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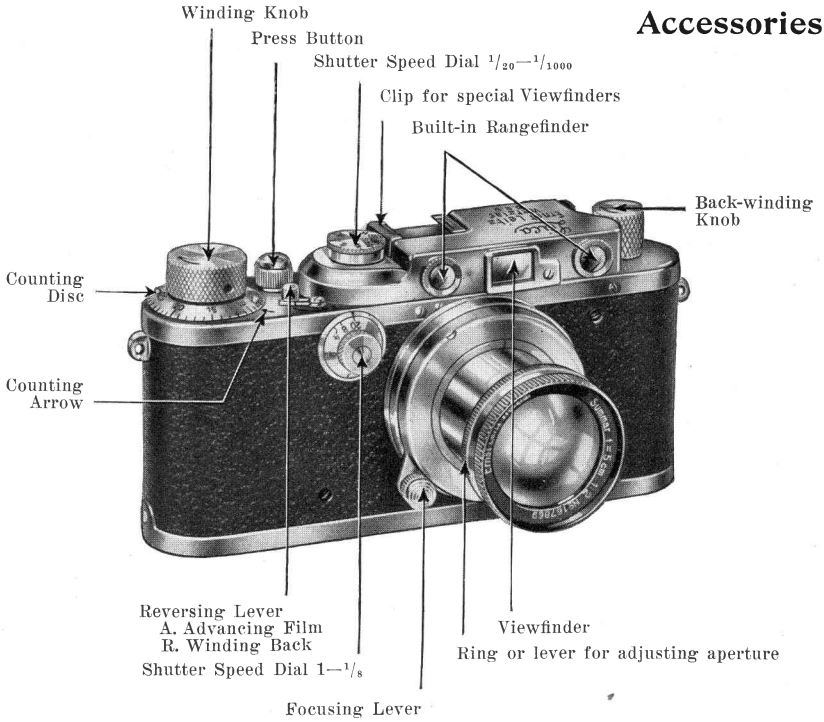
Leitz

PART III

DIRECTIONS

Accessories



Leica Camera

E. LEITZ, INC., 730 FIFTH AVE., NEW YORK

Contents

Part I of this instruction booklet deals with the use of the Leica Camera itself.

Part II is concerned with the interchangeable Leica lenses and the various viewfinders.

A. Accessories for single exposures

1. A special accessory for single exposures

with dark slide and focusing screen

The device consists of a black lacquered light metal body, in the back of which is the focusing screen or darkslide, the Leica lens being screwed in in front. One of the well known Leica viewfinders can be fitted on top; on the side and underneath the housing bushes are provided for upright or horizontal pictures on a tripod.

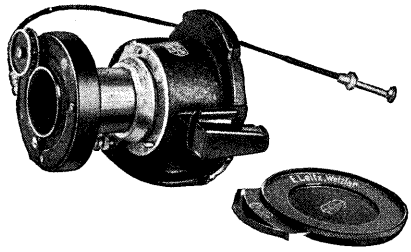


Fig. 47a

The body of the device does not contain a shutter. An Ibsor shutter is provided which is fitted on to the lens and which allows of instantaneous exposures from 1—$^1/_{125}$ sec. and time exposures.

This shutter fits all lenses except the "Leitz-Hektor" 73 mm., "Leitz-Thambar" 90 mm. and "Leitz-Telyt" 200 mm. For photomicrographs in conjunction with our Micro Attachment, the shutter is not used, as this attachment contains a shutter. The codeword for the device with the Ibsor shutter is "Oligo".

Only screw-in filters can be used with this device.

The manipulation of the device is simple in the extreme. After removing the cover plate of the darkslide in the darkroom, it is loaded with a piece of film of standard width and about 40 mm. long, cut from a roll of standard cinematograph film (or from a film in a Leica film chamber). The width of the slide is exactly 40 mm., and can therefore be used as a guide for the length of the piece of film to be cut. The cover plate is then pressed back into position, care being taken to see that the film in the slide is not pinched. The slide is then ready for use.

Before making the exposure, the focusing screen is placed in the groove in the slide, where it is held by a spring, and the lens is screwed in in front. The subject is composed and

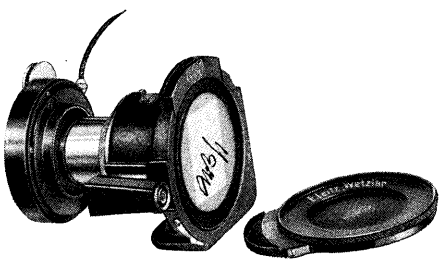


Fig. 47b

focused on the ground glass. The diaphragm is then set to the desired aperture and the shutter slipped on.

To make the exposure, the darkslide is inserted in place of the focusing screen. By simultaneously pressing gently on the catch, both parts can be inserted or removed conveniently and without shaking. If the placing of the object has been disturbed through incorrect manipulation, a glance through the finder is sufficient to put this right. The sheath of the slide must of course be drawn before the exposure.

2. The single film holder

Even simpler and cheaper, though less universal in use, than the special device described above is the Single Film Holder "Fhkoo" for the Leica. This comprises a simple metal frame with two slots, by means of which a piece of film 8 cm. long is held. This piece of film can only be inserted in the holder in the darkroom and the placing of the holder in the Leica must likewise be done there.

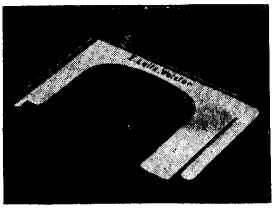


Fig. 48

When inserting the holder a certain amount of care must be exercised to prevent the film from getting scratched. In the first place, only films with an emulsion protecting surface may be used, i. e. films which have a special protective layer over the emulsion. This is the case with most films on the market, but not, for instance, with diapositive film and infra-red film. The emulsion should further be protected by inserting a piece of blank film together with the holder, holding it before the emulsion. When the holder is firmly inserted, the piece of blank film is slowly withdrawn.

The holder may only be removed from the Leica in the darkroom. First raise the holder a little by means of its small knob, insert a piece of blank film in front of the emulsion and then withdraw the holder.

To hold the pieces of film during developing, our film holder "Fialt" may be used to advantage.

B. Further Accessories for the different models of the Leica Camera

Leitz Slow-Speed Attachment

for the Leica Camera

The Slow-Speed Attachment screws on the release button of the Leica cameras Model C, E and Model D and allows of obtaining with these models the same slow speeds of 1, $^1/_2$, $^1/_4$ and $^1/_8$ second as with the Model F, without any conversion being necessary.

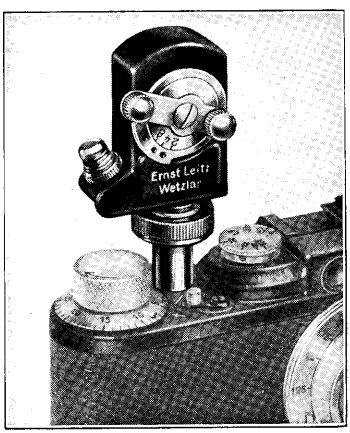


Fig. 49

The application is as follows: Wind the shutter of the camera and adjust the shutter speed dial to Z (time). Then wind the Slow-speed Attachment by gripping with thumb and forefinger the two studs of the winder, and turn clockwise right to the stop. Only after winding can the desired speed be set by lifting the longer part of the winder from underneath and then turn-

ing it until the index line at its edge points towards the speed required; letting the winder go it engages with the pin in the respective arresting hole.

The shutter is released by means of the press button fitted to the side of the attachment, either directly with the finger or by means of a wire release.

The button should be depressed until the shutter has entirely run down. Do not remove the finger before, or it may cause shaking.

With older cameras the height of the release button varied slightly as compared with the later models, it may happen that when depressing the button of the Slow-speed Attachment the shutter of the camera is not properly released and an adjustment is required.

The hollow shaft which contains the thread to screw the attachment on the release button shows the large head of an adjusting screw. By means of a suitable screwdriver this screw is given a quarter to half a turn right or left, until the proper release is ensured. If the release button of the camera is too low, the adjusting screw of the Attachment does not bear sufficient pressure on it to release the shutter; in this case the screw is turned anti-clockwise. If the button is too high, the rotating levers in the attachment do not work properly, with the consequence that the shutter opens only half and remains open. In such a case the adjusting screw is turned clockwise. Needless to say, this adjustment, which by the way is quite easy, need only be done once and for one particular camera.

Leitz Supplementary Front Lenses

for the Leica Camera

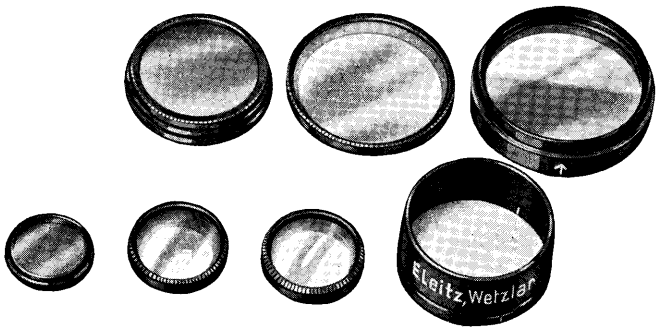


Fig. 50. Yellow Filters, Supplementary Front Lenses, and Lens Hood (half actual size)

The supplementary front lenses are **achromatic** converging lenses and are used for photographing small living creatures, plants, art objects, etc., at **distances shorter than $3^1/_2$ ft.** as well as for the reproduction of printed matter, illustrations, documents, etc. They screw in the front lens mount of the 50 mm. F/3.5 "Leitz-Elmar" or 50 mm. F/2.5 "Leitz-Hektor" lenses and should only be screwed home moderately firmly.

We supply them in three powers, namely:

No. 1 for distances from $39^1/_2$—$22^9/_{16}$ ins.
For objects of sizes $16^9/_{16} \times 24^{13}/_{16}$ ins.,
to $8^9/_{16} \times 12^7/_8$ ins.
For reducing from 17·5 to 9·1 times.

No. 2 for distances from $21^9/_{16}$—$15^{15}/_{16}$ ins.
For objects of sizes $8^7/_{16} \times 12^5/_8$ ins.,
to $5^5/_8 \times 8^1/_2$ ins.
For reducing from 8·9 to 6·0 times.

No. 3 for distances from $12^1/_4$—$10^{11}/_{16}$ ins.
For objects of sizes $4^1/_4 \times 6^5/_{16}$ ins.,
to $3^3/_8 \times 5$ ins.
For reducing from 4·5 to 3·5 times.

The distances are measured from the back of the camera (plane of the film) to the object.

It may be observed here that 50 mm. lenses of the Leica camera ("Leitz-Elmar", "Leitz-Hektor" and "Leitz-Summar") without supplementary lens render it practicable to take objects at a distance of $3^1/_2$ ft. and in these circumstances reduce the size of an object measuring $26 \times 17^1/_4$ ins. to one-eighteenth its original size.

By enlarging the negative obtained with the front lens in use, a picture can be made to show the object in natural size and, where the front lens No. 3 has been used, it can even be enlarged beyond natural size.

Detailed particulars respecting the setting of the camera lens by its helical focusing mount, the distance and practicable size of the object, as well as the resulting reduction and depth of focus, may be found from the "Lens Tables for Use with the Leica Camera" compiled by us.

The supplementary front lenses Nos. 1 and 2 for the "Leitz-Elmar" lens are available for use at full aperture for snapshots. When using them for copying work they should be stopped down. In particular, it is advisable in the case of the No. 3 front lens always to stop down to at least F/6.3 in view of the very small depth of focus.

The front lenses for the "Leitz-Hektor" 50 mm. lens, however, require a restricted use of the iris diaphragm. For further particulars please refer to the "Tables for Use with the Leica Camera".

The supplementary front lenses to the "Leitz-Elmar" may also be used with an intermediate ring "Vmcoo" for the "Leitz-Summar" 5 cm. lens. It is obvious that the some-what smaller diameter of the "Leitz-Elmar" front lenses necessitates stopping down to a certain extent, but this is in any case advisable in this kind of work.

The exposure is the same, whether one photographs the same object with the "Leitz-Elmar" lens alone at a distance of 3.5 ft. or with a supplementary front lens No. 1 at $23^9/_{16}$ ins., or with the supplementary front lens No. 2 at $16^7/_{16}$ ins. or with the front lens No. 3 at $10^{11}/_{16}$ ins. To enable one to use yellow filters in conjunction with the front lenses, we supply an intermediate collar ("Firgi"), this, however, is not required when the "Leitz-Summar" lens is being used.

Particulars of reproduction work, for which the supplementary front lenses are especially well suited, are given in our catalogue on reproduction devices in conjunction with the Leica. Our catalogue "Auxiliary Reproduction Devices" deals at length with the use of these front lenses.

Leitz Filters

for the Leica Camera

Filters serve either of two different purposes, namely the rendering of colored objects in their correct tone values, or else the obtaining of special pictorial effects. In any particular case different filters may be appropriate according to the particular purpose which it is desired to achieve.

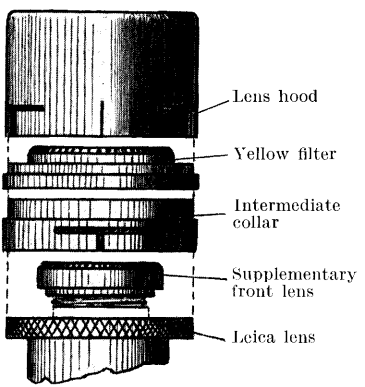


Fig. 51. How to use the various front attachments (two-thirds actual size)

Considering first the rendering of colors in their correct tone values, the use of dense (i. e. dark) filters is not to be recommended, since they cause blue to appear too dark and green and yellow too light. In practical photography, such photographs have a pronouncedly over-filtered and consequently unnatural appearance. Care must always be taken to choose the density of the filter one uses so that it may suit the subject, the film material, the time of day and the illumination. This method will be found to give the best results as far as the correct rendering of colors is concerned. It should be noted that, according as the film is more correctly sensitised as to color rendering, the filter in use can be correspondingly lighter; for instance, a lighter filter will be used with panchromatic film than with orthochromatic film and in the same way, a lighter filter will be chosen for the latter when it is sensitised more especially for yellow-green. Another factor to be borne in mind is that in the morning and evening the light from the sky contains a greater proportion of yellow rays and only little violet light, so that at these times a lighter filter or even no filter at all should be used. In the middle of the day, on the contrary, the light is bluer and necessitates a somewhat denser filter. In the same manner, a deep blue sky necessitates a denser filter than a sky with highly reflecting white clouds.

There is, however, yet another reason why one should abstain from the use of too dense a filter, besides the effect of over-filtration referred to above. In unfavourable circumstances a dense yellow or green filter can impair the absolute sharpness of the negatives, especially in the case of films with a thick coating of emulsion. The plane parallel finish of good filters (which, one might say, is almost carried to excess) certainly obviates a distortion, but the diffraction of the light in a thick coating of emulsion cannot fail to cause a slight deterioration in the sharpness if the blue rays are disproportionately cut out. This is due to the fact that the short wave blue and violet rays form the image on the surface of the emulsion; they hardly penetrate the interior of the emulsion and can consequently not be diffused. Rays of longer wavelength (yellow and above all red rays) penetrate on the other hand comparatively far into the emulsion and suffer diffraction; this diffraction increases proportionately to the depth of the emulsion. The surface image is in consequence somewhat impaired in its sharpness by this diffused image formed inside the emulsion. The denser the yellow filter or the green filter, the more blue rays are cut out, and other things being equal, the greater is the loss in sharpness.

This loss of sharpness must of course not be exaggerated. It can in fact be completely overlooked in the case of films having a very thin coating of emulsion.

For obtaining correct-tone-rendering with orthochromatic films plain yellow filters are all that are needed, since it is only necessary to reduce the blue-sensitiveness of these films; but, for certain panchromatic films which have an excessive red-sensitiveness, it is appropriate to use green filters, which reduce not only the blue rays but also the red. With the newer type of panchromatic films, the colour sensitiveness of which approximates closely to that of the human eye, the use of a filter can in many cases be entirely dispensed with: in any event the usually slight residue of excessive blue-sensitiveness requires only the lightest yellow filter or an ultra-violet filter for its elimination.

For use with the Leica camera with focal plane shutter the yellow filters are usually supplied in slip-on mounts. Fig. 51 shows how they are attached, either alone or in conjunction with a supplementary front lens or lens hood. For the simultaneous use of a supplementary front lens and a yellow filter an intermediate ring is required ("Firgi").

If desired, yellow filters can be supplied in screw-in mounts for use with the focal plane shutter camera. The iris diaphragm in this case is actuated directly, but the yellow filter cannot then be used in combination with the front lens.

(Continuation see page 14)

Leitz Yellow and Green Filters

The **yellow filters** serve to render correctly the colors in conjunction with the more or less sensitized film. For instance, they enable one to capture cloud effects when

The filter factors for the exposure

Type of film	Daylight					
	Scheiner Speed	U.-V.-Filter	Filter No. 0	Filter No. 1	Filter No. 2	Filter No. 3
Agfa						
Plenachrome	21°	2	2	3	6	8
Finopan	21°	1.5	1.75	1.75	2.5	3
Superpan	23°	1.25	1.75	1.75	2.25	2.75
Superpan Reversible	22°	1.25	1.5	1.75	2.25	2.75
Infra Red	—	—	—	—	—	—
Dupont						
Micropan	15°	1.5	1.5	1.75	2.5	3
Superior	23°	1.5	1.5	1.75	2	3
Infra D	—	—	—	—	—	16
E. Kodak						
Panatomic	21°	1.5	1.5	1.5	2	2
Super-Sensitive	23°	1.5	1 5	1.5	2	2
Super X	24°	1.5	1.5	1.5	2	2
Pan K (Infra Red)	—	—	—	—	—	—
Gevaert						
Express Superchrome	21°	1.8	2.1	3.3	6.5	8.5
Panchromosa	21°	2	2	2	2.9	3.2
Mimosa Extrema	22°	1.8	1.7	3.4	4.7	6
Perutz						
Neopersenso	22°	2	1.9	2.7	4.1	5.5
Perpantic	22°	2	1.8	2.8	3	4
Peromnia	23°	2.2	1.8	2.2	2.5	3.5
Leica-Special-Antihalo	19°	2.0	1.8	2.6	3	—
Leica-Rectepan	17°	1.8	1.8	2.4	3.3	—

* The values have been computed afresh by ourselves. The latitude between the figures given in the table is due to the various factors which affect the time of exposure, e. g. composition of the light, variations in the emulsion, mode of development, etc.

for the Leica Camera*

photographing landscapes. The filter factor for the exposure becomes less in proportion to the degree of sensitivity of the film.

are approximately as follows:

Daylight						Artificial				
Graduat. Yellowf.	Green-filter	Graduat. Greenfilt.	Redfilt. light	Redfilt. medium	Redfilt. heavy	Filter No. 0	Filter No. 1	Filter No. 2	Filter No. 3	Green-filter
2	—	—	—	—	—	1.5	2	2.5	3	—
1.7	3.5	1.8	20	—	—	1.25	1.5	1.75	2.5	3
1.7	4	1.7	16	—	—	1.25	1.5	1.75	2	2.75
1.4	5	1.7	16	—	—	1.25	1.25	1.5	1.75	6
—	—	—	10	15	20	—	—	—	—	—
1.5	3	2.5	—	—	—	1.25	1.5	1.75	2.5	2
1.5	4	2.2	—	—	—	1.3	1.5	1.75	2.5	3
—	—	—	32	32	64	—	—	—	—	—
1.5	2.5	1.5	7	40	—	1.5	1.5	1.5	1.5	2
1.5	2.5	1.5	7	40	—	1.5	1.5	1.5	1.5	2
1.5	2.5	1.6	7	40	—	1.5	1.5	1.5	1.5	2
—	—	—	20	20	30	—	—	—	—	—
2	—	—	—	—	—	1.8	2.1	3.5	4	—
2	2.9	2	—	—	—	1.3	1.6	1.8	2.7	1.8
1.6	—	—	—	—	—	1.7	2.1	2.9	3	—
2.2	—	—	—	—	—	1.5	2.1	2.3	3	—
1.7	3.2	2.3	—	—	—	1.5	1.6	1.7	2.5	2.4
1.5	3.2	2.3	—	—	—	1.5	1.7	1.8	2.8	2.4
1.7	—	—	—	—	—	1.1	1.5	2.4	—	—
1.7	3.6	2.5	—	—	—	1.1	1.4	1.7	—	2.5

The figures given in the table under "Daylight" factors are correct for white light, e. g. blue sky with white clouds. The exposure should be increased by approximately one half when the light is dark blue, e. g. in summer from about 11 a.m. to 2 p.m. (blue sky without any noteworthy clouds).

The Graduated Filters. When photographing scenes with a particularly bright background and a dark foreground, we recommend using the graduated yellow or green filters to avoid partial over-exposure. These filters are supplied in a fixed slip-on mount to fit all Leica lenses. Care must always be taken to ensure that the arrow engraved on the outer edge of the mount lies on top.

Vice versa the graduated filters can also be used for scenes with a particularly bright foreground (snow scenes etc.). In this case the arrow engraved on the mount must lie underneath.

When the question of obtaining special effects departing more or less from a correct translation of tone values arises, quite different considerations govern the choice of filters. In high mountains the sky itself appears so dark in tone that the correct tone rendering is departed from, in order that the sky shall not come out too black. Hence in such cases yellow filters are not used, but only an ultra-violet filter. If, however, it is desired to transform a very white morning or evening sky, especially in spring or autumn, into the appearance of a deep blue sky, perhaps with the purpose of bringing a brilliant white building into greater contrast against the sky, then a

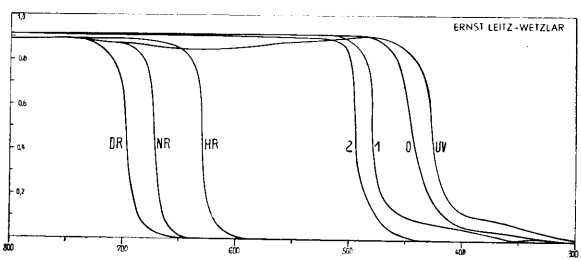


Fig. 51a

deeper filter will be preferred, despite the fact that the tone values will be somewhat falsified thereby. The same reason leads also to the choice of a stronger filter for the emphasizing of light clouds with which to break up an otherwise blank expanse of sky. For this purpose a pale red filter may in fact be used, though of course this practice can be adopted successfully only when panchromatic films are used. A red filter does not merely strongly cut down the blue-violet, but also the yellow-green to a large extent, and can therefore be regarded as a specially strong filter. Thus, as the set of transmission

curves in fig. 51a show, the ultra-violet (U. V.) filter represents the one extreme in the range of our filters, whilst the various red filters form the other extreme.

The light red filter, and still more so the medium and deep red filters, further make it possible to penetrate blue haze and even mist, when photographing scenes at great distances: this is for the reason that the red and infra-red rays which mainly compose the light transmitted by the red filters are also better able to penetrate through haze and mist. The medium red and deep red filters, however, are generally used only in conjunction with infra-red film, which is sensitive to the invisible infra-red rays as well as to the range of the visible spectrum: failing this combination the use of these filters entails excessively long exposures. On account of the peculiar effect which they show, these infra-red exposures are of less significance in general amateur photography than for specific scientific purposes, for example, anatomical subjects, the photography of paintings, the deciphering of old and faded writings, aerial photographs, and for obtaining clear mountain pictures, landscapes or city pictures under conditions of haze and mist.

Green filter. All panchromatic negative material to be had on the market and destined for use with the Leica presents a gap in the scale of reproduction in the green section of the spectrum as compared to its sensitivity to red and blue-violet. A suitable green filter remedies this defect. The filter factors for our green filter are given in the table on Pages 12 and 13.

The new panchromatic films with reduced sensitivity to red necessitate a filter which transmits chiefly yellow and green; our yellow filter No. 0 may be used for this purpose.

Red filters. They are used in conjunction with infra-red film, which is also sensitive to infra-red rays in addition to the range of a visible spectrum. The use of this filter allows only the visible red and a portion of the (invisible) infra-red rays to be used for the formation of the image, since it absorbs yellow, green and blue almost entirely. The peculiar effect of these infra-red photographs is of less importance for general amateur photography than for special scientific purposes.

For example, it is possible with the help of infra-red photography to obtain clear photographs of mountains, scenery or towns through the mist and fog present in the atmosphere; this is of special importance in the case of aerial photography. In every case, however, the infra-red photograph differs to a greater or a lesser degree from the image seen with the naked eye.

When the sky is clear and the sun is shining brightly, the red filter causes the blue of the sky to appear black; objects in the scenery (foliage and buildings) reflect the infra-red rays strongly and consequently appear bright in the picture. Taken together, the general effect is one of a night photograph. It is, however, not exactly similar to a night photograph, in that the latter would cause the landscape to appear dark.

In the case of subjects which include, apart from the blue of the sky, only bright, whitish tones, such as architecture and broad, open landscapes, then a specially good pictorial effect can be obtained by the use of the light red filter in conjunction with panchromatic films. Under these circumstances there is no need to anticipate any adverse effect on image sharpness, in spite of the relatively high density of the red filters, since the red rays are less markedly scattered in the emulsion of the film than are the yellow-green rays, although they penetrate more deeply into the film than do the latter. This fact depends on the physical laws of the scattering of light and cannot be more fully elucidated in these pages. It may, however, be pointed out that in professional cinematography outdoor scenes are usually made with the use of light red filters in these days.

A correct use of infra-red film can, however, be of advantage for reproducing certain features of anatomical specimens, reproductions of paintings, etc.

The helical focusing mounts of all Leica lenses* now bear a second index mark, indicated by R, which serves for focusing when taking infra-red photographs. The object is focused differently according to whether the lens is coupled with the rangefinder (Leicas D, F, G and FF) or not (Leica C and E). When the lens is not coupled with the rangefinder the distance is read off on the rangefinder scale and the lens set to that distance by means of the index R. When the lens is coupled and in the case of the accessory for single exposures ("Oligo"), the lens is first focused in the usual manner, then the helical mount extended until the index R points to that position on the scale which was first indicated by the main index.

In the case of lenses of less recent manufacture which have as yet no second index line, instead of using the main index line for setting the lens, one takes the diaphragm stop index given in the following table for each individual objective. Since each of these diaphragm stops is marked twice on the depth of focus ring it should be added that the one used in this case is that nearer to the infinity (∞) mark.

* Apart from the two short-focus lenses, with which the maximum sharpness in the case of infra-red exposures always lies within the depth of focus at the full aperture.

Focusing Table
for Infra-red film and Red Filter

Lens used	Use as focusing mark the following aperture mark on the depth of focus scale instead of the normal index-line on the mount:
Leitz-Elmar 50 mm.	f: 6.3 (on the side toward ∞)
Leitz-Hektor 50 mm.	f: 6.3
Leitz-Summar 50 mm.	f: 2
Leitz-Hektor 73 mm.	f: 4.5
Leitz-Elmar 90 mm.	f: 6.3
Leitz-Elmar 105 mm.	f: 9
Leitz-Elmar 135 mm.	f: 6.3
Leitz-Hektor 135 mm.	f: 6.3

The method is the following (taking for example the 50 mm. "Leitz-Elmar"):

First ascertain the distance by means of the rangefinder, e. g. 15 ft. Then rotate the helical mount of the 50 mm. "Leitz-Elmar" in such a way, that instead of the main index line, the depth of focus index 6.3 situated nearer the ∞ mark points to 15 ft. The exposure may then be made. In the event of the distance measured being ∞, then the lens is not completely rotated up to the stop when the index 6.3 points to ∞.

If particular emphasis is laid on sharpness when taking infra-red photographs, it is generally advisable to stop down. This depends particularly on the way in which the image is formed in the emulsion. There is obviously no limit to the amount of stopping down except when time exposures are to be avoided.

When using the 200 mm. Leitz-Telyt lens for infra-red exposures a correction of the focusing adjustment is generally required.

It should be observed that when using the red filter, the exposure time which varies within wide limits is at least ten times and often fifty to a hundred times as long as when using a film of 15° SCH.

Since infra-red film has a fairly coarse grain, it should be developed in a special fine grain developer. Longer developing times should be avoided to prevent the grain becoming still more apparent.

U.-V. protective filter. For taking photographs at high altitudes (about 6,500 ft.) the customary yellow filters are not so well suited, because they absorb **completely** the light pre-

ponderant at these heights, namely blue, violet and ultra-violet. (The sky appears black.)

We recommend in these cases the use of our U.-V. protective filter, which, as its name implies, absorbs ultra-violet light, but not all the blue and violet light. As a result, the sky appears in its natural tone. The exposure time as compared with photographs taken without a filter is shown in a table on pages 12 and 13. As at such heights the time of exposure generally required is only half that needed at lower altitudes, the exposure with the ultra-violet filter will be about the same at above 6,500ft. as down below when working without this filter.

The lens hood (Fig. 52) which is fixed over the front mount of the lens is used when photographing obliquely against

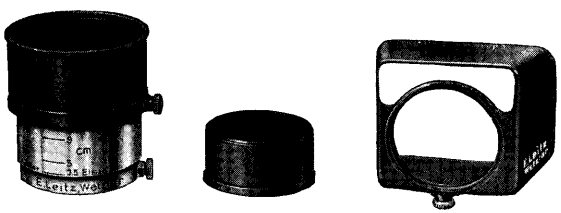


Fig. 52. The lens hoods

the sun, in order to prevent as far as possible direct rays from entering the lens and setting up unwanted reflections. It is supplied in three models. The first model is of fixed length and intended for use with the "Leitz-Elmar" 50 mm. lens. The second is similar to the first, but shorter and destined for use with the 35 mm. wide angle "Leitz-Elmar" lens. The third model has an extensible tube which may be altered so as to suit the various focal lengths. Placed on the lens mount, it is fixed like the other two by means of a clamping screw. Its extension may also be clamped in the desired position by means of a screw.

The special lens-hood for the 50 mm. F/2 Leitz-Summar has its rear wall cut away along the top so that the image in the view-finder is obscured as little as possible. The hood is accordingly to be placed on the lens in such a way that the cut-away part comes at the top in front of the view-finder. A special hood can also be supplied for the 28 mm. Leitz-Hektor lens.

Leica Rapid Winding Device

The normal bottom plate of the Leica is exchanged for the rapid winding plate. In making the exchange it must be noted that the retaining pin for the bottom plate formed on the side of the camera has not the same thickness, in the case of cameras up to No. 111,450 inclusive, as is now standard: in addition, the axis of the take-up spool must be provided with an engagement slot, which is actually only present in the

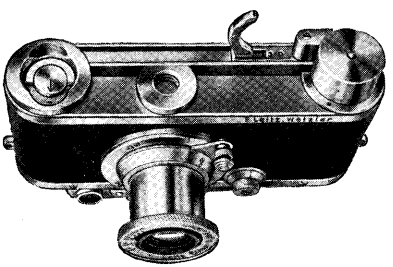


Fig. 53

cameras with numbers exceeding 159,000. Hence, if the rapid winding device is to be used with cameras having older numbers, the camera numbers must be notified to us. With cameras prior to No. 159,000 a new axis for the wind-up spool must also be built in. Before using the rapid winding device it is advisable to wind up the winding knob of the camera till it locks, so that the engaging member of the rapid winding device correctly engages with the axis of the take-up spool. Moreover, the lever of the rapid winding device must not be operated jerkily, but as smoothly as possible, so that no tearing of the film perforations shall occur. The trigger must be pulled right along till it locks and be allowed to run right back each time, in order to ensure that the film is moved forward by a full picture length and that the shutter is fully wound up.

The Leitz Table Tripod is fitted with a milled adjusting screw by means of which it can either be adjusted horizontally or given a large measure of tilt. Folded up it takes up only a very small space.

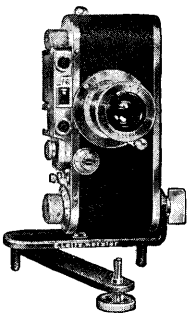


Fig. 54

The film cutting knife permits the film to be cut off in the camera — by darkroom light or in complete darkness — as it may especially be convenient to do in the case of the Leica FF at times. For this purpose the knife is first introduced between the film and the rear wall of the camera so that its edge lies against the wall of the camera. In this way the film is pushed slightly away from the wall. Then the knife is pulled back far enough to bring the edge over the film strip again, and is turned through 90^0 so that the edge lies vertically over the film. The film can then easily be cut off.

Leitz Panoramic Tripod Head

with interchangeable scale rings

The Panoramic Tripod Head makes it possible to take composite pictures of a panorama up to a complete revolution, whether in upright or in horizontal pictures. The scale ring of the Panoramic Tripod Head is interchangeable and can be supplied to suit the focal length of any Leica lens.

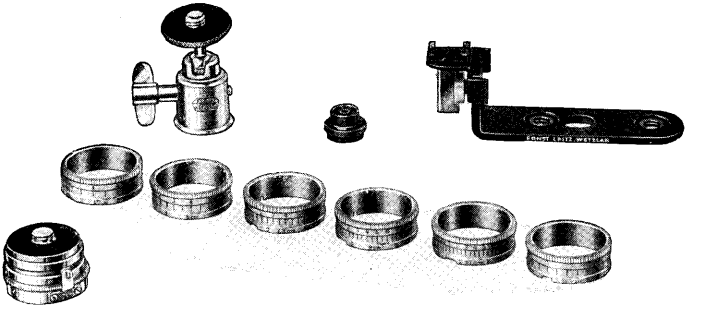


Fig. 55. Ball-jointed tripod head, spirit level, angular bracket, panoramic tripod head and interchangeable scale rings

Any strongly built tripod can be used for taking panoramic photographs with the Leica. It is better not to screw the panoramic tripod head straight on to the tripod, but rather on to a ball jointed tripod head, so that the camera may more easily be set absolutely horizontally. The first thing is to set the camera and consequently the optical axis of the lens in a strictly horizontal plane. The spirit level which serves to control this position ("Doolu") is slipped into the clamp on the angular bracket. After the camera has been set exactly horizontal, the first exposure is taken with the panoramic tripod head set to the index 1, wherupon the camera is carefully rotated until the snap catch engages in the mark engraved 2. In this position, the second exposure is made, and so on. It should be noted that the scaled ring is engraved with two rows of figures. The upper row serves when taking upright photographs and the lower one when taking horizontal photographs.

The scaled rings are exchanged in the following manner:

When the snap catch has caught in the position corresponding to the mark 1, the lower plane milled portion of the head

is held in the right hand and the scaled ring simply removed with the left hand.

The new ring is inserted so that the snap catch slips over the notch in the ring at the mark I. Should the spring not catch perfectly in this position, then the lower milled ring on the panoramic tripod head itself is turned until the scaled ring can be completely pushed down. When this happens, two fixing pins provided for this purpose catch in two notches in the ring.

Fig. 56. Arrangement for horizontal photographs

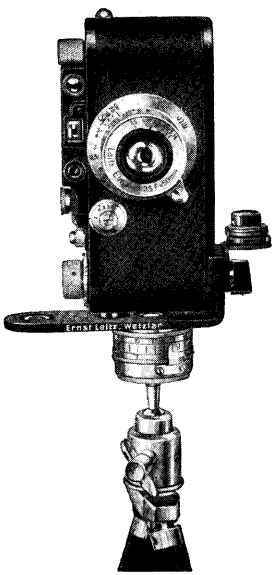


Fig. 57. Arrangement for upright photographs

In order to relieve the strain on the lid of the Leica when taking panoramic photographs with the heavy long focus lenses, we recommend the use of the special fixing cap "Vezuk". In the case of the "Leitz-Elmar" or "Leitz-Hektor" 135 mm. lenses the panoramic tripod head is screwed in to the tripod thread on the lens mount itself. In this case, neither the fixing cap nor the angular bracket are necessary.

The spirit level (Fig. 55) is required for taking panoramic views and its use is also recommended for architectural subjects.

It slips into the rangefinder clip provided in top of the camera.

The ball jointed tripod head (Fig. 58) is also used for taking panoramic views and in addition is required for all upright photographs taken on a tripod, as the camera has a tripod thread only for horizontal photographs. It is best used

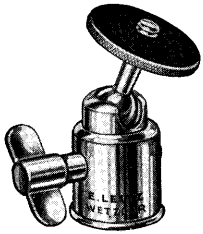


Fig. 58. Ball-jointed tripod head, approximately one half actual size

together with the angular bracket, particularly for architectural work, when the spirit level also should be employed. The ball-and-socket head is supplied in two forms. The stronger pattern is specially recommended when lenses of the longer focal lengths are being used.

Tripod head with press catch. To enable one to fix the Leica and to remove it very quickly from a tripod, use may be made of our tripod head with press catch. The lower part of this tripod head is screwed on to the tripod while the upper portion is screwed into the tripod thread of the Leica. When

Fig. 59

both parts are pushed together, a firm connection is established between the camera and the tripod. When removing the camera from the tripod, the two lateral knobs are pressed together, wherupon both halves may be taken apart without difficulty.

The Stereo-slide is screwed on the tripod, and enables the camera to be shifted laterally, so that the two relative stereo exposures may be made shortly after each other. It is, of course, only possible to make exposures of still objects. The slider which carries the camera may be secured in any position. Generally a lateral displacement of 65—75 mm. will be preferred. At 75 mm. the slide is provided with a mark. For distant exposures without close foreground the lateral displacement may be extended to 150 mm. in order to obtain a satisfactory stereoscopic effect.

It should be mentioned that one of the stop screws at the end of the slide has a milled head and may be unscrewed in order to remove the slider and reverse the same. This is necessary as the rotation of the ring plate is not always sufficient to

Fig. 60. Stereo Slide (about $^1/_2$ act. size)

fix the camera in a convenient position. When taking the left component picture the camera projects over the end of the slide, whilst when the right component picture is taken it rests completely on the slide. The ring plate rotates and enables one to clamp the camera exactly in the direction of the slide. Obviously, the correct position of the slider need only be adjusted to the thread of the camera once.

On our Leica Stereo Attachment "Stereoly" we have issued separate literature.

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