

# EXAKTA

THE MAGAZINE FOR EXAKTA PHOTOGRAPHERS

VOL. 2, NO. 2



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## *Price: 50 Cents*

As this issue of *Exakta* is being printed, all Exakta owners are being notified that the magazine is now on a paid basis. There will be no free distribution of any future issues.

For the last three years, we have brought you the latest and advance information about your camera and Exakta Photography, the absorbing experiences of other photographers, technical articles explaining the operation of your equipment and stunning and unusual pictures. We have tried to help you get more pleasure from your camera as well as give you an exceptional magazine, one that you could not buy but would if you could. Judging from reader comments, we have succeeded, although many complained that the magazine was published irregularly.

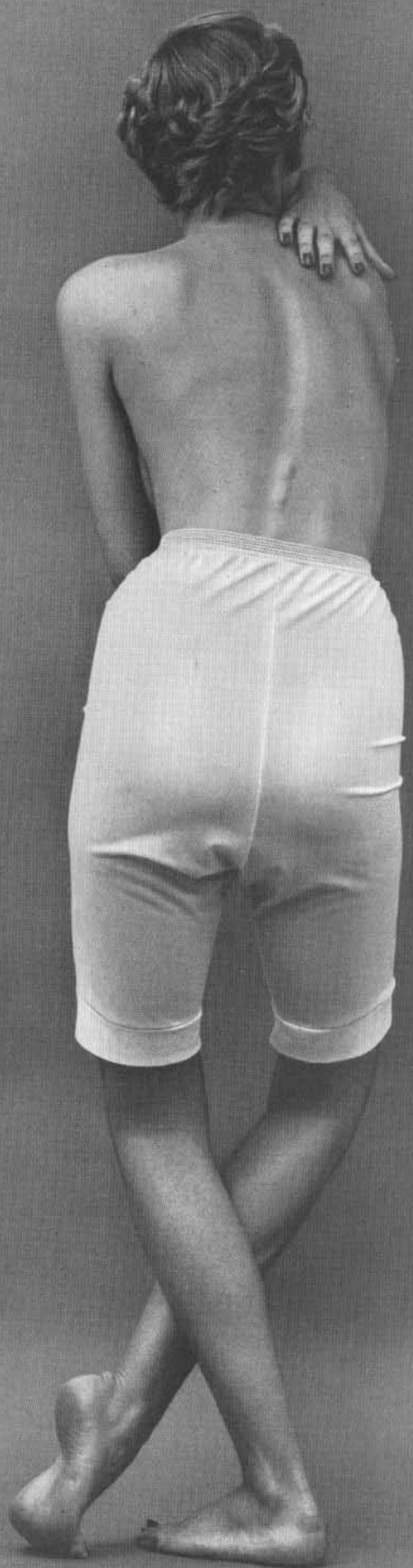
Some of the causes for this irregularity arose from our desire to give you an outstanding magazine. For instance, considerable time and money went into getting the finest paper, engraving and printing.

More time and money went into obtaining the best magazine designers to enhance *Exakta*. Such distinguished artists as Alexey Brodovitch (art director, *Harper's Bazaar*) and Leo Lionni (art director, *Fortune*), who conceived this issue, have brought their wonderful talents to the magazine.

At the same time, the magazine grew with each issue. It has quadrupled in size from the modest 12 pages of our first issue. This issue also has our first four-color section.

Our budget is now ten times that of the first issue. We want to continue the magazine in its present size and form and are willing to subsidize it to the present amount, but this means we can turn out only two issues a year. The minimum should be four issues a year. To achieve the latter, the cost must be shared. Reluctantly, therefore, we have decided to ask you to help. Our contribution will continue as before and pay for two issues; yours will pay for the other two. If you believe that the magazine is worthy of your support and should continue, please send us a letter saying so and inclose \$2 for an advance subscription for four issues. *Exakta* is your magazine. Its future is in your hands.

The Editor



## Humor In Photography

by Mark Shaw

What's so funny? Is the familiar day in and day out demand for an explanation of humor. Yet to answer this question, however superficially, and attempt to analyze humor (as I am rashly about to try) is almost certain to destroy it and, in the bargain, to brand oneself a great clutz with little or none.

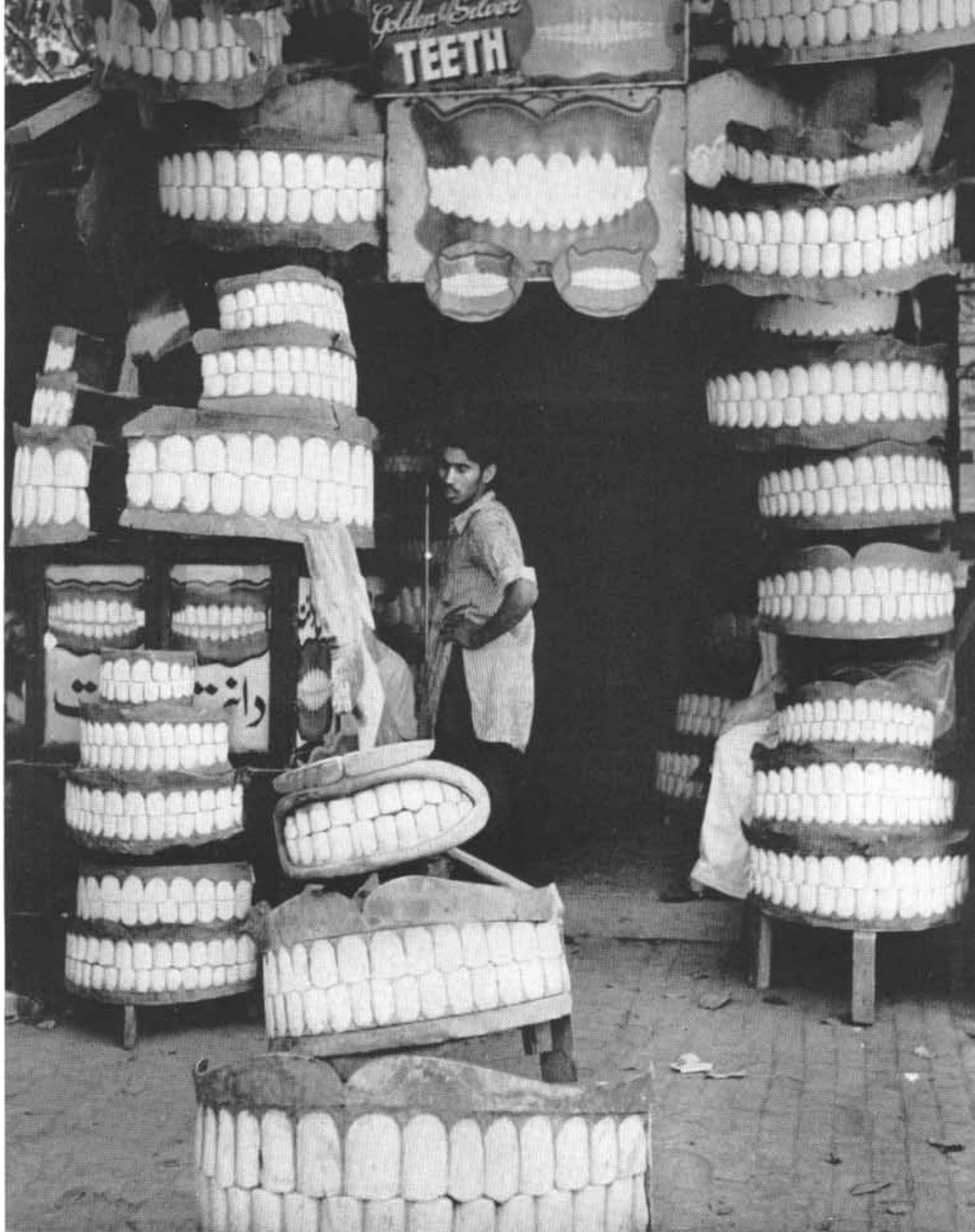
By its very essence, humor stays elusive, intangible and as perishable a commodity as yesterday's eclair. What panics one person leaves another frozen faced, and often the same person finds the things he used to consider excruciatingly funny don't strike him any longer as even mildly diverting—or vice versa—depending largely upon his own changed relation to the humorous situation.

Why people laugh is a problem I'm not sure even the philosophers have agreed upon as yet. What they laugh at is perhaps a little less complicated. Photographically, it seems to me humor relies on complete coincidence or happenstance.

A Steinberg or Steig can plan a ludicrous drawing, a composer can contemplate an amusing passage of notes. There's no such thing as the planned funny photograph, however, in my opinion, anyway. It can't be contrived.

If the picture on the left elicits a laugh, it depends on the accidental instant when a pretty girl wearing a pair of unpretty pants turned her back to the camera—and on the photographer who clicked at precisely the propitious moment. My contribution, in this case, was *selection*. I chose to record a momentary pose that

*Inelegant drawers on model, left, make photo hilarious. Picture illustrates selection, one of several ways humor can be injected into photography. Pose was not planned. Girl fell into it for an instant during a fashion assignment. Mark Shaw saw it and got it.*



*Uppers and lowers in front of store, above, were spotted by Berko, who used recognition to get humor. Klages used identification, below. He counted on viewer getting a kick out of monkey acting like a human.*

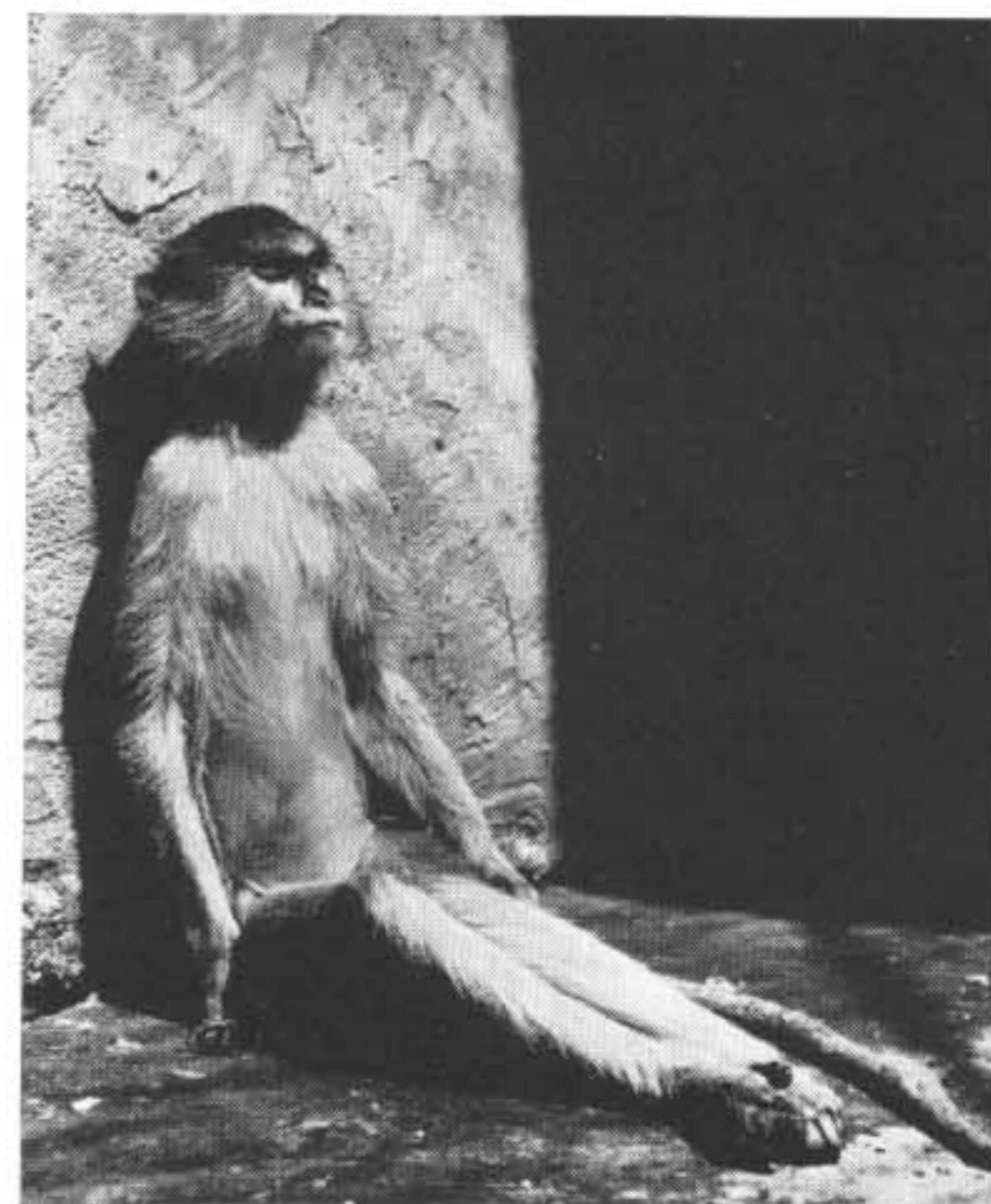
conceivably might have been lost to an untrained eye.

The picture at the top of this page demonstrates, for purposes of arbitrary classification, another, different sort of humor in photography. The droll shop of false teeth is funny to practically everyone (except, perhaps, its unhappy customers) whether caught by the camera or not. The photographer need only stumble onto the grotesque scene. His primary contribution here becomes one of *recognition*. Berko's shot is also distinguished, of course, by its careful composition and can stand on its own merits as a serious photograph.

Aside from being among my favorites, Klages too-human monkey, published by *Life* a few

years ago, illustrates a third kind of photographic humor that functions on empathy. Anyone who's ever rushed into the early summer sun, determined to tan after the damp and dreary winter, can't fail to see himself in this superior creature. His smug, upturned little face almost seems to be wearing sun goggles and his whole attitude gives the impression of saying: "Get me, fellas, I'm something special."

The photographer has skillfully made the spectator identify himself with the subject, and, therefore, has contributed *identification*. The viewer immediately puts himself in the animal's place and this sympathetic switch gives the picture punch. The result is humor, and what a welcome relief!



# Kodak Guide Numbers for Electronic Flash

In recent years, electrical discharge flash tubes have found widespread use as light sources for photography. Many such flash tubes are now available commercially in several types of lighting units. Almost without exception, these tubes contain xenon and small traces of other rare gases. Electrical energy stored in condensers is discharged through the tubes. The gases convert the electrical into radiant energy.

In general, film characteristic curves obtained from the very short exposures typical of xenon flash tubes are lower in gamma and have a longer toe than curves obtained from exposures at the usual camera levels. (*Gamma is a numerical expression of development contrast or degree of development—Ed.*) As a general recommendation, then, all black-and-white negatives exposed to xenon flash sources should be developed 50% longer than normal.

Table I contains exposure index values for Kodak 35-mm. black-and-white films when xenon flash sources are used. This information is required for using Table II. The indexes are proportional to the relative sensitivities of the film.

Table II contains exposure guide numbers tabulated for several xenon sources operated at various power input levels. It is important to note that these values apply only when the negative films are developed 50% longer than normal, and when the subject and surroundings are average.

To use Table II, select the proper guide number for the film and equipment from Table I. If the watt-second rating of the equipment (*available from the manufacturer*) falls between two of the values listed, use an intermediate guide number. Divide the guide number by the lamp-to-subject distance in feet. The answer is the f-stop or lens aperture for average subjects.

A variety of electronic flash tubes and equipment is on the market today. Looking at a bewildering array of technical data, you might think that there would be variations in the color quality of the light. However, the Kodak Research Laboratories have found no significant color differences among the representative units tested. The reason for the lack

**TABLE I. Film Exposure Index (Speed Rating) with Xenon Flash**

Type of 35-mm Kodak Film	Exposure Index (Xenon flash)*
Super-XX Panchromatic	80
Plus-X Panchromatic	40

\* For development time 50% longer than normal

of variation lies in the fact that the xenon gas, which is used to fill almost all flash tubes, seems to determine the color of the light emitted when the stored-up electrical energy is converted to radiant energy.

The exposure of Daylight Type color films by electronic flash requires the use of filters for two reasons. First, the color quality of the light from a xenon flash tube is not exactly the same as that of daylight. Second, and perhaps more important, exposures are so short that the normal speed relationships of the three sensitive layers in the film are upset. The over-all speed of the film is usually reduced as well.

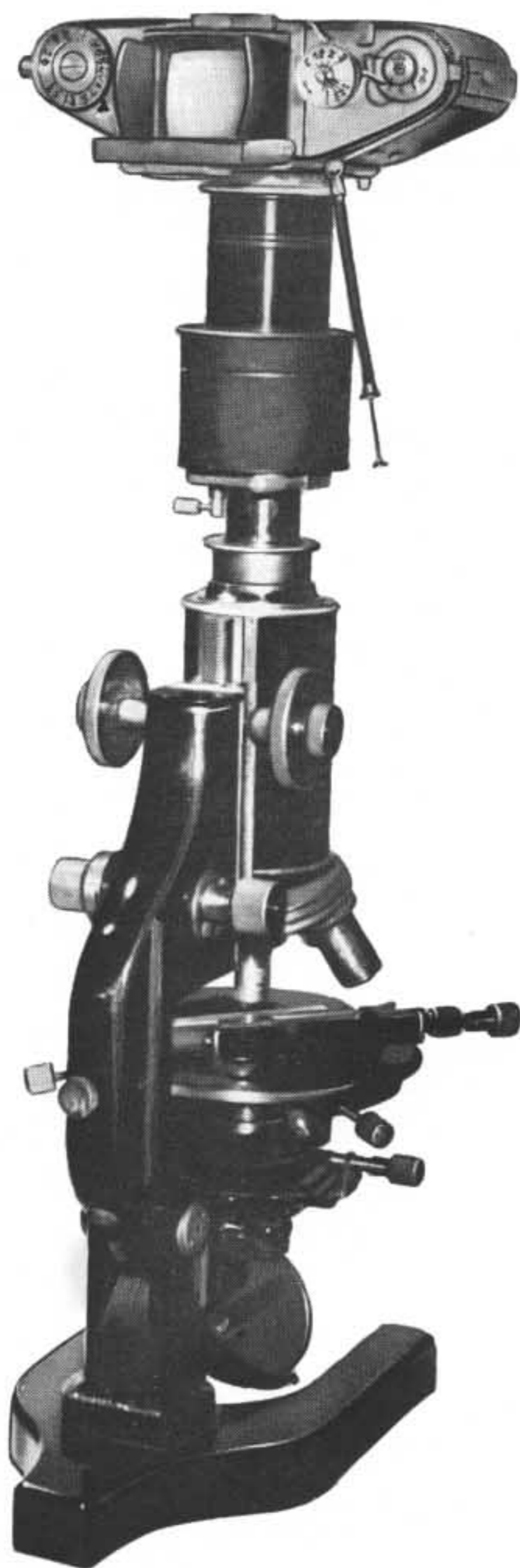
One word of caution: If you're using electronic flash now and getting good results with your equipment and operating conditions, go easy on making changes.

**TABLE II. Kodak Exposure Guide Numbers for Electronic Flash Units**

Power Input Levels of Electronic Flash Units		Guide Numbers (for Xenon Flash) by Film Speed Ratings																	Guide Number for Kodachrome Daylight Type Film with a Wratten No. 81EF Filter		Reflector Factor
		4	5	6	8	10	12	16	20	25	32	40	50	64	80	100	125	160	200		
Portable speedlamps with FT220 sealed beam lamps	60 watt-seconds	15	17	19	22	25	28	30	35	40	45	50	55	60	70	80	90	100	110	15	6.0
	100 watt-seconds	20	22	24	28	30	35	40	45	50	60	65	75	80	90	100	110	130	140	20	6.0
Studio-type units with large satin-finished reflectors (average value) 100 watt-seconds																				18	4.5
Kodatron Color Speedlamp 150 watt-seconds power pack only	with narrow beam reflector	22	25	28	32	35	40	45	50	55	65	70	80	90	100	110	120	140	155	22	4.5
	with large bowl studio reflector	30	35	40	45	50	55	65	70	75	90	100	110	125	140	155	180	200	220	30	9.0
Kodatron Studio Speedlamp with large bowl reflector (224 watt-seconds)		40	50	60	70	80	90	100	110	120	130	140	160	180	200	225	250	300	350	45	9.0
Kodatron Color Speedlamp—power pack and one condenser bank (1,000 watt-seconds)	with narrow beam reflector	65	75	85	95	105	120	135	150	160	175	200	230	255	300	320	360	420	475	65	4.5
	with large bowl studio reflector	90	100	110	125	140	160	180	200	230	250	290	320	355	400	460	500	560	630	90	9.0
Kodatron Color Speedlamp—power pack and two condenser banks (1,872 watt-seconds)	with narrow beam reflector	90	100	110	125	140	160	180	200	230	250	290	320	355	400	460	500	560	630	90	4.5
	with large bowl studio reflector	125	140	155	175	200	225	250	280	325	350	400	450	500	560	630	700	800	900	125	9.0
Kodatron Color Speedlamp—power pack and three condenser banks (2,730 watt-seconds)	with narrow beam reflector	110	125	140	160	180	200	225	250	280	320	355	400	450	500	560	630	700	800	110	4.5
	with large bowl studio reflector	160	175	200	225	250	280	315	350	400	450	500	560	630	700	800	900	1000	1100	155	9.0
Sun flash (10,000 watt-seconds)																				240	4.5

## Third-dimensional Photomicrography

by W. Faitoute Munn, F.R.M.S.,  
Consulting Microscopist, Evans  
Research and Development Corp.



Throughout the last 350 years, the microscope has served as one of the most versatile and powerful tools available to science. Many of its early faults have been corrected by numerous optical refinements over the years. However, one shortcoming that has always plagued microscopists is that a microscope transmits only a two-dimensional image.

This shortcoming makes a considerable portion of a microscopist's conclusion doubtful when the structure of material is studied. Every microscopist realizes that an apparently smooth surface often becomes a mountainous landscape when highly magnified. Nevertheless, he is forced to interpret mentally what he sees because the image received by his eye, or by film if he photographs it, is only two-dimensional.

Surface contours and angle edges of crystals, the "hills and valleys" of vegetable and animal fibers, and the structure of many biological specimens often appear indistinct, if they are visible at all, when examined by this two-dimensional type of resolution. This is particularly true when very transparent, stained or unstained, organic or inorganic material is being scrutinized.

As a result of a recent invention, startling in its simplicity, however, it is now possible for a microscopist to obtain a much clearer idea of the nature of the surface of various objects under

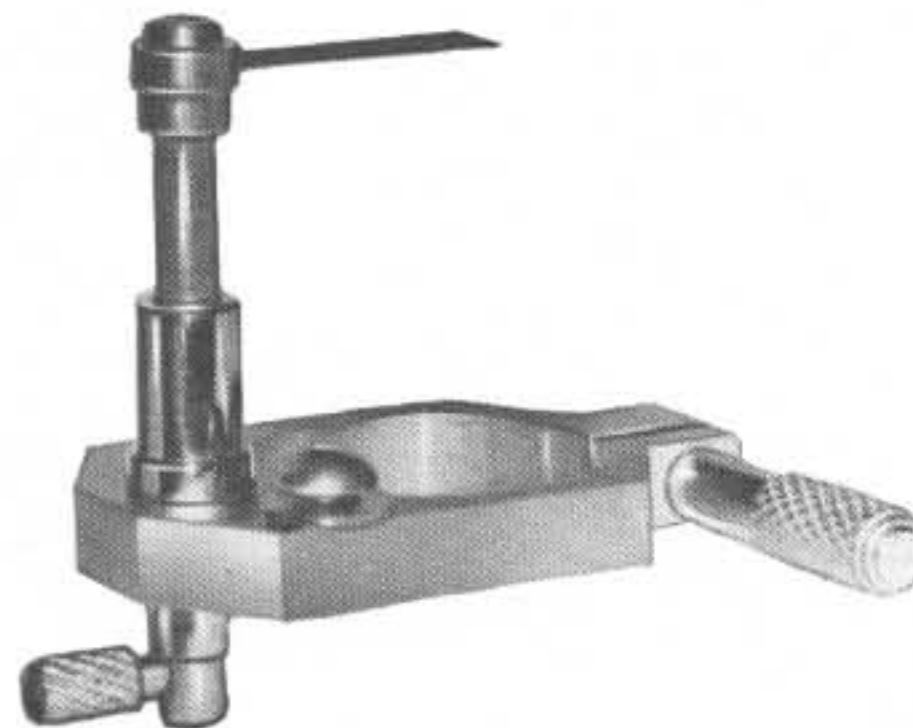
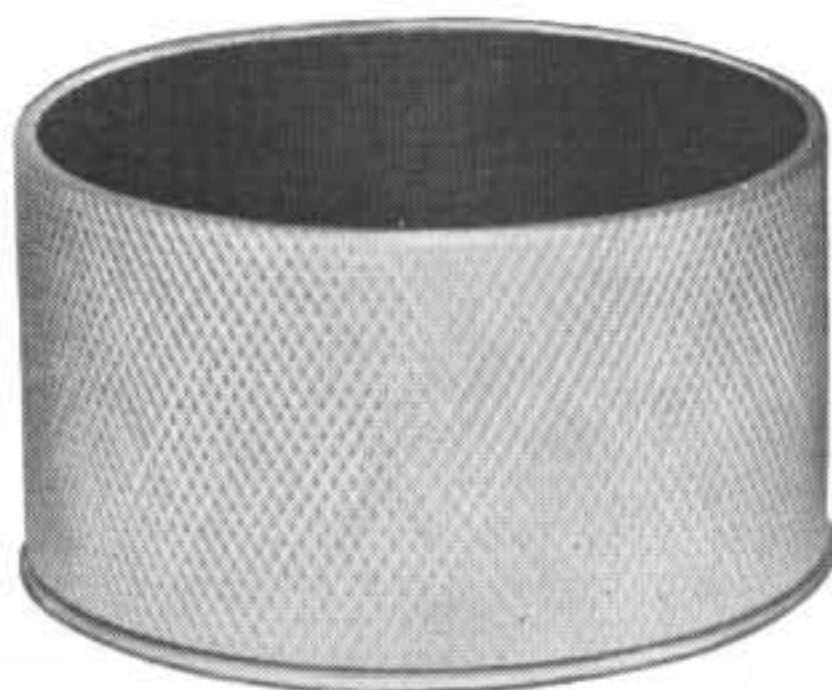
a microscope. This invention, the Munn Relief Illuminator, used with a monocular microscope and an Exakta, produces an image with a three-dimensional effect both in visual observation and in a photograph. Thus, at last, the third dimension has been added to the microscope.

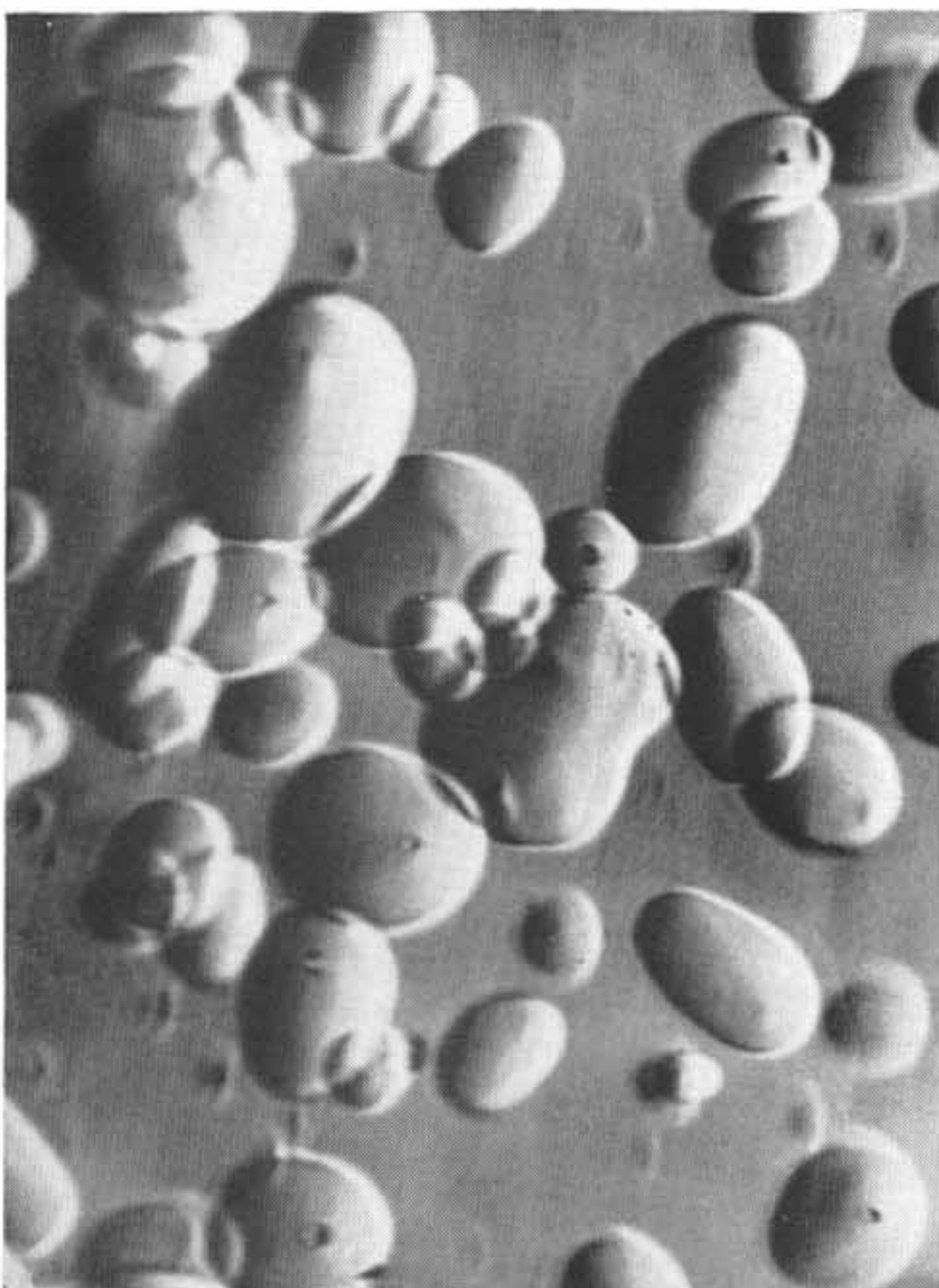
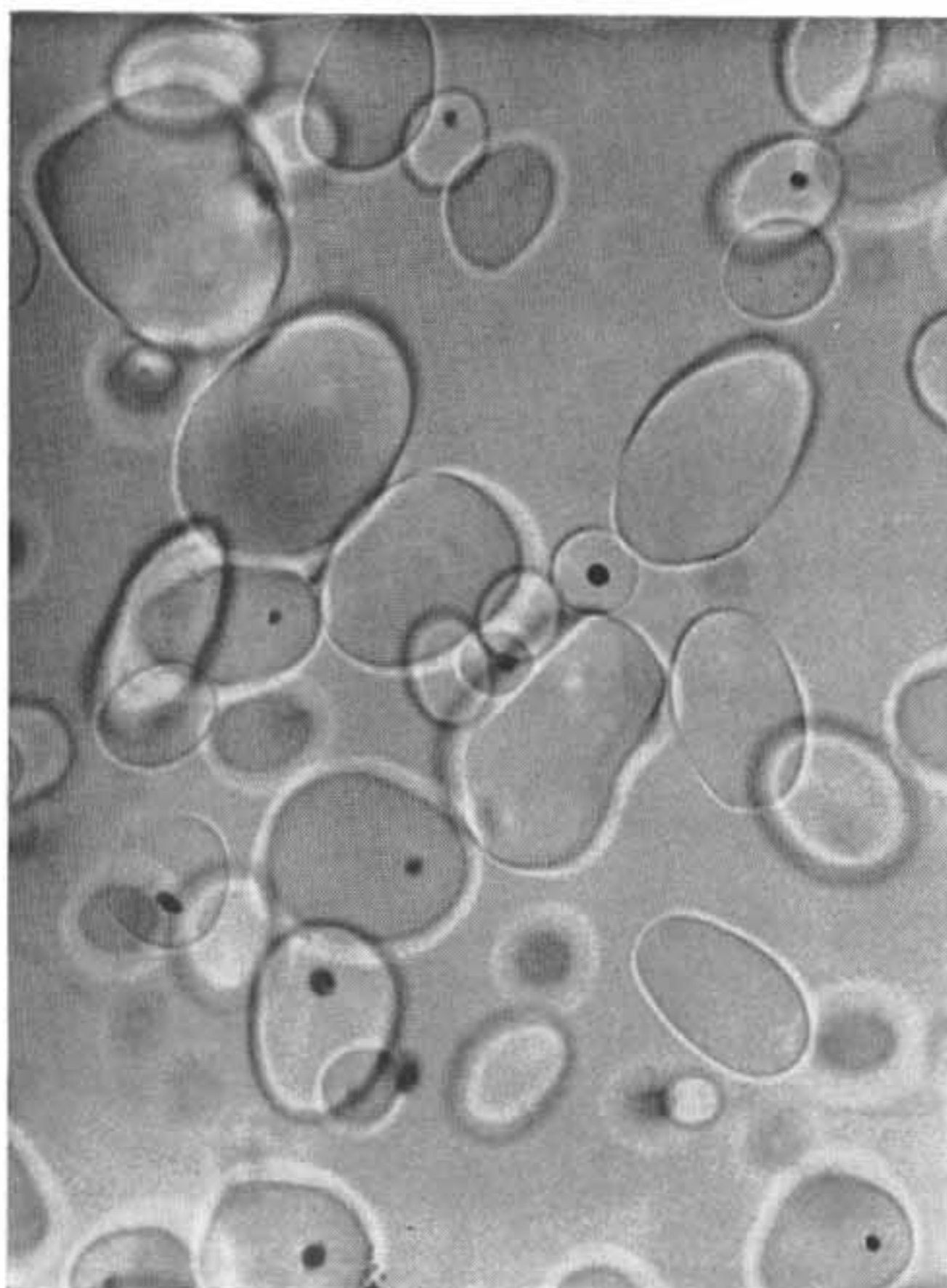
Since the invention of the microscope late in the 16th Century, innumerable improvements in the optics and mechanics of the instrument have been made and incorporated in the design of the modern unit. In addition to improvements in the microscope itself, many accessories have been devised to be used with it, especially for illumination. Some of the better-known methods of lighting subjects are oblique, dark-field, critical and polarized light. The vertical illuminator, either with glass reflector or prism, is another device that has been useful, especially to the metallurgist who wishes to observe the structure of alloys.

Each of these methods has certain virtues when used to observe specific objects, but they all have one drawback in common. None of them is useful in discerning surface detail or structure of transparent or semi-transparent material. This limitation is true regardless of whether the object is organic or inorganic, stained or unstained, treated or untreated.

This limitation does not apply to the Munn Relief Illuminator.

Munn Relief Illuminator, shown at right, is first invention to provide an image that has a three-dimensional effect both by visual observation and by photography through a monocular microscope. On right is base with knife-edge that creates the effect, left is light shield for photography to link microscope with camera. Above, set-up with Exakta and microscope.





When this device is used, transparent and semi-transparent specimens can be viewed and photographed with a third-dimensional effect. The eye and camera see a detailed picture of surface structure, including depressions, grooves, elevations, striations, imbrications and other irregularities. The contrast between an ordinary photomicrograph and one taken with the Relief Illuminator on the microscope is clearly shown in the pictures at the left.

The Relief Illuminator employs a principle that is essentially simple although it has not been previously recognized. The device is illustrated at the bottom of the opposite page.

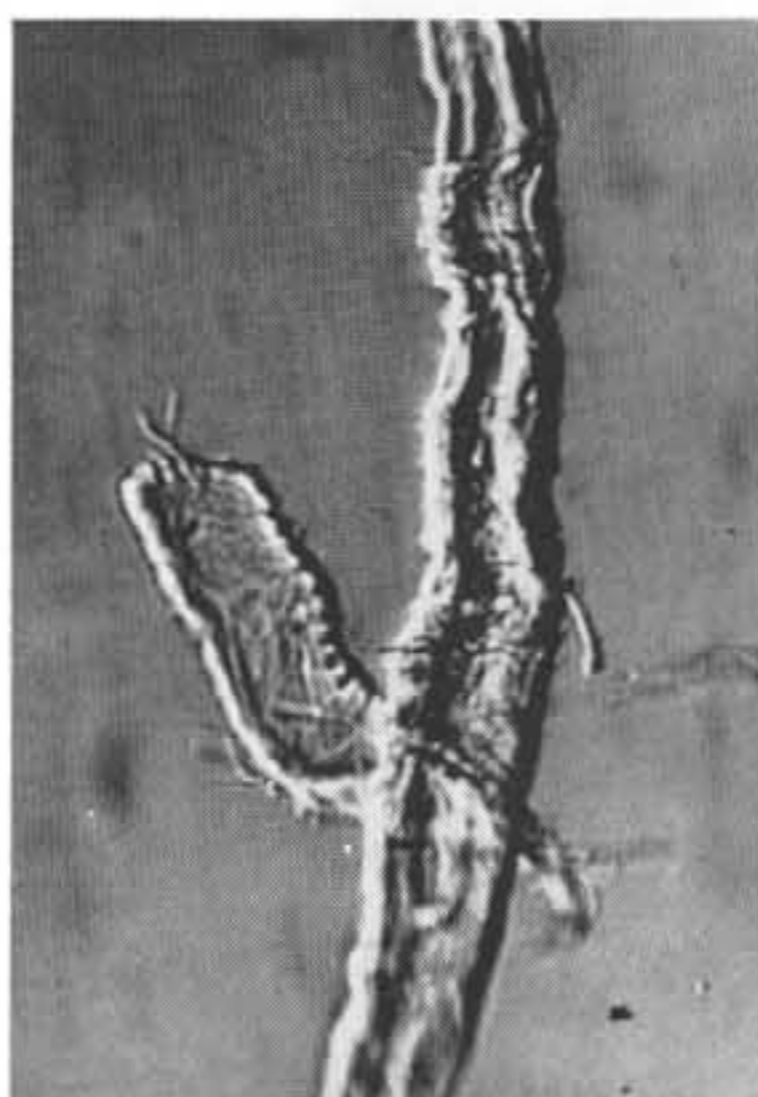
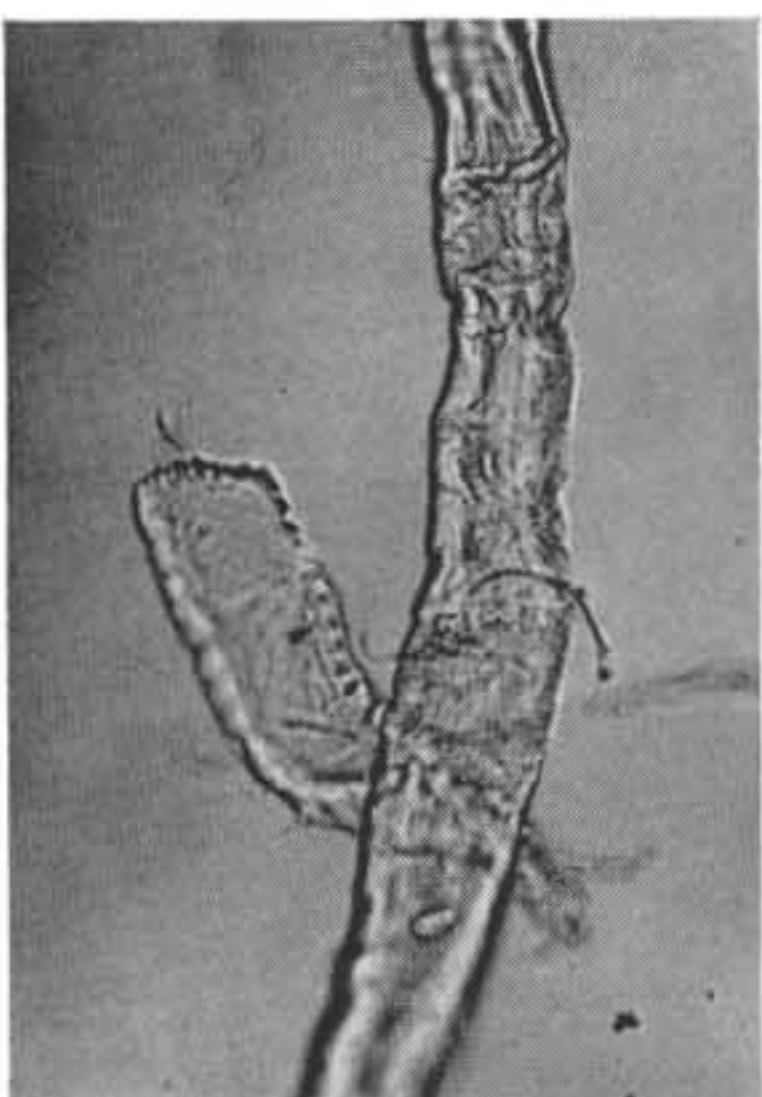
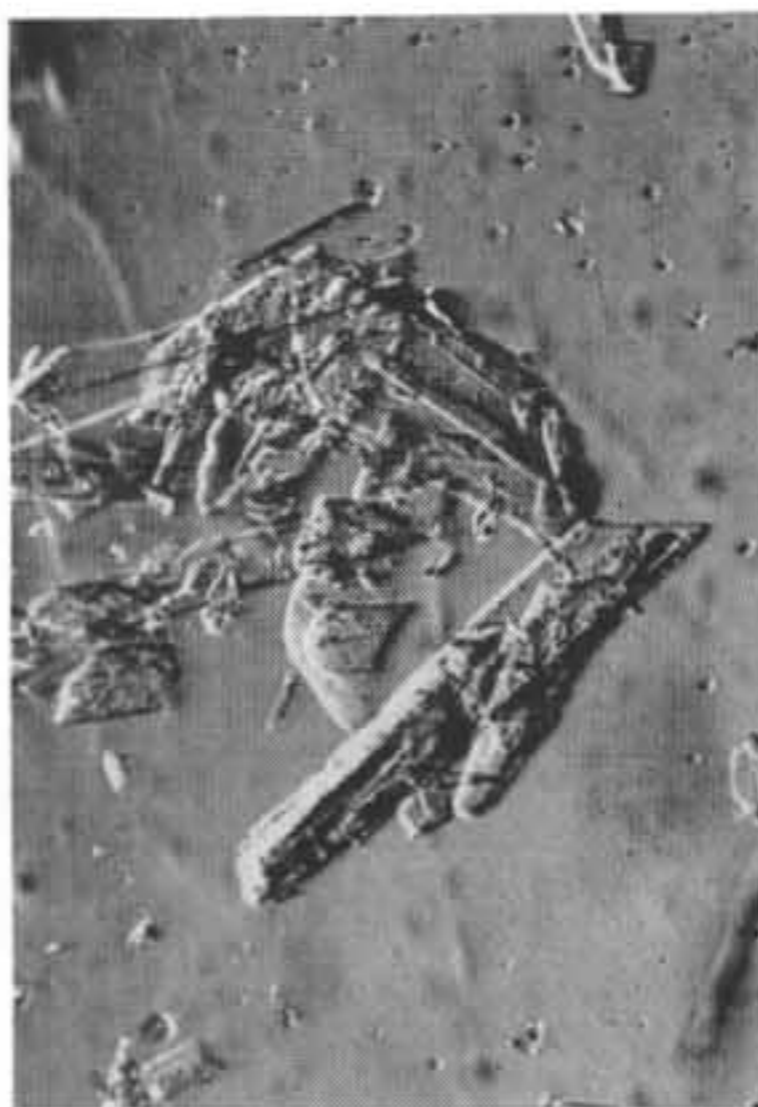
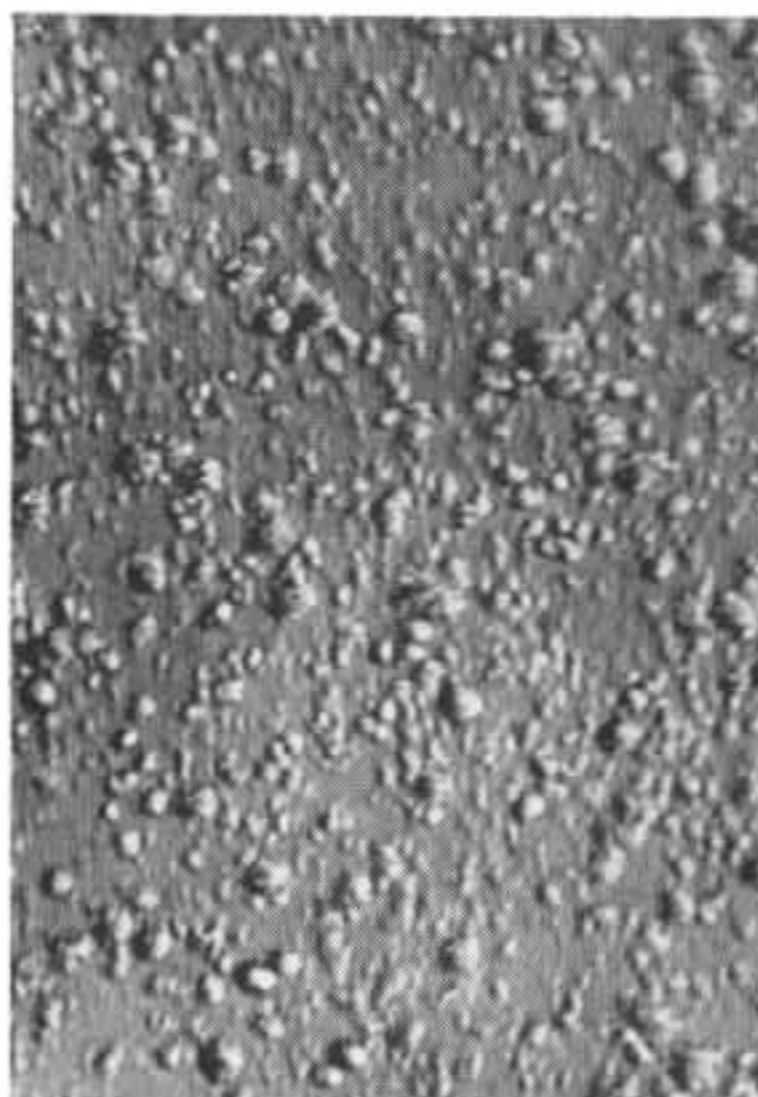
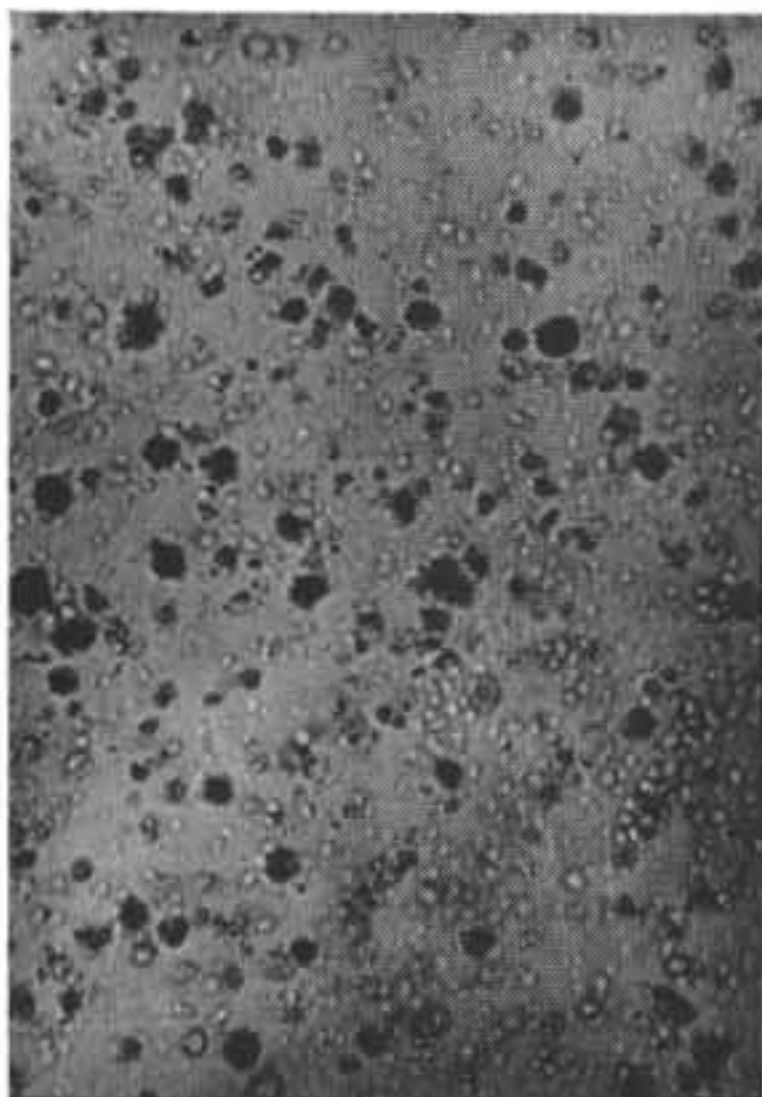
The Illuminator consists of a mechanism holding a small knife-edge at a point between the eyepiece and the camera. The mechanism is arranged so that a delicate adjustment can be made, after which the knife-edge will maintain its given position. The adjustment of the knife-edge is made so that it is at the height of the focal point of the cone of rays issuing from the ocular (eyepiece of the microscope) and so that it impinges slightly on the back of the focal cone.

This important point of intersection of light rays is also known as the "Ramsden circle," "Lagrange disc," "eye point" or "exit pupil." When the correct adjustment has been made, the two-dimensional visual image is immediately transformed into one that has three-dimensional effect.

The Illuminator can be thrown out of use instantly by moving the knife-edge. This eliminates the necessity of removing the entire device from the microscope. Thus, it is simple to contrast the images with and without relief illumination.

As in any work with the microscope, the importance of the light source cannot be overemphasized.

*Startling difference Relief Illuminator makes is shown in two photomicrographs at left and above. The water-spotlike specimens in top picture and the puffed-wheat like ones in photo at left are starch grains and identical fields. The only difference in technique of taking both photos is that the knife-edge of the Illuminator was swung out of position for the top picture and into position for the bottom one. Contour can be seen easily in one below. Magnification of these pictures is about 425x.*



Critical illumination is the preferred technique with the Relief Illuminator, preferably arranged so that the iris diaphragm in front of the light source is focused sharply in the field of view when the sub-stage condenser is in focus on the specimen.

Furthermore, apochromatic objectives and compensating eyepieces are recommended for sharper definition and greater perfection of image, in line with usual microscopic technique. If it is necessary to use achromatic lenses, good images can be produced by using a green filter. If the color of the specimen makes green light objectionable, a yellow filter may be helpful. Either low or high power objectives can be employed. No special objectives are necessary.

Relief illumination is a straightforward technique of direct observation without need for any special, elaborate, time-consuming preparation of the specimen and without distortion of the image. The eye of the observer receives the same image as the three-dimensional effect recorded on photographic film. If a permanent record of the image is desired, the photomicrograph is made by the usual procedure, using only a single exposure and print.

Relief illumination should not be confused with the several indirect methods that have been devised in the past for obtaining three-dimensional effects. In the "replica" technique, an impression of the specimen is first made. It is this "cast" which is then photographed. Aside from the fact that the specimen itself is not observed, there are other serious limitations to the general applicability of this time-consuming technique. When it is used properly within its limitations, the results are accurate.

The same cannot be said for the "bas-relief" technique, which employs a photographic trick to obtain a three-dimensional effect. The result is obtained by making a photographic print from superimposed, off-register positive and negative film. The picture, although giving the illusion of three dimensions, is far from an accurate rendering.

One of the fields in which the Munn Relief Illuminator has already achieved success is the study of fibrous material, such as cotton, wool and cellulose. Another is chemical microscopy, in

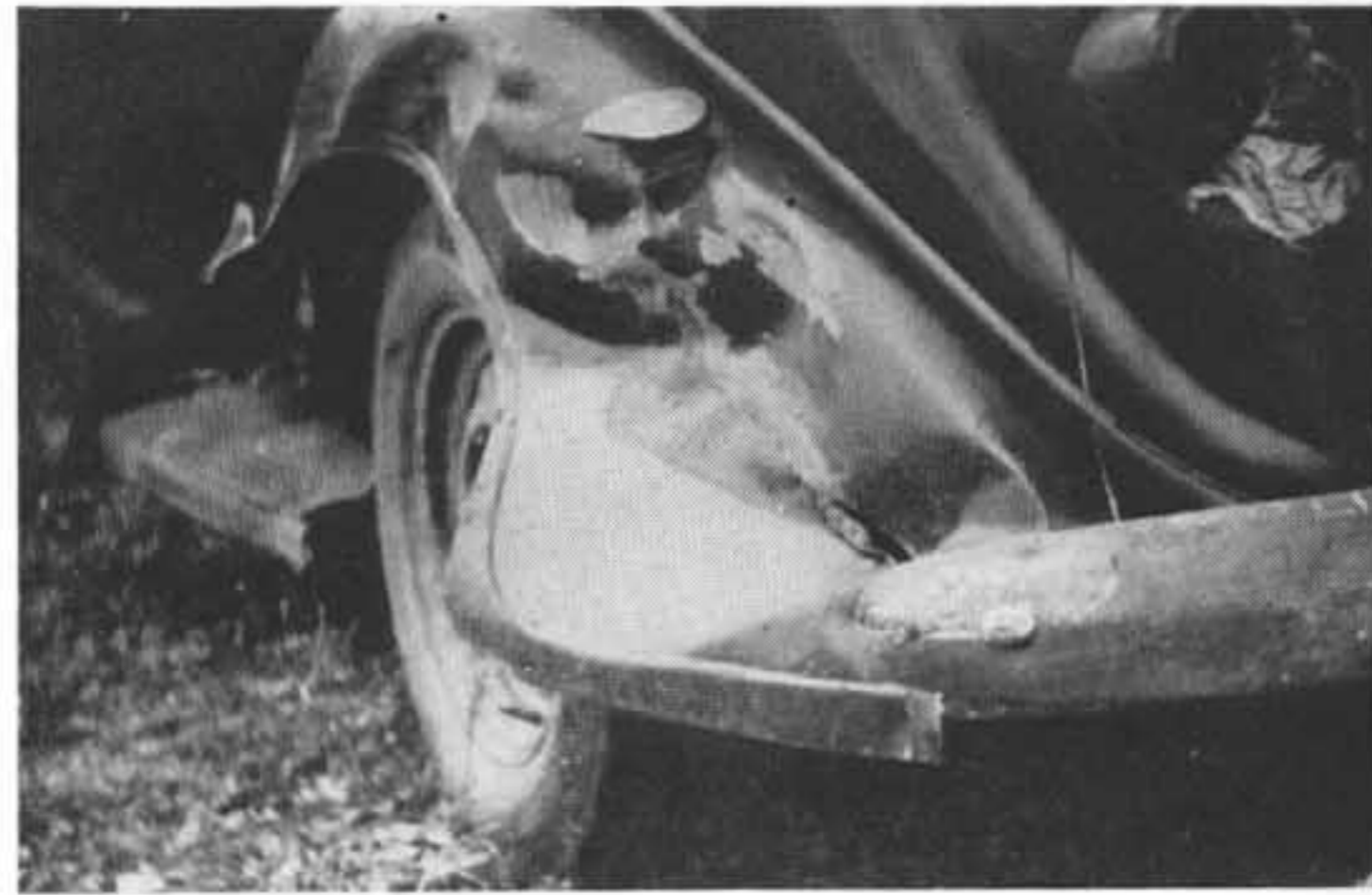
*Continued on Page 35*

*Surprising third-dimensional effect shows in these contrasting photos. First row, heavy chalk; second, Vitamin B<sub>1</sub> crystals; third, wood pulp cellulose.*

*Bashed-in fender of car above proves nothing in a black-and-white photo, but a color shot from which the black-and-white was made won a case for the author by showing color of fender was identical with paint on bumper of car that hit it.*

## Color Photos as Evidence

*by Paul D. Williams, Buffalo, N. Y. Attorney and Instructor, University of Buffalo Schools of Law, Medicine and Pharmacy*



Photographs have been used in litigation for many years. Usually, these have been 5x7-inch, black-and-white contact prints or, in some cases, 8x10 enlargements. They have explained to the court and jury what hundreds of words could not adequately describe.

While black-and-white photos have been of great help, they have left gaps in the presentation of facts that only color pictures can fill. There are many cases in which only a color photo can provide honest and correct portrayal of the legal issue.

I specialize as a trial lawyer in the presentation of intricate cases frequently referred to as medico-legal. An Exakta and Kodachrome film are of great help to me in my work because I can make color slides that are acceptable in court as evidence.

The Exakta is so far advanced over other miniature cameras, particularly because of the absence of parallax, that it is the natural selection for this specialized type of photography. The available lens equipment makes it the ideal working equipment for my practice. Kodachrome is important, too, because it is inde-

pendently processed. This fact is important to the court.

In a recent case, I represented a young man seriously injured by a car which allegedly struck the rear of my client's car while he was pushing it on a lonely road in an attempt to start it. The driver of the offending car, in his statement to the police, said he was not certain his car had struck my client's car.

A color slide of the defendant's car to show its color and another slide of my client's car and bumper demonstrated beyond doubt that the blue paint was the same.

In examining a black-and-white print (above) made from the color slide, it is obvious that the former proves nothing. For all that the jury might know, the mark on the left rear bumper might be rust or discoloration of any type or color.

In another recent case, I represented a widow of a garbage handler who died as a result of a lung abscess. Medical knowledge indicated that the infecting material was rotting garbage. The problem was to prove that the infection was a result of the man's occupational exposure. The de-

fense of the employer was, briefly, that the man did not come into contact with rotting garbage.

I asked for a delay in the hearing so I could prove that householders did mix garbage with stove and furnace ashes, despite a city ordinance prohibiting such mixing. A series of color slides taken under adverse light conditions early in the morning under a grey sky and with snow falling proved beyond doubt that many people did violate the ordinance and mix garbage with ashes. The color photos (black-and-white reproductions are shown below) show the garbage to be comprised of orange peels and similar material, clearly different in composition than the grey ashes and cinders. The black-and-whites do not establish this.

It is extremely important in photographing for legal evidence to take exactly that part of the subject that proves the point and avoid any additional, distracting material. The fact that the Exakta image is the same as what the film gets is of tremendous value in composing pictures for litigation. No other small camera does this work so effectively.

*Decaying garbage photos also won a case for author. Pictures show how closer you get, more detail shows.*



## Lightning Photographs in Color

by Hiram W. Austin

My hobby is photographing the weather, especially lightning. There is nothing so dramatic and bold as a storm sky, and color photographs of a lightning storm are equally as powerful.

You cannot snap a picture of lightning. That may sound odd to many people, but lightning is its own photographer. If you arrange your camera properly at the right time and place, lightning will take its own picture.

Black-and-white lightning photography is simple. You mount your camera on a tripod or some other steady device like a box, point the lens in the direction from which you think the flash will come, close the lens down as far as it will go, open the shutter on time, wait until the flash comes, then close the shutter. Black-and-white lightning shots are not nearly as exciting and beautiful as color, however, although exceptional color shots are a little harder to take.

To begin with, you use daylight color film, which cannot be exposed for any length of time without spoiling the frame. An exposure of three or four minutes would wash out practically all of the color on the film. If you got a picture on the frame, you would not be satisfied with it.

The best way to take color pictures of lightning is to wait until a storm breaks during the late afternoon or after dusk. Even better is a storm after dark. Then, extended exposure does not affect the film.

Point your camera in the general direction of the thunderstorm, particularly at the part of the cloud that seems to discharge the most bolts. Mount your camera on a tripod, naturally, and use a cable release to open and close the shutter.

Set your camera on time. Focus at infinity, of course, and open the lens to its widest point—that is, to f/1.5, 1.8, 1.9, 2, 2.5, 2.8, 3.5, 4, 4.5 or whatever is the widest aperture of the lens you are using. Then any bolt that strikes within the range (angle of view) of your lens will register.

It is possible to take more than one lightning flash on a film frame, as I did in the picture at the bottom of the opposite page and top and bottom right of page 12. During a violent storm I once caught eight strokes on one frame. There are two methods of taking multiple lightning shots. If the flashes are coming with

only slight intervals between them, you can leave your shutter open for a short period of time until several flashes have occurred. If they are coming intermittently with long intervals between, you can close the shutter and open it again whenever you feel another flash is coming by means of the double exposure control of the Exakta.

*(Multiple exposures can be taken with the Exakta by winding the fast-exposure knob counter-clockwise until it clicks and locks into position. The film-transport lever must not be moved until you are finished with all your exposures. Winding the fast-exposure knob cocks the shutter, as can be seen on the viewfinder ground glass where the subject image will appear as soon as the shutter is cocked.—Ed.)*

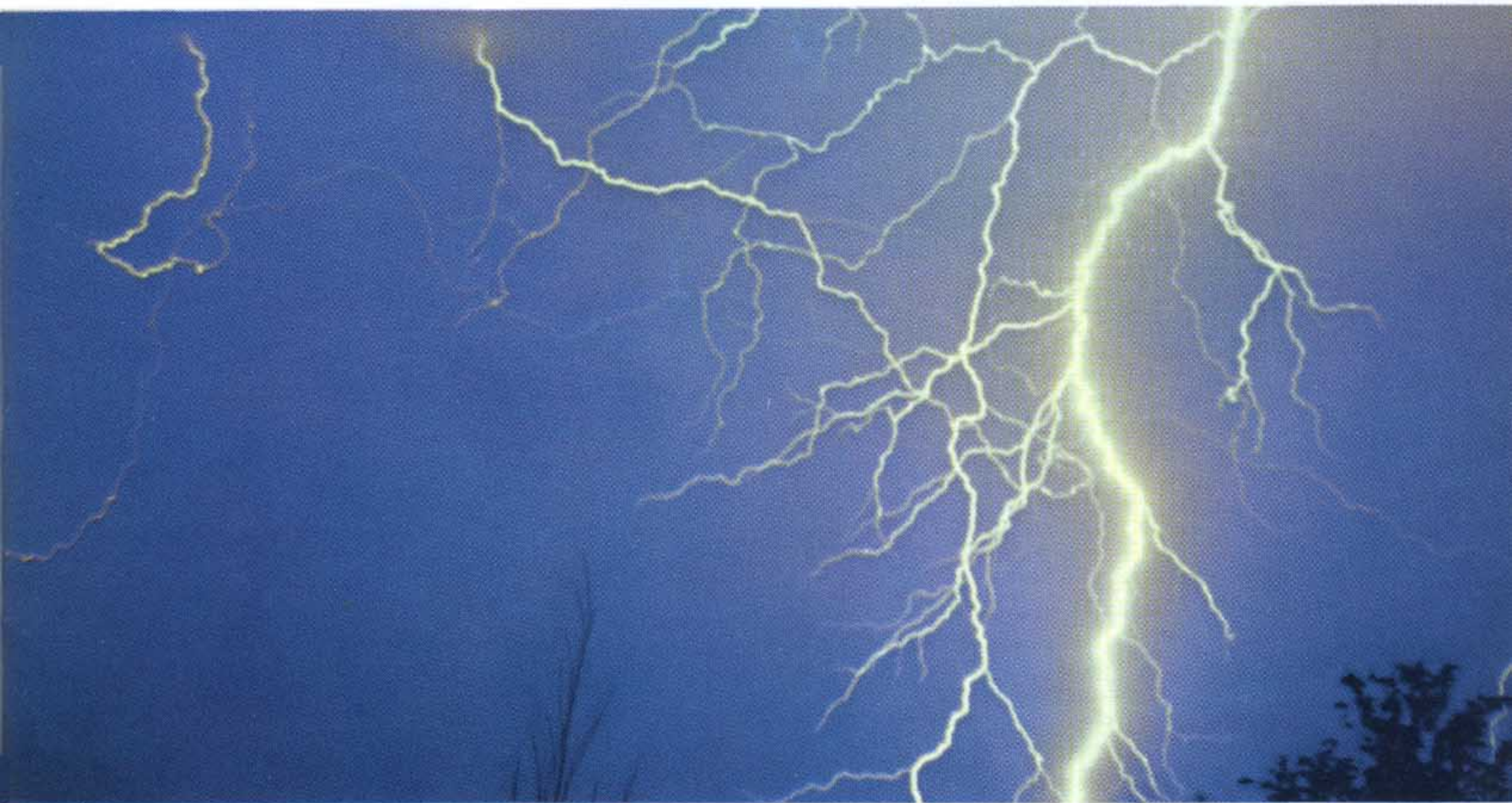
If you intend to take multiple exposures, naturally, you will close down your lens aperture. About f/5.6 or f/8 would be right, but it's a good idea to make tests for your own camera and setup to make certain.

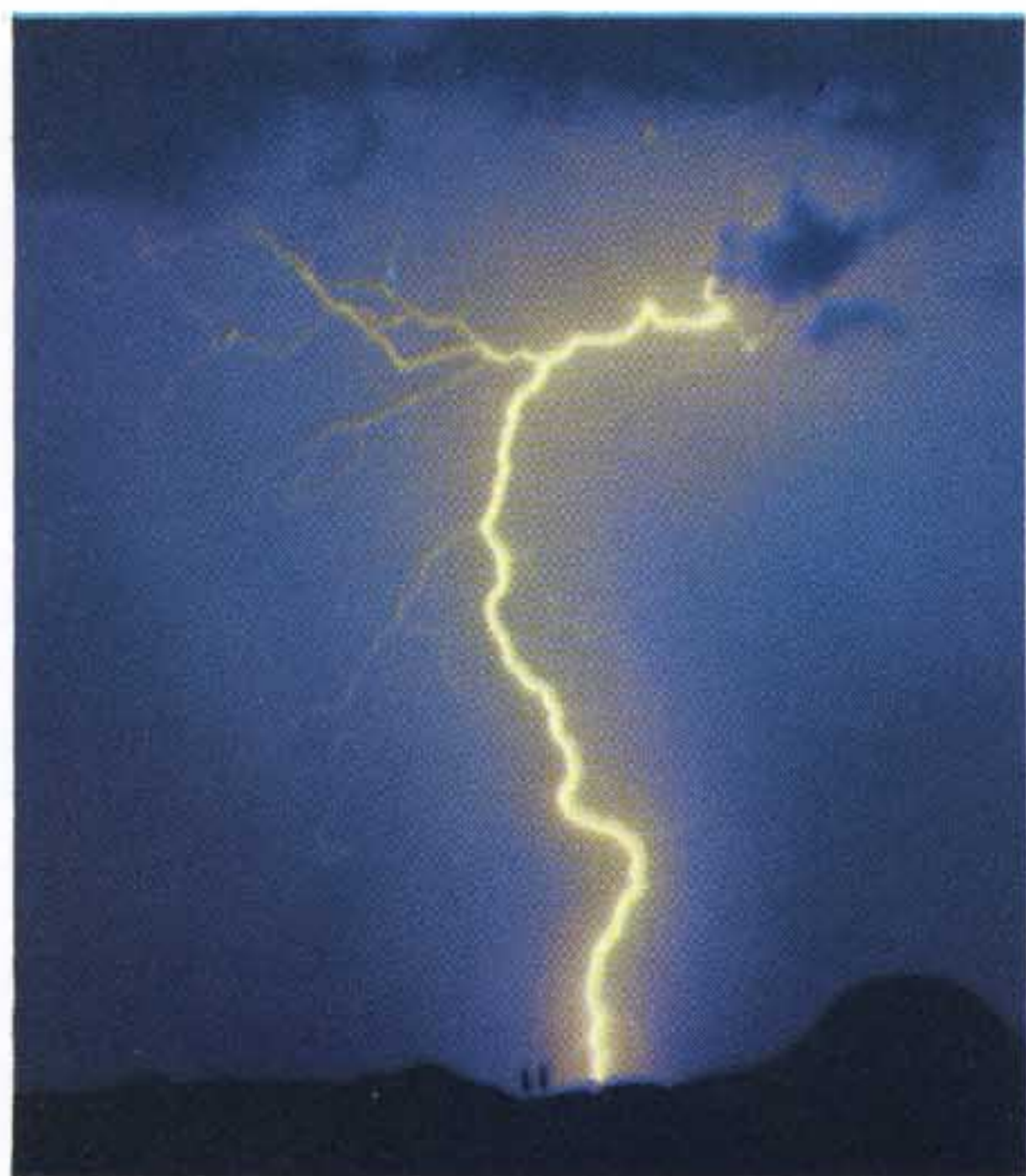
The open spaces are the best place for lightning pictures because no obstructions or extraneous lights interfere. It is very difficult to find a place in large cities where other lights won't register on the film. If you have no choice, be careful that your camera is not in line with any street lights, automobile headlights or lighted windows because these will show on the film and spoil your picture.

One way to avoid these handicaps is to shoot through an open window in a dark room with your camera far enough away from the window so that other lighting will not affect the film. Extraneous lighting can be spotted, of course, by looking on the ground glass of your viewfinder. The fact that you see the full image exactly as it will appear on film helps to compose the picture so the other lights can be eliminated.

It is not advisable to take lightning shots out in the open without any protection from the flash or the rain that often accompanies a thunderstorm. It's a good idea to take your shots from a protected vantage point before the rain comes. A tree, by the way, is not good protection, as most people know. If you are in the middle of a storm, it may be possible for you to get a picture through an open car or house window or from a porch.

*All photos on pages 11-12  
were taken by the author.*





# Exakta Photography Technique

by Wolf Wirgin

*Exakta Camera Company maintains a Technical Division that answers queries about the use of the camera and helps solve photographic problems. The Technical Division from time to time receives from Exakta owners information that is not readily available in photographic literature. This material can be of great help to other Exakta owners, if not immediately, then for some future photographic work. Regardless of whether the information is utilized fully, many valuable ideas can be obtained from it to enhance results. Exakta Camera Company would like to extend the services of the Technical Division to all Exakta owners and publish their contributions. Therefore, this page has been established as a regular feature of the magazine and we invite all readers to contribute. If the material merits it and is published, contributors will be paid. Please address your letters to Wolf Wirgin, Technical Division, Exakta Camera Company, 705 Bronx River Rd., Bronxville 8, N. Y.*

## End-of-roll Jamming

Quite a few Exakta photographers have mentioned that they sometimes jam the film-transport lever at the end of a roll and don't know how to free it properly. In this situation, the lever is stopped midway in its arc because there is no more free film to be transported and the only way to complete the swing of the lever apparently is to force it, which means ripping the film loose from the cartridge spool and, perhaps, causing some mechanical difficulty.

The proper way of handling such a situation is to lift the rewind lever, disengaging the winding mechanism from the shutter mechanism, complete the arc of the film-transport lever to the front of the camera and, before the lever is permitted to make the return arc to the back of the camera, push down the rewind lever. Rewinding then can be done as usual.

It is important that the film-transport lever be held at the front of the camera until the rewind lever is pushed down. This protects the shutter mechanism. If the rewind lever remains up while the film-transport lever is returned to the back of the camera, the counterclockwise turning of the gears will set the fast-speed knob of the camera.

## Finer Ground Glass

Curt F. W. Liebe of Flushing, N. Y. has suggested that "a very thin film of vaseline rubbed on the center of a ground glass will make the grain vanish. The vaseline can be removed with some benzine, gasoline or a similar solvent."

The use of vaseline, linseed oil or similar compounds for eliminating the grain of a ground glass is often suggested and may improve focusing. According to the well-known photographer-technician, David Eisendrath, pure glycerine, which can be purchased at a drug store, is probably the best thing to use, although any oil can be used, including olive oil and, in an emergency, even salad oil.

A couple of drops of glycerine or oil should be rubbed all over the ground glass with a soft, lintless cloth until the liquid is well distributed. Then, a clean, dry cloth should be used to polish the ground glass until the liquid appears dull. Inspection will reveal that the ground glass has increased light-gathering power.

As an alternative, the ground glass can be rubbed with grit or powdered pumice but this is somewhat more difficult. There also is the possibility that the glass may be ruined if you are careless or an accident occurs.

If you use glycerine or oil, you will find the ground glass will get dirty after a time. This apparent disadvantage actually is an advantage since it means that dust

in the camera, which ordinarily might cause pinholes in the emulsion, is collected on the ground glass where it can do no harm. When the glass gets too dirty to use, simply remove the glycerine or oil with a solvent and recoat it.

## Neckstrap Interference

From time to time, Exakta owners who use a neckstrap with the camera mention that the film-transport lever occasionally becomes entangled with the strap when the lever is moved to transport unexposed film into position for exposure. Ihagee redesigned the body of the Exakta VX to alleviate this condition by placing the neckstrap loops in front of the camera instead of at the sides as in previous models. However, if the lever is moved hastily it still may tangle with the neckstrap unless the photographer is cautious.

An easy way of avoiding difficulty is to attach a keyring to each loop on the body of the camera and then attach the neckstrap to the keyrings. The keyrings being metal have a tendency to pull the strap outward, beyond the arc traversed by the film-transport lever. Keyrings with a diameter of a half-inch are preferable although slightly larger ones can be used if the half-inch ones are not available. If the keyrings are smaller than a half-inch, they will interfere with the neckstrap movement. If they are larger than an inch, they will permit the strap to move too freely and make camera operation difficult.

HOW THE EXAKTA  
SHUTTER WORKS,  
Part II, will be  
published in the  
next issue of  
Exakta Magazine.

## Seal Hunting with an Exakta

by O. Wilford Olsen, Head, Department of Zoology, Colorado Agricultural and Mechanical College



*Wary seal eyes photographer Olsen on rocky coast of the Pribilof Islands.*

The project was a study of hookworm disease in Alaskan fur seal pups. The location was the fog-bound Pribilof Islands, commonly known as the mist-islands, in the Bering Sea.

The hookworms that attack seal pups are small and threadlike, about one-half to three-quarters of an inch in length and approximately the diameter of a stout thread. They are bloodthirsty and attack the baby seals with such ferocity that they actually bleed them to death. Each summer countless numbers of their wretch-

ed little bodies are strewn over the Pribilof beaches.

Ever since their discovery in 1787 by that dauntless navigator, Pribilof, of one of the early Russian fur companies, these islands have been the scene of a rich harvest of valuable seal furs. Indeed, the income from the seals has exceeded the amount paid Russia for Alaska.

Although remote and shrouded by fog almost all summer, the Pribilof Islands are not strangers to scientists and scientific investigations. Our hookworm project,

however, was a new one on an old disease. Naturally, it was approached with much anticipation and eagerness. It promised to be packed with fascination and challenges. It was not disappointing in these or other respects.

Having used a precision 35-mm. camera for many years as an aid in a career of scientific investigations in biology, I planned to continue to use this size camera in these studies to make as complete a photographic record as possible. In this case, however, I felt that every exposure must be precisely



*Harem ruler is bull who arrives before cows. The harem averages about 50 cows.*



*Seal pup weighs about 12 pounds at birth. Many die of the dreaded hookworm disease.*

*Fierce bull protects harem when intruder approaches. Bulls battle each other savagely. Often neither wins, both die of injuries, exhaustion.*





*Seals flee to safety of sea when disturbed by biologists' activities.*

focused and framed. Moreover the camera must be precision built and quickly and easily adapted to a multitude of diversified needs at all times and places. These requirements included close-up shots of animals and pathological conditions, photomicrography, copying and distant and wide-angle shots.

Time would not permit one to wait for ideal or even favorable conditions to make the pictures. Instead, photos of desired subjects and material must be made when and where found. Nearly all of the outside work would be done under conditions of almost continuous fog or overcast skies, often in rain, and altogether too frequently in the salt spray carried from the nearby sea by strong winds.

I chose the Exakta as the camera best providing precision and utility for my needs. My cameras were equipped with 50-mm., f/2.8 and f/3.5 Tessars. Additional lenses and accessories included a 35-mm. Angenieux Retrofocus wide-angle, a 135-mm. Steinheil Culminar, a 180-mm. Meyer Tele-Megor and a Novoflex bellows extension.

The Steinheil Culminar and the



*Aleuts kill bachelor seals, above, for marketable skins, skin them, below, render blubber and carcasses for oil, process residue into meal for stock.*



Novoflex bellows and adapter make the most ideal, versatile and ingenious combination for many kinds of photography. In a single mounting, one has a lens for distance and close-up work with a satisfactory work distance for nearby objects. Important also is the fact that this versatile and complete set of equipment can be carried easily in a mussette bag so it is available immediately at all times.

The time available for making the study was short, being during the summer vacation at Colorado A. and M. College, and the distance from Colorado to the Pribilof Islands is great. Giant airliners carried me quickly over mountains, glaciers, and ocean to tiny St. Paul Island.

On the island are St. Paul Village with its 350 permanent residents of Aleut origin and six major seal rookeries with 1,500,000 or more fur seals and sea lions that are migrants, coming each spring to bear and raise their young.

Seals constitute the only source of income on the islands. The entire effort of the working population is directed toward the short period of approximately 40 days of intense activity from about June 15 to July 27 when the seal skins are taken. The remainder of the year is spent in maintaining roads to and from the rookeries, repairing equipment and caring for the village.

Fur seals are sea mammals that come to the Pribilofs each spring and remain until fall. They possess an uncanny homing instinct, are extremely gregarious and highly polygamous. It is said that seals of the Alaskan herd never put a flipper ashore on any but the Pribilof Islands. It is now known through tagging that they return year after year to the rookeries where they were tagged as pups.

In early May, the old bulls arrive to take up coveted positions on the rookeries. Shortly thereafter and by precise biological timing, the cows arrive in large numbers, associating themselves with individual bulls in harems averaging about 50 cows. Within a few hours to a few days after hauling ashore, each pregnant cow gives birth to a single, glossy black, precocious pup weighing about 12 pounds.

From the very outset, the pups are fiercely independent and capa-

*Continued on Page 35*

## \$750 Prize Picture

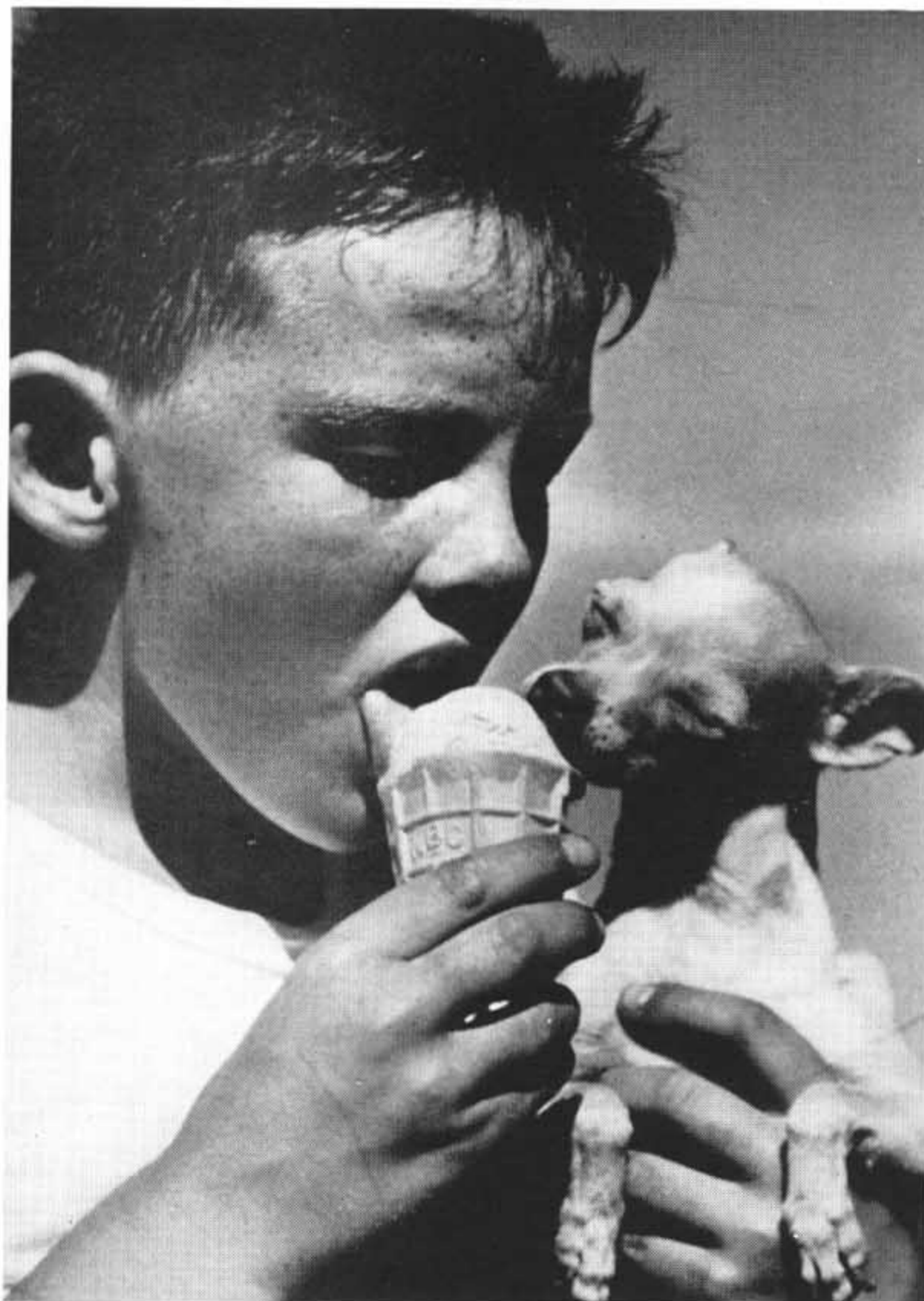
The amusing picture below won \$750 for Ralph S. Kemmerer, an Exakta owner from Castro Valley, Calif., in a recent Ansco "America at Play" color contest. He won second prize with a transparency from which the black-and-white reproduction shown here was made.

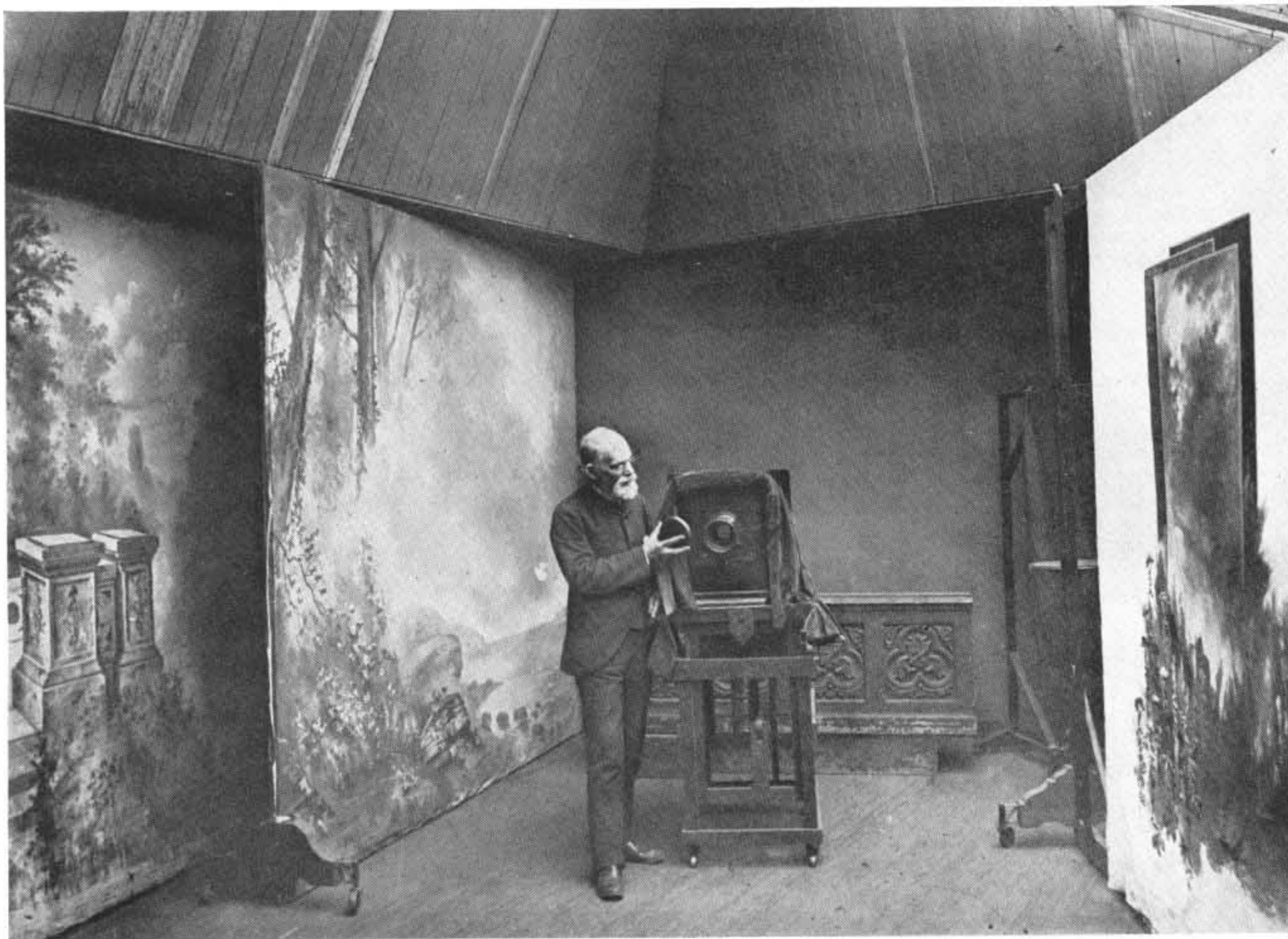
Exakta owners will be interested in Mr. Kemmerer's letter telling us about his success: "The picture which won was an idea I had about five years ago. At that time, I had another type of camera and I failed in getting the picture I wanted because of paral-

lax trouble. The last few years I tried several times more, same subject, same idea, but failed again.

"Last June I bought an Exakta V camera. In August I tried once more, same idea, same subject, with the Exakta V and 85-mm., f/2.8 Steinheil Culminar lens and this time succeeded. The composition was just right. I sent the slide to Ansco and last week I had the good news."

Both Mr. Kemmerer and his dealer, Bowman's Camera Store, of Hayward, Calif., have our congratulations.





*George Smith Cook, whose great collection of Civil War documentary photographs was recently discovered, operating his camera in his Richmond, Va., studio in the '90s. Note various backgrounds for pictures.*

## *Southern Exposures* by Jacob Deschin, Camera Editor, The New York Times

A little known period in American photographic history came to light recently in the discovery of a large cache of early Southern pictures in the attic of a house near Richmond, Va. The event was considered so important that a selection of the most representative pictures were displayed in an elaborate exhibition at Richmond's Virginia Museum of Fine Arts under the title *Southern Exposures* and will be included in a book by that name to be published next year by Scribner's.

Credit for the find goes to A. Lawrence Kocher and Howard Dearstyne, Williamsburg co-authors of the forthcoming book, who came upon the material in the course of their researches. Central figure in the new collec-

tion is George Smith Cook, the leading Southern photographer of his time though Yankee-born, who because of his spot news pictures during the Civil War has become known as "the Mathew Brady of the South." The collection also includes photography by the late Huestis P. Cook, his son, who died in 1951, and by other Southern photographers. Together, the pictures, which consist of daguerreotypes, ambrotypes, tintypes, stereographs, wet plates, dry plates and film negatives, comprise both a record of a period — from antebellum days to around 1910 — and a body of achievement in photographic documentation.

Whatever may be their value for the Civil War historian, their interest for the contemporary



*Beavers and bonnets were worn when exhibit opened in Richmond. Old-time studio was set up and, left to right, author; Lulubelle Bishop; the Editor of Exakta; facsimile photographer posed.*

photographer is considerable. Going through the pictures one is constantly surprised at the audacity with which these early photographers handled a medium which had yet to be fully developed as a technique, both as to method and implementation with the necessary tools. Now that the method has been perfected and the tools provided, one must admire more than ever these earlier, trail-blazing efforts that anticipated to such a remarkable degree the photographic thinking of the present day.

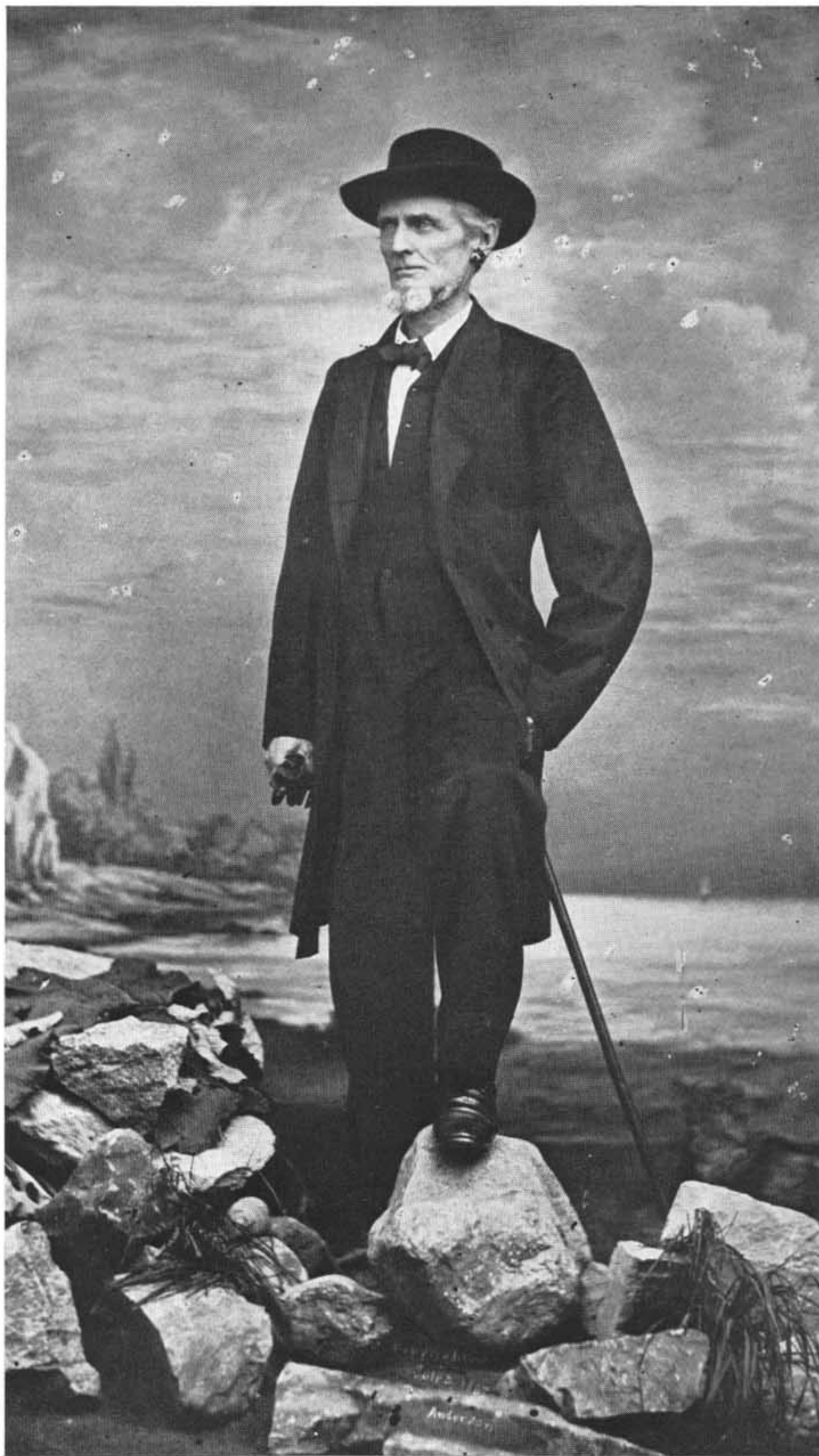
The casual attitude, the incident and the attempt even to "stop" motion (with the excessively slow emulsions of the time) in an effort to get realism were all known as photographic material and were recorded with amazing disregard of what photographers today too frequently refer to as the "limitations" of the medium. How vastly more limited the medium was in the early decades than it is today is a matter that would be silly even to attempt to discuss.

Yet, when the photographer wanted hard enough to say something, somehow the medium yielded, as it does to every serious and imaginative worker in our own time. Somewhere in this there is a valuable lesson for today's photographers; the truly good ones already know it, others have still to learn and can. Inspiring examples will be found in the work of such photographers as those whose work was uncovered in the Virginia attic.

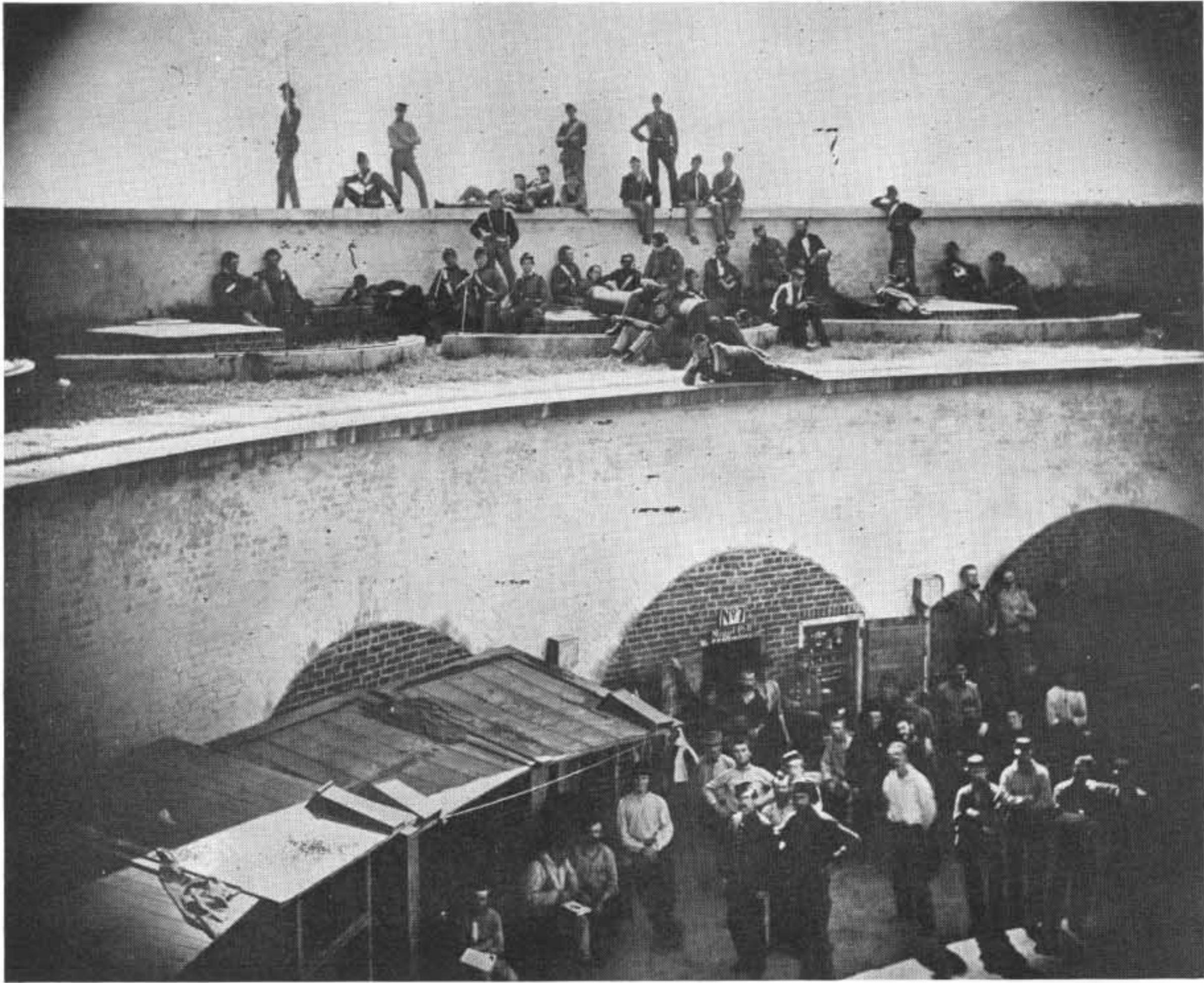
The hero of our piece is George Smith Cook, an extraordinary combination of artist and tradesman, whose vitality, inventiveness, imagination, ingenuity, curiosity and mastery of the photographic medium as art and craft put him easily at the top of his profession. Cook loved photography from his first acquaintance with it after it reached American shores following Daguerre's historic disclosure of his great process in France and throughout his long and busy life as a practicing photographer, owner of important galleries in the South and in the North, and successful tradesman in supplies and equipment.

Born in Stratford, Conn., Feb. 23, 1819, he was a teen-ager when he traveled south in search of an uncle whom, incidentally, he never found. In New Orleans, he happened to meet some artist

*Text continued on Page 39*



*Studio portrait of Jefferson Davis was made about the time of his indictment for treason. He was blind in one eye. Photo is by David Anderson who sold Richmond studio and 20,000 negatives to Cook in 1880.*



*Confederate Zouaves (on wall) guarding Federal prisoners in Castle Pinckney, Charleston Harbor, one mile from the city. The Federals were captured in first Battle of Bull Run. George Cook took this in 1861.*

*Ancient steam fire engines, fire fighters and curious on-lookers, many wearing derbies, were shot by Huestis Cook.*

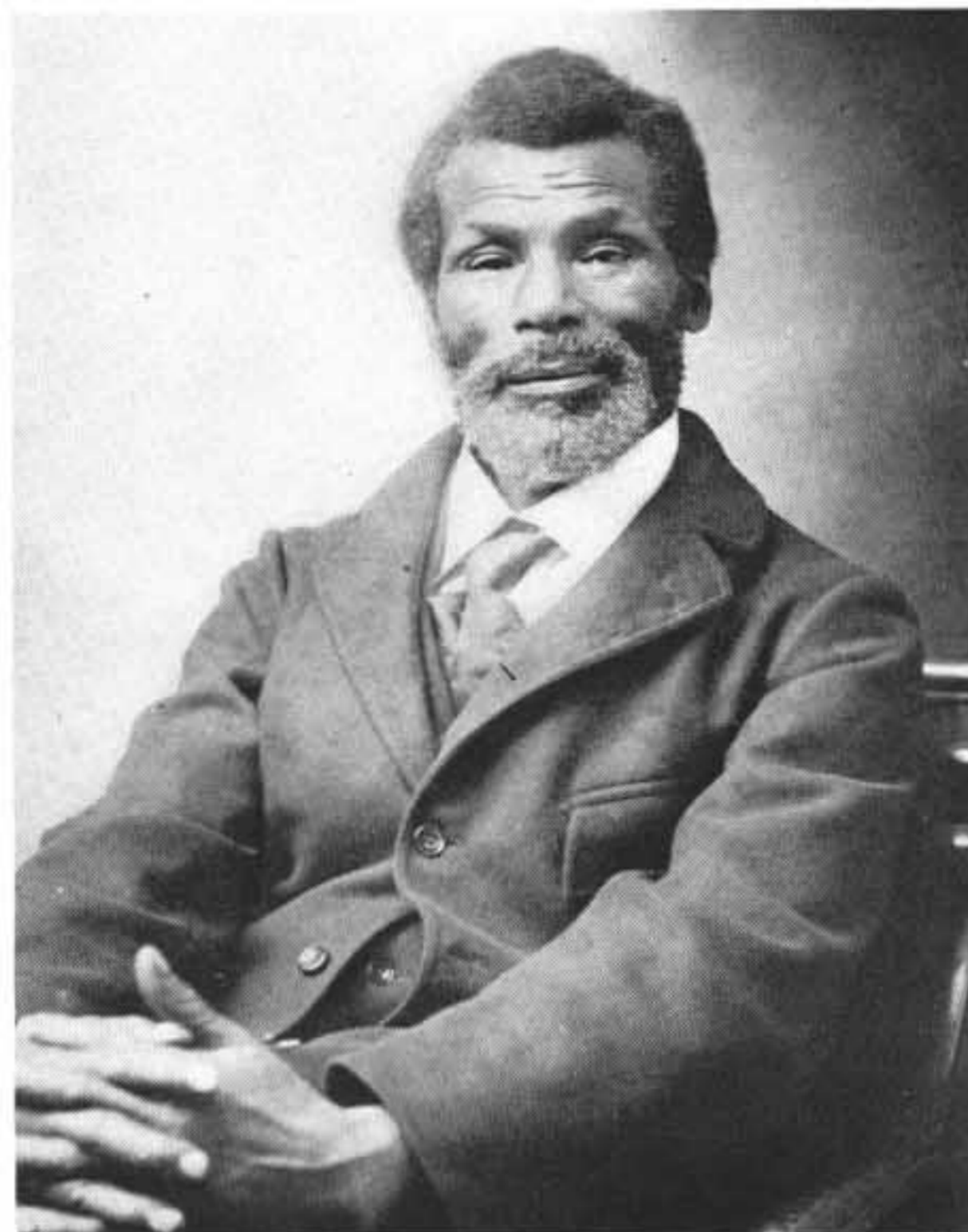


*Devil-may-care attitude of famous Mosby's Rangers is caught here.*





*George Cook was one of first photographers to photograph Negroes. Here, nurse holds his son Huestis.*



*Sensitive portrait above probably also was taken by George Cook. Subject was not identified on the plate.*

*Lincoln Day in Richmond was documented by Huestis Cook in the '90s. Stiff pose of subjects points up trials of photographers of the era because of slow emulsions. Three children moved while picture was taken, blurs show.*



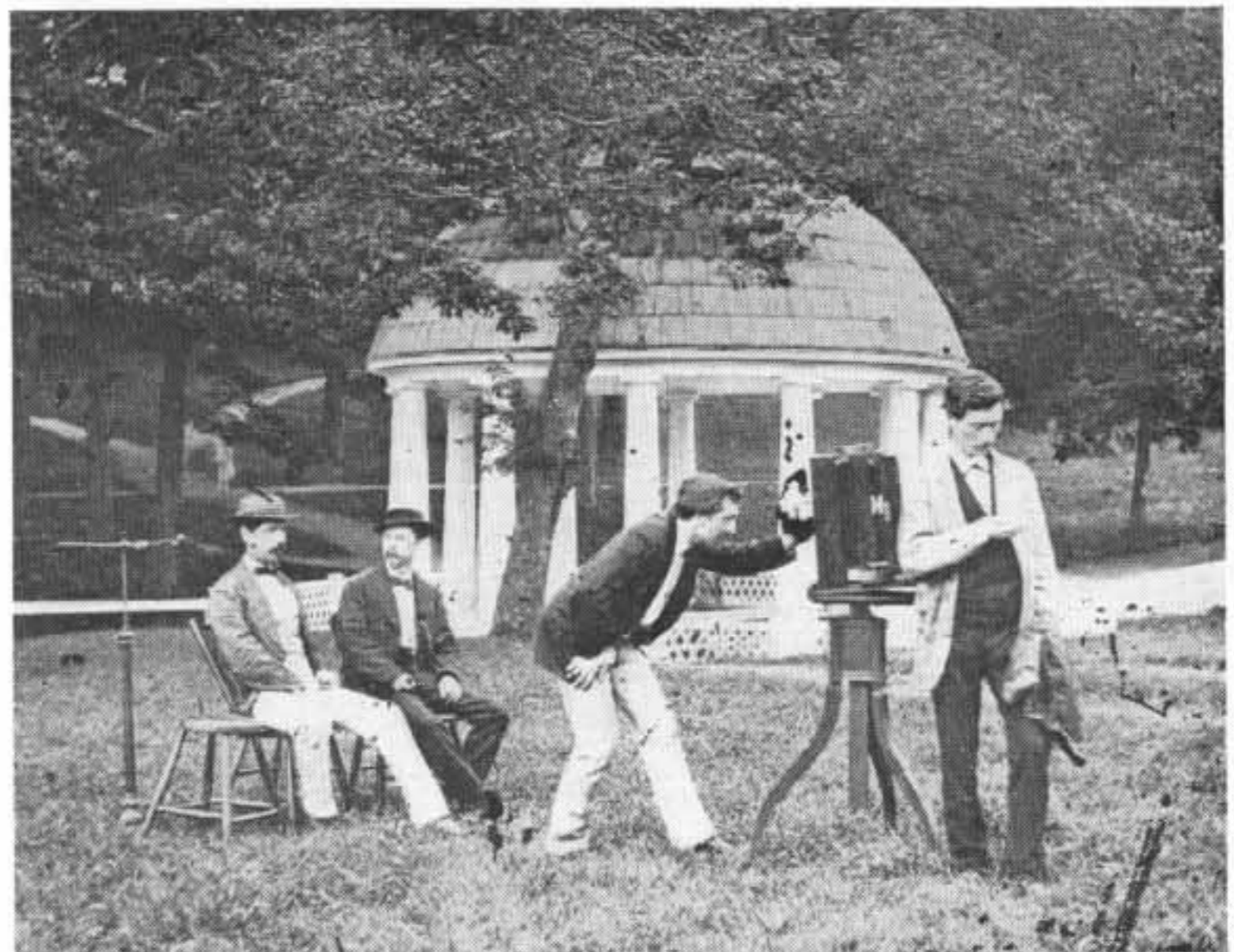


*River boatman makes a striking subject, clearly indicating artistic inclinations of Huestis Cook. This enlargement is part of an 8x10 plate. Reflection of boatman in water emphasizes beauty of the scene.*

*Rigid skaters pose while boy stares at camera. "Lens hounds" exist in every age.*



*Humor also existed in photography of the '70s. Here, photographer times a shot while one subject jokingly peers into the camera lens.*





*Unidentified Southern belle of the time. Photographer's name also is unknown.*





## Waiting For the School Bus

Adages abound in photography. "It's the man behind the camera, not the camera, that takes the picture," so an old saw goes. "People look, but they rarely see" is another. "All it takes to make a good picture is an alert eye and some imagination" would make another good one. The photo at the left bears this out.

It was taken by an amateur who had started photography seriously only about two weeks before. His picture taking previously had been restricted to snapping the shutter infrequently of his wife's camera after she had set it for him. His decision to buy an Exakta VX was based on the simplicity of the single-lens reflex.

The photographer lives on a lovely estate in Bucks County, Pa., near the town of Pleasant Valley. He soon discovered his camera had revolutionized his life. A famous playwright and screenwriter, he found his camera enticed him from his work.

He carried his camera continually, shooting many varied subjects, discovering the new way of viewing the world that is inherent in photography. His picture taking became a revelation. He "saw" his neighbors for the first time on the ground glass.

One day, on his way to town, he spotted the children waiting for the school bus and hurriedly shot the scene. That's all there was to it. In the short period of two weeks, he had trained his eyes and mind to the point that he could see a picture when he encountered it.

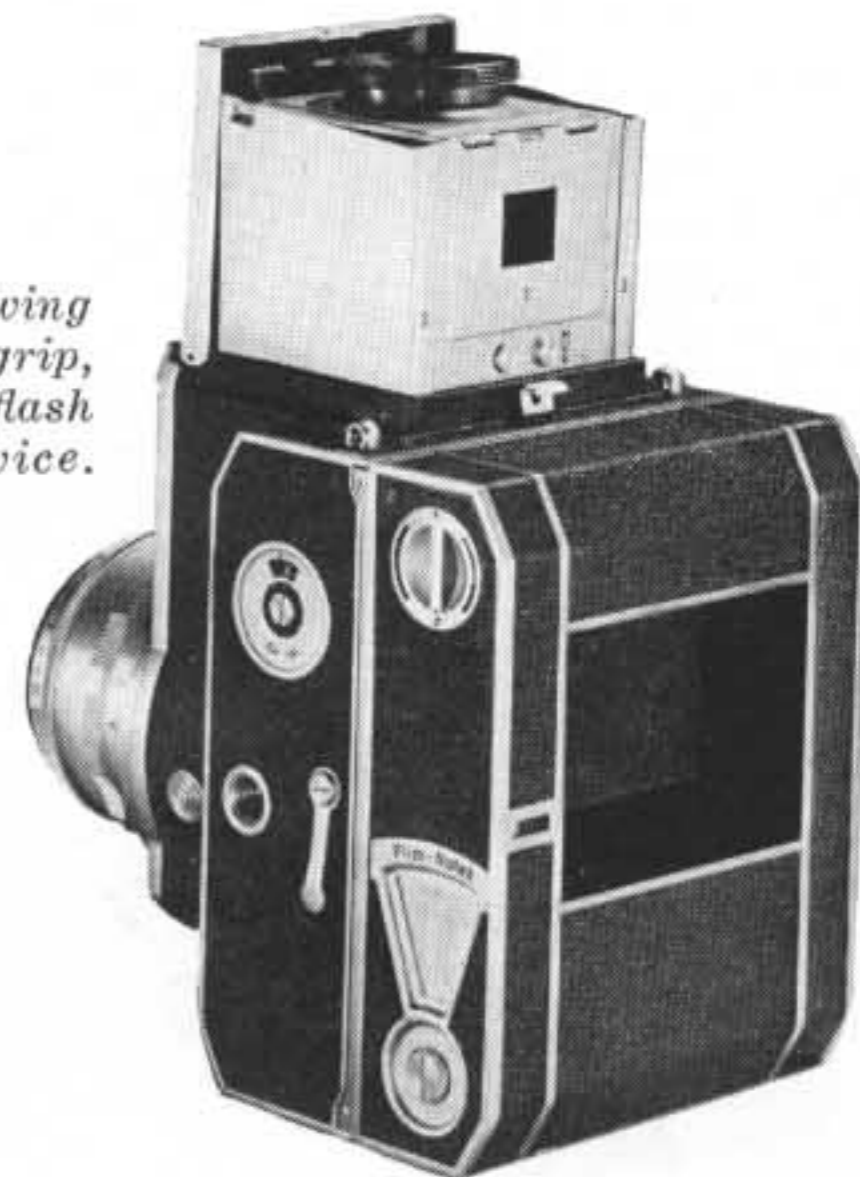
There are thousands such pictures waiting for photographers who can see them. You don't have to be a professional or a hotshot technician either. All it takes is thinking about photography, keeping your eyes and mind open so you can see what's around you.

Vision comes with practice. It is based on thinking, experience and exposure to new ideas, new concepts and new ways. One is not born with vision but it can be developed. The experience of this photographer affirms this.

His name, by the way, is Samson Raphaelson, distinguished author of such plays as *The Jazz Singer*, *Accent on Youth*, *Skylark* and *Hilda Crane* as well as many screenplays and novels.



*Front view of new Exakta 66, left. It will have interchangeable lenses and finders, including Penta Prism.*



*Rear view, right, showing indented back for firm grip, electronic and regular flash scale, film note device.*

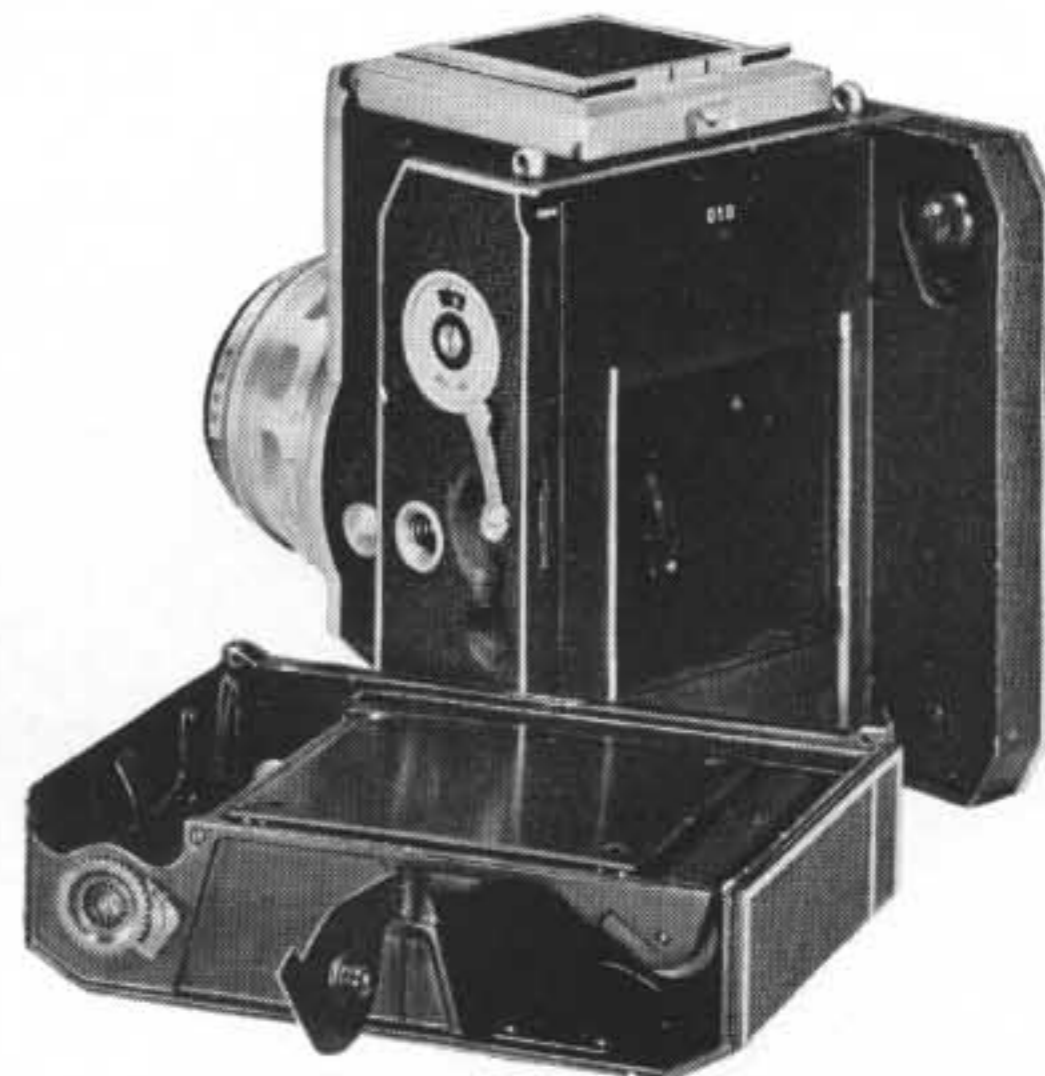
## The 2¼x2¼-inch (6x6-cm.) Exakta 66

The eagerly-awaited, new 2¼x-2¼-inch (6x6-cm.) Exakta probably will be available in the United States before the end of this year. It is unnecessary to tell Exakta owners what the advantages of such a camera are and how important the new Exakta will be to photographers all over the world. Ihagee has spent many years designing and perfecting this great addition to the single-lens reflex line, and reports from Europe about the camera already have stirred up a beehive of interest. For this reason, we wish to emphasize that the camera is not yet available and that delivery date is indefinite.

The new Exakta will be called the 66. The price has not yet been established, but it will be about \$300 with the standard lens. This will be the redesigned 80-mm., Zeiss Jena Tessar with built-in preset diaphragm mechanism and sunshade.

The 66 takes 12 pictures, 2¼x-2¼ inches in size, on 120 rollfilm. The shape and design are radically different from the experi-

*Camera with back removed, below. Film feeds from bottom to top of back. Interchangeable backs will be available but not until later.*



*Lenses shown below are only a few of those that will be available for the new Exakta 66. Focal lengths will range from 56 mm. to 400 mm.*



mental model of this camera, which was introduced in 1939.

The body is now roughly square in shape, measuring 5½ inches high, 4½ inches wide and 4½ inches deep (without lens). All important operating mechanisms are located on the right side.

The two-curtain cloth shutter and two speed setting knobs are similar to those of the 35-mm. Exakta models. The two knobs also are similar to those of the miniature Exakta and provide 29 speed settings ranging from 1/1000 of a second to 12 seconds for instantaneous release. Delayed action exposures can be made up to a speed of 6 seconds.

The new Exakta has an automatic film-transport, shutter-cocking mechanism that operates from the first frame. An ingenious indicator on the camera back indicates that the first frame has been reached. The film-transport mechanism locks until the exposure has been made. Then the film can be advanced only enough to bring the next frame into position back of the lens. The combi-

nation ratchet-type film-transport winder is given a half-turn to advance the film and frame counter and to cock the shutter. Double exposures are possible.

The shutter release is on the right side of the camera on the front of the body next to the lens. It has a safety lock on it.

The interchangeable 80-mm. Tessar, in addition to the preset diaphragm mechanism, has distance scales in both feet and meters. Additional lenses will be available ranging in focal length from 56 to 400 mm. Several wide-angles, f/3.5 Primotars of 85, 165 and 180 mm. and f/5.5 Meyer Tele-Megors of 150, 180, 250 and 400 mm. will be available.

The back of the camera is removable and can be locked with a swinging lever. Interchangeable backs will be available in the future. An indentation in the back affords a fingerhold for grasping and steadying the camera. A folding metal strip below the lens can be used for steadying the camera or balancing it when it is placed on a flat surface.

Built-in flash synchronization is provided by means of a single socket on the left, top side of the camera. The same socket is used for both regular and electronic flash and an adjustable scale permits the time delay to be altered within the 0-20 millisecond range.


The folding viewfinder is removable for interchange with other viewfinders which will be available. The camera will come with the standard viewfinder which can be used at waist level or, if the front window is opened, as an eye-level, sports finder. An eye-level Penta Prism will be available as an accessory.

The standard viewfinder includes a hinged magnifier equipped with an eyepiece for focusing comfort. The magnifier covers the entire ground glass area. The ground glass is a condenser type element with a finely ground base for brighter illumination.


Other features include a film notes device, loops for neckstraps, tripod sockets on both the bottom and side of the camera and an eveready case.

CARL ZEISS


JEN A



*The greatest name  
in lenses*



*The greatest lenses  
for the Exakta*



**Exakta Camera Company**  
46 West 29 St., New York 1, N. Y.

## WANTED

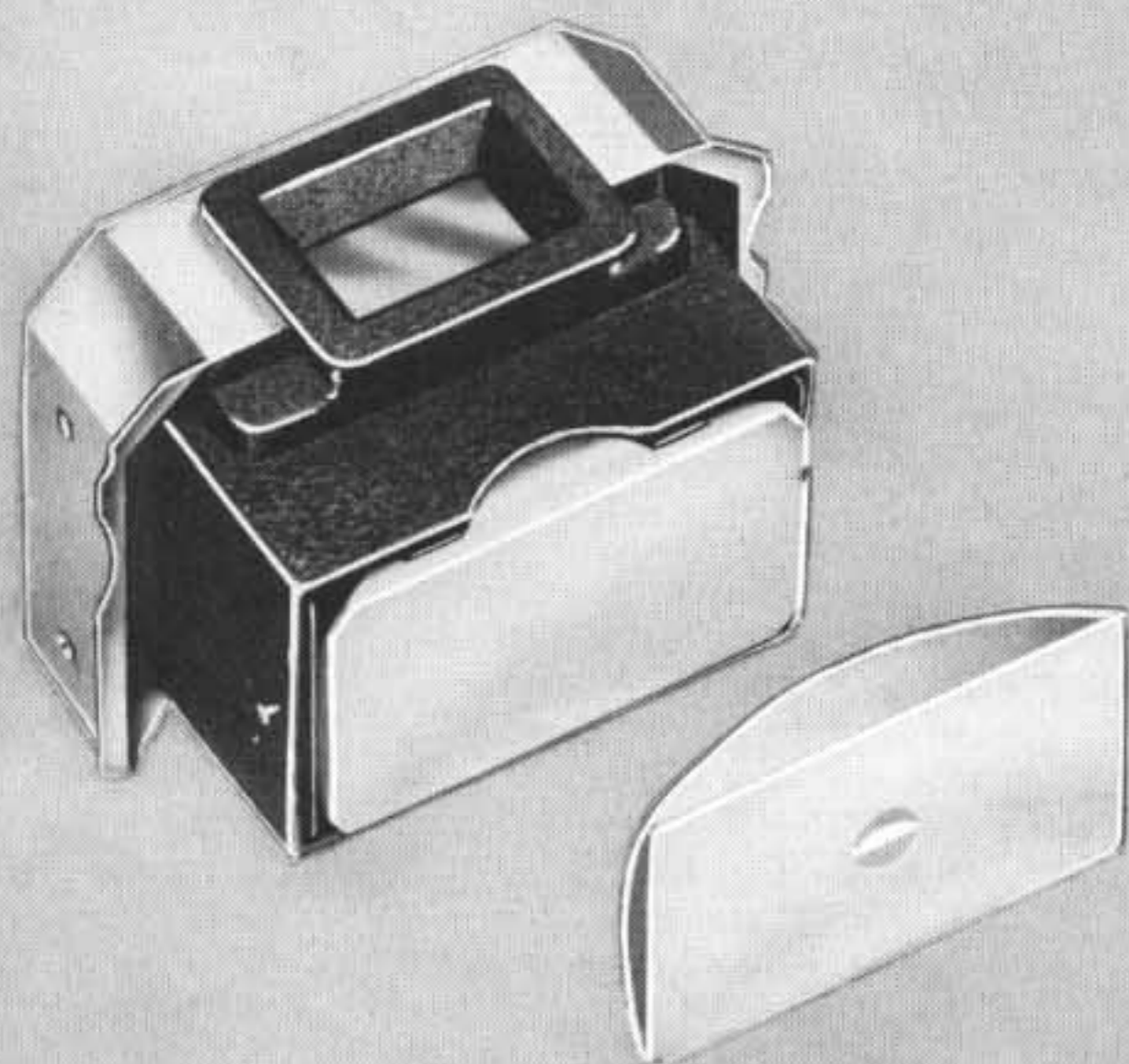
articles, photographs and other material for

## EXAKTA ANNUAL

Beginning next year, we plan to publish yearly an annual containing the best work of Exakta photographers. The book will contain a collection of the finest color and black-and-white photographs taken with any type of Exakta, technical and general articles on Exakta Photography technique, special material that can be of help to an Exakta owner. We want all kinds of material of this type as well as articles and illustrations on how the Exakta is used in a specialized way. All Exakta owners and users are invited to contribute. Contributors will be paid. Please send your material and photographs with return postage to . . .

GEORGE BERKOWITZ, 25 Jones St., New York 14, N. Y.

## The Split-image Rangefinder



By this time, most Exakta owners are familiar with the split-image rangefinder which Ihagee introduced recently. The demand for this finder has exceeded expectations. The finder is an optical device made by the famous Carl Zeiss Jena to fit the Penta Prism eye-level finder. It provides an accurate, rapid and convenient method of focusing.

The finder is a condenser lens and ground glass combination that replaces the ordinary ground glass of the Penta Prism (photo above, left). The substitution can be made easily and rapidly because the regular glass is held by an ingenious spring arrangement that makes it accessible.

In the center of the split-image finder ground glass is a clear circle containing two half-circle lenses. These two half-circle lenses furnish the split image.

When using the split-image finder, you focus on the subject (preferably a vertical or horizontal line, depending upon the pic-

ture format) and observe the two halves of the image in the center circle. If the lens is improperly focused, the two halves of the image are out of line (see photos above, right) and the image is fuzzy on the ground glass. If the lens is properly focused, the two halves are in line and the ground glass image is sharp.

The sharpness of the two half-images is not a guide to correct focus in the manner of ground-glass focusing. The lining up of the two half-images indicates correct focus, not the sharpness of the half-images in the center.

The split-image finder is not a cure-all or foolproof method of focusing. It is an invaluable accessory, especially in adverse light, but is intended to serve largely as a rapid, convenient focusing device when time and effort are important. It is not a replacement for the waist-level or ordinary Penta Prism ground glass when extremely critical focusing is required. The smallest

aperture at which the finder can be focused is  $f/5.6$ .

Production of the split-image finders is limited and, because of short supply, they are being delivered as standard equipment with the Exakta VX and Penta Prism. We have been instructed, therefore, to sell them as a unit. Nevertheless, we have arranged to provide a unit consisting of the Exakta VX, with 58-mm.,  $f/2$  preset Zeiss Biotar, Penta Prism and split-image finder for \$400, a saving of \$12.05.

You also can obtain the split-image finder with the Exakta VX, Penta Prism and any of the following lenses:

50-mm., $f/2.8$ coated Zeiss	
(preset) Tessar	\$336.80
58-mm., $f/1.9$ coated Meyer	
(preset) Primoplan	346.50
50-mm., $f/1.5$ coated An-	
genieux (preset) S21	442.00

The split-image finder will be available as an accessory in the future. With the Penta Prism it will list for \$85; alone, \$35.

## The Versal

A completely new and extremely versatile series of related accessories expanding the possibilities of Exakta Photography far beyond present limits is now available for the 35-mm. Exakta. Known as the Versal assembly, these precision-made accessories can be used separately or in many varied combinations with the Exakta for laboratory, medical, dental and other scientific photography, for industrial photography and many professional purposes.

The Versal assembly consists of a wooden baseboard-metal post arrangement, a bellows and rack unit and a special duplicating unit. The baseboard-post arrangement has many uses, including copying of books and documents (with or without the use of the bellows), stereography (sliding rail unit permits the camera to be moved sideways as much as 430 mm.) and photomicrography (with the aid of bellows and rack unit and light trap as shown at bottom, right). In photomicrography, the versatility of the bellows and rack unit makes it possible to change the scale of enlargement instantly by adjusting the bellows.

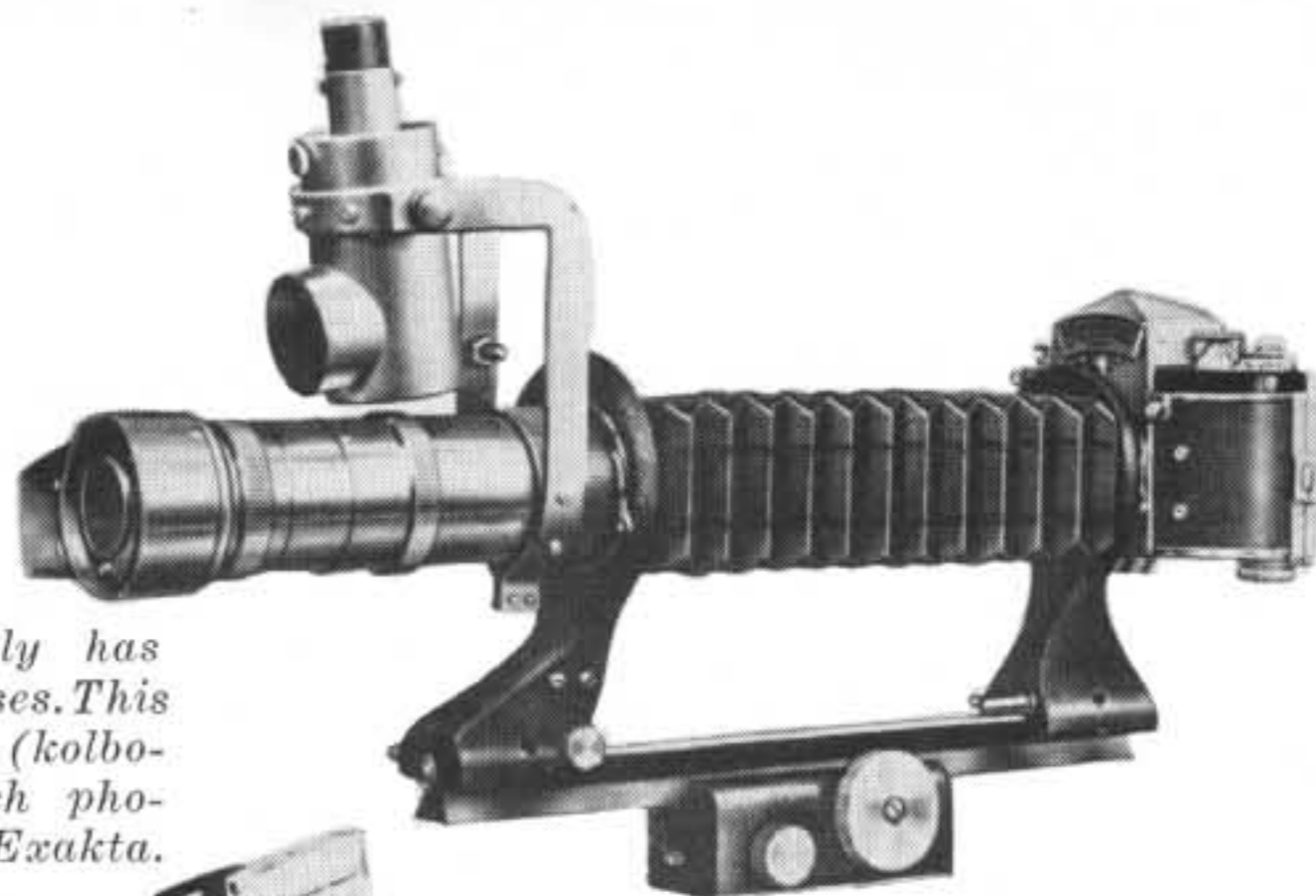
The bellows and rack unit can be used alone or on a tripod with the Exakta for taking hyperclose-ups (see second photo). The bellows extends from 35 to 220 mm. and has a measuring scale divided into 20-mm. lengths.

The bellows and rack unit also can be combined with a special electronic flash attachment (must be purchased extra) with a circular bulb and light for focusing and viewing and a 135-mm. Triotar into an assembly called a Colpophot, designed primarily for medical (colposcopic) photography (see top photo). This unit permits the taking of astounding pictures of human cavities and is important in cancer research.

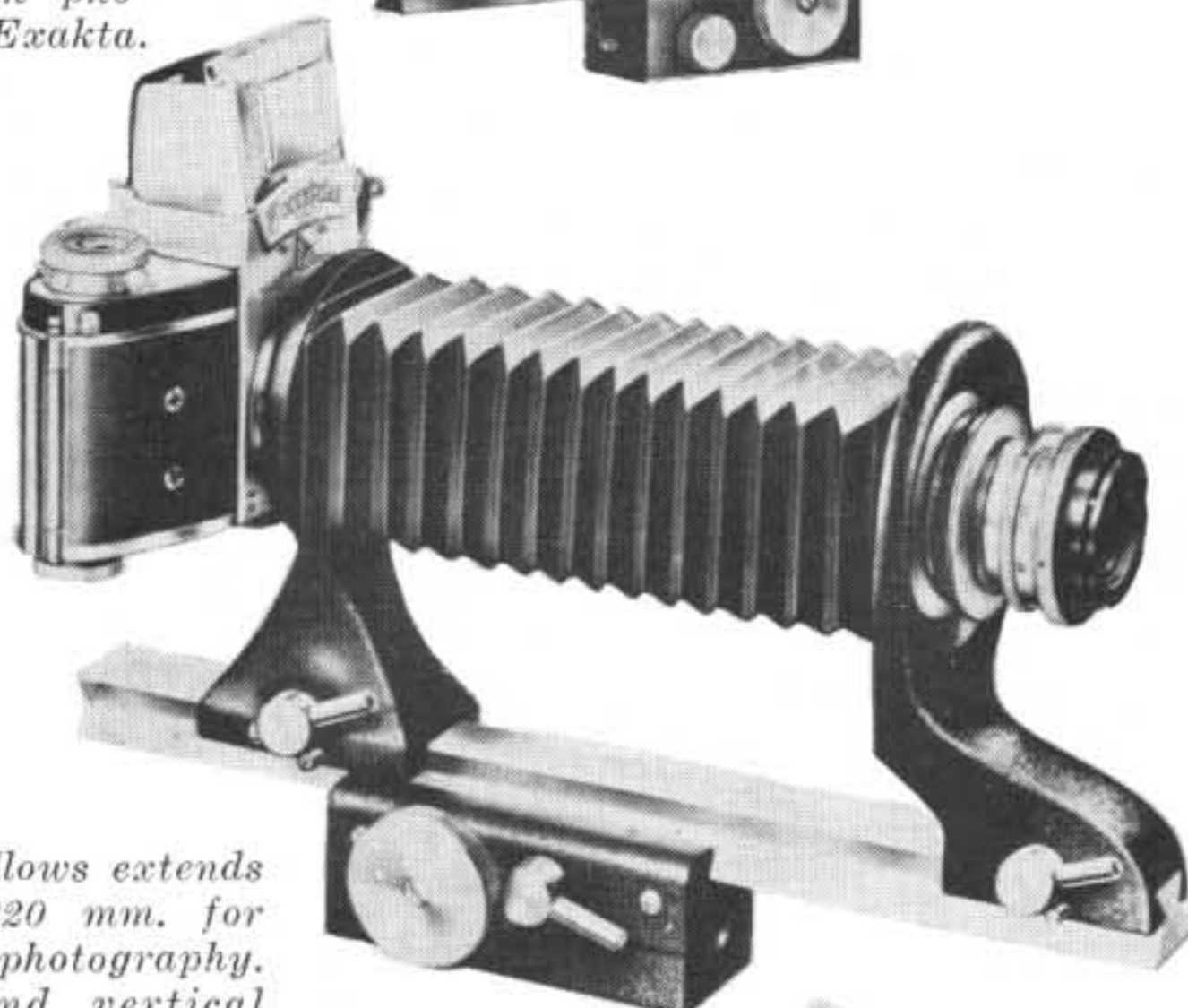
A special unit for duplicating black-and-white and color transparencies (see third photo) comes with the bellows and rack unit. With this combination, 35-mm. film strips and slides up to 50x50 can be copied. Duplicates can be made same size or portions of slides can be enlarged to 24x36-mm. size.

The versal lists for \$170. For more information, write Technical Service Dept.

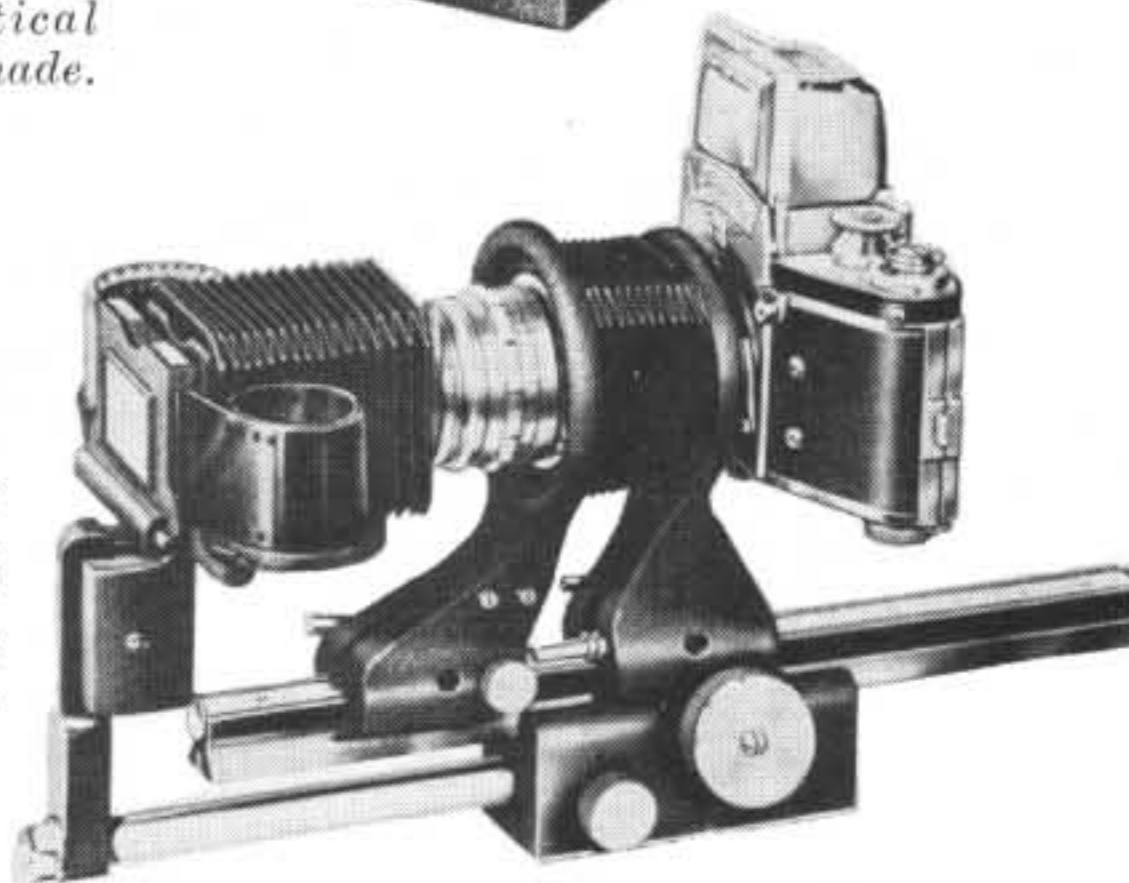
*The Versal assembly has many photographic uses. This set-up is for medical (kolbo-scopic) and research photography with the Exakta.*



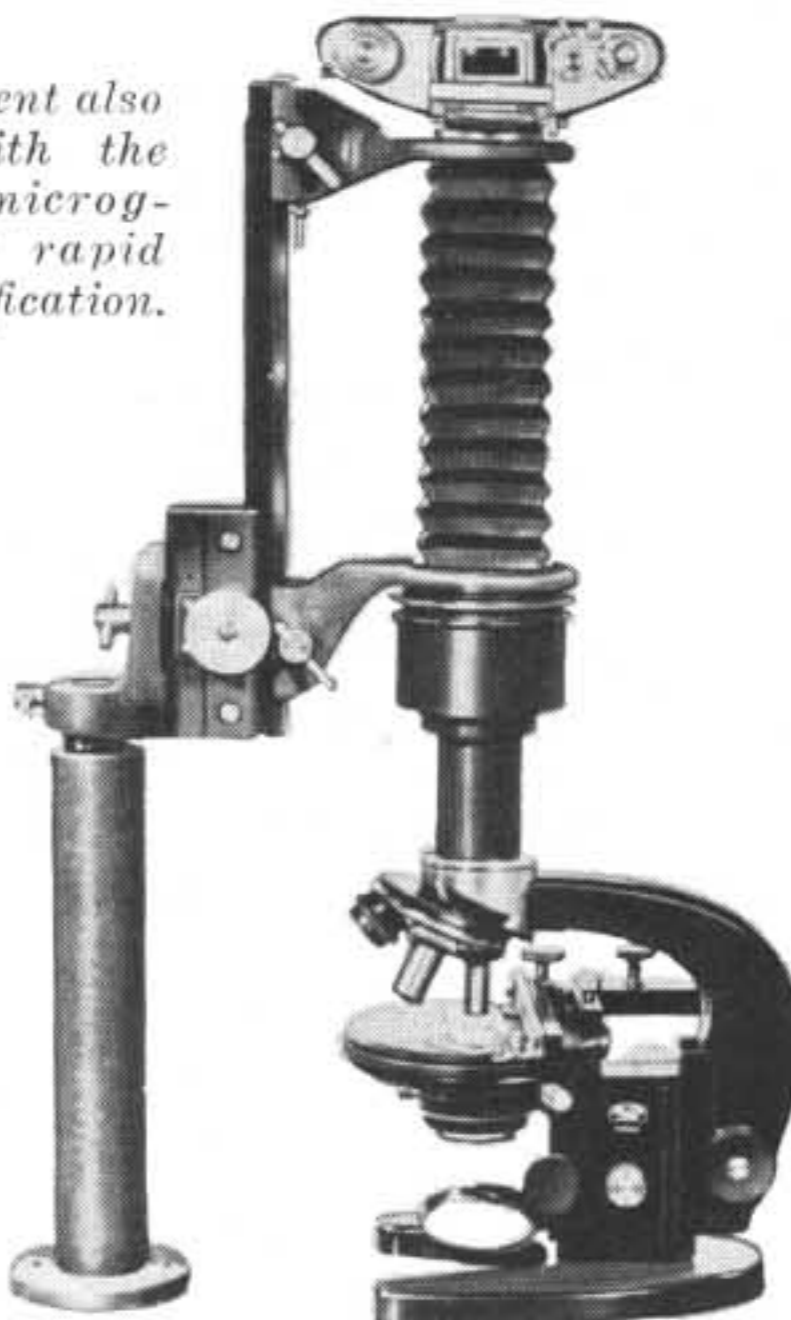
*The Versal bellows extends from 35 to 220 mm. for hyperclose-up photography. Horizontal and vertical format shots can be made.*



*Single color transparencies up to 50x50 and 35-mm. filmstrips can be duplicated same size, or parts of slides enlarged, with this set-up.*



*Bellows and attachment also link microscope with the Exakta for photomicrography, permitting rapid change in the magnification.*



## Colhoun's People

by George Gilbert

The photographs of Stephen Colhoun are a stimulant to others who seek to add verve and spirit to their own camera concepts. The work of this Exakta owner and rising fashion photographer is outstanding in many ways, not the least being that the oldest photo in his collection is barely three years old. Despite his recent entry into the field, the work's diversity, intensity and provocativeness startle viewers.

Colhoun has made a career of photography because it best rep-

resents his particular idea of how to spend his life. He yielded the security of a very social Philadelphia background and the promising future of a lower echelon financier to the disciplined regimen of an obscure job as a minor clerk. The friendship of his employer's advertising director and encouragement of new photographer friends helped to mature him in photography.

Drama is the key to much of Colhoun's photos of people; drama through startling whites, deaden-

ing blacks, dizzying blurs, unusual cropping and compositions. Especially, too, drama through unusual photographic effects wrought by using the tonal extremes of enlarging paper or a lens at extremely close distances.

Colhoun challenges or beckons, entreats or seduces, bewilders or explains. His pictures are personal, intimate vignettes. His people are real, whether nearly silhouetted into blackness or shown only as a head, a hand, a foot.

A model is never a manikin and a subject is never treated as a caricature. If he chooses to fragment a subject, it is in keeping with a drive for simplicity that will make his photographic statement as intense as possible.

Isolation is threaded through and is the emotional key to much of his work. It fits the Colhoun concept of the essential necessity for simplicity. In countless examples of his work, isolation contributes a heightened drama to the starkness of the close-up or even to what are essentially abstract compositions.

Colhoun insists that the candid views he steals from life about him in the city are fun, pleasure, personal expression. Few of his photographs fall into the category of happy accident or law-of-averages success. At the same time, few can be attributed to painstaking or meticulous pre-shooting layouts or plannings. All are to be found on his ground glass (he depends often upon his Exakta, one of a battery of small cameras he owns) at the time of shooting, not before.

Colhoun maintains a self-assured poise from which children do not shy away. He is quick to take advantage of a child's curiosity and self-consciousness to make with a few quick exposures uncomplicated interpretations of the child's relationship to other people and his environment. His photographs of adults are usually more studied in their form. He is likely to work through dozens of exposures and many hours to achieve one satisfying exposure.

Photographically, he achieves his simplicity mainly through isolation—in composition, lighting or technique. In composition this usually means plain, neutral backgrounds where possible: a wall, floor or the open sky. In lighting



*Isolation is keynote of Colhoun's photos as in this shot of a young pianist.*



*Pursed lips, unusual cropping (above), strong documentary feeling (below) are Colhoun trademarks.*



it is through the unrelieved, stark drama of brilliant white or intense black. In technique it is focusing on the subject to obscure the background by extreme contrast. He accomplishes this with a combination of back lighting, overexposure and harsh development that chemically block up the brighter background areas so that they print as a thin grey or white.

Whether his camera is in hand or locked away, he "sees" pictures without the desperation approach of "I'm out to make a picture today" which unfortunately hinders the growth of so many photographers. Colhoun is quick. He makes exposures as rapidly as he discovers an interest in even the minutest variations of the picture's elements.

His photographic attitude is frequently expressed in unorthodox processing and camera operation, making demands of his equipment beyond its intended



*Hopscotching youngster is secondary to powerful rectangles and numbers which give third-dimensional, architectural feeling to photo above.*

*High-kicking young ladies are ballet students. Colhoun disregards fuzziness, tilted angles and other points that plague the average amateur.*





*Obvious distortion, as in above picture, does not disturb Colhoun. The impact is more important to him.*

capacity, creating thereby technical flaws and problems that would be death to the casual photograph. The shallow focus of a lens brought in very close to the subject, the inability of film to register the extremes of a contrasty lighting, the blur of motion across the field of view—all these are inherent in many of his photos. The Colhoun attitude embraces photographic usefulness of these faults.

Some photographers will reject part of his work for the technical considerations they consider an affront to competency. Colhoun makes no apology. He doesn't think of these imperfections as unusual or unorthodox. He's just struggling along towards honest simplicity.

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the pre-set 50-mm.,  
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*The 135-mm., f/2.5  
Angenieux P2 lens*

## Six New Lenses For Your Exakta



*The 28-mm., f/3.5 Angenieux  
R11 (74° wide-angle) lens*



*The 50-mm., f/1.9  
Schneider Xenon*



*The 50-mm., f/1.5 (preset)  
Angenieux high-speed S21*



*The 58-mm., f/1.9  
Meyer Primoplan*

*The 135-mm., f/2.8 (pre-  
set) Steinheil Quinar*



Six new lenses designed to increase the versatility of all models of the 35-mm. Exakta are now being shown by Exakta dealers. Three of the new lenses come from the fabulous French designer and lens maker, *Etablissements Pierre Angenieux*.

The 50-mm., f/1.5 preset S21 will interest every Exakta owner because no extremely high-speed lens of standard focal length has been available heretofore for the cameras. This lens has the exceptional quality and beauty of all Angenieux lenses and a built-in preset diaphragm mechanism that can be set between and at f/stops. The mount forms a sunshade. The distance scale is in feet. The S21 stops down to f/22 and is designed for high-speed, dim-light photography. It sells for \$207.50 alone and \$385 with Exakta VX (\$442 with Penta Prism and split-image rangefinder).

Equally important is the 28-mm., f/3.5 Retrofocus R11 wide-angle, which has a 74° angle of view, and is designed for extremely wide coverage. It has two aperture scales for easy reading and a distance scale in feet. The R11 stops down to f/22. It sells for \$120.

The 135-mm., f/2.5 P2 is the fastest lens available for the Exakta at this or any medium focal length. It stops down to f/32 and is designed for dimly lighted, distant action subjects, color photography and hyperclose-up photography. The P2 has duplicate aperture scales and a distance scale in feet. It sells for \$169.50. All three Angenieux lenses have the well-known, beautiful black-and-grey mounts that match other Angenieux lenses.

Schneider Kreuznach has redesigned the famous 50-mm. Xenon lens so that it is f/1.9, slightly faster than before. This standard, general purpose lens is contained in a chrome mount with click stops. The front of the mount forms a sun shade. The Xenon stops down to f/16 and has the

unusual feature of both feet and meter distance scales. It sells for \$135 alone and \$324.50 with Exakta VX.

Meyer Goerlitz has redesigned the standard 58-mm., f/1.9 Primo-plan so it now comes with a preset diaphragm mechanism that can be set at f/stops. The Primo-plan stops down to f/22 and the distance scale is in feet. It sells for \$135 alone and \$289.50 with Exakta VX (\$346.50 with Penta Prism and split-image finder).

The f/2.8 Steinheil Quinar is extremely fast and the first lens of this length with a preset diaphragm mechanism. Like the Angenieux mechanism, the Steinheil can be set at and between f/stops. The lovely chrome mount is satin-finished, like other Steinheil mounts, and has a built-in tripod socket. The distance scale is in feet. The lens stops down to f/32. It sells for \$169.50 with shade.

Naturally, all these lenses are coated and have depth-of-field scales. We invite you to see them at your dealer.

#### SEAL cont. from page 17

ble of caring for themselves in the constant bedlam of the rookeries. They learn early to keep out of the way of the charging and fighting bulls. Even so, they may be trampled by the huge bulls weighing up to 500 or 600 pounds. (Sea-lion bulls weigh up to 2,000 pounds and are as aggressive and fierce as seals. They look like seals and belong to the same family.)

The cow remains with her pup, nursing it for about a week after birth. During this time, the pup has been well nourished and the cow has mated with the harem bull. The cow then swims away to the feeding grounds which are up to 150 miles away. The trip requires about a week. During the absence of the cows, the pups gather in small groups known as pods, spending their time sleeping or, if awake, scratching.

While the cows make frequent trips to sea in search of food, the bulls do not leave their stations for a period of eight to ten weeks. During this time, their energy comes from the thick layer of blubber that is stored up during the seven or eight months that they spend at sea each year. They are ever alert day and night and constantly challenging other bulls from nearby harems or fighting with them over cows.

Sealing operations are carried on daily during the season regardless of weather conditions. Preparations for the day's work begins at about 2 a.m., shortly before it begins to get light. After being removed from the seals, the skins are scraped clean of blubber, salted and packed in barrels.

Working on the rookeries among the breeding seals is hazardous because of the ferocious nature of the bulls. One cannot lightly regard their defiant attitude. An interesting experience is to mount one of the elevated catwalks that extend over the rookeries to afford biologists access to them for studying and counting seals. These walks, about eight feet high, pass over the heavily populated portions of the rookeries. Bulls in the vicinity of the walks object fiercely and make every effort to get at the intruder. And fortunate it is that they cannot! My Exaktas proved superior for taking pictures from the catwalks of the seals' activities and to catch shots of threatening bulls.

Toward the end of July, the harems break up. At the time of my arrival, this was happening. A few of the bulls were somewhat aggressive. On one occasion, our activities on the rookery frightened them into the water. I sat quietly among the boulders on the rookery hoping for their return in order that I might photograph them. One vigorous bull did accommodate me. He seemed to resent my presence and approached me, issuing threatening sounds. As he approached, I took numerous photographs until he actually chased me away. After fleeing a short distance, I stopped, quickly picked up a stone and hurled it at him, chasing him back into the sea. We repeated this act several times until it was necessary for me to leave.

While my time was fully occupied in trying to solve the problem of hookworm disease in fur seal pups and to develop means of combatting it, I did find time to take many interesting photographs. At the end of the season, I was fully convinced that my decision to rely on the 35-mm. Exakta was right.

As a zoologist who teaches and does research in both the laboratory and the field, often at remote places in the world, I am convinced that the Exakta is the ideal camera for the researcher and scientist.

#### THIRD cont. from page 8

which crystal form is an extremely important subject of study. Transparent crystals become more sharply defined, show depth and surface detail, and are observed in relief.

The crystalline structure of waxes is an important subject for examination because of the relationship between physical properties and crystal form. Waxes are easily observed with the Illuminator by the simple expedient of allowing a molten drop to cool between a microscope slide and cover glass.

In many cases, relief illumination is the only method of showing variations of structures, particularly of transparent crystals and unstained organic material (such as vitamins and alkaloids). For example, talc, which has a refractive index nearly that of Canada balsam (ca. 1.53) is virtually invisible when mounted in that medium and viewed by critical illumination. The same field, when examined with the Relief Illuminator, shows not only the surface detail but the piling up of the various laminae of the talc mass as well.

Not only with talc, but with innumerable other powdered materials, relief illumination has revealed surface contour and details not observable with any other technique. Starches, cosmetic powders, natural gums, pharmaceutical powders, drugs and various forms of silica are some of the suitable subjects in this group.

In determination of particle size (for example, pigments), relief illumination has been found useful and advantageous. Furthermore a clearer idea of shape can be obtained than with conventional methods.

Another important field of usefulness is in the study of biological specimens. Cells and tissues are sharper and show depth. Ligament and muscle fibers present situations similar to textile fibers. It can be anticipated that the addition of the third dimension to the microscope will become valuable in cytology, histology, para-histology, morphology, entomology and in the study of any transparent or translucent, homogeneous or heterogeneous system or any other scientific ramification where the microscope is an established and valuable tool.



## Reflections

In the next column, a photographer of abstracts presents his viewpoint about a type of photography that is bound to cause an argument. It is interesting to note that a concrete subject sometimes looks abstract when it is photographed, whether the cameraman so intended or not. The photo above, by Gita Lenz, is a good case in point. This is a literal picture of a child's reflection in water, yet it has a surprising abstract quality. It resembles some of the modern paintings, designed to create a mood or effect rather than a pretty picture. It indicates that abstract photography is a field that can be explored with great imagination, great excitement and great profit.

## Abstract Landscapes

by Robert E. Christie

Likes and dislikes in photography fortunately change. For the present, my likes lie in the direction of abstraction. This liking is one of preference, not exclusion.

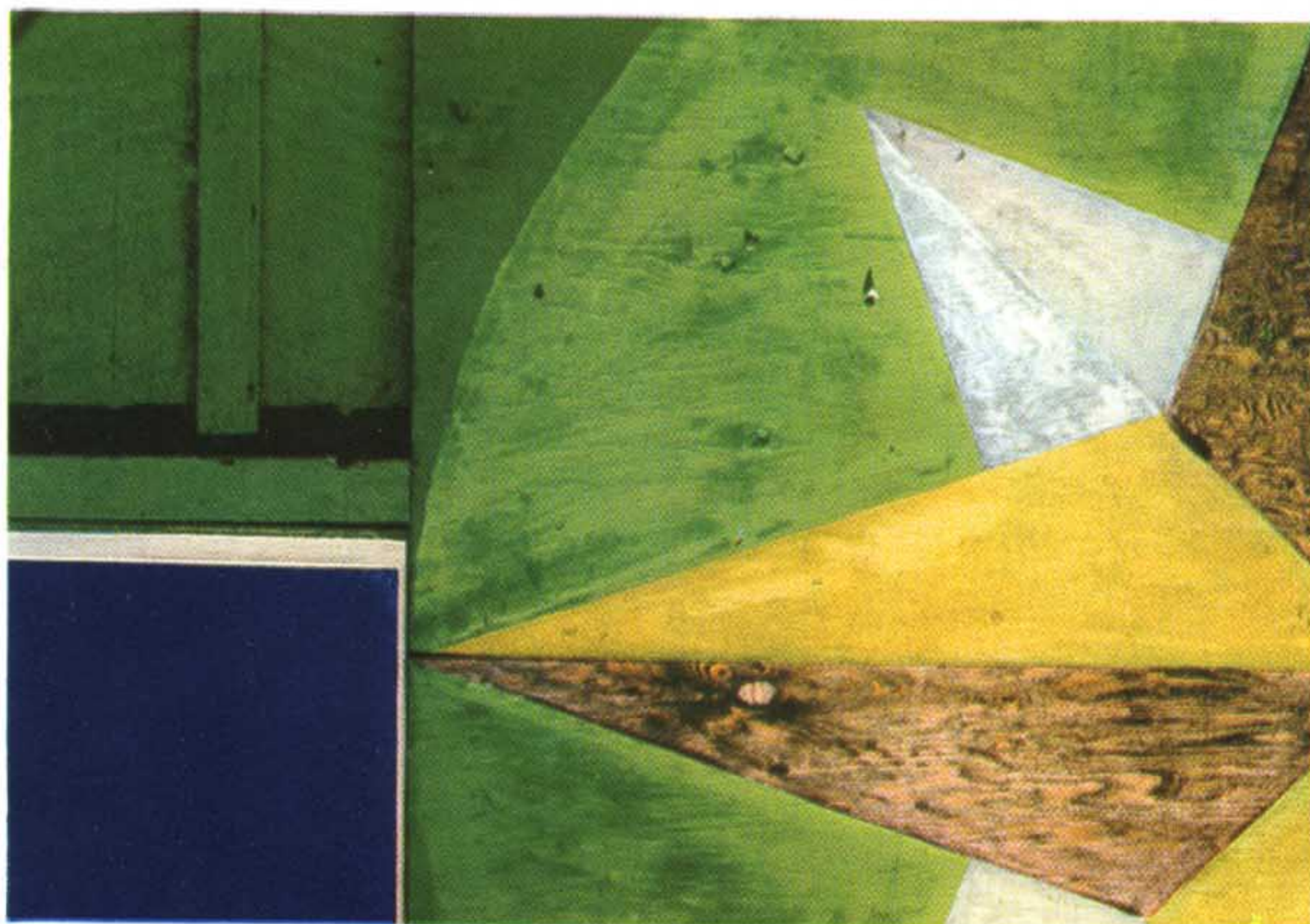
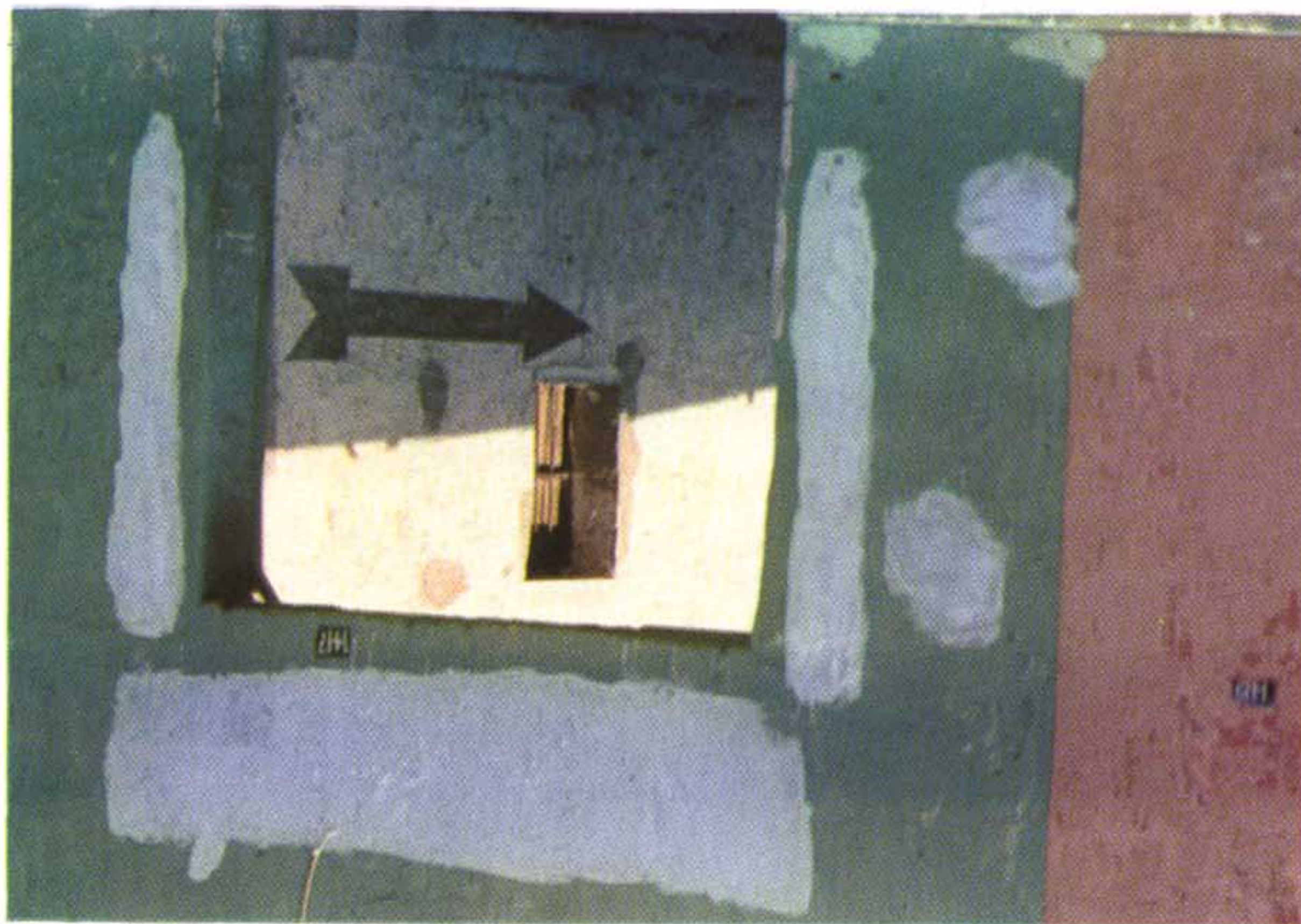
To me, the appeal of a scenic is primarily visual, whereas the abstract has emotional content as well. One reason for this is that in a scenic the area of view is usually considerable and the attention of the eye is diffused rather than concentrated on a specific portion of the picture. A scenic generally creates an overall effect or mood—everything within its scope is harmonious and pleasing to the eye and much of the success of such a picture is due to the fact that it is a felicitous arrangement of things as they should be.

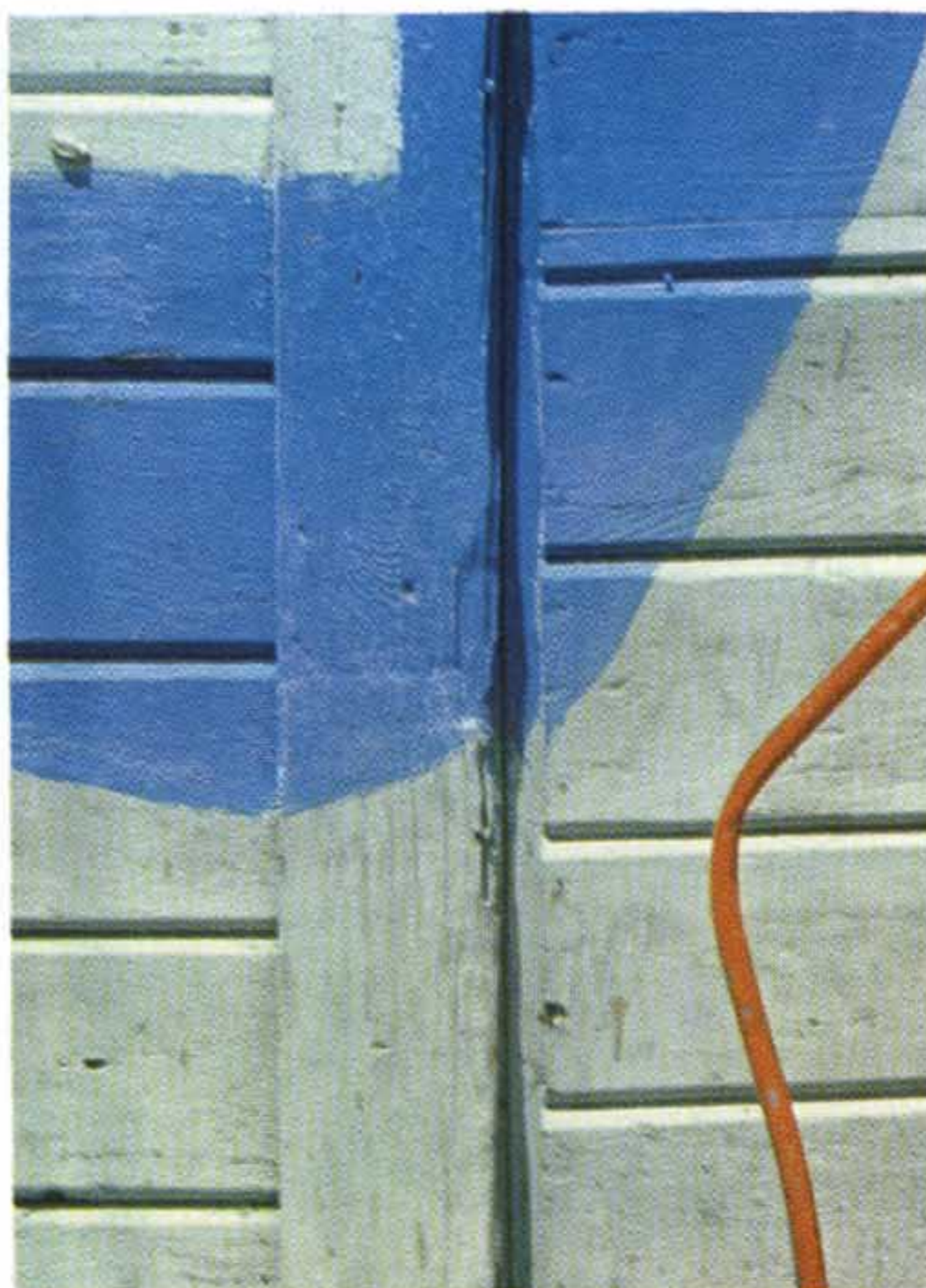
Abstract landscapes, on the other hand, often are effective because they shock or assault the eye. Such a reaction must involve thought and reasoning and, therefore, the emotions.

In abstracts, frequently a color or form at variance with the assumed order of things is, if not itself a complete picture, often the starting point of one. Because of this I feel the composition of an abstract to be more complex than of a scenic. This desire for selectivity has made the 135-mm. telephoto lens, for me, the most useful one for this type of 35-mm. photography. Also, the colors of scenics, while lovely to see, are bland and limited if compared to the variety and effects possible in abstracts.

I have no patience with people who have no patience with abstracts. In the field of painting, persons of opposing taste could argue that abstracts are the product of a distorted imagination and deserve no rightful place in the field of art. No such objections can be made in the case of abstract photography because there can be no greater visual validity than that of reality.

*All photos on pages 37-38  
were taken by the author.*





friends, whose work with paint and brush on canvas fascinated him so much that he spent whatever time he could spare from odd jobs he performed to make a living to learn the art himself. He appears to have had some talent in this field, for the records say that he won moderate renown locally as a "Sunday painter" of considerable ability.

Somewhere around this time, the news came from France that cut short his budding art career and made him one of the first Americans to embrace the new art of "sun-drawing," as it was then called. With characteristic energy and enthusiasm, he set out to master the craft of the daguerrean, to which he was to remain passionately and successfully devoted until his death in 1902 at the age of 83.

Photography was new, without precedent or tradition. Like his fellow photographers of the time, he turned for inspiration to the art which he had just abandoned. Photography to him was only another artistic endeavor, only more suited to his inclination and temperament, on a par with all the other arts. When sometime later he opened his first photographic gallery in New Orleans, his "sun pictures" were hung alongside paintings and sculpture, without apology, in support of his belief that art was art, no matter what the medium used, and the camera in the hands of a real artist is no more a mere machine than are the implements of the painter and the sculptor.

Cook's imagination demanded a large canvas, ambitious enterprises. This, combined with the wanderlust natural to a young man in his twenties, caused him in the summer of 1845 to quit his job as manager of the New Orleans daguerreotype gallery and to inaugurate a novel tour of the Southland which was to end about four years later in Charleston, S. C. This was to be no idle trip in search of adventure, but was based on a carefully calculated plan to spread the new art throughout the South.

He had a simple routine, which always worked. He would select a promising town, establish a studio, hire assistants and take portraits for pay. In addition, he taught would-be daguerreotypists, then picked the best of his students to take over the studio so

he could quit the town and proceed elsewhere.

In Charleston, Cook set up his first permanent photographic gallery, later others in New York and Philadelphia. His travels had made him famous not only throughout the South but in the North as well, for even after he had decided to settle in Charleston, with his wife and two children, he regarded the city only as his headquarters, working for various periods not only in North and South Carolina and Georgia, but also in Philadelphia, New York and Chicago. He was even hired by Mathew Brady to run his New York studio for a year in 1851-1852 during Brady's sojourn in Europe for his health, a circumstance that has led to the conjecture, raised by Kocher and Dearstyne, that pictures taken during this period and attributed to Brady may actually have been taken by Cook!

Which brings up the business of credits. In the collection found in the Virginia attic, not all the pictures are by Cook; some are by photographers whose files Cook purchased along with their studios, others by photographers employed by Cook. Only some of them are signed, which mixes things up still further. The same is true, as we all know, of the Brady credits. Does it matter? To the conscientious historian, the meticulous museum curator, the collector, yes. But so far as the rest of us are concerned, I believe that most persons are satisfied with Mathew Brady's greatness on the basis of what we know to be authentic Brady photographs; the same is true of George Cook.

Though primarily a studio portrait photographer, Cook proved at the time of the Civil War that he could tackle even a press photographer's job if the need arose. That opportunity, of course, came with the firing of the first shot on Fort Sumter, the Union-held fortress in Charleston Harbor, on April 12, 1861. Along with pictures of soldiers and high-ranking officers, prints of which were sent to the folks back home, Cook did a wartime stint as "official photographer for the Confederacy." In this capacity he photographed military installations in and about Charleston Harbor, but mostly at Fort Sumter.

Traveling by rowboat, Cook made frequent trips to Sumter during the course of the war, carrying with him not only cam-

eras and other equipment, but the necessary sensitizing apparatus as well. The wet plates of the day had to be sensitized on the spot and used within an hour, or before they lost their moisture and, therefore, light sensitivity.

Although frequently under fire as he diligently photographed the gradual demolition of the fort's walls, Cook went about his business as if no risk were involved. Probably his most spectacular picture of the war was the one he took from the parapet of the fort. He had to mount his camera on a tripod, inspect the scene on the ground glass after throwing the dark focusing cloth over his head, then replace the ground glass with the plate holder, pull the slide and count out the seconds for the exposure.

While photographing the Federal monitors Weehawken, Montauk and Passaic firing on Fort Moultrie, about a mile away, he was spotted by Union batteries on nearby Morris Island. They sent a shell his way, but missed him by a few feet; a second shell knocked one of his plate holders off the parapet. Undeterred, he was about to take a second picture when a voice of authority from below ordered him off the parapet because he was endangering the lives of those in the fort. But the first exposure had done the job: "the first picture ever made of ironclad warships in action." Altogether, his Civil War coverage has since been recognized as a valuable achievement.

"In his many-sided coverage of the Charleston theatre of the conflict," write Kocher and Dearstyne, "he has left us, after the work of Brady and his teammates, the most precious body of documentary photography of the Civil War period."

By 1880 he was to move to Richmond, where his son, Huestis, was his father's "outside man," photographing plantation homes and plantation life along the James and York Rivers and other phases of the current scene in Virginia, while his father specialized in studio portraiture, counting among his sitters leading figures of Southern civil life as well as notable figures of the Confederacy. Along with portraits of Southern personalities, father and son between them made a memorable record of how their contemporaries lived, a priceless document of Southern life in the second half of the nineteenth century.



# Mother and Child

by Vincent Glasheen

The subjects of these photographs are my wife and child. I took the pictures to show what a strong affinity exists between a breast-fed baby and his mother and to illustrate what a bottle-fed baby and his mother miss.

The relative positions of mother, child and camera (in other words, the composition) were tried out and decided upon beforehand so that when the pictures were being taken I could concentrate upon the expressions. I decided that the best light would be natural daylight from an open window at the evening meal. The only fill-in was reflection from a cream-colored wall at right angles to the window.

The pictures were not all taken at one session, but were spread out over several evening meals.

(The two photographs reproduced here are part of a set submitted about three years ago to *Ladies' Home Journal* by a Montreal amateur. Despite some obvious technical faults, they were recommended for publication by the then picture editor, John Morris, who said, "They speak eloquently," but the pictures were rejected by the editors of the publication.

Without criticism of the editors of *Ladies' Home Journal*, who have their editorial prerogative to reject anything they wish and often the editorial necessity of doing so, *Exakta* is publishing two of the set which have a unique quality and beauty. Pictures like these mirror the most normal relationship in the world. Unfortunately, they are rarely seen in our so-called family magazines which strive for an anti-septic quality.

When pictures of a mother and child are published, they almost inevitably are of a sterile quality. The mother is usually a manikin, hired for the role. The baby is a prettied-up doll. The studio picture-taking process eliminates

any possibility of showing the natural feeling, contentment and intimacy that exist between mother and child.

The spontaneity of the kiss on the opposite page cannot be matched by any artificial embrace between a model and child. The contentment of the child in the picture below, one hand against the mother's breast, cannot be evoked by anyone except a mother.

These pictures represent a slice of life that one rarely sees in magazines, that deserves to be published. We are presenting them here for that reason and for the inherent merit of the pictures themselves.

We do not hold them up as great examples of technique. Actually, they lack some of the refinements of professional photography, such as sharp focus, superior composition and absence of distortion. Glasheen knew nothing about photography when he took these pictures. He had never taken anything but snapshots. But these photos have wonderful impact, especially the one on the opposite page. There is flow in it from the child to the mother, almost as if the child initiated the kiss instead of the mother. Despite the distortion, the picture is magnificent and a fine example of how subject matter can triumph over technique or lack of it.

There is another reason why these photographs are published here. Many photographers complain that they do not know where to find camera subjects. Glasheen found a marvelous subject at home because he has sensitivity and vision. Only he could take this set of pictures. He is the only one who could have operated a camera during these scenes without mother and child feeling uncomfortable and self-conscious. Photographers who are fathers may know this but too often fail to take advantage of such picture possibilities. — The Editor)



# Shooting the Circus

by George Berkowitz

The circus is an Arabian Nights adventure. From the first blast of the brass band to the spec finale, the tanbark amphitheater is a photographic wonderland with 1,001 picture possibilities occurring at a mile-a-minute clip.

Everywhere you turn or look, there's a picture subject. There are lions, tigers, bears and seals going through antics, clowns cavorting, trained performers presenting "death-defying" stunts. If anything, there is too much to look at, there are too many pictures to be taken. It's little wonder that thousands of camera owners yearly visit such spectacles, take millions of photos, yet find something new, something unusual to shoot each visit.

There are about 25 circuses

that roam the country every year. At least one of them is bound to pitch a tent in your hometown.

They range in size from the big three-ringer, Ringling Bros., Barnum and Bailey, that makes one to five-week stands in and around big towns, to small, single-ring enterprises that pitch their tent, play one or two dates, break their tent and move on to the next town, all within a 24-hour stretch. They all have animals, clowns and other skilled performers like aerialists. All are grist for your photographic mill.

Circus photography represents either a problem or no problem, depending upon how you go about it and the individual managements. Project yourself into the position of a circus management

for a moment. A photographer is at best only a source of annoyance and nuisance. The photographer gets in the way of the acts and sometimes prevents a performance from going smoothly. He wanders around the ring, risking his life and limbs, because accidents can occur even in the best-run circuses, because there are so many pieces of equipment that are operated on split-second schedule and because animals are unpredictable.

The circus management, although it tries to avoid any legal responsibility, still may be sued by anyone who suffers an accident even though the circus is not to blame. Defense costs money. Therefore, many circus managements do not want to be

*Pleading clown, Ringling's famous Emmett Kelly, is blurred because the photographer's lens was focused on distant subject and he had only an instant to grab the shot. Chance it in such a case. Result may be usable.*





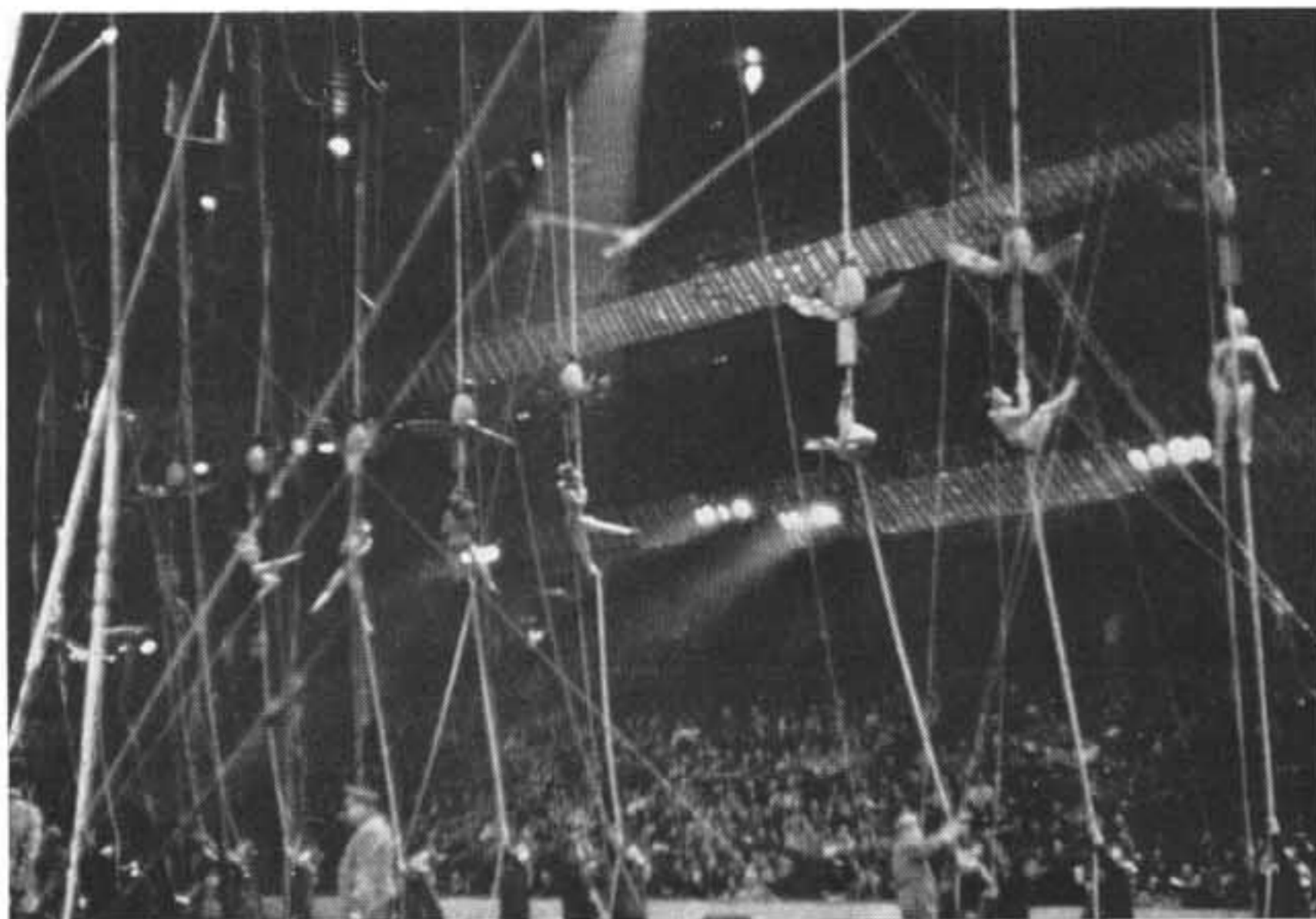
*Wire artists, above and below, offer many picture opportunities. You can shoot good photographs from either direction.*

bothered with photographers, nor run the risk of trouble.

Furthermore, circus officials reason, if they grant permission to one photographer, they will encourage many others to ask. There's something about the sight of one person taking pictures in the ring that brings out the instinct of mimicry in others. They must follow suit. Obviously, a circus can't have 15 or 20 photographers wandering around during a performance, gumming up the works. All this adds up to the fact that it may be difficult to get permission.

The practice of The Biggest Show on Earth, Ringling's, is to grant permission to photograph from the ring only to accredited representatives of a magazine or newspaper. Application must be made by the editor of the publication on a letterhead and be sent to the publicity director at the circus office, which usually opens several weeks or days before the show actually opens. Smaller circuses usually operate the same way, but are likely to be a bit less stringent about your representing a publication. Nevertheless, it's a good idea, if you can possibly scrape up such an assignment or letter, to have one because you'll have better luck with it.





*When chorus girls mount ropes, you can shoot fascinating pictures from any location with a long lens. A 135-mm. lens usually is best for such shots.*

Under no circumstances should you try to shoot from the ring without the permission and knowledge of the circus management. In addition to the likelihood that you will get the heave-ho as soon as you are discovered, you may be courting some trouble.

The best procedure, therefore, is to request before the circus arrives or the morning it reaches your town the privilege of working inside the ring. If that is refused, don't worry because you still have an ace in the hole. You can get plenty of shots from any seat in the tent and you don't need the circus' permission for that. There's no law against shooting from your seat, as long as you stay in it. Since most amateurs will have to confine themselves to this method, it's a good idea to consider some of the problems that may arise.

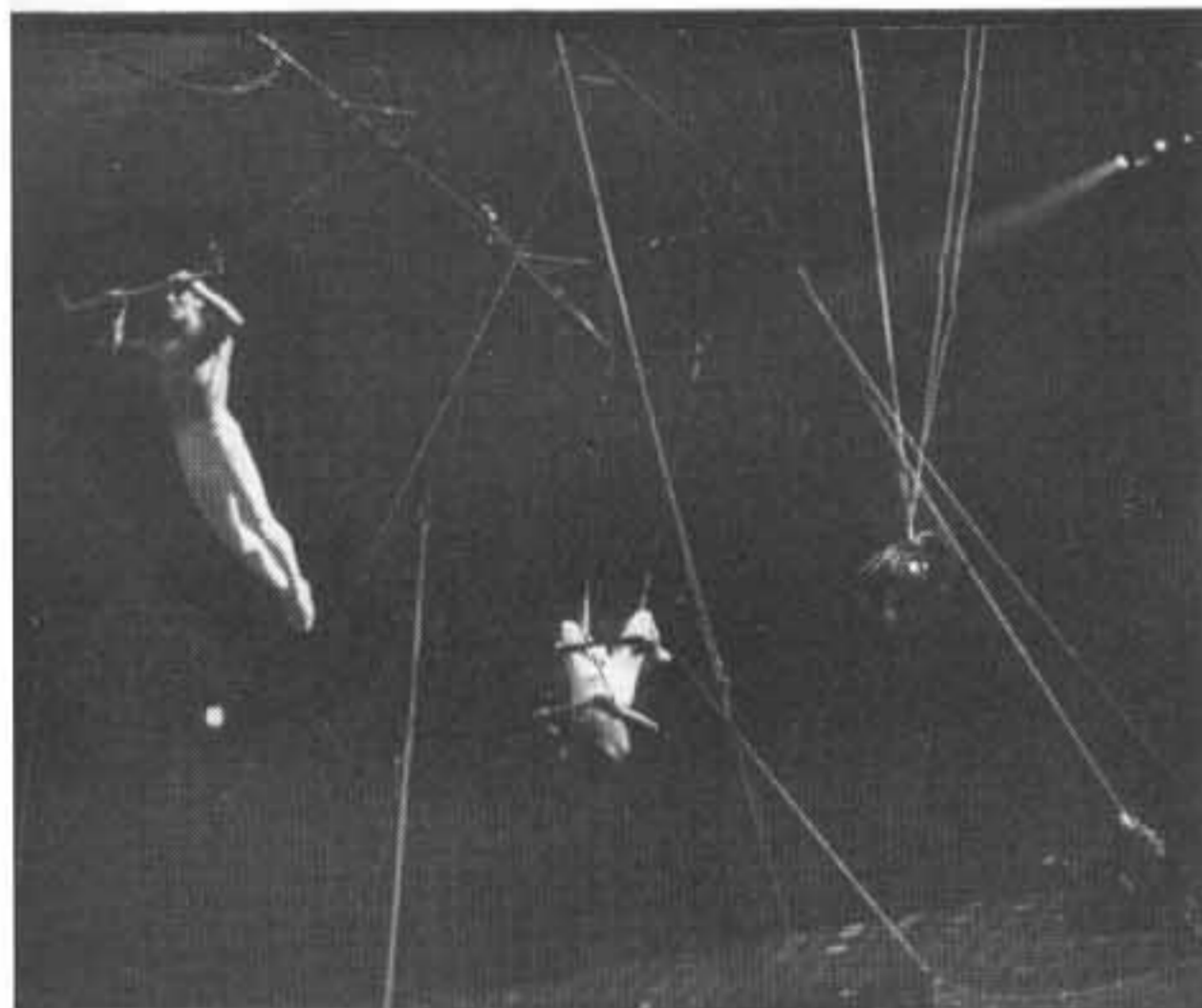
*Continued on Page 46*

*Somersaulting acrobat must be shot at high speed with a fast lens or underexposed deliberately and film processed with special developer.*





*Bareback rider above requires less speed than acrobat. Always shoot horse from angle rather than parallel.*



*Dramatically spotlighted against roof, aerialists, trapezes, ropes and spots make wonderful photo subjects.*



*Clown is Otto Griebing, Ringling veteran. He looks close, actually was across ring, was shot with telephoto.*

# M E Y E R

Like Damon and Pythias, Meyer and Ihagee have worked together to develop the incomparable Exakta camera. Meyer's outstanding staff of scientists labored for years in the world-famous Goerlitz laboratories to develop special lenses for the Exakta, lenses that would record any subject with the accuracy and sharpness that this great camera merits. Meyer is proud of its lenses and equally proud to have them on the Exakta.

No matter what your photographic need is, there is a coated Meyer objective to fill it.  
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## THE 35-MM. EXA

Like many other photographers, Exakta owners have often expressed a wish for a second camera, a Sunday camera that can be put in a pocket or purse, that can be given to a wife or friend as a gift. The 35-mm. Exa was designed to meet this need. The Exa is a streamlined version of the Exakta, stripped down to essentials for fine photography. It is small, measuring 5" long, 3 1/2" high and 2 1/2" deep. It has a focal plane shutter, coupled film advance and shutter cocking and built-in synchronization for regular and electronic flash. A triggerlike lever, a revolutionary design, permits exposure setting by means of a push or pull of a finger. The Exa lens and viewfinder mounts are identical with those of the Exakta, which means that you can use your present equipment with the Exa.  
 EXA with f/2.9, 50-mm. coated Ludwig Peronar ... \$ 89.75  
 with f/3.5, 50-mm. T-coated Zeiss Tessar ... 119.75  
 with f/3.5, 50-mm. pre-set T-coated Zeiss Tessar ... 149.50  
 with f/2.8, 50-mm. pre-set T-coated Zeiss Tessar ... 169.50

## CIRCUS cont. from page 44

The circus, especially a big one, is a myriad of lights, performers and actions. So many things are going on, you can easily be bewildered. So, the first thing you will want to decide is what to shoot. The best way to do that is to attend a performance strictly as a spectator. Eat peanuts, popcorn and hot dogs and enjoy yourself. At the same time, however, note on a program or on a pad what acts you want to photograph, the sequence of such acts (so you can know when to be ready for your subjects) and the best location for your pictures.

Such advance preparation will pay off. For instance, you may find that you will want to take a number of shots within a short space of time and won't have enough film in one camera, nor time to change rolls. Therefore, you obviously will require a second camera. You may discover that a certain location may be good for most of your pictures but not for shots of such performers as aerialists. Consequently, you will require a telephoto.

You will be able to observe the lighting conditions and take meter readings (if you bring a meter along) to figure out the exposure. You will be able to think about composition and camera angles. All this preparation is essential for good photography. Professional photographers always prepare for an assignment in this way, if possible. Amateurs will find that it pays to do likewise.

The first technical problem involved in circus photography is lighting. There usually are so many powerful lights used in a circus, that you can take everything you want with available light. Flash is unnecessary and, in fact, undesirable because the picture appears unnatural. You need rich black shadows and contrasting highlights to provide circus atmosphere for a picture.

Therefore, under normal conditions, you should attempt to shoot with whatever light exists. Usually a meter reading will give you the proper exposure. If your meter doesn't register, guess the exposure or shoot at the fastest exposure that will stop the action, like 1/100 of a second wide open, and compensate later for possible underexposure when developing the film.

The film you use will determine the exposure, of course, unless

you use special methods described later in this article. Super-XX and Ultra-Speed Panchromatic are good for black-and-white pictures if you want the fastest film you can get, but you sacrifice grain. This means that your pictures usually won't blow up as large as 16x20. Plus-X and Supreme are slower but are finer grain films, usually permitting you to blow up your pictures to a larger size than the faster films.

Tungsten type Ansco Color or Type A Kodachrome should be used for the color shots if the circus is lighted with artificial lights. Daylight type color film should not be used indoors.

The speed you will expose the film depends upon the type of film, aperture of the lens being used and speed of the subject action. One rule that will help you in any photographic situation, circus photography included, is to expose at fastest possible speed.

Thus, you can avoid camera shake or the blurring of action, either of which results in fuzzy pictures. Occasions do arise, however, when the ordinary lens and film you are using are not fast enough for the action. One solution is to use an extremely high-speed lens, such as the 50-mm., f/1.5 Angenieux S21, the 75-mm., f/1.5 Zeiss Biotar or the 90-mm., f/1.8 Angenieux P1.

Another is to underexpose deliberately (expose at a faster speed than the film and lens you are using normally permit) and then use a special developer like Promicrol, Von-L, or a hyped up version of a developer like D-23 or D-76 (see article called *Poor Light, Fast Action* by Ray Shorr in Vol. 1, No. 3, *Exakta*, pages 2-4) for much greater film speed.

Actually, it is better usually to combine both solutions—that is, to use a high-speed lens, underexpose and use a special developer. By this method, you can use what might seem like "fantastically fast" speeds, 1/100, 1/250 and even 1/500 of a second (with black-and-white film) in very dim light to stop action.

The photographs illustrating this article all were deliberately underexposed in this manner. They were taken in Madison Square Garden with existing light at 1/100 of a second, usually with the lens wide open at f/5.5. Development was in D-76-F (D-76 with 10 times the normal amount of borax) for a much greater period than normal. I have delib-

erately underexposed other pictures that required a development time of 26 minutes in D-76-F (normal development time 5 minutes) and yet gotten negatives that furnished 8x10 prints without grain.

Color film can be exposed at 1/50 or 1/100 of a second with a fast lens, but there must be plenty of light. It is also possible to speed up Ansco film a stop or two by altering the development procedure.

You will find that it is better to come to the circus prepared with a battery of lenses and a camera equipped with a Penta Prism than to shoot with only one lens and the standard viewfinder. If you can wander over the circus ring, approaching your subject usually is no problem. A short focal length lens will do for all except the shots of subjects way up in the air.

If you are forced to remain in your seat, however, it is imperative that you use a long lens to bring your subject closer. The 85-mm., f/2.8 Steinheil Culminar or 90-mm., f/2.5 Angenieux Y1 and one of the five 135-mm. lenses available—f/2.5 Angenieux P2, f/2.8 Steinheil Quinar, f/3.5 Angenieux Y2, f/4 Zeiss Triotar, or f/4.5 Steinheil Culminar—would be extremely helpful. The 180-mm., 250-mm. and 400-mm. TeleMegors also would be useful if used on a tripod. Always use a long lens on a tripod to avoid camera shake. The fact that the TeleMegors are f/5.5 can be offset by the special development technique discussed previously.

You will find the Penta Prism a little easier to use than the standard viewfinder in circus photography because of the nature of the subject. You will be able to work a bit faster, which makes a difference when you are shooting rapidly changing subjects.

If you have two cameras, take both of them to the circus. You can use one for black-and-white and one for color or both for either. You will find that you lose few pictures if both cameras are loaded so you can switch from one to the other without hesitation at the end of a roll.

Finally, don't be satisfied with just one trip to the circus. Go back several times and keep shooting, trying for unusual effects and different compositions. If you use your imagination and work hard at it, your pictures will sparkle with eye appeal.

## *Exakta Pictures*

Readers are invited to submit photographs for this page. Photographs are acceptable in any size, in black-and-white and color, whether your own printing or that of a photo-finisher. We will pay \$5 for each picture published. We require complete technical information, and return postage must accompany your photos if you want them back. If any persons can be identified in your photographs, include a release, signed by that person, authorizing the use of his picture in the Exakta Magazine. Send to George J. Berkowitz, Editor, Exakta Magazine, 705 Bronx River Rd., Bronxville 8, N. Y. Your contribution will be acknowledged, but considerable time may elapse before it is used or returned so please do not become impatient. Contributors to this issue are: top, right, Harold Schenke, The Bronx, N. Y., taken at 1/100 of a second at f/8 on Plus-X with a medium-yellow filter; bottom, right, P.G. Squarebriggs, Campbell River, B.C., Canada, taken at 1/25 of a second at f/2 on Super-XX with available light (one 60-watt bulb on a post about 8 feet high on the left of the shed and a match); bottom, left, Hobart E. Freeman, St. Petersburg, Fla., taken at 1/100 of a second at f/12 on Plus-X with a Pola-screen in late afternoon.





COLOR PHOTOGRAPHY...  
...IS EXAKTA PHOTOGRAPHY



**T**here is a beauty in life that the eye or mind cannot retain.

It lingers for awhile, but gradually dies with memory. This beauty is the color of nature, the plumage of the queen. But it need not die. With color film in your Exakta you can make it live a lifetime. Your Exakta is the most versatile camera in the world and ideal for color photography. If you have never taken color pictures, you will find an Exakta an easy way to

"fix" your memory on film in gorgeous hues. If you have taken color pictures with the Exakta, you know what a thrill it is to get your transparencies and know that you have captured for all time life as you saw it on a memorable day.



**EXAKTA CAMERA COMPANY, 705 Bronx River Rd., Bronxville 8, N. Y.**