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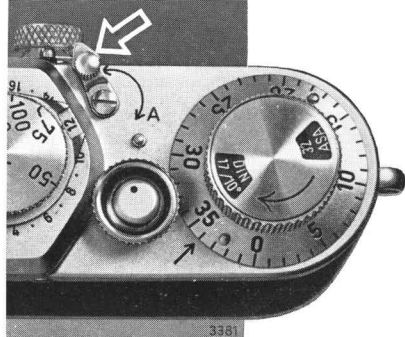
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## UNLOADING THE LEICA

When the full length of film has been exposed it will be impossible to turn the winding knob without exerting undue force. It will be necessary to rewind the film into the cassette. Before doing so verify that the slow-speed dial is not set to T or the shutter might be open and the film would be exposed while being rewound. To be doubly sure fit the lens cap while rewinding.

1. To unload the camera set the reversing lever (16) to **R (Reverse)**. This disengages the automatic coupling of the film transport and the shutter mechanism.
2. Pull up the rewind knob (15) and turn in the direction of the arrow until resistance is felt. This will indicate that the film has been unwound from the take-up spool and is being held merely by its tip under the spring of the spool. Wind to overcome resistance, and after two complete turns the film will be completely rewound into the cassette.



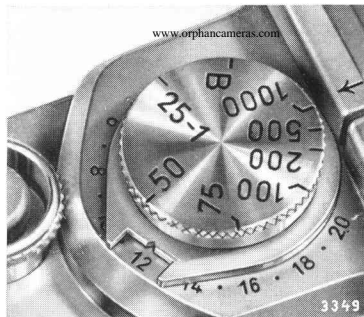
If a partially exposed film is removed from the camera and the unexposed portion is to be used at a later date, the film must not be fully rewound into the cassette. Watch the release button carefully when rewinding and stop as soon as it ceases to turn. (See also page 32.)

3. After rewinding the film the baseplate may be removed and the cassette withdrawn. Protect loaded cassettes from dust and light by storing in the original light-metal containers.

## FLASH SYNCHRONIZATION

The LEICA has provision for flash synchronization at the various shutter speeds. An adjustable contact scale (18) with red figures is fitted under the fast shutter-speed dial (5).

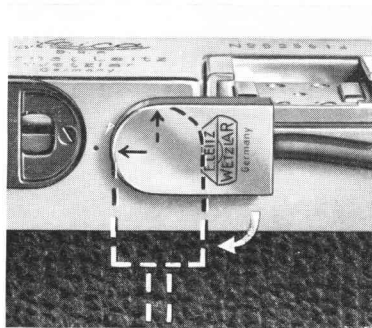
The contact scale allows of adjusting the built-in shutter synchronization in accordance with the flash peak of all commercial types of flash bulbs and also electronic flashes.



The appropriate setting of the contact scale for any exposure time required is taken from the Tables printed on pages 38–39. Similar folding Tables are supplied for retention in the ever-ready case. The circular plug socket to take the connecting cable of the flash attachment is built-in at the right hand side of the twin eyepiece of the rangefinder and viewfinder.

Special attention is drawn to the fact that these Tables are only valid for cameras with RED contact numbers and distance calculation in FEET. Special tables are available for earlier IIIf cameras with BLACK contact numbers.

The camera plug held in a horizontal position and with the arrow engraved on it pointing towards the twin eyepiece is pushed into the flash socket (19) of the LEICA and secured there by turning it downwards so that the arrow now points to the top. To remove the plug, turn it so that the arrow is horizontal again and pointing to the twin eyepiece.





The LEITZ flash attachment is fitted to the accessory shoe of the camera or to the shoe of the adjustable holder for the flash attachment. The unit consists of the battery container (1) with lateral socket (2) for inserting the two-pin plug of the connecting cable, tripod thread (3), detachable holder for large flash bulbs with E. S. cap (4), adapter (5) with ejecting device (6) for small flash bulbs with S. C. C. cap, reflector holder (7) and collapsible (segmented) reflector (8), and connecting cable.

The battery container includes an adapter (9) with tubular capacitor and with holder taking a small commercial 22.5 volt dry battery (commonly used with hearing aids).

Successful firing is guaranteed by the capacitor. The adapter with capacitor can be fitted, without modification, in place of the battery holder supplied with earlier flash attachments. The flash bulb socket (4) is detached by a slight left turn and similarly replaced by a right turn.

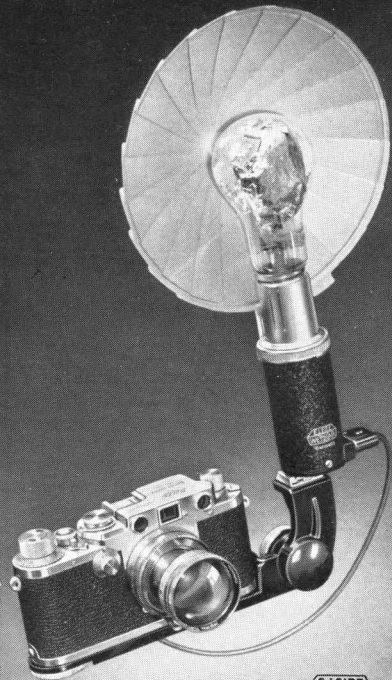
The current supplied by the battery, even after long use, will still be sufficient for firing. Ignition is, therefore, practically independent of the condition

of the battery as long as it is not completely exhausted. The capacitor is charged by inserting the flash bulb or the test filament bulb (6 volts, 0.05 amps). No bulb should, therefore, be kept inserted if the flash attachment is not in use.

The holder for flash bulbs with E. S. cap (4) takes the adapter (5) for the small flash bulbs with S. C. C. cap. This adapter is turned until its pins engage the springs of the holder and the red dots on either part are in alignment. By pressing the knob (6) of the ejecting device the hot bulb can be ejected immediately after firing.

The collapsible reflector is so attached to the holder with click stops (7) that the flash bulb is in the centre of the reflector. Radius and surface of the reflector are designed to produce a pleasing soft lighting covering a wide angle, so that the 35 mm. wide angle lens can also be used for flash photographs. With the reflector folded the flash attachment requires a minimum of space.

One or more flash attachments can be connected to the synchronized LEICA and fired simultaneously at various distances (mounted on tripods) to give special lighting effects. In this case a long connecting cable and multiple socket have to be used with the normal flash attachment cable.



# Exposure Guide for LEICA-Cameras with RED Flash Synchronization Scale

Table ①

	Shutter Speed →	$1/25$	$1/50$	$1/75$	$1/100$	$1/200$	$1/500$	$1/1000$	
	Contact Number →	<b>16</b>	<b>13</b>	<b>7</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>0</b>	
<b>Flash Bulbs</b> (Type FP) for <b>Focal Plane Shutter</b>	Philips PF 24, Osram SO Gen. El. USA PH 6 Sylvania USA FP 26 West Japan FP 6 A	90	70	60	50	40	25	20	<b>Guide Numbers</b>
	Philips PF 45	115	100	80	70	45	30	—	
	Gen. El. USA PH 31 West Japan FP 31 Sylvania USA No. 2A	145	115	90	80	50	35	25	
	Osram S 2	200	145	120	100	70	50	35	
	Gen. El. Brit. No. 22								

- Adjust red scale of synchro-dial below the shutter speed dial in accordance with the CONTACT NUMBER given in the table for the required shutter speed.
- Look up the GUIDE NUMBER for the flash bulb and shutter speed used, divide by the *distance (in feet)* between bulb and subject and set lens diaphragm to the figure thus ascertained. This adjustment ensures satisfactory exposures on films of medium speed  $17/10^\circ$  DIN ( $28^\circ$  European Scheiner,  $27^\circ$  B. S. & A. S. A. Logarithmic Index).
- Correct the lens diaphragm setting when using high-speed or slow films by changing to a higher or lower stop number. A change of one stop is required for a speed difference of  $3/10^\circ$  DIN, ( $3^\circ$  Scheiner or 3 B. S. & A. S. A. Log. Index units).

Consult special table for LEICA III f with BLACK contact scale.

Table ②

### Directions for Electronic Flashes and Flash Bulbs for Central Shutters

Flash bulbs specially made for focal plane shutters (Table 1) ensure best results with the LEICA but those made for central shutters of the between-lens type for ordinary cameras can also be used. The latter flash bulbs emit a shorter flash so that slightly uneven illumination of the negative may be caused, especially with short exposures. The values given in Table 2 are based on data and graphs supplied by the makers of the bulbs. To make the best use of the light available, somewhat increased negative development times are advisable. This is specially important with photographs taken with the aid of *electronic flash equipment*.

If on one film strip daylight and flash photographs are being made and therefore an increased developing time is not feasible, it is recommended to use for flash photographs the next larger diaphragm opening of the lens than that derived from the Table and calculation. Example: guide number 55 and distance 10 feet require  $f/5.6$ , so that under the above circumstances  $f/4$  should be preferred.

### Flash Settings for the synchronized LEICA with red Synchro-dial.

Shutter Speed →		1/25	1/50	1/75	1/100
Flash Bulbs	Press 40	13 135	12 105	6 85	4 80
	Osram S 1	10 115	11 80	6 65	4 60
	Philips PF 56	11 135	12 105	6 85	4 80
	Philips PF 25	9 95	10 75	5 55	
	Philips PF 14	9 60	10 55	5 35	
	Philips PF 3	9 50	10 35	5 25	
	Osram XO	3 65	6 55		
	Osram XP	1 50	5 45		
Electronic Flash (without delay)			20		
Electronic Flash (with delay)		0			

To use this table consult Directions 1. to 3. on preceding page.



## **Simplified Testing Method for Built-in Flash Synchronization.**

The cause of failures is usually found outside the camera. The voltage of batteries may have dropped by long storage so much that there is no ignition of flash bulbs. The synchronization is checked as follows: the two-pin plug of the connecting cable is inserted into the flash attachment fitted with a test filament bulb or connected to a torch battery with a filament bulb in series connection. The filament will light up when the pins of the plug, while inserted in the socket, are shorted. To test the cable the camera plug on the other end of the cable must also be carefully shorted.

For actually checking the LEICA synchronization, push camera plug into the socket of the LEICA and test series contact with shorted main contact as follows: Wind shutter, set speed dial to  $\frac{1}{25}$  sec. and synchro-dial to 2, 3, 4 or 5. Press down release button (shutter will release). The test filament bulb will light up only for a fraction of a second due to the capacitor. If a commercial mono-cell battery with suitable bulb (1.5 volt) is used with the flash attachment for checking purposes, the bulb will light up on depressing the release button and go out again as soon as the pressure is released.

For checking the various contact settings of the synchronization, set shutter speed and synchro-dial as follows:

Shutter speed	1000	500	200	100	75	50	25
Synchro-dial	0	1	2	5	7	13	19

The shutter speed dial is held firmly and the release button pressed down. No contact, the bulb does not light up. Then the shutter speed dial is allowed to revolve slightly. Contact is established, the bulb lights up. On rewinding the shutter speed dial to the stop the current must be switched off again. With these tests proper flash synchronization is established. In case of difficulty with electronic flashes it is advisable to have the insulating resistance checked by an expert (electrical engineer) at the two-pin plug of the cable while the camera plug is pushed in position. The test voltage should be not more than 220 volts, the insulating resistance at least 2 megohms. If the camera does not conform with this requirement it should be sent to our works or our official agency.

## CHOICE OF FILM MATERIAL:

A wide variety of films of differing speeds and other characteristics is available, enabling the LEICA photographer to select the type most suitable for any particular purpose.

**Medium Speed Films** with a rating of about  $16/10$  DIN to  $18/10$  DIN are most suitable for general use. They yield high contrast, fine grain images, exhibit wide exposure latitude and possess high resolving power.

**High Speed Films** should only be used under certain circumstances, such as poor light, indoor and theatre work and sports photography when high shutter speeds are essential. High speed can only be realised at the expense of some coarsening of grain structure and therefore of resolving power.

**Slow Films** possess particularly fine grain and yield the highest contrast. They are most suitable when the reproduction of fine detail is required and length of exposure is unimportant. The copying of documents and drawings is best done on slow films.

Film manufacturers express the speeds of their materials by various systems. The more frequently used ratings employed by film and exposure meter manufacturers are shown in the accompanying table.

DIN	B. S. & A. S. A.		General-Electric	Weston	American Scheiner	European Scheiner
	Arithmetic	Logarithmic				
$10/10$	6	$19^{\circ}$	8	5	$16^{\circ}$	$20^{\circ}$
$11/10$	8	$20^{\circ}$	10	6	$17^{\circ}$	$21^{\circ}$
$12/10$	10	$21^{\circ}$	12	8	$18^{\circ}$	$22^{\circ}$
$13/10$	12	$22^{\circ}$	16	10	$19^{\circ}$	$23^{\circ}$
$14/10$	16	$23^{\circ}$	20	12	$20^{\circ}$	$24^{\circ}$
$15/10$	20	$24^{\circ}$	24	16	$21^{\circ}$	$25^{\circ}$
$16/10$	24	$25^{\circ}$	32	20	$22^{\circ}$	$26^{\circ}$
$17/10$	32	$26^{\circ}$	40	24	$23^{\circ}$	$27^{\circ}$
$18/10$	40	$27^{\circ}$	48	32	$24^{\circ}$	$28^{\circ}$
$19/10$	48	$28^{\circ}$	64	40	$25^{\circ}$	$29^{\circ}$
$20/10$	64	$29^{\circ}$	80	50	$26^{\circ}$	$30^{\circ}$
$21/10$	80	$30^{\circ}$	100	64	$27^{\circ}$	$31^{\circ}$
$22/10$	100	$31^{\circ}$	125	80	$28^{\circ}$	$32^{\circ}$
$23/10$	122	$32^{\circ}$	160	100	$29^{\circ}$	$33^{\circ}$
$24/10$	160	$33^{\circ}$	200	125	$30^{\circ}$	$34^{\circ}$
$25/10$	200	$34^{\circ}$	250	160	$31^{\circ}$	$35^{\circ}$

Scheiner, DIN, ASA/BS (log) ratings progress by three units per doubling of speed. In the other systems, doubling of the speed figure denotes a doubling of the film speed.

## CORRECT EXPOSURE:

A good exposure meter greatly simplifies exposure problems, but even without a meter, it is possible to acquire a facility for estimating exposures based on previous experience. From the start, make two different exposures of each subject and compare the result after development. The accompanying table applies to average subjects.

When estimating exposures bear in mind that in a photograph bright objects appear relatively brighter, while dark objects appear darker than they do to the eye. This is because the eye adapts itself to the prevailing light. When making a visual estimate of an exposure, therefore, until extensive experience has been gained in bright light, take a second picture giving one third of the estimated exposure. In dull light make a duplicate exposure giving 3 to 5 times the estimated time.

The above applies to black-and-white film. Colour film has little exposure latitude and the use of an exposure meter is recommended.

Snapshots, Groups, Street Scenes, Houses:	f/5.6	1/50 - 1/100
Rapidly Moving Objects, Sports Pictures:	f/4 f/2.8	1/200 - 1/500 1/500 - 1/1000
Landscapes with foreground:	f/8	1/25 - 1/75
Open Landscapes:	f/8	1/50 - 1/100
Open Sea, Snow Scenes:	f/8-f/11	1/50 - 1/200
Outdoor Portraits in the shade:	f/3.5	1/25 - 1/50
Indoor Portraits near window:	f/2 F/3.5	1/5 - 1/50 1/2 - 1/25

The above exposures are for medium speed films  $17/10$  DIN (28° European Scheiner, 27° B. S. & A. S. A. Logarithmic Index) and a clear sky during the summer months between 10 a. m. and 4 p. m. In spring and autumn double these exposures and in the winter months multiply by four. High-speed films will require only half the exposures indicated.

The geographical latitude also influences exposures. Those shown apply to the temperate zones.

## THE INTERCHANGEABLE LEICA LENSES

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are offered in a large variety of types ranging from wide-angle to telephoto, ensuring excellent results in all branches of amateur photography and most specialized professional work.

Average requirements are often wholly satisfied by one of the 50 mm standard lenses while extra lenses open up many special photographic possibilities.

### General Purpose Lenses:

ELMAR 50 mm. f/3.5 (1), SUMMITAR 50 mm. f/2 (2)

### Ultra Speed Lenses:

SUMMARIT 50 mm. f/1.5 (3)

SUMMAREX 85 mm. f/1.5 (4)

### Wide-Angle Lens:

SUMMARON 35 mm. f/3.5 (5)

### Long-Focus Lenses:

ELMAR 90 mm. f/4 (6), HEKTOR 135 mm. f/4.5 (7)

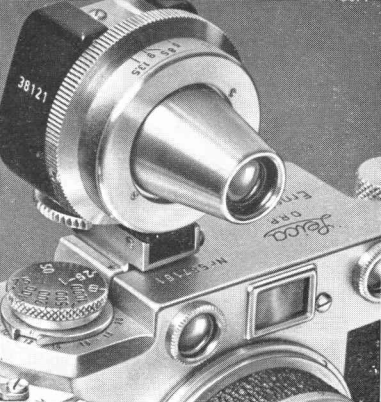
### Telephoto Lens:

TELYT 200 mm. f/4.5 (8)

The TELYT 200 mm. can only be used in conjunction with the mirror reflex housing (9), which also takes the HEKTOR 135 mm. when fitted with a short mount.

# THE LEICA LENSES





### THE UNIVERSAL VIEWFINDER

is designed for lenses of 35 mm. up to 135 mm. focal length and presents the fields covered in natural left to right and vertical orientation, the field diaphragm being operated by a milled ring with click stops. A graduated lever provides the necessary parallax correction for close ups.



### THE MIRROR REFLEX HOUSING

is intended for viewing and focusing directly on a ground glass screen with the aid of a 5x magnifier. This device is primarily designed for focusing the 200 mm. telephoto lenses but use can also be made of the 135 mm. lens for which a special short focusing mount is available. (For sports photography with the 200 mm. lens a direct vision finder is also offered.)

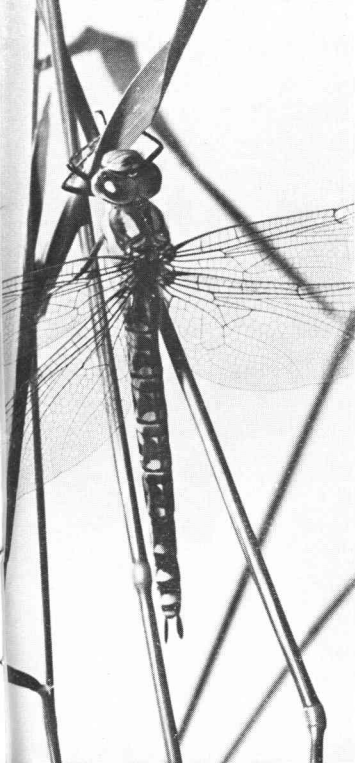
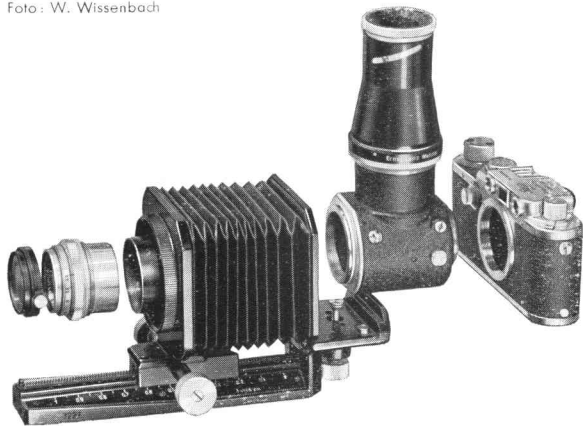


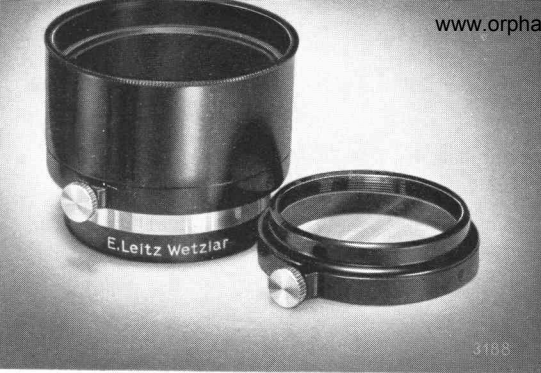
Foto : W. Wissenbach



### THE UNIVERSAL FOCUSING BELLOWS

in conjunction with the mirror reflex housing and the 135 mm. lens (used without its normal focusing mount) affords continuous focusing from infinity down to scale 1:1 (natural size). Other scales of reproduction, i. e. magnifications up to 6:1 on the negative, are obtainable with lenses of shorter focal length. An extending lens shade is most effective, particularly when using artificial sources of light or photographing against the sun.





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### LENS HOODS

should form part of every camera outfit. They not only screen off direct sun and other extraneous light but prove very advantageous when photographs have to be taken under adverse weather conditions as they will protect the front lens from rain or snow.

### FILTERS

are recommended in order to increase contrast and improve general picture quality. For all LEICA lenses yellow, green, orange, red, UV protective, and polarizing filters are supplied.



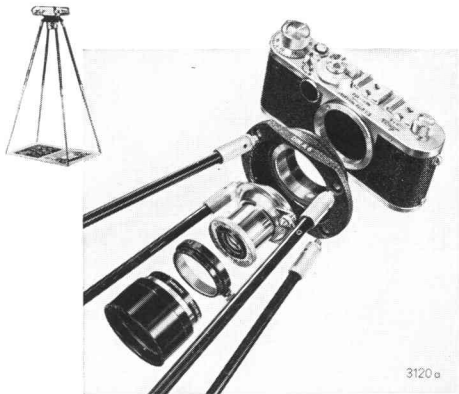
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### THE OPTICAL NEAR FOCUSING DEVICE

enables the LEICA user to focus the 50 mm. ELMAR or SUMMITAR lens for distances between 17 inches and 3 1/2 feet, parallax being automatically compensated. Even in this range use is made of the coupled rangefinder of the LEICA II f and III f.

### THE BALL-AND-SOCKET TRIPOD HEAD

allows the camera to be adjusted easily and rapidly when taking photographs with the aid of a tripod. The heavy design ensures reliable clamping with any LEICA outfit.



### AUXILIARY SETTING DEVICES

are made in various models for the LEICA to provide inexpensive mechanical means for copying or similar close-up work. Focusing for scales of reproduction of 1:4, 1:6 and 1:9 (approx. fields 4" x 5", 5" x 8 1/2" and 8 1/2" x 12") is achieved mechanically by 4 extending rods and 3 intermediate adaptors fitting between camera body and 50 mm lens (codeword BOOWU).



Another outfit which makes use of 3 intermediate collars, 4 extensible rods and a universal clamping collar gives negatives at the scales 1:1.5, 1:2 and 1:3. (Only suitable for ELMAR 50 mm, codeword BEHOO)

The auxiliary setting device for scale 1:1, i. e. reproduction in natural size on the film, is made with clamping collars fitting either the 50 mm ELMAR or SUMMITAR (codewords BELUN and BELUN-HESUM).



### *Developing Tanks*

are available for daylight work, (for example the LEITZ-RONDINAX Tank) and also in simple, less expensive forms for use in the darkroom. The latter tanks are made for 500 and 300 cc. (16 ozs & 10 ozs).

## Small Negatives . . . .

### LARGE PICTURES

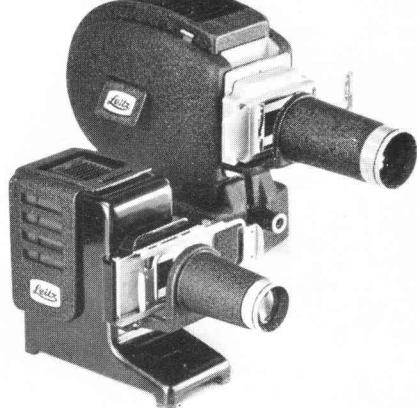
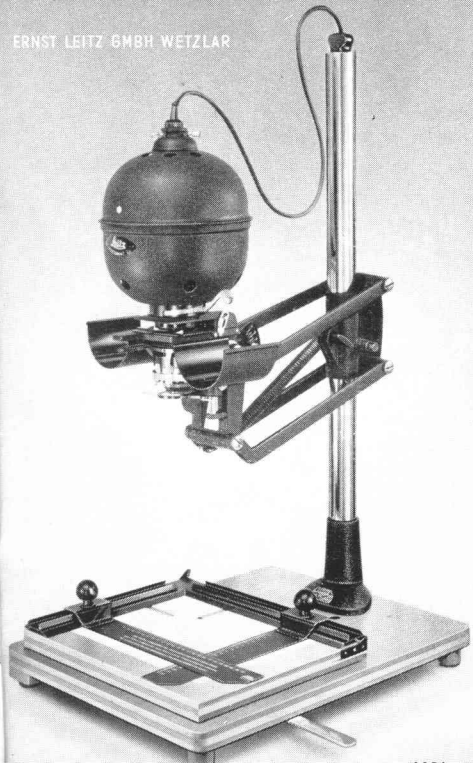
It is not only economical for the LEICA photographer to develop and enlarge his own negatives, but it enables him to utilize to the fullest extent the pictorial possibilities of his subjects and to express individuality in his pictures.

### *Enlargers*

THE FOCOMAT ENLARGER is fitted with an automatic focusing device to ensure maximum sharpness of every enlargement without tedious adjustment. It renders enlarging as simple as contact printing.

50 mm lenses ELMAR or SUMMITAR may be used in the FOCOMAT and also in the VALOY enlarger which is a simplified form, focusing being non-automatic.

ERNST LEITZ GMBH WETZLAR



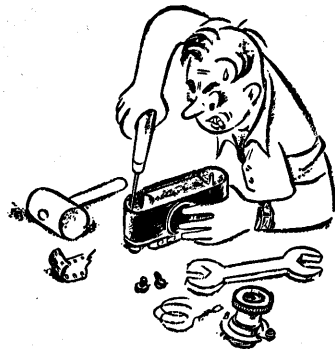
ERNST LEITZ GMBH WETZLAR

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The brilliance of LEICA photographs projected on to a screen makes for lifelike presentation and most impressive demonstration of the LEICA photographer's work for entertainment, teaching or many other purposes. The LEITZ PRADO projectors 150 & 250 are the ideal equipments for showing black-and-white and colour films in the home or lecture rooms.

## NEVER TRY . . . .

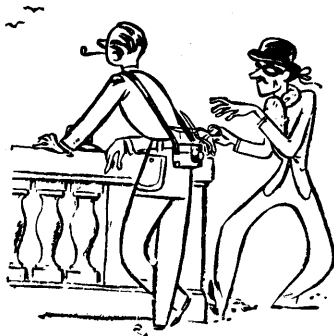
to repair a LEICA if by any chance it has become damaged. Always take it to an authorized LEICA repair service. The LEICA is built by specialists and only specialists should be entrusted with its repair.



## EVERY LEICA and EVERY LEICA LENS

### bears a **REGISTRATION NUMBER**

In case of loss or theft it is important that this number be known. Make a note of all serial numbers and carefully preserve it for reference in case of loss. It may help to recover a lost or stolen camera or lens. If you furnish us with the necessary details, all our technical services will be notified and will retain every camera reported.



FOR MORE THAN TWENTY-FIVE YEARS

Special attention is drawn to the fact that with the genuine LEICA only accessories made by LEITZ are guaranteed for perfect results since only our organization has at its disposal all the highly specialized tools and testing equipment required. We cannot be held responsible for unsatisfactory results obtained with or defects caused by accessories of other make.

the LEICA has been the leading miniature camera. Together with its range of accessories it represents a self-contained photographic system applicable to all fields of amateur or professional photography. Scientists and technicians with special photographic problems are invited to write for our special advice on suitable equipment. Attention is also drawn to the excellently illustrated magazine

### LEICA-FOTOGRAFIE

(with inset in English)

with information on all advances in miniature photography. Obtainable through photo dealers.

The *Leica* is manufactured only at the Leitz Works at Wetzlar (Germany) and Midland, Ontario (Canada)

## OTHER LEITZ PRECISION INSTRUMENTS

are made for a wide range of applications in many fields of science and industrial activities; they include:

Monocular and Binocular Microscopes for general biological and medical work  
Binocular Prism Magnifiers and Stereo Microscopes,  
Research Microscopes with Built-in Light-Source,  
Polarizing Microscopes for Transmitted and Incident Light,  
Photomicrographic Apparatus for Plates and Leica Film,  
Attachable Microscope Heating Stages,  
Integrating Stage for Planimetric Analysis,  
Dark Field and Phase Contrast Equipments,  
Polarizing Compensating Photometer,  
Large Half-Shadow Polarimeter,  
Micro-Refractometer, Microtomes,  
Heating Microscope with Automatic Recording (1600° C),

Dilatometer for Thermal Analysis (1100° C),  
Toolmakers' Microscopes and Contour Projectors,  
Hardness Tester and Brinell Microscopes,  
Precision Jig Borer and Universal Measuring Machine,  
School Epidiascopes, Slide and Film Strip Projectors,  
Lecture Hall Projection Apparatus and Micro-Projectors,  
Opera Glasses and Prism Binoculars.

ILLUSTRATED CATALOGUES on these and many other instruments are gladly sent upon receipt of details on the type of apparatus required or on the examinations which are to be carried out by optical means.

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