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THE SUBMINIATURE TIMES

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Supporting 110, 17.5mm, 16mm, 9.5mm, 8mm, 4mm, 1mm, Microdot, and Electronic Still Photography.

UPDATE

While color film and processing for the 110 format remain universally available in ISO 200 and 400 speeds, Minox owners have two excellent mail order sources and may even be able to find service locally. Except for the P1020 electronic watch camera, all other film cassettes must be loaded by the camera owner.
Recent back issues have listed several film sources. This month we review the major services and suppliers along with a few new names.

Add Metro Sales to your list of photofinishers that handle 'large format' subminiature color film spooled in cassettes smaller than the standard 35mm: Tessina, Robot, Zenit, etc. Metro Sales, P.O. Box 5200, Bergenfield, NJ 07621.
Exhibition quality enlargement service for the the same cameras using black & white films, available from John Schaub Photographic Svcs, Box 2068 HMB, New Hyde Park, NY 11040 (516) 328-9568.
Shooters USA continues to offer processing for 'any' color film smaller than 35mm and will make enlargements up to 20 x 30' for less than $10 ea. (708) 956-1010.

'Medium format' black & white processing includes film from 17.5mm, 110, or 16mm cameras. Strophall Pro Photo, Box 1942, Greeley, Co 80632.
The single perforated 16mm films have an image area large enough for 12 x 17mm format cameras, and can also be loaded into 110 cassettes.
COLOR: Eastman Kodak's main number 1-800 242-2424 gets busy during the summer months. Dial direct to the Motion Picture & Imaging Division 1-800 621-3456 for single perf' ISO 50D Emulsion 7245 color print film. The 16mm x 100' rolls are $27.80 ea. The single perfs'are a 4-6 week special order. Call before you really need it. Also available, ISO 250D emulsion 7297 color print film. (Pricey but worth it).

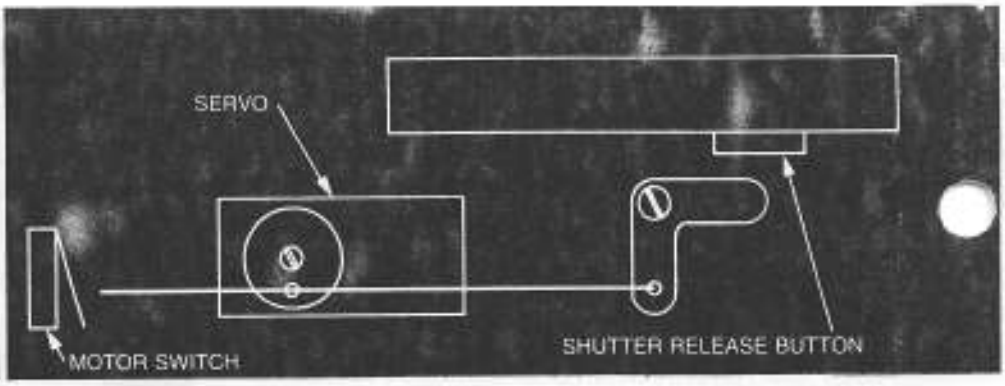
"THE COMMUNIST PARADE, SHANGHAI 1949" Photo by Sam Tata. Submitted by Patric Fitzpatrick.

BLACK & WHITE: Two emulsions available in low cost 16mm x 100' rolls. Filmdex, P.O. Box 490, Centerville, VA. 22020 (203) 631-0600.

MINOX Full service cameras-film-accessories-processing. MicroTec, P.O. Box 9424, San Diego, CA. 92169. (619) 272-8820.

(Continued on page 6)

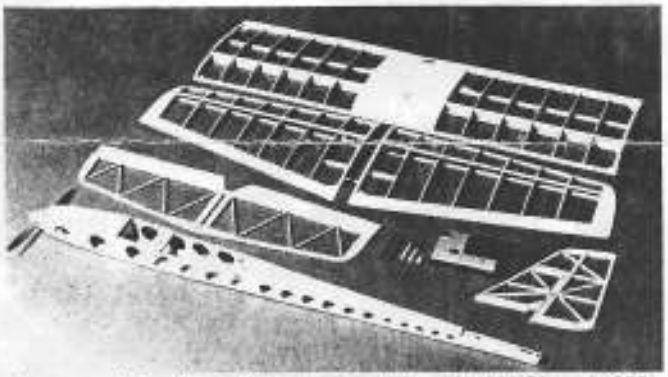
THE U-.002 FOR AERIAL DISK PHOTOGRAPHY



High throttle, high trim rotates the servo clockwise and starts the motor. Low throttle, high trim centers the servo (as shown). Low throttle, low trim rotates the servo counterclockwise, tripping the camera's shutter.

By Larry Sribnick

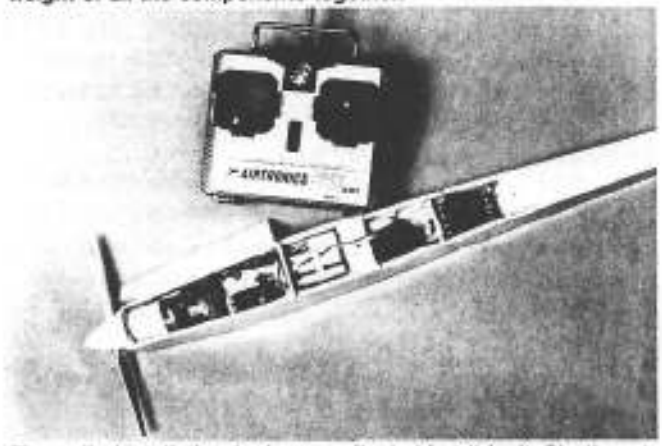
When Kodak first introduced their Disk Cameras I was lucky enough to be invited to the press conference held for the event. While the others in attendance were thinking about the impact the new



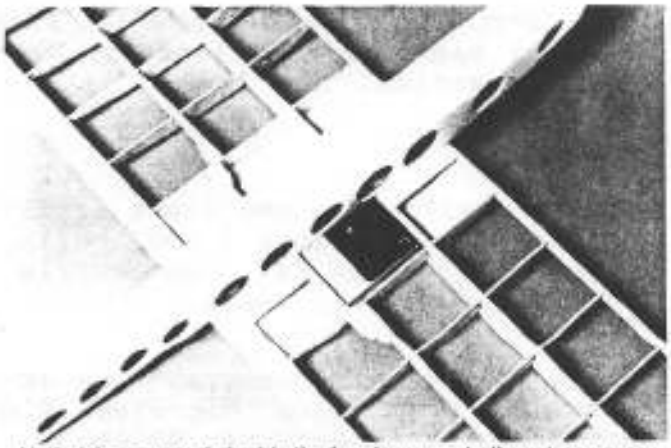
Here are all the pieces that go into making a U-.002 Olympic 650. As it turns out, the lightening holes in the fuselage aren't really necessary.

Assembled and ready for covering, the U-.002 looks very light but it takes guts to make that first launch when you feel the weight of all the components together.

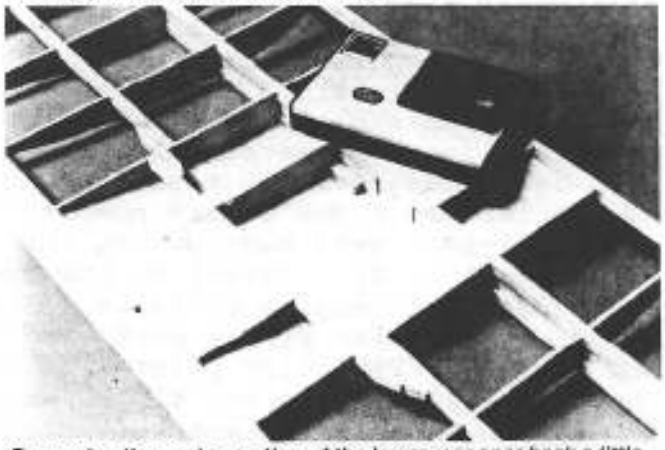
When installed, the camera projects a little over 1/2" from the lower surface of the wing. No changes in trim were noted.



The radio installation looks complicated but it isn't. Starting at the prop, you have an Astro Flight 05 XL motor, SR 450 Series square receiver pack, motor control servo which also fires camera, 8 cell SR 900 Series EP motor battery pack (for faster initial climb, a 6 cell 1200 Series is better for general use), receiver, rudder and elevator servos.



Half of the camera is inside the fuselage so a bellcrank can press on the shutter release button. The other half, with the lens, is outside the fuselage, facing down.



By moving the center portion of the lower rear spar back a little, room was made within the wing for the Kodak Disk camera.

cameras would have on the photographic field. I was thinking about the impact the new cameras might have on R/C aerial photography.

Like most modelers, I've often thought about mounting a camera in one of my planes. I've read all the articles about taking photographs from a model but it seemed that you needed a specially constructed large model if you were going to get really good results. When I thought of all the hassle involved, I always put it off until another time. Here, however, was a small, inexpensive, lightweight (5½ ounces), motorized camera that could take up to 15 photographs per flight without reloading. It was the answer to my dreams. Better yet, the configuration of the camera would allow it to be mounted between the ribs **within** the wing so no space would be taken up inside the fuselage. This meant that almost any plane could be adapted for use with the camera and if I wanted to, the camera could be easily removed and the plane used normally.

Kodak made several different models of the Disk Cameras at that time but the one I needed was the 4000. It was fully automatic, set everything for you, and it used Lithium batteries which Kodak guaranteed for 5 years to power the film advance, exposure control, and the built-in flash.

If you're going to try using a Kodak Disk Camera in your ship I strongly recommend you track down one of the model 4000 cameras as it is the one best suited to this application and Kodak made millions of them.

For a plane, I chose Airtronics' Olympic 650 because it flies great and has absolutely no bad habits. If you've thought about trying soaring or electric sailplanes you can't go wrong with an Olympic 650. Even with the extra weight of electric power and the camera, the plane flies fine and a typical flight without catching any lift is 15 to 16 minutes.

The above photographs were taken at altitudes of approximately 1,500' to 2,000'. The best time to fly is in the early morning or late afternoon because of the side lighting which gives more detail in the photographs.

The modifications made to the Oly 650 to accommodate the camera and electric motor were minor. In order to make room for the camera within the wing, I put a jog in the rear lower spar so it went around the camera. Naturally, my big concern was weight, so I also added some lightening holes to the ply fuselage sides. Now that I've seen the performance of the ship I've decided that the cutouts in the fuselage sides weren't really necessary and a much simpler way to make room for the camera in the wing would be to simply cut new notches in the bottom of the ribs so the lower rear spar could be moved back instead of making it take a bend around the camera.

Special mention should be made of the Airtronics SR Series, 4 channel radio I used. The experts told me I would have to shield the radio from the camera because of interference being sent out from all the electronic goodies and motor inside the camera. The camera was mounted directly above the receiver and antenna and there couldn't have been more than 1/2" between them. Well I didn't shield the camera and not once did the radio act up. The system was rock steady under all conditions.

For power I used an Astro Flight 05 XL motor and one of our SR 1200 Series 6 cell Max Packs. I tried a variety of props and found a 7 x 4 to be about right. Later on in the project I tried a Cobalt 05, 7 cell SR 900 Series pack, and an 8 x 3 prop which worked even better. However, the performance with the regular motor was fine.

The heart of the project was the method of firing the camera. For all of the photographs shown here I used the same servo that turned on and off the motor to fire the camera. A cable ran from the servo back to a bell crank so that when the cable was pushed, the free arm of the bell crank would move upwards pressing against the shutter release button on the camera. The controls were set up so that high throttle and high trim would turn the motor on. Low throttle would turn the motor off. And, finally, moving the throttle trim to low would fire the camera. I found out later that there is so little vibration with an electric motor that it doesn't matter whether the motor is running or not.

For this arrangement to work properly the camera has to straddle the fuselage so you have access to the shutter release button from inside the fuselage. I have since modified the disk camera so it can be fired electronically rather than mechanically. This new shutter release system means that the camera

can be mounted anywhere and a wire simply led to it. A micro switch taped to the top of a servo is all I need to trip the shutter.

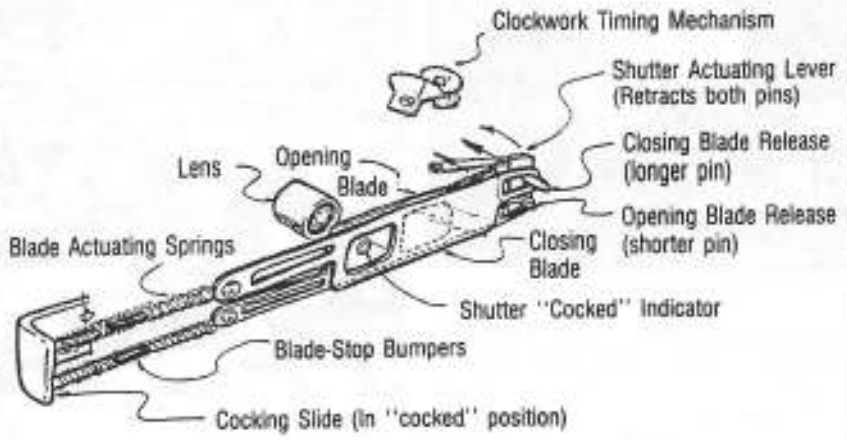
I haven't included instructions on how you can modify a disk camera yourself because poking around inside the camera can be dangerous. The electronic flash circuit utilizes extremely high voltages and the camera isn't the easiest to open without messing up the lens system.

If you try a project like this yourself, here's a tip that will help. To make sure everything is working properly you'll have to test fire the camera over and over again. The camera won't fire without film in it and feeding the camera with film could get very expensive. The answer is to waste one film disk and keep using it over and over again. When you reach the end of the disk you can turn it back to exposure one by gripping the center hub and turning it.

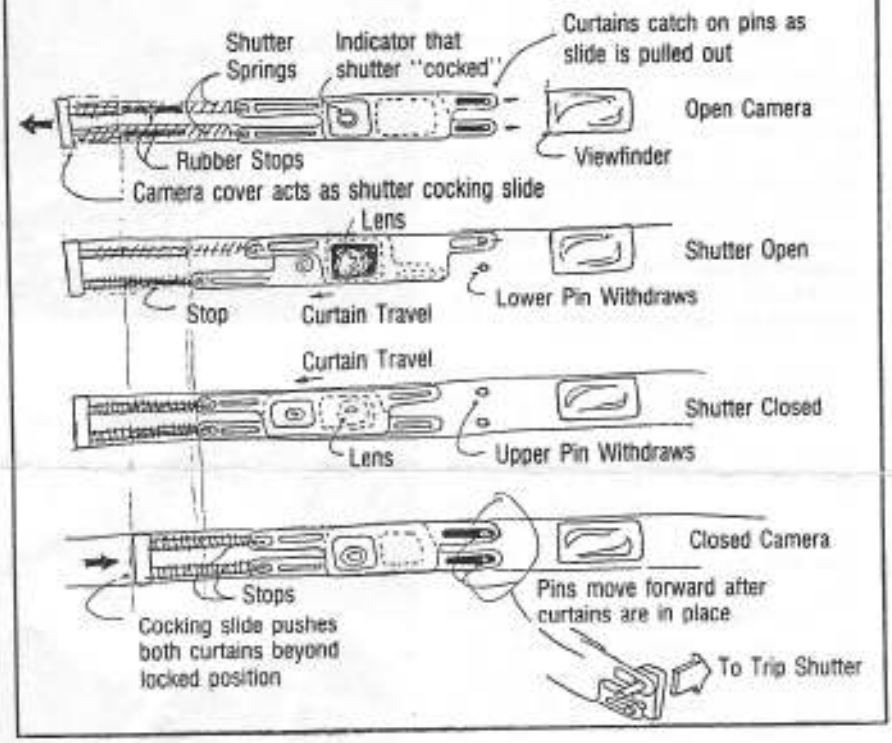
Flying the plane is easy, aiming the camera isn't! The first roll (or should I say Disk) showed 15 photographs of grass, nothing else, just grass. I found that the easiest way to aim the camera was to position myself in the middle of the area I wanted to photograph and fly overhead. In this way I have a pretty good idea of what I'm photographing.

Taking oblique photographs (on an angle rather than straight down) is a little more difficult. There is a significant time delay between the time you move the trim on the transmitter and the time the shutter actually operates and the photograph is taken. If you're aiming straight down this time delay isn't a problem, but if you're in a banked turn it makes it difficult to predict exactly where the camera will be aiming when the shutter goes off. Like most other things in life, the solution is to practice. Dry fire the camera to get a feeling for how long the delay is and then anticipate where the camera will be aiming depending on the speed of the turn. Remember, a photographer is known by what he or she shows, not what he shoots! Don't be afraid to throw away the bad ones and show the good ones. □

The Minox Shutter Operation



Minox Shutter Operation.



HOW TO REPAIR YOUR MINOX (2)

The most common complaint is that the camera has the shutter jammed. In the Minox, because of the escapement provided for opening and closing the case, (the push-pull motion) the camera will open and close but the shutter cannot be wound or tripped. The most common cause of this is the drying of the grease-like lubricant between the two metal blades of the focal plane shutter. On many occasions the camera, after sitting unused in a drawer for ten or twenty years will even fire the shutter very slowly, and clearly off the marked shutter speed, and then stop. Or in the worst case, the shutter blades are corroded or warped and simple catch, and no amount of winding and releasing will get them to slide past each other. This problem of shutter lubricant plagues all unused subminiatures with metal shutter curtains, it appears in Ataron, Acmel and even GaMi. But because of the size and precision of the Minox, it seems particularly prone to the problem. Once the shutter blades have been removed, they should be cleaned in a fine parts detergent, the old standby carbon tetrachloride was perfect for this but it is now on everyone's cancer-causing chemicals list and had to be handled with great care.

continued next issue

EDITOR'S JOURNAL

This past December I received a letter that mentioned how the general press coverage regarding subminiature photography had been so inadequate or so far off the mark with advice, it could lead novices into "quicksand". Since then, others have specifically pointed to "Mastering Black & White Photography" as a prime culprit. By mid March it was clear that your letters deserved some response on these pages.

"Mastering Black & White Photography" is published by Darkroom and Creative Camera Techniques. In its 67 pages, ten noted photographers have submitted twenty seven articles on such topics as creative control, and mastering the T-Max films; all subjects relative to producing black and white prints and transparencies. The first article in "Mastering" is a tipoff that this publication isn't intended for small format mindsets: "Zone System Photography, Prediction Consistency and Perfection" by Otis Sprow. It is questionable whether people who mix grabshots of varying contrast on the same roll of film hope to achieve perfection in the Zone System. "It needs translation" wrote Bill Schroeder, of Baltimore, Md.

The second article entitled "Achieving Fine Grain its Much More Than the Film" by Robert McQuilkin, contends "..Since grain is most apparent in middle tones, avoiding the middle shades of gray makes for finer looking prints." One subscriber pointed out "with a really slow microfilm you have to work hard just to FIND a middle shade of gray." McQuilkin concludes "..then dunk your film in Photo-Flo and hang it up." This one is a tossup. Half the people who commented on it (six) wrote that Photo-Flo makes a slick which eventually slides to the bottom of a drying roll. Instead of a few spots sprinkled randomly, you get it all on the last frame. "When I use Photo-Flo on Minox film," wrote Elton Wrobleski, of Boston, Ma. "I turn the film so that it drains toward unimportant exposures." Another writer suggested "Hold the film sideways for a while, then hang it up. This puts debris outside the live area on films 8mm and smaller." Personally, I've assumed that I could never work out the best dilution for Photo-Flo. When I stopped using wetting agents my negatives cleared up.

At the intermediate level, in an article "Film/Developer Combinations", the highest Rodinal dilution Mr. Otis Sprow tested on six popular films was 1:75. "Most of the test done with HC-110 were at dilution B. Rodinal consistently produced the most graininess. Next in line and almost indistinguishable from Rodinal in many cases was HC-110. My tests showed striking similarities between ID-11 and D-76. Between the two there were effectively no differences." The reader who caught this one admits to being 'sixtyish'. "Sprow is probably too young to remember when Ilford's R&D team was a quiet laughingstock for having invented a developer identical to Kodak D-76." However, Sprow's Rodinal/HC-110 comparison sounds valid at the dilutions used. For subminiature use, Rodinal is better thinner, and most of us use developers 'reworked' far past the directions on the package. At dilution E and beyond, HC-110 looks smoother, has better tonality, and produces higher emulsion speeds than Rodinal 1:200 (to me). But it's one of the things photographers will argue over all night.

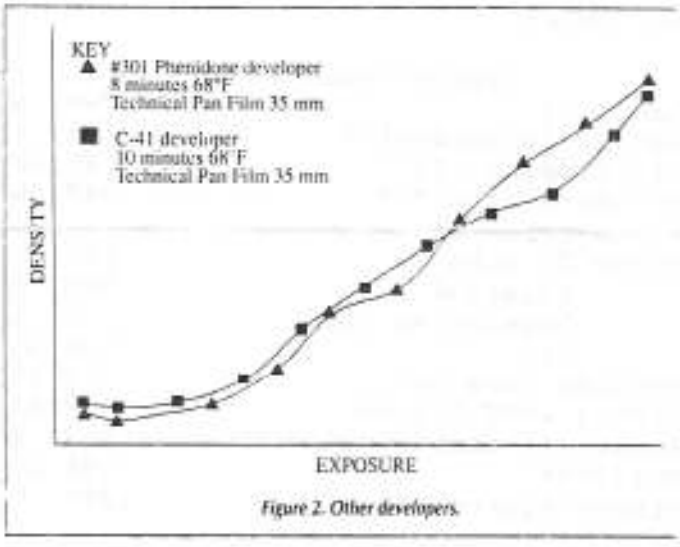


Figure 2. Other developers.

Advanced darkroom workers puzzled over a Characteristics Curve drawn by Hans F. Dietrich. Mr. Dietrich has managed to produce a second toe area midway up the slope of Tech Pan film. This can be achieved by using his developer (formula provided).

"Look Al, some poor jerk could make a zillion exposures trying to find that

spot" said William "Bill" Savage, of Springfield, VA. "Praying for magic developers to make Minox negatives look better only makes your hair fall out. My other nickname is "Baldy." Way to go Bill.

I'm not a chartist. I'm told that an undulating curve is impossible. Perhaps one of our readers can help. My attitude is that we can all learn something new every day, and if you really want to increase your options when it comes time to capture a difficult image, keep an eye open to new ideas. I've read my copy of "Mastering" twice, and I'm enjoying it, although it isn't for novices, and most of it certainly isn't for subminis. For example, "Better B&W Prints from Color Negatives" by Bob Mitchell, was very well researched. Bye bye, Panalure.

My favorite piece of advice in the magazine is this hat spinner in "Fighting Photo Flaws" pgs. 66-67: "A fiber in contact with the film when it was exposed left clear lines that print black. Opaquing was applied to the negative then washed off with a Q-Tip. The back was (then) scratched with a needle before making the print."

"Mastering Black & White Photography" Volume 1, Darkroom & Creative Camera Techniques, P.O. Box 48312, Niles, IL. 60714

QUICKFINDER 4/94

GaMi kit	$799	W
Mamiya-16 Automatic	136	A
Mickeymatic 110	25	CG
Minicord 16mm TLR	349	W
Minolta-16P	34	B
Minox EC mint	149	L
" Enlarger	275	N
" Developing tank	35	C
" 110	100	DC
Narciss 16mm SLR	550	DC
Pentax 24/2.8 lens	19	AI
Robot Jr. double motor	169	B
Rubix-16	195	CG
Stereo Mikroma-16	1250	B

A	Adorama	(212) 741-0052
AI	A & I Camera	(212) 945-1408
B	Brooklyn Camera	(718) 462-2892
C	Camera One	(813) 924-1302
CG	Columbus Cam Group	(614) 267-0686
DC	Don Chatterton	(206) 525-1100
L	Lauderdale Camera	(305) 524-9447
N	Neill Carey	(410) 742-5281
W	Woodmere Camera	(516) 599-6013

UPDATE (Continued from cover page)
Minox Processing Labs, P.O. Box 1041, New Hyde Park, NY. 11040 (516) 437-5750.

ETC. Tessina cassettes, ProFoto 128 W. 31 St. NY 10001 (212) 239-8689. RESPOOLERS lintless cotton gloves 6 pr/$4.95 B&H Photo (212) 807-7474

GEPE SLIDE MOUNTS include the new 7mm dia. for electronic watch cameras, free catalog. HP Marketing Corp., 16 Chapin Rd., Pinebrook, NJ. 07058.

INDOOR COLOR FILM 16mm x 100' Columbus Cam. Group (614) 267-0686.

FILMDEX listed earlier sells Kodak 1455 Datacapture. This ultrafine microfilm is often overshadowed in its speed range by the popular Emulsion 1461. Occasionally we hear from readers who have put 1455 through its paces. Harry Howell, of College Station, TX., likes it. "I use ISO 12.5, process it in Rodinal 1:250 + 9% sodium sulfite, 15 mins @ 78F." Emulsion 1455 is listed as #833-0896 in the Eastman catalog.

FREE CLASSIFIED

WANTED "Minolta 16mm System" by Ted Rosenburg. Minolta MK II with manual and accessories. V.M. Ouzoonian, 1565 E. Highland, Redlands, CA. 92374.

FOR SALE Two fer'. So many Pentax 110 lenses we're selling them 2 for $39. By the bunch: Lot #22 Micro-16, Yashica Atoron, Minolta-16, 16-P, and 16-EEII, all 5 for $79.
Or fix 'em up. Minox enlargers $149. Minotact Projector $79. Brooklyn Camera Exchange (718) 462-2892.

FOR SALE Stereo subminiatures: Stereo Hit, and a Lionel Linex complete kit. M. Schmidt, 6544 N. Oak Park Avenue, Chicago, IL. 60631. (312) 631-5949.

OPEN FORUM

Anyone: Did Fuji ever put out a small push-pull telescopic advance (like Minox) in 35mm, a DL-50 model?
Tom Mahon, Brooklyn, NY.