Editor: Al Doyle
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THE SUBMINIATURE TIMES

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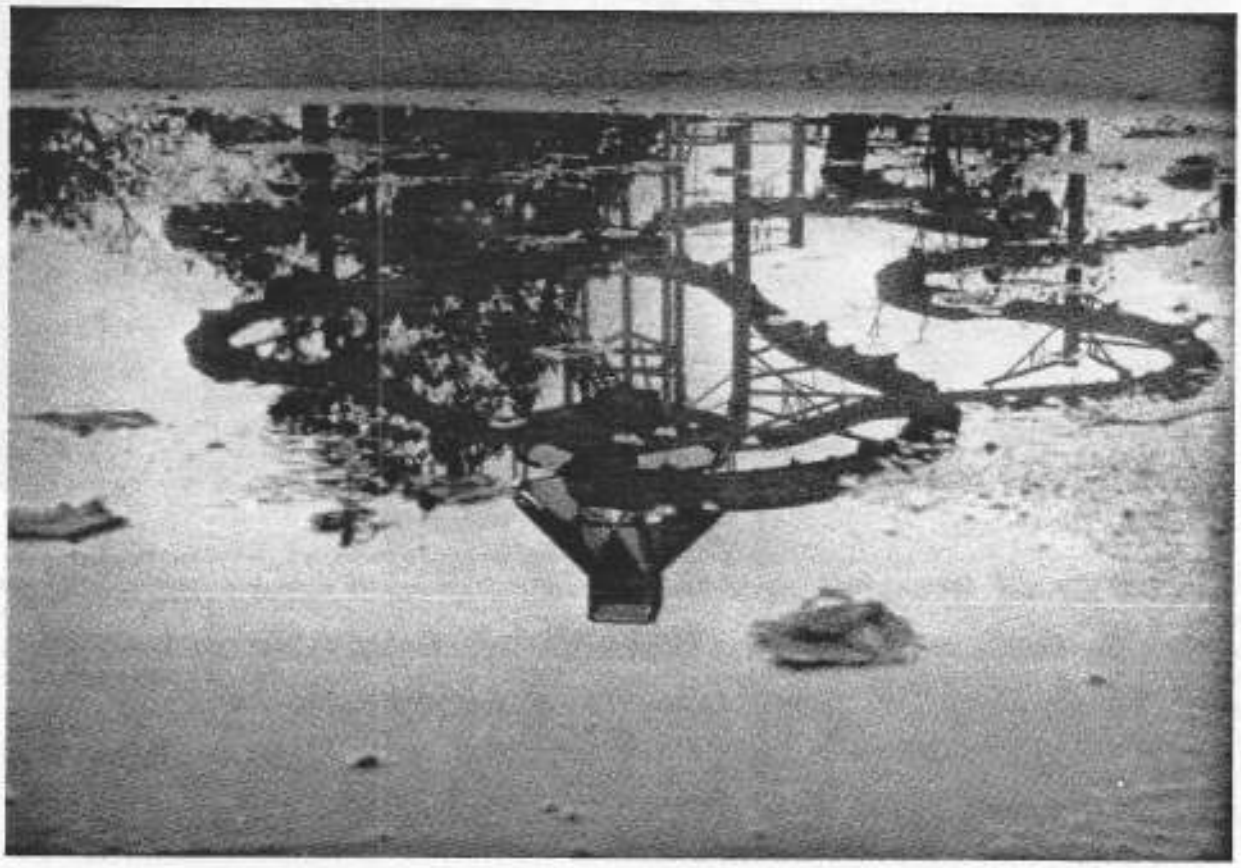

DEPTH OF FIELD can be controlled either by change of focus, or change of aperture, or both. Here, a point midway between the pond and the amusement park was chosen. The nearest leaf was 3 ft from the camera. In the receding light f4 @1/30th second proved to be the correct exposure to provide sufficient control to catch the park, and the far edge of the puddle sharply, putting the near leaf gently out of focus. With a smaller aperture it would have been sharper, but the slower exposure could have produced an entirely blurred picture with a handheld camera. A larger aperture would have made the near leaves meaningless blurs.

This picture was taken in the range indicated as INF or Infinity. Although it was made at the same exposure as the previous picture f/4 @ 1/30th sec, the nearest part of the ground was more than 20 feet away. The entire picture is sharp right into the shadows of the hangar.

Any subminiature camera that uses a slow microfilm can produce this image quality. Subminiature cameras are at their best with well-lit subjects. This allows the use of very slow films which have high resolving power.

Camera: (Both pictures) Mamiya Super-16
Film: Eastman Recordak ISO 25
Developer: Agfa Rodinal 1:200

Depth of Field: 25mm Lens — Circle of Confusion 1/40mm (.001")

Distance (Feet)	1.4		2.0		2.8		4.0		5.6		8		11	
	FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO	FROM	TO
INF	58'8"	INF	41'1"	INF	29'5"	INF	20'7"	INF	14'9"	INF	10'4"	INF	7'6½"	INF
200	45'5"	INF	34'1"	INF	25'8"	INF	18'8"	INF	13'9"	INF	9'10"	INF	7'3"	INF
100	37'0"	INF	29'2"	INF	22'9"	INF	17'1"	INF	12'10"	INF	9'4½"	INF	7'0½"	INF
50	27'0"	337'	22'7"	INF	18'6"	INF	14'7"	INF	11'5"	INF	8'7"	INF	6'6⅝"	INF
30	19'11"	61'3"	17'5"	111'	14'11"	INF	12'3"	INF	9'11"	INF	7'8⅛"	INF	6'0½"	INF
20	14'11"	30'3"	13'6"	38'10"	11'11'	62'4"	10'2"	695'	8'6¼"	INF	6'10¼"	INF	5'6"	INF
15	12'0"	20'1"	11'0"	23'6"	9'11⅛"	30'6"	8'8⅛"	54'10"	7'5⅜"	INF	6'2"	INF	5'0½"	INF
10	8'6⅜"	12'0"	8'0⅝"	13'2"	7'6"	15'1"	6'9¼"	19'4"	6'0"	30'10"	5'1⅛"	304'	4'4"	INF
7	6'3¼"	7'11"	6'0"	8'5"	5'8¼"	9'1⅜"	5'3"	10'6"	4'9½"	13'3"	4'2⅛"	21'4"	3'8"	96'0"
5	4'7⅛"	5'5⅜"	4'5⅜"	5'8"	4'3½"	6'0"	4'0½"	6'6½"	3'9⅜"	7'5⅜"	3'5"	9'6½"	3'0½"	14'6"
3	2'10¼"	3'1⅜"	2'9⅜"	3'2⅜"	2'8⅜"	3'4"	2'7⅛"	3'5⅜"	2'6⅜"	3'8⅜"	2'4⅜"	4'2"	2'2"	4'10⅜"
2	1'11¼"	2'0⅜"	1'11"	2'1"	1'10⅜"	2'1⅛"	1'10"	2'2⅛"	1'9⅜"	2'3⅛"	1'8⅛"	2'5⅛"	1'7⅛"	2'8"

TOOLS & TECHNIQUES

By Cora Wright Kennedy

Are scratches on b&w film driving you crazy? Try these soothing prescriptions, plus good preventive medicine

I'm often amazed at the strange tests I make before writing a column. But few have seemed as odd as deliberately scratching many feet of 35-mm black-and-white film with a very fine-pointed sewing needle.

All this was done to get valid data on different types of scratches that occur at various dry stages in the photographic process. And out of such basic research emerged conclusions that may surprise some people.

For instance, do you still believe in the myth that just one side of the film (usually given as the dull, emulsion side) must be scratched to get a matching white line on the print? If so, think again. The truth is that you can actually get a white line on your print from a scratch on *either* side of the film.

My tests did indeed show that a reasonably light scratch on the emulsion side would lead to a white line on the print. But they also showed that light-to-moderate scratches on the glossy film base could also lead to white lines on the print. (See photos.)

Are you getting unwanted, relatively straight white lines on prints? They can be due to scratches on film base or emulsion. Here author deliberately scratched film base with a fine needle.

Another point that needs debunking is that you always get either a white line or a black one on prints as the result of film scratches. Yes, it is true that some scratches that go far enough into the film's emulsion can lead to simple black lines on the print. But it is equally true that the world of "scratchery" also includes a variety of complex combinations.

For instance, often when I applied the needle somewhat heavily on the emulsion side, I wound up with a basically black scratch on the print, surrounded by white fringes on either side. Or, when I got heavy-handed on the glossy film base, often there was a basically white line on the print with a fine black line down all or part of the center.

It is fortunate for photographers that plain white scratch lines tend to prevail—they are the only ones you can subdue or eliminate easily and practically.

To eliminate fine white lines on prints, try using petroleum jelly on film. For heavier white lines (such as above left), try Edwal No Scratch or various household oils. See text for details.

What should you use for coping with fine white lines? I've heard tell of old-timers who simply use nose grease. More often, however, photographers reach for some ordinary white petroleum jelly and apply it to the scratched side of the film (or both sides) instead.

Either way, the excess is wiped off gently with a soft cloth (such as clean, worn T-shirting), without making extra scratches. Then no visible residue should remain to diffuse the image. But jelly remains in the scratches, where we hope that it will bend light as film would normally do. Just keep in mind that wiping with T-shirting can build up a dust-attracting static charge. So afterward, wipe that relatively grease-free negative gently with your anti-static cloth. And perhaps blast the film with some propelled air as well before printing.

I'm a great booster of this general idea as a starting point, for various reasons. It often lets me eliminate fine white lines, or at least reduce them enough so it is easy to spot out the rest. Also, the approach is fast and easy, and far less messy than using a liquid oil—which I only do when a more drastic approach is indicated for white lines.

Then I especially like a liquid product that has been around since 1957. This is Edwal No Scratch, which comes in a one-oz. bottle, along with two handy, brush-type applicators, and lists for $5.50. (It is made by Edwal Scientific Products Corp., Div. of Falcon Safety Products, 1065 Bristol Rd., Mountainside, N.J. 07092.)

Inside the bottle is a proprietary mix that contains an oil, some turpentine,

"That little camera doesn't work."
Gas station attendant. Houston, TX.

Camera: Mamiya Super-16
Film: Kodak 7276 (ISO 400)
Developer: Agfa Rodinal 1:100
(Dil 1:100 38mins @ 74°F.

Tools & Techniques

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and other ingredients. These are combined to create a fluid that has a refractive index close to that of black-and-white film—i.e., bends light about the same way film does.

The net result is that you can banish many (but not all) of those larger white scratches that resist the petroleum-jelly treatment. It also helps eliminate the white part of those mixed black-and-white lines discussed earlier.

I place the offending negative in a glassless carrier, as recommended by Edwal. Then I cover the whole scratched side (or all of both sides) with an even but not overly thick coating of No Scratch, using one of the brushes supplied. The brushes are also handy for pushing aside any visible lint that has fallen in the oil, and moving it under the carrier edges.

This liquid is easy to apply and spreads out smoothly (much more evenly than the plain oils I also tried). It is also designed to clean the film surface. For best results, however, don't wipe the film before printing. Otherwise, results are only about as good as with petroleum jelly. Do this wiping after you've finished. Then clean both the film and the greasy carrier (and any other smeared enlarger areas) with a good film cleaner, such as Edwal's. But test to be sure this won't harm any plastic parts.

What can you do if you don't have any No Scratch around? Very similar results can often be obtained with some ordinary household oils, such as baby or mineral oil, as well as corn, olive, and mixed-vegetable oils. I'd been warned by experts that such oils would work better in some cases than others. This is because achieving a standard index of refraction is not a requirement for such oils, as it is with No Scratch.

So maybe I was just plain lucky to find that results with all the oils mentioned were generally in the same ball park as with No Scratch. And even if you note significant differences between them, all should give you far more effective results than petroleum jelly. And one might save the day for you.

My guideline here is to start with Johnson's Baby Oil if you must use one of the oily alternatives, because I like the way it goes on. Just follow the directions I gave for No Scratch (including those about lint), using a really soft sable spotting brush for application of a not-too-thick covering layer.

Until now I've been talking mainly about white lines caused by film scratches. But what about those pesky black lines that are not affected by an oily or greasy treatment on film? Certainly it is not feasible for most of us to airbrush such blemishes. Nor is it easy to etch them off successfully, so that the etching won't show.

But it is easy to follow these good procedures for *avoiding* all scratches:

- Never drag film across the edges of the negative carrier. Instead, first open the two carrier parts enough to move the film safely.
- Similarly, never pull film out of a film envelope so it scrapes the envelope edge. Be careful also how you put the strip back in.
- Store each strip of negatives separately from others to avoid having one strip rub against another and possibly cause scratches.
- Be sure to clean dirt and film chips out of the camera back from time to time. (Use propelled air carefully, so you don't drive dust into the camera mechanism, including the shutter.)
- Finally, if you bulk-load film, be sure every piece of gear is dirt and dust free. This includes the bulk loader, the film cartridges and, of course, the working surface.

LETTERS

Dear Al,

The Mamiya Super-16 sounds like a great little camera. Did you ever compare it to a Minolta I, or a Minox B? Do you have Minox cassettes?

J. Noonan
Medford, MA.

Dear J. Noonan,

The three you mentioned were the most popular cameras available when I made my choice of a first camera.

Working on a school kid's allowance, the Minox was out of my price range. Otherwise I would have bought one just for the size of it. Later when I learned about light meters, having one built into the camera would have been helpful.

The neutral density filter and 1/1000 sec. shutter speed of the Minox would have been wasted on me, because I don't use those features, even today. Contact Microtec for Minox cassettes (619) 272-8820.

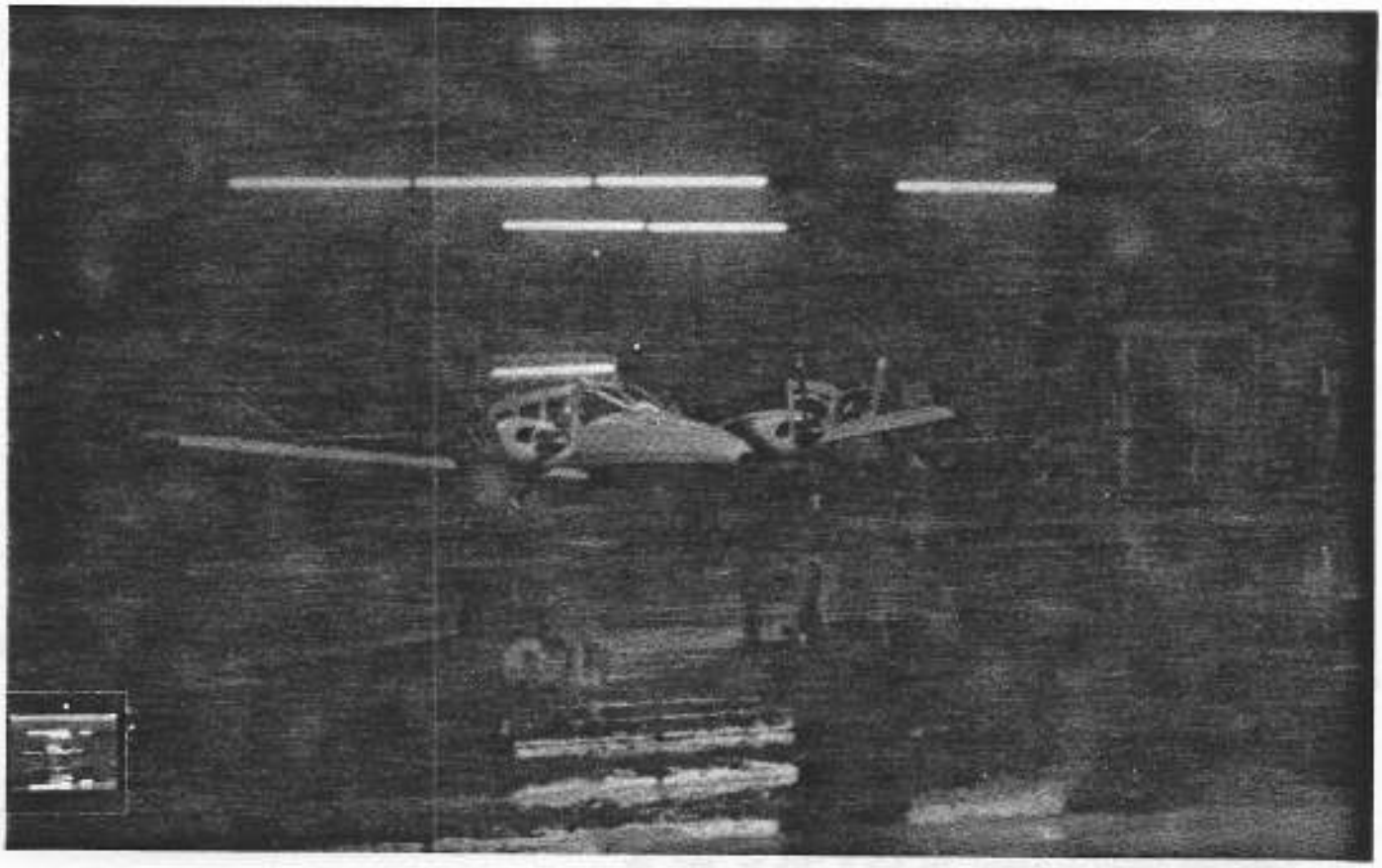
The Mamiya's yellow filter was a big help learning filter factors. And compared to the Minolta The Mamiya has a quieter film advance, and shutter mechanism. The Mamiya has great slow shutter speeds and a cable release built into the shutter button, and it could make great closeups. All those little things add up.

At the time I thought I made a good choice between the three, and now that I do a lot of enlarging to outrageous sizes if I had to do it over again, I'd still pick the Mamiya Super-16 over the Minolta or the Minox.

Also, the Mamiya uses readily available 16mm movie film. Minox film has to be split down from 35mm or you pay pay pay.

Actually, I'd prefer a good Mamiya-16 Automatic over all three, but that's another newsletter.

Al D.



This was taken during a driving rain, with the camera braced against an adjacent building.

Camera: Mamiya Super-16

Film: Kodak 7276
Developer: Agfa Rodinal 1:100
Exposure f/3.5 @ ½ second

"Home, James" A grab shot of some local tykes making the most of a warm April day.

Camera: Minolta-16 MGs
Film: Recordak
Developer: Rodinal 1:200

Minolta-16	$59	C
Minolta 110Z	225	B
Minox GT-16	169	C
AF	159	C
ML	259	C
GTE	255	C
EC pkg	250	C
LX chrome	599	C
Minox Gold	$1199	C
LX black	639	C
Platinum	Call	C
C black	595	H
Pentax/3nlens/wnd	279	B
Robot Luftwaffe	395	H
Tessina	Call	C

B Bergen Counth Camera, 270 Westwood Avenue, Westwood, NJ 07675 (201) 664-4113
C Cambridge Camera Exch., 7th Ave & 13th St., NYC, NY 10011 (212) 675-8600
H Hayden Photographics, 85 Queen St., Toronto, ONt., CAnada M5C 1S1 (416) 862-8685.

FOR SALE Enlarging lenses. 25mm/f3.5 Bogen Voss $26.95, 25mm/f4.0 Rodenstock Rogonar $57.50, 28mm f4.0 Schneider Componon $149.50 Cambridge Camera Exchange, 7th Ave & 13th St, NYC, NY 10011. (212) 675-8600.

FOR SALE Mamiya-16 cassettes. Eighteen 'doubles', some singles. $15 ea. Al Doyle (713) 440-4744.