams

Continue to stir until all the chemicals are totally dissolved.

The range of toning times is 8 to 45 minutes at 68_F/20_C. Increasing the temperature to 100_F/38_C to 105_F/40_C decreases the toning time from 2 to 15 minutes. Since toning is slow, only occasional agitation is needed to avoid streaking.

T-26 increases the contrast and density of the print. Compensate by reducing the normal exposure time (start with 10% less) Toning starts in the highlights and slowly moves into the shadows. Careful observation is necessary to avoid a partially toned print with blue highlights and un-toned shadows.

T-26 exhausts rapidly. It has a capacity of 5 to 15 8x10" prints per quart.

PAGE 158 - Formula #97 - MOVE THIS FORMULA TO "BROWN TONERS".

PAGE 170 - Formula #114, Farmer's Reducer

See Chapter 9, page 69 for the technique of print reduction.

Solution A - NO CHANGE

Solution B - NO CHANGE

For overall reduction, mix 7.5 ml of Solution A with 180 ml of Solution B, and add 1500 ml of water. The amount of Solution A may be increased or decreased to control the time of reduction.

For local reduction, mix the same proportions as for overall, adding more of Solution A if reduction is too slow.

For spot reduction, mix 1 part A to 2 parts B without adding water.

Solution A will keep at least 6 months if kept in a well-stoppered brown or green bottle. However, when A and B are mixed for use, they become unstable. Depending on the concentration, the mixture may deteriorate within a few minutes or may work as long as 1/2 hour. The weaker the working solution, the longer it will keep. You can tell when it is exhausted as it will change to a green color (always use a white tray). It's a good idea to renew the mixture every 15 minutes.

NOTE: The amounts for ferricyanide and bromide given in Solution A are published as they were given to me. You may start by using half the above amounts. If the reducer does not work quickly enough, increase up to the amounts given.

NOTE: The use of potassium bromide is unnecessary, but it restrains the subtractive action and also prolongs the life of the reducer.

NOTE: An alternative and simpler Solution A is 1 gram of potassium ferricyanide in 1 liter of water.

PAGE 194 to 195 - CONVERSION TABLES, Teaspoon Conversions, ADD and CHANGE the following:

For those who wish to use teaspoon measurements, the following table of commonly used photographic chemicals shows the metric equivalents for various amounts of dry measures.

The length of time the chemicals sit on a supplier's shelf and the storage conditions are important, but it is not always possible to know these facts. Therefore, you may wish to consider the following as "standards" and maintain a consistent work habit.

	Dry Weight in Metric Grams	Teaspoon Amount
Amidol	3.5 grams	_ Tablespoon
Balanced Alkali,	4.8 grams	1 teaspoon
Benzotriazole	0.25 grams	_ teaspoon
Borax	5.0 grams	1 teaspoon
Boric acid	4.1 grams	1 teaspoon
Chlorhydroquinone	3.4 grams	1 teaspoon
Chrome alum	1 gram	_ teaspoon
Citric acid	4.5 grams	1 teaspoon
Glycin	1.4 grams	1 teaspoon
Hydroquinone	3.0 grams	1 teaspoon
Metol	3.5 grams	1 teaspoon
Phenidone	2.0 grams	1 teaspoon
O-phenylenediamine	3.5 grams	1 teaspoon
P-phenylenediamine	3.5 grams	1 teaspoon
Potassium alum	1.5 grams	_ teaspoon
Potassium bromide	1.6 grams	_ teaspoon
Potassium carbonate	5.7 grams	1 teaspoon
Potassium dichromate	7.9 grams	1 teaspoon
Potassium ferricyanide	8.0 grams	_ Tablespoon
Pyrocatechol	3.3 grams	1 teaspoon
Pyrogallol	2.0 grams	1 teaspoon
Silver nitrate	1.8 grams	_ teaspoon
Sodium bisulfite, anhy.	6.0 grams	1 teaspoon
Sodium carbonate, anhy.	4.7 grams	1 teaspoon
Sodium carbonate, mono.	6.0 grams	1 teaspoon
Sodium hydroxide	3.6 grams	1 teaspoon
Sodium metaborate	4.5 grams	1 teaspoon
Sodium sulfate	7.7 grams	1 teaspoon

Sodium sulfite, anhy.	7.6 grams	1 teaspoon
Tri-sodium phosphate	4.5 grams	1 teaspoon
Sodium thiosulfate	18.0 grams	1 Tablespoon

If you have the third printing make all of the following changes:

LIST OF FORMULAS, PAGE XVIII -- MOVE #97, Nelson Gold Toner, down to Brown Toners heading.

PAGE 14, ADD

AMMONIUM THIOSULFATE

APPEARANCE: Colorless crystals; sold in 60% solution.

PAGE 20 - CORRECTION - Under the listing for Liquid Orthazite, benzotriazole is one word.

CHAPTER 3, PAGE 32 - ADD

Thiocarbamide

See thiourea

CHAPTER 3, PAGE 32 - THIOUREA -- DELETE -- See thiourea

CHAPTER 9, PAGE 70, UNDER -- OVERALL REDUCTION TECHNIQUE, PARAGRAPH 3 -- CHANGE

An alternate method is to start with a wet print. The print should be thoroughly washed after fixing or soaked in water for at least 5 minutes prior to the process. Have at least two trays available, one for reduction, and one with plain or running water to stop the action.

APPENDIX II, PAGE 87, Chemical and Equipment Suppliers, Photographers' Formulary --

CHANGE THE TELEPHONE TO -- (800)922-5255

APPENDIX II, PAGE 88, Oriental Photo Distributing Co.

CHANGE TO -- Cachet Fine Art Photographic Papers

CHANGE THE TELEPHONE TO -- (714)432-7070

PAGE 108 - Formula #3, Kodak D-23 Divided Developer

Editors note: The agitation cycle as published is the one handed down to me. However, Bob Ingraham of Prince George, British Columbia, has written that he has found that one gentle inversion every twenty seconds in the first cycle, and one inversion every 30 seconds in the second cycle, results in more even development. Try both.

PAGE 111 - Formula #9, Maxim Muir's Pyrocatechin Compensating Developer

Solution B

Sodium hydroxide	146 grains	10.0 grams
Cold water to make	3.2 fl oz	100.0 ml

PAGE 118 - FORMULA #22, UNDER "NOTE" CHANGE 29.0 to 2.

NOTE: D-76 may be used undiluted, but there is no advantage in doing so. The negatives, while slightly finer grained, do not exhibit the same degree of sharpness or tonal scale.

*The published formula for D-76 recommends using 2 grams of Borax for the accelerator. If desired, Balanced Alkali may be substituted weight-for-weight for borax. The use of Balanced Alkali helps to maintain a stable pH with long-term use and storage. Development times should be decreased by approximately 15% to compensate for the higher pH.

PAGE 120 - FORMULA #26, NEW INSTRUCTIONS, NEW SOLUTION B AMOUNTS.

This formula is very similar to Agfa Rodinal. Rodinal is the oldest proprietary formula in use today, the original formula dating back to the 1880s. It is considered by some to be the finest all around film developer, even for modern T-grain films.

Solution A

Water (125_F/52_C)	24 oz	750.0 ml
p-Aminophenol hydrochloride	3 oz 146 grains	100.0 grams
*Potassium metabisulfite	10 oz	300.0 grams
Cold water to make	32 oz	1.0 liter

*Although it is usually acceptable to substitute sodium metabisulfite for potassium metabisulfite, it is not recommended in this formula.

Solution B

Sodium hydroxide	6 oz 292 grains	200.0 grams
Cold water	13 fl oz	400.0 ml

CAUTION: When making up the 50% solution of sodium hydroxide heat is generated. The solution must be cooled before adding to the developer.

Allow Solution A to cool. A precipitate of p-aminophenol hydrochloride will form. Place Solution A in an iced water bath and, with continuous mixing, slowly add 280 ml of Solution

B. Then very slowly add additional Solution B until a sudden darkening in color takes place. Finally, add, drop-by-drop, Solution B until only a few crystals remain.

If this is done properly, the remaining crystals will dissolve of their own accord, and the developer will, in time, turn deep, dark brown. However, the unused stock solution will last for several years.

This formula can be used at dilutions ranging from 1:25 to 1:100. Developing times published for Agfa Rodinal can be used as a starting point. Use as you would Rodinal.

PAGE 151 - FORMULA #84, ADD & CHANGE, Looten's Acid Hypo

Water (125_F/52_C)	64 oz	2.0 liters
Sodium thiosulfate (hypo)	16 oz	480.0 grams
Sodium bisulfite	1 1/2 oz	45.0 grams

Use undiluted. This bath can be reused until exhaustion. Test with Fixer Test Solution, formula #89.

NOTE: It can be used for negatives or prints and allows easy toning with direct toners, such as selenium.

PAGE 153 - Formula #87, Kodak F-6 Odorless Acid Hardening Fixing Bath (for film or paper)

To prevent sulfurization, mix the potassium alum separately in a small amount of hot water then add this last with rapid stirring.

PAPAGE 153 - FORMULA #88, ATF-5, Acid Hardening, Rapid Fixing Bath (for film or paper)

Use this formula for film or paper (when hardening is desired) to reduce fixing times.

Water (125_F)	20 oz	600.0 cc
<u>Ammonium thiosulfate, 60% solution</u>	<u>11 fl oz</u>	<u>333.0 ml</u>
Sodium sulfite, anhydrous	1/2 oz	15.0 grams
Acetic acid, 28%	1 oz 365 grains	55.0 ml
<u>*Boric acid</u>	<u>1/4 oz</u>	<u>7.5 grams</u>
Potassium alum	1/2 oz	15.0 grams
Add cold water to make	32 oz	1.0 liter

*Dissolve the boric acid separately in a little hot water and add this last.

For film, use undiluted. With a fresh bath, clearing time should be approximately 1 - 2 minutes. Film should be completely fixed in 4 to 5 minutes.

For paper, dilute 1 part ATF-5 with 1 part water. Immerse fiber based paper for three minutes. Resin-coated paper should receive 1 1/2 minutes. If two baths are used, give three-and-three, or 1 1/2-and-1 1/2 minutes in each bath.

This amount of ATF-5 can be used to fix twenty 8x10" sheets of paper.

NOTE: Substituting 22 grams of citric acid for the bisulfite will eliminate much of the odor associated with fixers.

PAGE 158 - Formula #97, Nelson Gold Toner

Although the FORMULA is the same, REPLACE the INSTRUCTIONS with the following NEW INSTRUCTIONS:

Using Nelson Gold Toner, 3-dimensional brown tones can be obtained that vary from a hint of warmth to rich sepia browns. The depth of the tone depends upon the duration of time the print remains in the toning bath, from 5 to 20 minutes.

Solution A - Part 1

Distilled water (125_F/52_C)	16 oz	500.0 ml
Sodium thiosulfate	8 oz	240.0 grams
Ammonium persulfate	1 ounce	30.0 grams
Cold water to make	32 oz	1.0 liter

Dissolve the hypo completely, then add the persulfate while stirring vigorously. If the solution does not turn milky, increase the temperature until it does. Then add the cold water.

Solution A - Part 2

Distilled water (room temperature)	1/2 ounce	15.0 ml
Silver nitrate	19 grains	1.3 grams
Sodium chloride	19 grains	1.3 grams

Part 2 should be mixed in a container that is different from that of Part 1; the two solutions will be mixed in a subsequent step. The silver nitrate should be thoroughly dissolved before adding the sodium chloride otherwise the nitrate will be trapped in the solid that forms. A white precipitate will form, stir vigorously.

Combining Part 1 and Part 2

Both solutions must be at room temperature (68_F/20_C) before they are combined to make Stock Solution A. Stir Part 2 vigorously to disperse the solid throughout the solution, then pour all of Part 2 into Part 1. Stir the combined solution to ensure thorough mixing. A precipitate may or may not be present in the final solution. Transfer the combined solution along with any precipitate (if present), to the storage container.

Solution B

*Gold chloride, 1% solution	1 3/4 fl oz	52.0 ml
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*To make a 1% solution mix 1 gram of gold chloride with 100 ml of distilled water. Gold chloride is deliquescent and rapidly absorbs atmospheric moisture. The solid may have liquified by the time you wish to use it. Since you will be transferring it to a water solution, prior liquification is not detrimental. However, when gold chloride liquifies some of the liquid clings to the cap of its container. Because of the small amount used it is important that all of the residual gold chloride in the container be transferred when you prepare Stock Solution B.

NOTE: Due to the cost of gold chloride, the best method for obtaining a 1% solution is to purchase it pre-mixed from Photographers' Formulary.

Mixing the Working Solution

Add one-half of Stock Solution B to Stock Solution A (the balance of Stock Solution B will be used to replenish the bath.) Stir the mixture to insure it is homogeneous. The bath should not be used until after it has cooled and formed a sediment, preferably overnight.

Using the Toner

Prints for toning should be wet. They should be fully fixed, but only a brief washing is necessary.

Very carefully pour off the clear liquid for use being careful to avoid the sediment.

Heat the toner to about 110_F/43_C for use. Maintain the temperature between 100_F/38_C and 110_F/43_C while toning. If necessary, place a smaller tray containing the toner inside a larger tray of running water at 110_F/43_C. Toning takes from 5 to 20 minutes depending on the desired hue.

After all the prints have been toned, refix for 5 minutes, then wash for one hour in running water.

The bath should be revived at intervals by the addition of further quantities of Solution B. The quantity to be added will depend on the number of prints toned and the time of toning. For example, when toning to a warm brown, add 4 ml of gold solution after each fifty 8x10" prints or their equivalent have been toned.

PAGE 160 - Formula #98, Ansco 221 Sepia Toner for Warm-Brown Tones

Redeveloper

Water	10 oz	300.0 ml
*Sodium sulfide, anhydrous	1 1/2 oz	45.0 grams
Cold water to make	16 oz	500 ml

*Be sure to use sodium *sulfide*, not sodium sulfite.

To use, dilute 1 part of the redeveloper (Solution B) with 8 parts water. Prints should be washed thoroughly after fixing and then bleached until the black image is converted to a very

light brown, about 1 minute. Prints should then be washed for 10 to 15 minutes then redeveloped.

Redevelopment should be complete in about 1 minute. Use constant agitation. After redevelopment the prints should be washed for about 30 minutes and then dried. If the toner leaves a sediment, which could result in streaks or finger marks on the surface of the paper, immerse it for a few seconds in a 3% solution of acetic acid, then wash for 10 minutes.

Use plastic trays, especially with the bleaching bath. Otherwise blue spots may form on the print.

PAGE 170 - Formula #114, PARAGRAPH 4

Solution A will keep at least 6 months in a well-stoppered brown or green bottle. However, when A and B are mixed for use, they become unstable. The mixture may deteriorate within a few minutes or may work as long as 1/2 hour. The weaker the solution, the longer it will keep. You can tell when it is exhausted by its loss of color (always use a white tray). It's a good idea to renew the mixture every 10 minutes.

COMPOUND CONVERSIONS, PAGE 189 - "Please read Weights and Measures, page 6, for an explanation of compound conversions."

TEASPOON CONVERSIONS, PAGE 194 -- DELETE "*" FROM LIST (EIGHT TOTAL).

If you have printing 4 make all of the following changes:

CHAPTER 3, PAGE 30, Sodium metaborate, CHANGE oxyhydrate -to- octahydrate (8H₂O).

CHAPTER 6, PAGE 58, Sodium Carbonate Solution, should read 50 grams in both instances of the first paragraph

PAGE 128, Formula #38, Under the note at the bottom, second paragraph, change the development time/temperature to read "5 and 7 minutes at 68°F/20°C."

PAGE 141, Formula #57

For normal use, dilute 1:2, for low contrast dilute 1:4; normal development time is 2 minutes. NOTE: This is an excellent formula for use in two-tray development, where the first tray is a soft developer, and the second is either normal or high-contrast. For this application, dilute 1:6 or 1:8.

PAGE 193, Sodium Sulfite and Sodium Carbonate

The sulfite conversion was reversed in printing! It should read:

Sodium sulfite, anhyd.----->	Sodium sulfite, cryst.	multiply by 2.0
Sodium sulfite, cryst.----->	Sodium sulfite, anhyd.	multiply by 0.5

REPLACE The Sodium Carbonate Conversion Table with the following revised table:

The formula specifies:	You have:	Multiply by:
Sodium carbonate, mono.	Sodium carbonate, anhy.	0.855
Sodium carbonate, mono.	Sodium carbonate, crys.	2.31
Sodium carbonate, anhy.	Sodium carbonate, mono.	1.17
Sodium carbonate, anhy.	Sodium carbonate, crys.	2.7
Sodium carbonate, crys.	Sodium carbonate, mono.	0.433
Sodium carbonate, crys.	Sodium carbonate, anhy.	0.37

Additional changes to the 4th printing.

LIST OF FORMULAS, PAGE XVIII -- MOVE #97, Nelson Gold Toner, down to Brown Toners heading.

PAGE 14, ADD

AMMONIUM THIOSULFATE

APPEARANCE: Colorless crystals; sold in 60% solution.

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Thiocarbamide

See thiourea

CHAPTER 3, PAGE 32 - THIOUREA -- DELETE -- See thiourea

CHAPTER 9, PAGE 70, UNDER -- OVERALL REDUCTION TECHNIQUE,
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PAGE 111 - Formula #9, Maxim Muir's Pyrocatechin Compensating Developer

Solution B

Sodium hydroxide	146 grains	10.0 grams
Cold water to make	3.2 fl oz	100.0 ml

PAGE 118 - FORMULA #22, UNDER "NOTE" CHANGE 29.0 to 2.

NOTE: D-76 may be used undiluted, but there is no advantage in doing so. The negatives, while slightly finer grained, do not exhibit the same degree of sharpness or tonal scale.

*The published formula for D-76 recommends using 2 grams of Borax for the accelerator. If desired, Balanced Alkali may be substituted weight-for-weight for borax. The use of Balanced Alkali helps to maintain a stable pH with long-term use and storage. Development times should be decreased by approximately 15% to compensate for the higher pH.

PAGE 120 - FORMULA #26, Rodinal-type Developer

Solution B

Sodium hydroxide	1 oz 292 grains	50.0 grams
Cold water	3.2 oz	100.0 ml

PAGE 151 - FORMULA #84, ADD & CHANGE, Looten's Acid Hypo

Water (125_F/52_C)	64 oz	2.0 liters
Sodium thiosulfate (hypo)	16 oz	480.0 grams
Sodium bisulfite	1 1/2 oz	45.0 grams

Use undiluted. This bath can be reused until exhaustion. Test with Fixer Test Solution, formula #89.

NOTE: It can be used for negatives or prints and allows easy toning with direct toners, such as selenium.

PAGE 153 - Formula #87, Kodak F-6 Odorless Acid Hardening Fixing Bath (for film or paper)

To prevent sulfurization, mix the potassium alum separately in a small amount of hot water then add this last with rapid stirring.

PAPAGE 153 - FORMULA #88, ATF-5, Acid Hardening, Rapid Fixing Bath (for film or paper)

Use this formula for film or paper (when hardening is desired) to reduce fixing times.

Water (125_F)	20 oz	600.0 cc
Ammonium thiosulfate, 60% solution	11 fl oz	333.0 ml
Sodium sulfite, anhydrous	1/2 oz	15.0 grams
Acetic acid, 28%	1 oz 365 grains	55.0 ml
*Boric acid	1/4 oz	7.5 grams
Potassium alum	1/2 oz	15.0 grams
Add cold water to make	32 oz	1.0 liter

*Dissolve the boric acid separately in a little hot water and add this last.

For film, use undiluted. With a fresh bath, clearing time should be approximately 1 - 2 minutes. Film should be completely fixed in 4 to 5 minutes.

For paper, dilute 1 part ATF-5 with 1 part water. Immerse fiber based paper for three minutes. Resin-coated paper should receive 1 1/2 minutes. If two baths are used, give three-and-three, or 1 1/2-and-1 1/2 minutes in each bath.

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Ammonium persulfate	1 ounce	30.0 grams
Cold water to make	32 oz	1.0 liter

Dissolve the hypo completely, then add the persulfate while stirring vigorously. If the solution does not turn milky, increase the temperature until it does. Then add the cold water.

Solution A - Part 2

Distilled water (room temperature)	1/2 ounce	15.0 ml
Silver nitrate	19 grains	1.3 grams
Sodium chloride	19 grains	1.3 grams

Part 2 should be mixed in a container that is different from that of Part 1; the two solutions will be mixed in a subsequent step. The silver nitrate should be thoroughly dissolved before adding the sodium chloride otherwise the nitrate will be trapped in the solid that forms. A white precipitate will form, stir vigorously.

Combining Part 1 and Part 2

Both solutions must be at room temperature (68_F/20_C) before they are combined to make Stock Solution A. Stir Part 2 vigorously to disperse the solid throughout the solution, then pour all of Part 2 into Part 1. Stir the combined solution to ensure thorough mixing. A precipitate may or may not be present in the final solution. Transfer the combined solution along with any precipitate (if present), to the storage container.

Solution B

*Gold chloride, 1% solution	1 3/4 fl oz	52.0 ml
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*To make a 1% solution mix 1 gram of gold chloride with 100 ml of distilled water. Gold chloride is deliquescent and rapidly absorbs atmospheric moisture. The solid may have liquified by the time you wish to use it. Since you will be transferring it to a water solution, prior liquification is not detrimental. However, when gold chloride liquifies some of the liquid clings to the cap of its container. Because of the small amount used it is important that all of the residual gold chloride in the container be transferred when you prepare Stock Solution B.

NOTE: Due to the cost of gold chloride, the best method for obtaining a 1% solution is to purchase it pre-mixed from Photographers' Formulary.

Mixing the Working Solution

Add one-half of Stock Solution B to Stock Solution A (the balance of Stock Solution B will be used to replenish the bath.) Stir the mixture to insure it is homogeneous. The bath should not be used until after it has cooled and formed a sediment, preferably overnight.

Using the Toner

Prints for toning should be wet. They should be fully fixed, but only a brief washing is necessary.

Very carefully pour off the clear liquid for use being careful to avoid the sediment.

Heat the toner to about 110_F/43_C for use. Maintain the temperature between 100_F/38_C and 110_F/43_C while toning. If necessary, place a smaller tray containing the toner inside a larger tray of running water at 110_F/43_C. Toning takes from 5 to 20 minutes depending on the desired hue.

After all the prints have been toned, refix for 5 minutes, then wash for one hour in running water.

The bath should be revived at intervals by the addition of further quantities of Solution B. The quantity to be added will depend on the number of prints toned and the time of toning. For example, when toning to a warm brown, add 4 ml of gold solution after each fifty 8x10" prints or their equivalent have been toned.

PAGE 160 - Formula #98, Ansco 221 Sepia Toner for Warm-Brown Tones

Redeveloper

Water	10 oz	300.0 ml
*Sodium sulfide, anhydrous	1 1/2 oz	45.0 grams
Cold water to make	16 oz	500 ml

*Be sure to use sodium *sulfide*, not sodium sulfite.

To use, dilute 1 part of the redeveloper (Solution B) with 8 parts water. Prints should be washed thoroughly after fixing and then bleached until the black image is converted to a very light brown, about 1 minute. Prints should then be washed for 10 to 15 minutes then redeveloped.

Redevelopment should be complete in about 1 minute. Use constant agitation. After redevelopment the prints should be washed for about 30 minutes and then dried. If the toner leaves a sediment, which could result in streaks or finger marks on the surface of the paper, immerse it for a few seconds in a 3% solution of acetic acid, then wash for 10 minutes.

Use plastic trays, especially with the bleaching bath. Otherwise blue spots may form on the print.

PAGE 170 - Formula #114, PARAGRAPH 4

Solution A will keep at least 6 months in a well-stoppered brown or green bottle. However, when A and B are mixed for use, they become unstable. The mixture may deteriorate within a few minutes or may work as long as 1/2 hour. The weaker the solution, the longer it will keep. You can tell when it is exhausted by its loss of color (always use a white tray). It's a good idea to renew the mixture every 10 minutes.

COMPOUND CONVERSIONS, PAGE 189 - "Please read Weights and Measures, page 6, for an explanation of compound conversions."

Updates to the 5th Printing of the Darkroom Cookbook.

BACK COVER, In both column 1 and 2 it should read:

"140 formulas"

CHANGE the last line in Column 2 to read:

"He lives in Colorado."

CHAPTER 3, Under Phenidone DELETE:

"a registered trademark of Ilford,"

CHAPTER 3, PAGE 30, Sodium metaborate, CHANGE

oxyhydrate -to- octahydrate (8H₂O).

CHAPTER 6, PAGE 58, Sodium Carbonate Solution, should read 50 grams in both instances of the first paragraph

CHEMICAL SUPPLIERS, PAGE 87, CHANGE Artcraft listing to:

Artcraft Chemicals, P.O. Box 583, Schenectady, NY 12301; (800)682-1730, (518)355-8700.
Call 5:30 -7:30 P.M. EST and weekends only.

EQUIPMENT SUPPLIERS, PAGE 88

CHANGE Cachet Fine Art Photographic Papers' Address to:

11661 Martenes River Circle, Suite D, Fountain Valley, CA 92708; (888)322-2438.

CHANGE CPM, Inc. telephone number to:

214-349-6886

DELETE:

Darkroom Aids Company

ADD:

Darkroom Innovations (darkroom equipment and supplies), P.O. Box 19450, Fountain Hills, AZ 85269-9450; (602)767-7105; www.darkroom-innovations.com.

ADD:

Freestyle Photo (darkroom equipment and supplies; film) 5124 Sunset Boulevard, Los Angeles, CA 90027; (800)292-6137.

DELETE:

HP Marketing.

CHANGE the phone # for Paterson to:

(716)328-7800

CHANGE the Address for Pelouze to:

2120 Greenwood Street, Evanston, IL 60204; (708)430-8330.

CHANGE the Address for Redlight Enterprises to:

1692 Roseland Drive, Concord, CA 94519; (510)825-5999.

DELETE:

Salthill.

CHANGE the name and Address for Schneider to:

Schneider Optics (B+W filters, enlarging lenses), 285 Oster Avenue, Hauppauge, NY 11788; (516)761-5000.

DELETE:

Zone VI Studios.

PAGE 101, Bibliography, ADD:

Jacobson, C.I., and R.E. Jacobson. Developing. 18th ed. London:Focal Press, 1976.

PAGE 108 - Formula #3, Kodak D-23 Divided Developer

Editors note: The agitation cycle as published is the one handed down to me. However, Bob Ingraham of Prince George, British Columbia, has written that he has found that one gentle inversion every twenty seconds in the first cycle, and one inversion every 30 seconds in the second cycle, results in more even development. Try both.

PAGE 111, Formula #7, DELETE:

For further compensation (contractions), use less A and more of B. Conversely, for expansions, use more B and less A.

PAGE 120, Formula #25, CHANGE:

*Sodium carbonate, anhydrous 44 grains 3.0 grams

TO

*Sodium carbonate, anhydrous 36.5 grains 2.5 grams

PAGE 128, Formula #38, Under the note at the bottom, second paragraph, CHANGE the development time/temperature to read "5 and 7 minutes at 68°F/20°C."

PAGE 128, DELETE the following from the second sentence of second paragraph:

~~It is recommended only for large format negatives, but~~ used properly, the results obtained are unequalled, even by most other pyro formulas, in tonal gradation and subtle highlight separation.
PAGE 128, Formula #38, bottom of PAGE, CHANGE:

5 and 7 minutes at 65F/18C

To

5 and 7 minutes at 68F/20C.

PAGE 132, Formula #42, DELETE:

"Dilute 1:3 and"

PAGE 141, Formula #57

For normal use, dilute 1:2, for low contrast dilute 1:4; normal development time is 2 minutes.

NOTE: This is an excellent formula for use in two-tray development, where the first tray is a soft developer, and the second is either normal or high-contrast. For this application, dilute 1:6 or 1:8.

PAGE 151 - FORMULA #84, CHANGE, bisulfate to bisulfite

Sodium bisulfite 1 1/2 oz 45.0 grams

PAGE 160, Formula #98, The formatting is incorrect under Solution B. The amounts need to be moved left.

PAGE 176, Formula #124, DELETE:

NOTE: All particles of permanganate should be dissolved completely when preparing Solution A, since undissolved particles are likely to produce spots on the negative.

PAGE 183, Formula #139, Last line of last sentence on PAGE DELETE the word "the":

"...development in ~~the~~ this bath."

PAGE 193, Sodium Sulfite and Sodium Carbonate

CHANGE the Sodium Sulfite Conversion Table to read:

Sodium sulfite, anhyd.----->	Sodium sulfite, cryst.	multiply by 2.0
Sodium sulfite, cryst.----->	Sodium sulfite, anhyd.	multiply by 0.5

DELETE THE ENTIRE PARAGRAPH:

"Today, most formulas specify sodium carbonate..."

MOVE the two Sodium carbonate tables down so that they appear under the heading of "Sodium Carbonate Conversion Table."

PAGE 194, The last two entries are out of alphabetical sequence. CHANGE:

Tri-sodium phosphate
Sodium thiosulfate

TO

Sodium thiosulfate
Tri-sodium phosphate