

Editor: Al Doyle  
Subscription: \$16 Per Year  
\$23 Per Year International

#78 June 1995  
Back issues \$2

# THE SUBMINIATURE TIMES

The Subminiature Times is published monthly by Doylejet, P.O. Box 60311, Houston, TX. 77205 (713) 443-3409  
Supporting 110, 17.5mm, 16mm, 9.5mm, 8mm, 6mm, 1mm, Microdot, and Electronic Still Photography.



## MINOX

THE ENLARGEMENT ABOVE was reproduced without screening to preserve detail. Camera: Minox B. Film: Filmbox S-L. Developer: Rodinal. Photo: Tom Bosma

### Mini Single Board Monochrome Chip Camera



Chinon's CX-060 ultracompact ( $1\frac{1}{4}$ " x  $1\frac{1}{4}$ " x  $1\frac{3}{16}$ " ), 0.59-oz. solid-state CCTV camera fits even the tightest space requirements, yet its  $\frac{1}{3}$ " CCD type imaging chip delivers sharp resolution: 250,000 pixels. The CX-060 operates under almost any lighting condition with a 0.3 (F:1.4) minimum lux rating and 350 lines of resolution. Optional other-size/FOV lenses are available. Chinon America Inc., Electronic Imaging Div., 1065 Bristol Rd., Mountainside, NJ 07092-1248. (800) 880-4164.

## SOLID STATE CHIP CAMERA

*Underwater, submersible monochrome device*



Chinon America, Inc. is offering the SVS-1, a submersible solid state CCTV board camera. It delivers crisp video images at depths up to 100'. The camera measures  $2\frac{3}{16}$ " wide x  $2\frac{1}{4}$ " high x  $1\frac{15}{16}$ " deep, and it weighs just 5 oz. It utilizes a  $\frac{1}{3}$ " MOS-type imaging chip to deliver sharp resolution (240 x 240 TV lines, 80,000 pixels). A built-in electronic auto iris electronically compensates for lighting between 2 and 100,000 lux. This is achieved by an electronic shutter speed that automatically adjusts between  $\frac{1}{60}$  and  $\frac{1}{15,000}$  second. The camera comes with a 3-mm F/1.8 lens, providing a  $110^\circ$  field of view. Power requirement is 1 W from a 9-Vdc power supply. Price is \$570. For more information, contact Ken Gerb, Chinon America, Electronic Imaging Division, 1065 Bristol Rd., Mountainside, NJ 07092. (800) 880-4164.

# how to shoot infrared

Infrared films carry no ISO ratings because meters are insensitive to infrared. Also, the intensity of IR radiation varies with the time of day, season, cloud cover, and temperature. The sensitivity of color IR film varies from batch to batch. Try our starting points and make a trial series of bracketed exposures in half-stop increments. Use the results as a guide for subsequent pictures under similar conditions.

## Black-and-white

**Effect:** Kodak High Speed Infrared film 2481 creates scenics with bright, luminous foliage and intensely dark skies. Buildings, sand, clouds, and people may also record as glowingly white. It has a pronounced grain, especially when overexposed.

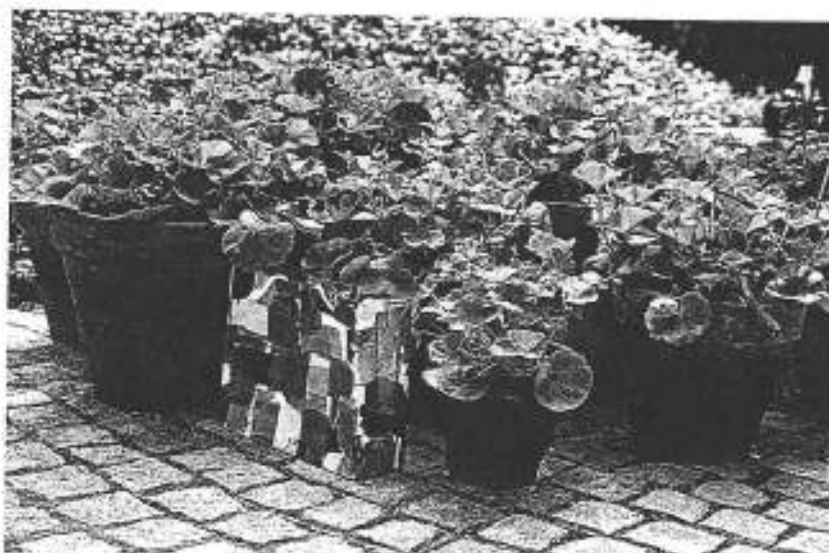
**Filtration:** To optimize the effect, use a deep red filter (No. 25, 29, or 70). Add a polarizing filter to intensify the effect. A deep yellow (No. 15) filter allows more detail in shadow areas.

**Loading film:** This film must be loaded and unloaded in total darkness.

**Focusing:** If your lens has an IR focusing mark, focus normally, note the distance setting on the lens, then move the focusing ring so the distance number aligns with the IR focusing mark. With no IR index, focus normally, then



**Fantasy film:** Glowing leaves and jet black skies are characteristic of black-and-white infrared film. Scene was shot with a No. 25 red filter at 1/15 sec and f/32; film was slightly underdeveloped in D-76.



**Pedestrian view:** Leaves, flowers, and a shopping bag, as imaged by Kodak Ektachrome Plus.



**Land of Oz version** was recorded on Kodak Ektachrome Infrared film with a No. 15 deep yellow filter; 1/30 sec at f/11 on a slightly overcast day.

move the focusing ring as if the subject were closer to the lens; stop when the image goes slightly out of focus. Use an aperture of f/11 so depth of field will compensate for any focusing error.

**Exposure:** Begin your bracketed exposures, with a red filter on the lens, at 1/250 sec and f/11 (or the equivalent) in bright daylight. Shoot four exposures over and four under this setting.

**Processing:** Process in total darkness in a standard b&w developer.

## Color

**Effect:** Kodak Ektachrome Infrared film is a reversal (slide) film that can produce startlingly unreal colors. (Criterion Photoworks, P.O. Box 007, Minden, NE 68959, can process it as

negative, but only for film it loads.) The color shift is somewhat unpredictable and depends on the filter, lighting conditions, time of day, and season.

**Filtration:** Use a deep yellow (No. 15) or a red (No. 25) filter.

**Loading:** Load in subdued light; you don't need total darkness.

**Focusing:** Focus normally.

**Exposure:** In bright daylight with a filter, begin your bracketed exposures at 1/125 sec and f/11 (or the equivalent). Shoot six exposures over and four under this setting.

**Processing:** Color IR film requires E-4 processing, done by only a few labs (or do it yourself). Kodak's Information Center can refer you to a lab; call (800) 242-2424. *Elinor H. Stecker*

## MINOX LX. ONE OF THE WORLD'S SMALLEST CAMERAS

The Minox LX is indeed one of the smallest cameras you will ever come across. Or more to the point: the greatest of all ultra-miniature cameras. With an overall length of 108 mm it even trims some 10% off the famous Minox C. Mind you, there is not much point in a small camera if it cannot make lovely big pictures. Don't worry! The Minox LX *does* make beautiful pictures. After all, an 8 x 11 mm Minox negative has about four times the area of a Super-8 movie frame. And you can project that on a screen yards wide. Sure enough, with the new films, above all Minocolor 3, and the fabulous lens of the Minox LX you get fantastic pictures.

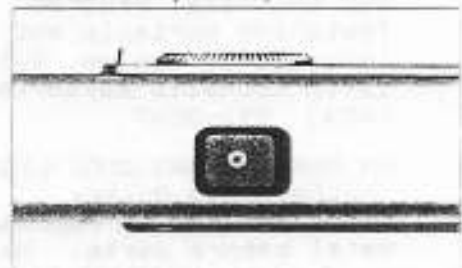
**THE MINOX MAY BE SMALL - BUT ITS PICTURES ARE GREAT**



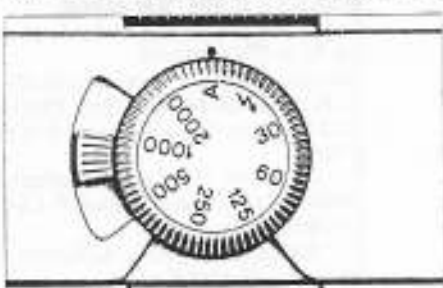
That white frame above is the bright-line frame of the Minox LX viewfinder - naturally, with parallax compensation.

### THE EYE OF THE MINOX - THE HEART OF THE CAMERA

As far as specifications go, the Minox lens is a 4-element unit of 15 mm focal length. That covers about the same angle as a 50 mm lens on a 35 mm miniature camera. The f/3.5 lens aperture remains constant for all Minox exposures. The Minox LX can afford it, too: its short focal length ensures sufficient depth of field even at full aperture. For instance if you set the distance scale to the small dot, everything more than 6½ feet away is sharp. *That's quite a range.* Talking of sharpness, the Minox LX lens yields supreme definition



- you are entitled to expect it from a lens made by Minox.



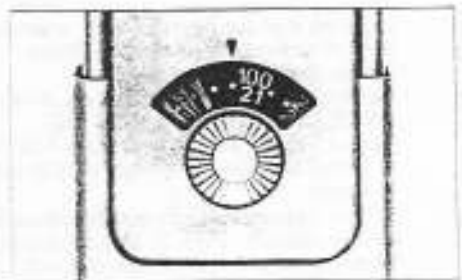
The letter A on the shutter speed dial of course stands for automatic control. Once you set the Minox LX to A, the camera looks after the rest. The electronic shutter of the Minox LX precisely measures and controls the exposure - from 16 seconds down to a brief 1/2000 second. Yes -

### THE EXPOSURE TIMES: FROM 1/2000 SEC. TO 16 FULL SECONDS

Maybe you don't want the camera to do it all for you. That's OK - simply set the shutter speed yourself. *But back to automation* for a moment: just now and again even that 1/2000 second might be too long. Not that that worries the Minox LX, for on such rare occasions it switches on a little red light which tells you to use a neutral density filter. And that filter is right there, built into the Minox. You just switch it in and carry on shooting. If the light is poor the signal goes yellow. That is a long-exposure warning: hold really still for you are shooting at slower than 1/30 second.

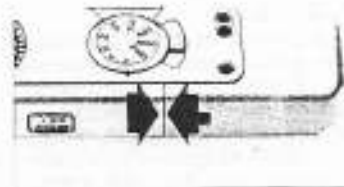
### WHAT'S BEHIND THE MINOX LX?

Here you find the film speed scale with settings from 12 to 400 ASA and 12 to 27 DIN. That covers all Minox 8 x 11 mm films for automatic exposure control in the Minox LX.



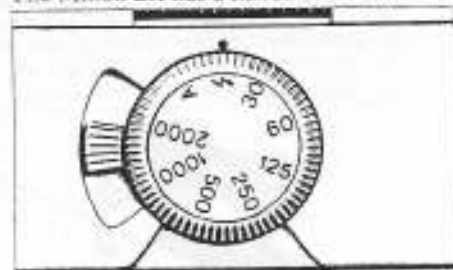
### HOW ABOUT THE MINOX LX PUSH-PULL RAPID WIND?

It's Minox's own invention, designed for two special jobs. First, it winds on the film.

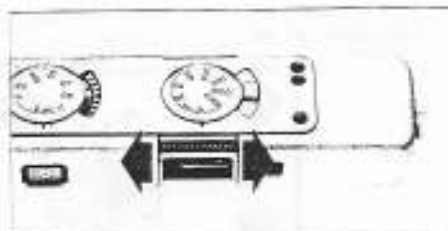


### FLASH SHOTS:

Not only the A but also the small flash mark below it has to do with automation. When the light is too weak, turn to the flash setting and mount our special electronic "8 x 11 flash" with adapter or the FL 4 cube flash unit on the camera. Amazingly, the automatic flash control of the Minox LX still keeps all your pictures correctly exposed - even with the fixed aperture of the Minox LX. Here is why: The Minox LX has a silicon blue cell



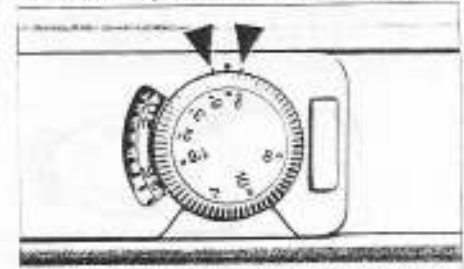
which also looks after automatic flash exposures. It responds so fast that the shutter shuts at the exact instant when the cube flash has given the right amount of light - no more and no less! If you are using electronic flash, the automatic flash control merely selects the correct synchronising speed. Flash shots are still straightforward for most electronic units control their own flash duration.



tensions the shutter and advances the frame counter. Second, this handy system covers up the lens and finder eyepiece when you close the camera. An ingenious way of protecting things!

### BEFORE WE FINISH WITH MINOX LX FOCUSING

It is not that critical with the Minox LX whether you set it to 12 feet or 20 - the enormous depth of field we mentioned be-



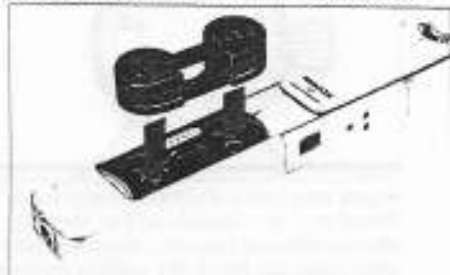
fore takes care of that. But it's still best to focus the camera as accurately as you can. So when you are sighting Mont Blanc,



set the lens to infinity. For the better you focus, even with the Minox LX, the sharper the picture you get. That applies especially to close-ups - and the Minox LX focuses down to 8 inches, without close-up lens and without fuss. Here one item is useful: the beautifully handy measuring chain. With that you get the distance right to a fraction of an inch. So you are well set for big flower shots or the odd copying job.

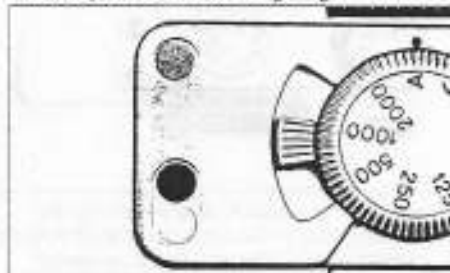
#### ANYONE CAN DROP A FILM INTO THE MINOX LX

Press down the small key with your fingernail - and the Minox housing slides open. Drop the twin daylight cartridge into the film chamber, close the body and start. It's just as simple when the film is finished:



Open by pressing a tab. A special spring pushes out the cartridge ready for you to hold. You don't have to shake or bang the camera on the table.

We noted the two light signals on the top of the Minox LX - the overexposure and camera shake warning lamps. If you look closely you see a third light in green. That's equally useful: it checks the battery that keeps the Minox LX going.

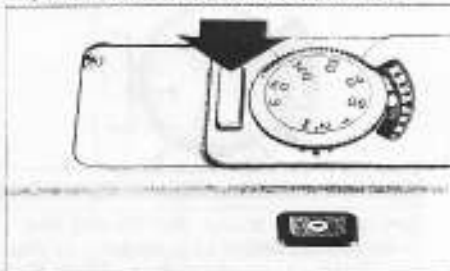


#### ALL SYSTEMS GO WITH GREEN

With just one qualification: The green light means that the battery is supplying juice and the contacts are OK.

#### IF YOU ARE A MINOX FAN ALREADY YOU MIGHT MISS THE FAMILIAR RELEASE BUTTON

For the Minox LX now has a release key with a finger-matching curvature. More important still, it's now located where



you are far less likely to let a finger stray in front of the lens as you shoot.

#### AND HERE IS THE COMPLETE MINOX 8 x 11 MM FILM RANGE:

For colour prints: Minocolor 3, of 100 ASA, for 36 or 15 exposures.

For colour slides: Minochrome 50, of 50 ASA, for 36 exposures. Processing (but not mounting) is included in the price.

For black and white prints: Agfapan Professional films of 25 to 400 ASA, each for 36 or 15 exposures.

For document copying: Agfaortho 25 Professional, 36 exposures.



#### FINALLY THE TECHNICAL DATA

Negative size: 8 x 11 mm.

Film: Minox 8 x 11 mm film in double daylight cartridge for 15 or 36 exposures (8 x 11-15 or 8 x 11-36).

Film transport: Push-pull rapid wind. The film transport only operates after an exposure.

Film pressure pad: 7.5 N (1 1/2 lbf) hold the film flat when the camera is ready to shoot. But during film transport and when you open the film chamber the film moves freely.

Shutter: Electronically controlled special leaf shutter. Manual setting range from 1/2000 to 1/20 second. Electronic control range at A setting (daylight exposure automation) 1/2000 to approx. 15 seconds; at S setting (flash automation) 1/2000 to 1/20 second.

Photocell: Silicon photo diode (silicon blue cell).

Film speeds: Adjustable from 12 to 400 ASA/12 to 27 DIN.

LED signals: Yellow for camera shake warning (automatic time longer than 1/20 second). Red for overexposure warning (switch in the neutral density filter). Green for battery check.

Battery: One 5.6 volt battery, e.g. Mallory PX 27, Ucar EPX 27 or Varta 4027.

Lens: 15 mm f/3.5, focuses from 8 inches or 20 cm to infinity. Always used at full aperture.

Filters: Permanently fitted ultraviolet filter as lens window. Built-in neutral density filter (approx. 4x) switchable at will.

Lens hood: Permanently built-in.

Finder: Bright-line finder with automatic parallax compensation. Red signal warns that ND is in place.

Frame counter: Counts backwards from 36 to 0. Short-film range from 15 to 0.

Flash contact: X-synchronised.

Tripod bush: Built-in (1/4 inch).

Size: 10.8 cm (4.25 inches) long closed; 12.4 (4.9 inches) open. Apart from that, it's 2.8 cm (1.1 inches) wide and 1.6 cm (0.6 inch) high.

Weight: 88 grams (3.1 ounces) without battery or film; 98 grams (3.5 ounces) with battery but without film; 100 grams (3.5 ounces) with battery and film.

Maker: Made in Germany by Minox

#### HELPLINE

The Kiev 303 automatic camera is an amazing camera that features machined (not stamped) body, focus, f-stop, and shutter adjustments, designed after a Minox 16-1 the 303 uses 135mm film and comes complete with case, and film magazines. Very collectable!

**Kiev-303**

~~\$49.95~~ **\$24.95**

**BIG APPLE COLLECTOR** reports Kiev-303 has "typical Russian construction but great pictures and price." From Russia Direct, 106 Franklin St. NY 10013 (212) 219-8171.

**ROCHELLE IN VEGAS** (and others) seeking old Polaroid Slide Mounters for the cassette holder and slicing blade, contact Carol Stevens. Quantity limited. (713) 522-7837.

**CYRIL IN LEEDS** The Minox features were all compared in ST issue #58.



**WE'RE STILL LOOKING FOR** someone who remembers how to reload an Expo Watch cassette. Help!

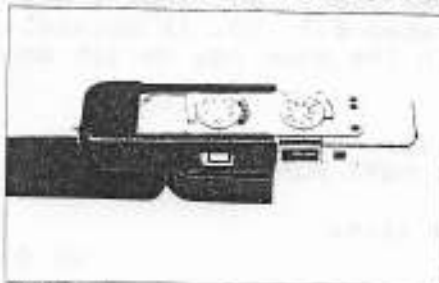
#### ADVANCED

**Analog and Mixed Signal Design '95** Intensive 3-day technical program featuring portable and low-voltage design. July 11-13 Michelle Keyworth (603) 891-0597.

**ON OUR GROWING BOOK LIST** Author Doug Briney makes it easy to replace metal camera parts. He teaches proper micrometer handling, milling, blueprints, threaded fasteners, + 49 pages of projects.

"The Home Machinists Handbook" D. Briney, 272 pgs. Illustrated. \$17.95. Please include 10% s&h, 20% International Airmail.

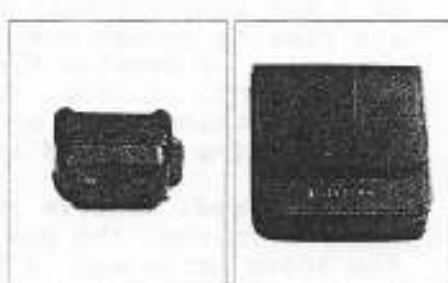
## THE MINOX LX ACCESSORIES



Ever-ready case



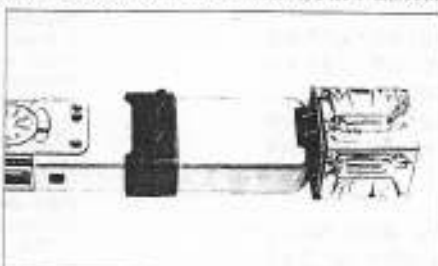
8x11 flash: electronic flash. Guide number ISO 100 14 (m)/56 (ft)



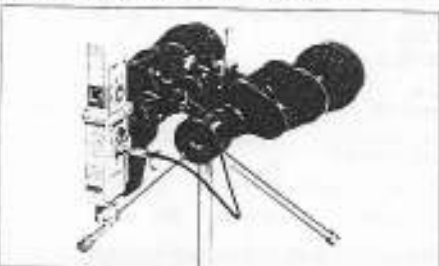
Adapter for 8x11 flash. Carry case (leather) for 8x11 flash, adapter, film



Pocket tripod, cable release bracket    Coping stand



FL 4 cube flash unit



Bicolor attachment



Microfilm reader K 6



MINOX GmbH, Postfach 6020, D-6300 Giessen 1  
Federal Republic of Germany

### Editor's Journal

TO JOHN, HURLEY, AND THE  
GUYS AT THE SHORT BAR:

The Dolphin is a mid priced hotel located about four blocks from the center of things on Bay Street, Nassau, The Bahamas.

The food is first class. The lack of entertainment makes it a nice place to park your things while you night life elsewhere, or recuperate from it.

For a number of years during the 60's my vacations coincided with two rabid submini-holics: Hurley, and John. I've long since forgotten their last names, but I clearly remember our first meeting.

The pair had unique skills. John was a professional magician, and knew a zillion ways to manipulate his Minox IIIIS using sleight of hand. Hurley was a chemist with a black Minox B.

Late one evening I got an urge to go to the casino on Paradise Island. It was starting to rain, and by the time I got downstairs, the palm fronds were slashing back and forth against the building.

I forgot about the casino for a while and headed to the short bar off the dining room.

Hurley and John were wrapped around a pair of banana diaquiris, arguing over the movie "O.S.S."

I was immediately drawn to the conversation because the film is a classic to fans of subminiature photography.

The point of their contention was a part in the movie where a photographer takes a strip of film from a Minox and puts the undeveloped film into the sweatband of the hero's fedora.

John thought that the film was fully processed then wrapped in foil. Hurley argued that any film, black and white, or color, could be fixed then processed later. He was willing to wager a round for everyone at the bar. (Five people.)

With the storm and all, we had time for a laugh.

Hurley went up to his room and came back with what he claimed was exposed Minox film.

He placed the clear film into a shot glass, and poured in a "special" mixture of hypo and Agfa Rodinal. We waited.

And waited.

As I sat watching tall sheets of rain ripping across the bay I thought, he's going to develop fixed film in hypo? Right! Either I'm going to learn something here, or this is the worst ribbing I've had in years.

Hours passed. Clearly it wasn't working. We changed the subject.

The storm worsened. A huge potted plant fell over on the patio, and the lights blinked.

Like everyone else I was distracted by the noise and the moment of darkness. When I looked back at the glass, the film was showing an image.

"I told you!" yelled Hurley. "Drink up folks, John's buying!"

John looked into the glass and smiled. It was obvious he thought a little switcheroo had occurred.

He got up and phoned the cab that took the five of us to the casino in silence.

When I brought up the subject the next day, John and his lady friend left the table. So I never mentioned development-after-fixing again, although our friendships lasted several summers.

In mid-February of this year I made the mistake of putting a roll of film into a fixer before the developer. By the time I realized my mistake three minutes had passed.

"No problemo," I mumbled, and started calling around Subminiatureland for the hypo formula.

I was told by the folks at Eastman Rochester that it was impossible. I called the darkroom of a major newspaper and got the same message. Professional subminiaturists told me to forget it.

I made about twenty calls. At midnight I took the film out of my developing tank and threw it away.

"Can't trust stuff I see in bars" I reminded myself, and went to bed.

Next day a friend left a message on my machine. I should look at page 343 in "The Focal Encyclopedia of Photography."

It was a reverse mix of everything I thought I knew about film developers.

Hurley's "special" formula!

Because the process costs several f/stops in film speed, my film would

still have been lost. But when I used Plus-X 7276 rated E.I. 10, it worked. After hours in the soup you do get an image.

To John, Hurley, and the guys at The Dolphin short bar: Hurley was right!

Subminiature lives.

Al D.

**DEVELOPMENT AFTER FIXING.** During physical development an image is built up, by a process of silver intensification, on a very weak silver image first formed by normal chemical development.

Very minute amounts of silver are, however, already formed during the original exposure. These may by themselves form a foundation for a physically developed image. This makes it possible to fix a negative after exposure and then develop it in a physical developer by ordinary daylight.

The effective emulsion speed of the film or plate is greatly reduced and negatives need about 3-4 times the normal exposure. Some modern negative materials fail to react satisfactorily to this method.

A suitable developer is:

Silver solution A		
Potassium thiocyanate	1 ounce	25 grams
Silver nitrate	70 grains	4 grams
Sodium sulphite, anhydrous	4 ounces	125 grams
Sodium thiosulphate (hypo) crystals	88 grains	5 grams
Potassium bromide, 1 per cent solution	96 minims	5 c.c.m.
Distilled water to make	8 ounces	200 c.c.m.

Dissolve the silver nitrate and sodium sulphite separately in the smallest possible amount of distilled water. Slowly stir the sodium sulphite into the silver nitrate solution. When the precipitate which forms at first has redissolved, add the thiocyanate and the hypo, and finally the potassium bromide. Make up to the final volume with distilled water.

Silver solution B		
Mercuric iodine	27 grains	1.5 grams
Sodium sulphite, anhydrous	4 ounces	125 grams
Distilled water to make	4 ounces	100 c.c.m.

Just before use, mix 6 parts of A, 1 part of B, and 23 parts of water.

Instead of B a commercial concentrated single solution developer of the para-aminophenol type may be used.

Development is very slow, and may take several hours. Since it is easily watched, this is not inconvenient.

After development is complete, the negative should be washed in running water for at least half an hour.

#### SUBMINIATURE TIMES QUICKFINDER 6/95

4249. Spy Tech Hidden Camera. Tyco, the toy makers. Kid's spy camera system; includes "Secret" 110 camera, Spy Tech training manual, carrying case, mirror attachment, and "Secret" Good 'n' Plenty candy box to disguise camera. Made in 1989, but out of production. Boxed as new. Quaint, cute. \$30.00

7080. Yashica Y-16 Subminiature Camera. 16mm subminiature camera; gray enamel paint finish on body; "maroon" face plate. EX except for tiny rub mark on top edge of back, and what appears to be rough finish under paint on back, with original case. \$40.00

John S. Craig, P.O. Box 1637,  
Torrington, CT 06790  
(203) 496-9791 FAX 496-0664