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J. Flash technique

The EXAKTA Varex IIa has three synchronized contacts for flashlight exposures:

One contact X for open flash with flash tubes and flash bulbs, two contacts M and F for the use of flash bulbs at short shutter speeds. The flash-bulb synchronization M and F is adjusted according to the firing delay of the flash bulbs.

The **M contact** closes the circuit approximately 15 milliseconds before the first shutter curtain opens the shutter. The light curve of certain flashes will thus coincide with the travelling of the shutter. This contact is used for synchronizing flash bulbs with a longer flash duration (e. g. RFT DF 70, Osram SO, Philips PF 45). This synchronization allows for short shutter speeds down to $\frac{1}{1000}$ sec. (see table a).

The **F contact** closes the circuit approximately 11 milliseconds before the shutter is fully opened. This contact is designed for the small, short-burning flash bulbs (e. g. Osram XM 1, XM 5, and Philips PF 1 and PF 5, and RFT F 19). The shutter has to be set to $\frac{1}{25}$ sec. (see table b).

The **X contact** permits the use of all types of flash bulbs with a flash duration of $\frac{1}{5}$ sec. and longer. In this case, the shutter speed is determined by the flash duration of the flash bulb (see table c). The X contact is also intended for the synchronization of flash tubes (see page 38).

Should you meet with any difficulty when using flash bulbs (for instance, faulty contact in the lamp base, etc.), remove the flash bulb after the shutter has traveled its course. Do not insert a new lamp before the shutter has been rewound.

In fact, changing of lamps must take place only with the shutter wound up.

Please, refer to the following tables for information regarding the use of particular flash bulbs in connection with the flash contacts on the EXAKTA Varex IIa:

Tables explaining the three Flash Contacts of the EXAKTA Varex IIa

a) Full synchronization: Connect the cable cord to the M contact!

Shutter setting = actual exposure speed	Osram flash bulbs	Philips Photoflux flash bulbs		RFT Photo flash bulbs
	SO Guide number for 17/10 ⁰ DIN	PF 24 Guide number for 17/10 ⁰ DIN	PF 45 Guide number for 17/10 ⁰ DIN	DF 20 Guide number for 17/10 ⁰ DIN
1/1000	11	5	7	10
1/500	15	7	10	14
1/250	—	10	15	20
1/150	—	13	17	25
1/100	—	15	20	30
1/50'	—	—	25	—

b) Open flash technique: Connect cable cord to F contact and set shutter to $1/25$ sec.!

For use with small, short-burning flash bulbs.

Shutter setting (not exposure speed)	Osram flash bulbs			Philips Photoflux flash bulbs			RFT Photo flash bulbs		
	Type	Guide number 17/10 ⁰ DIN	Exposure speed (~flash duration)	Type	Guide number 17/10 ⁰ DIN	Exposure speed (~flash duration)	Type	Guide number 17/10 ⁰ DIN	Exposure speed (~flash duration)
$1/25$ sec.	XM 1	25	$1/100$	PF 1	25	$1/100$	F 19	18	$1/200$
	XM 5	40	$1/80$	PF 5	40	$1/80$			

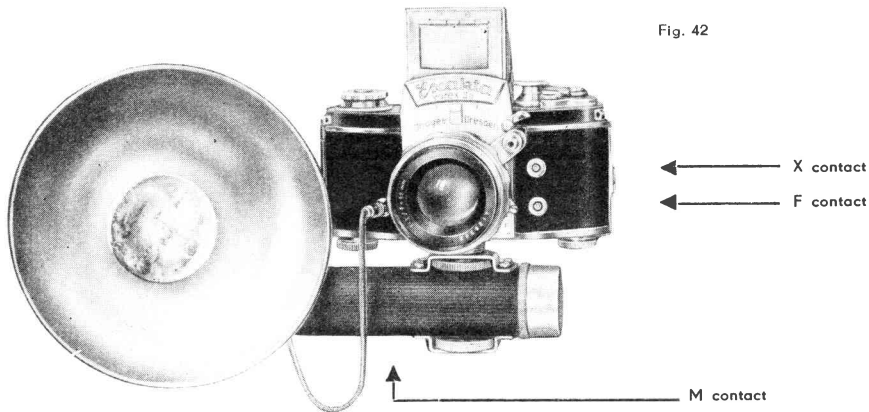
c) Open flash technique: Connect cable cord to X contact and set shutter to $1/5$ sec. or a slower speed!

For use with all flash bulbs on the market.

For European flash bulbs please note the following data:

Shutter setting (not exposure speed)	Osram flash bulbs			Philips Photoflux flash bulbs			RFT Photo flash bulbs		
	Type	Guide number 17/10 ⁰ DIN	Exposure speed (~flash duration)	Type	Guide number 17/10 ⁰ DIN	Exposure speed (~flash duration)	Type	Guide number 17/10 ⁰ DIN	Exposure speed (~flash duration)
$1/5$ sec. and longer	XM 1	25	$1/100$	PF 1	25	$1/100$	F 19	18	$1/200$
	XP	20	$1/250$	PF 5	40	$1/80$	F 32	21	$1/125$
	XO	30	$1/200$	PF 24	25	$1/40$	F 40	35	$1/100$
	XM 5	40	$1/80$	PF 45	30	$1/20$	F 20	52	$1/55$
	SO	40	$1/50$	PF 60	55	$1/50$	DF 40	35	$1/50$
					PF 100	80	$1/45$	DF 20	52
							DF 70	76	$1/20$

For best results with the flash bulb synchronization, the **Ihagee flashgun** (Fig. 42) is available. It consists of a battery case serving as handle, flash lamp holder with spring locking device suited for all bulb sizes and all bases of flash bulbs, reflector, and connecting cord. The battery case accepts the capacitor cartridge KR 2, which has to be loaded with a normal 22,5 volt battery. Make sure that the poles are accurately placed. We advise checking proper functioning by means of a test lamp. Details may be found in the Instructions for using the Ihagee Flashgun.



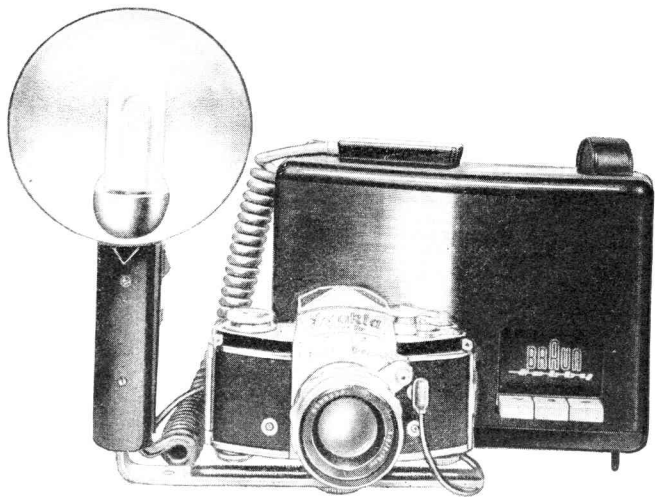
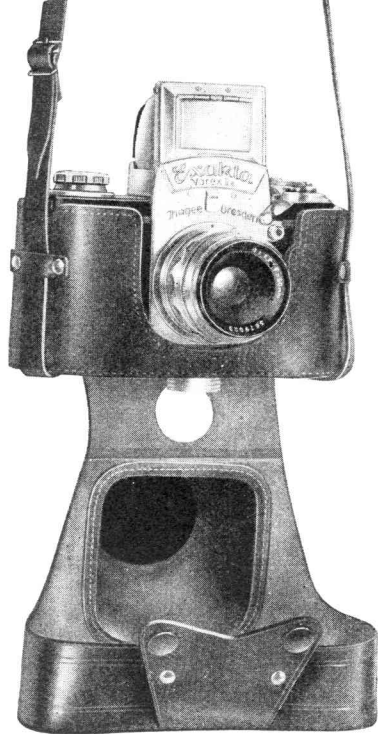


Fig. 43



The Electronic Contact makes it possible – as the name says – to use the EXAKTA Varex IIa also with electronic units (Fig. 43). For this purpose there is the third socket X on the EXAKTA Varex IIa. This socket accepts the cable cord of the electronic unit. Electronic flashes are ignited at shutter speeds of $1/50$ sec. or longer. The flash-tube synchronization closes the circuit after the first shutter curtain has crossed the entire film gate. The effective exposure time is determined by the flash tube and is usually $1/500$ to $1/5000$ sec., depending on the type of flash tube, which is fast enough to catch subjects moving with extreme speed.

Simultaneously with an electronic flash on the X contact, one flash bulb can be ignited on the M or F contact, should this be considered necessary for any special task.

K. EXAKTA Varex accessories

The EXAKTA Varex Everready Case (Fig. 44) has been made for protecting and easily transporting the camera without impairing its operative speed. Control of all mechanical parts important for picture taking is possible with the camera in the case. Camera and case are connected fast by a retaining screw and the EXAKTA Varex can, also in its case, be screwed on to a tripod. The neck-strap of the Everready Case provides a convenient means of carrying your camera with you at any time. If you wish

Fig. 44

to take the camera without the case, just fasten a neck-strap or cord directly to the neck-strap eyelets (4).

Special Lenses can be used in the EXAKTA Varex instead of the standard lens (Fig. 45). For this purpose remove the standard lens from the camera as described before, and insert the special lens into the bayonet mount. Here is a great advantage of the EXAKTA Varex; when using special lenses, no special view-finders, range-finders, or tables are needed. Focussing is performed on the ground glass reflex image in just the same way as with the standard lens. Change in exposure speed for special lenses, as compared with the standard lens at the same diaphragm openings is not necessary. Always act in accordance with the diaphragm numbers on the lenses (relative apertures). The distances marked on the measuring scale of the lenses are measured from the film plane of the EXAKTA Varex to the subject.

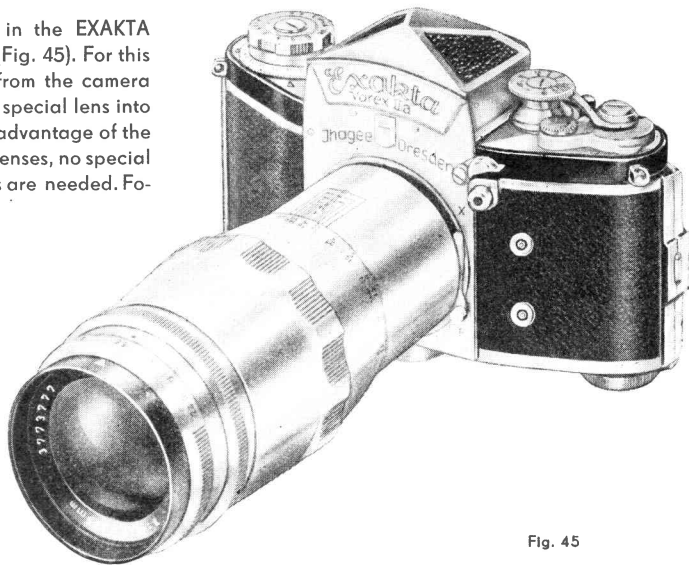
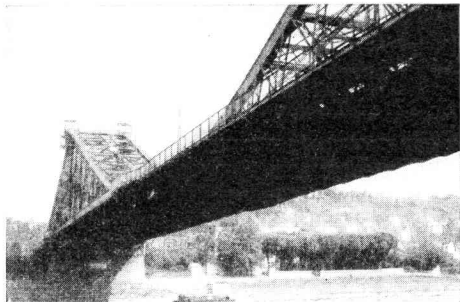


Fig. 45



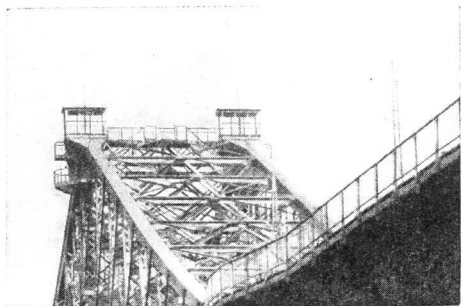
Focal length 4 cm

Angle of field 55°



Focal length 5 cm

Angle of field 45° (standard lens)



Focal length 15 cm

Angle of field 16°



Focal length 50 cm

Angle of field 5°

Indications:

Short focal length, large field of view.
Covers larger area, but everything is smaller and more distant.

To be used for:

Architecture, interiors, copying work in galleries, exposures from short distance.

To be used for:

All short speed exposures under poor lighting conditions (instant shots with artificial light).

The following special lenses are available for the EXAKTA Vorex:

Wide-angle Lenses (see upper left picture, page 40)

Name of lens	Speed	Focal length mm	Angle of field	Diameter of the mount mm
Flektogon AD	f/2,8	35	62°	51
Primagon PD	f/4,5	35	63°	51
Wide-angle Jena T	f/4,5	40	57°	51

Ultra high-speed

Name of lens	Speed	Focal length mm	Angle of field	Diameter of the mount mm
Night lens PD	f/1,5	75	32°	60

Long-focus and Telephoto-Lenses (see lower pictures, page 40)

Name of lens	Speed	Focal length mm	Angle of field	Diameter of the mount mm
Night Lens PD	f/1,5	75	32°	60
Biotmetar PD	f/2,8	80	30°	51
Trioplan AD	f/2,8	100	24°	51
Long-Focus lens PD	f/4	135	18°	51
Tele-Megor PD	f/5,5	180	14°	51
Tele-Megor PD	f/4,5	300	8°	85
Tele-Megor PD	f/5,5	400	6°	85
Tele-Lens	f/8	500	5°	80

All of these lenses have an anti-reflex coating.
PD = preset diaphragm lens. AD = automatic preset diaphragm.

← Fig. 46

Indications:

Long focal length, small field of view.
Covers smaller area, but everything larger and nearer.

To be used for:

Sports, animal photography, far-away objects (telescopic effect), and portraits (better perspective).

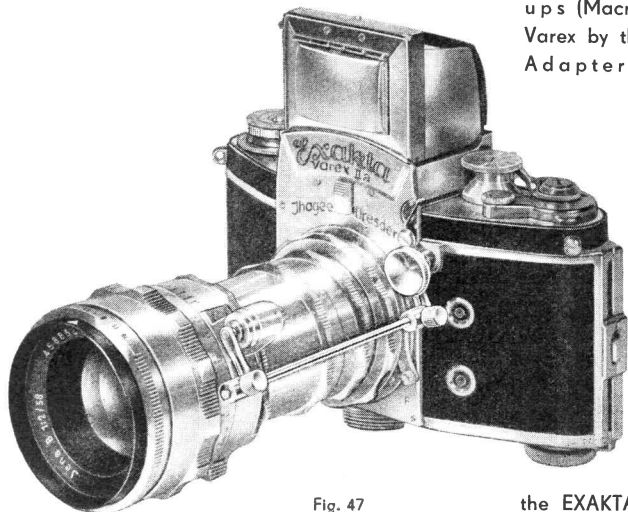


Fig. 47

Extension Increase for extreme Close-ups (Macrophotos) is effected with the EXAKTA Varex by the simplest possible means: Bayonet Adapter Rings or any number of Extension Tubes can be inserted between the camera body and the lens (Fig. 47).

A Close-up Bellow Attachment is used for continuous extension increase (see special prospectus describing our "Vielzweck" = Multi-Combination).

The rear Bayonet Ring is provided with a Counterring serving the following purpose: When employing the Bayonet Adapter Rings and the Extension Tubes of the EXAKTA Varex in different combinations, the lens is often turned round its axis with the result that the lens scales are difficult to read. This inconvenience can be avoided as follows: Loosen only

the tube that is screwed into the rear Bayonet Ring, until the lens scales are in the position desired (e. g. pointing upwards), whereas the other parts must remain screwed together tightly. Then screw the Counterring of the rear Bayonet Ring tightly against the tube next to it. This fastens the whole combination securely against any accidental displacement.

When inserting the rear Bayonet Ring into the camera, the Counterring must be screwed to the Bayonet Ring as far as it will go. In order to remove the complete combination of Tubes and Bayonet Rings from the camera, you have to screw the Counterring tightly to the front. When removing the whole combination, make sure to grasp the Counterring as well.

For the smallest Extension Increase of 5 mm a Two-in-One Ring (a) is available (Fig. 48). It consists of one piece. The front bayonet takes the lens (watch the red dots just as with the camera), and the rear Bayonet Ring is inserted



Fig. 48

into the camera in the same way as a lens. The Extension Increase next in length, 10 mm, is attained by the two Bayonet Rings (b). To insert the lens and the Bayonet Rings together with the lens into the camera do as described above. The two Bayonet Rings differs essentially from the Two-in-One Ring in that it can be screwed apart, and for further extension increase the simple Extension Tubes are screwed in between. The shorter the focussing distance, the longer the extension (see also the following tables). The Extension Tubes are available in 3 lengths: 0,5 cm, 1,5 cm, and 3 cm (c, d, e). They are available with the two Bayonet Adapter Rings as a complete set only. The Two-in-One Ring (a) can be delivered separately.

The effect of the extension increase is seen on the reflex image. Viewing and focussing, too, are performed on the ground glass image — a constantly recurring advantage of the single-lens reflex camera. With the use of extensions, the exposure time also must be increased.

$$\text{Formula: exposure increase} = \left(\frac{\text{actual extension} = \text{image distance}}{\text{previous extension} = \text{focal length}} \right)^2 \quad \text{therefore:} \quad \left(\frac{b}{f} \right)^2$$

Explanation: When using extension increases, the actual existing extension is the distance between lens diaphragm plane (approx. the middle of the standard lens) and film plane (=film gate <33>), i. e. the image distance (b). The focal distance (f) of the standard lens is also the distance between lens diaphragm plane and film plane (= film gate <33>), but without extension increase; it corresponds to the focal length and is 5 or 5,8 cm. Divide the higher number by the lower and the quotient is to be multiplied by itself.

Example: The two Bayonet Rings and all 3 Tubes (c, d, e) increase the extension of a lens with a focal length of 5 cm to 11 cm (actual extension = image distance). The lens has 5 cm focal length. $11 : 5 = 2,2$. $2,2 \times 2,2 = 4,84$ or, rounded up, a 5 fold exposure. For instance, the exposure meter indicate $1/25$ sec., as, for this example, the exposure time = $1/25 \times 5 = 1/5$ sec.

For lenses with a focal length of 5 cm

Extension increase	Subject distance cm	Image distance cm	Scale of Reproduction	Exposure Factor
a = 5 mm	55,0	5,5	0,1	1,2
b = 10 mm	30,0	6,0	0,2	1,4
b+c = 15 mm	21,7	6,5	0,3	1,7
a+b+c = 20 mm	17,5	7,0	0,4	2,0
b+d = 25 mm	15,0	7,5	0,5	2,3
a+b+d or b+c+d = 30 mm	13,3	8,0	0,6	2,6
a+b+c+d = 35 mm	12,1	8,5	0,7	2,9
b+e = 40 mm	11,3	9,0	0,8	3,2
a+b+e or b+c+e = 45 mm	10,6	9,5	0,9	3,6
a+b+c+e = 50 mm	10,0	10,0	1,0	4,0
b+d+e = 55 mm	9,5	10,5	1,1	4,4
b+c+d+e = 60 mm	9,2	11,0	1,2	4,8

For lenses with a focal length of 5,8 cm

Extension increase	Subject distance cm	Image distance cm	Scale of Reproduction	Exposure Factor
a = 5 mm	73,1	6,3	0,09	1,2
b = 10 mm	39,4	6,8	0,17	1,4
b+c = 15 mm	28,2	7,3	0,26	1,6
a+b+c = 20 mm	22,6	7,8	0,35	1,8
b+d = 25 mm	19,2	8,3	0,43	2,1
a+b+d or b+c+d = 30 mm	17,0	8,8	0,52	2,3
a+b+c+d = 35 mm	15,4	9,3	0,60	2,6
b+e = 40 mm	14,2	9,8	0,69	2,9
a+b+e or b+c+e = 45 mm	13,3	10,3	0,78	3,2
a+b+c+e = 50 mm	12,5	10,8	0,86	3,5
b+d+e = 55 mm	11,9	11,3	0,95	3,8
b+c+d+e = 60 mm	11,4	11,8	1,03	4,1

The preceding Tables serve as a guide to the increase of exposure time, the distances, and the scale of reproduction for close-ups. All these tables contain calculated values, which may differ a little from the real values for the focal lengths in consequence of generally admissible tolerances in lens manufacturing. The tables, nevertheless, give you a good general guide, helping you to decide which extensions are necessary for certain work, provided that the helical focussing mount is always set at infinity (∞). Intermediate values are found by critical focussing at shorter distances. With extra tubes you may continue these tables optionally up to magnifier pictures with fivefold magnification of the subject, and more.

Extension increase = Two-in-One Ring No 146	= a	Tube 0,5 cm No 142 = c
The two Bayonet Rings No 138	= b	Tube 1,5 cm No 143 = d
(Rear Bayonet Ring with Counterring)		Tube 3,0 cm No 144 = e

Subject distance = distance from approx. lens diaphragm level (middle of the lens) to subject

Image distance = extension = distance from the middle of the lens (lens diaphragm level) to film plane (= film gate (33))

Scale of reproduction = picture ratio, e. g. 0,8: 1 cm of the subject is 0,8 cm on the negative.

The Autocouple Extension Release (Fig. 47, page 42)

In order to maintain the quick readiness for action of the EXAKTA Varex with lenses having the automatic diaphragm setting device, also when using intermediate rings, you will need the "lhagee Autocouple Extension Release". The insertion of Bayonet Rings and Tubes for close-up work naturally interrupts the direct connection of the release knobs (see pages 16/17). This connection is restored in quite a simple manner by the Autocouple Extension Release. Precise instructions for using this accessory equipment are supplied with each unit.

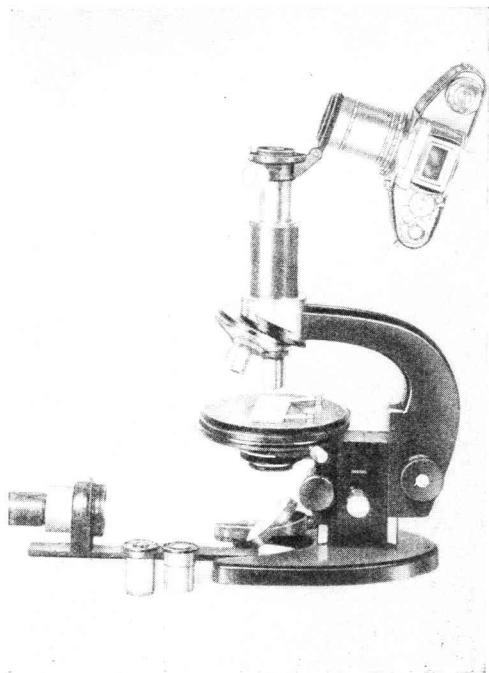
The two Microscope Attachments (Fig. 49 and 50) have been designed to connect the EXAKTA Varex with a microscope. With either attachment, the camera can be mounted on any monocular microscope with tubes of 25 mm diameter. Focussing is in this case also performed on the reflex image. You have to remove the camera lens and work only with the ocular and lens of the microscope (sometimes even with the microscope lens alone = magnifier photography, see Fig. 53).

Microscope Attachment, Type 1 (with hinged clamp) (Fig. 49): To fix the camera to the upper part of the attachment: put the Bayonet Ring into the camera bayonet in the same way as a lens. In order to connect the whole combination — camera and attachment — to the microscope, first remove the ocular from the microscope tube. Then put on the camera with the attachment, restore the ocular into the draw-tube, and fasten the microscope attachment to the microscope tube by a slight turn of the clamping screw. By means of the hinge, the camera can, at any time, be tilted aside, when



Fig. 49

Fig. 50



photographic work is to be suspended, if by changing the ocular the ratio of magnification is to be changed or visual observation of the subject to be continued (see Fig. 51).

Microscope Attachment, Type 2 (in Rapid Exchange-Mount) (Fig. 50): In the Microscope Attachment Type 1, the upper and lower parts are connected by a hinge, whereas these parts in Type 2 can be entirely separated. Place the camera on the upper part as described above. In order to fasten the lower part on the microscope, loosen the Rapid-Exchange-Mount and, in this way, separate the upper part from the lower part (Fig. 50). Loosen the milled screw and lift the upper part on this side out of its mount, so that you will be able to draw it from underneath the two catches on the opposite side as well. After having removed the ocular of the microscope, push the lower part over the ocular tube, replace the ocular into it and, by an anti-clockwise turn, fasten the lower part to the notched ring. The upper part of the Microscope

Fig. 51

Attachment, with the camera, is inserted into the Rapid-Exchange-Mount. First push the cone underneath the two catches, then slip it in on the opposite side. Finally, by tightening the screw, secure the upper part in the mount (Fig. 52). The conical piece of the upper part of our Microscope Attachment, Type 2, is adaptable also to the latest models of microscopes. Remove the tube and the ocular from the microscope and insert the EXAKTA Varex, with the upper part only of the micro-attachment, into the exchange-mount on the microscope tube support (Fig. 53). It is also possible to make so-called "magnifier exposures" — with less magnification — using the microscope lens alone (the Microtars are especially qualified for this purpose). For close-up work and photomicrography the Lens Magnifier attachment will be more convenient for focussing and viewing than the Finder Hood or Penta Prism. The Lens Magnifier attachment is fitted with an EXAKTA lens or the "lhagee additional lens", which are used as

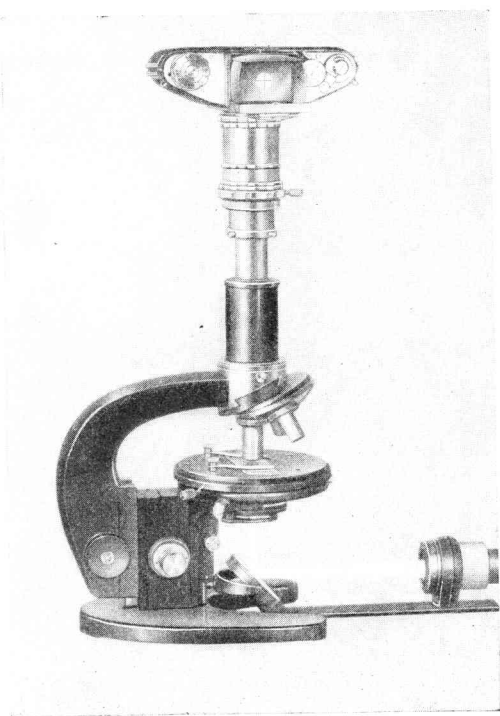
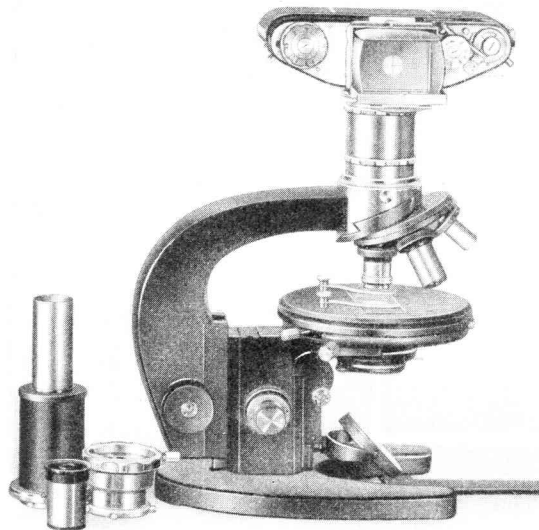


Fig. 52



magnifier. Please find further details in our special instruction booklet: "Macrophotography and Photomicrography". Photomicrography is an interesting sphere of photography which, however, can be mastered only by profound study of the respective special literature. Your photodealer will gladly recommend you suitable books, and we, too, are always ready to give advice where necessary. Special Types of focussing glasses. In photomicrography it is certainly often desirable to examine the image on a ground glass, but to focus the sharpness through a clear centre spot directly from the microscope-image. Exactly this is made possible by the alternative focussing systems of the EXAKTA Varex, for you may employ ground glasses with clear centre spot either in the Finder Hood or in the Penta Prism. But to avoid having to use a ground glass with clear centre spot for all your other photos as well these special focussing glasses can be delivered additionally.

Fig. 53

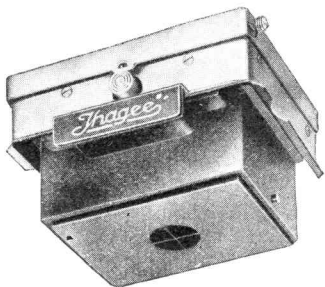


Fig. 54

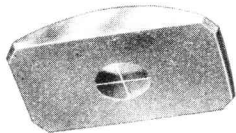


Fig. 55

In the Finder Hood the ground glass forms the base of the large magnifier lens, which can be removed from the Finder Hood by loosening the two fastening screws. The desired special focussing glass can then be inserted. However, for convenience sake, we would recommend purchasing a complete extra Finder Hood with the special glass right from the beginning, the difference in price not being very considerable.

With the Penta Prism the ground glass lens can be exchanged easily by taking hold of it in the open spaces of the longitudinal sides and lifting it out. You need only to procure an extra focussing glass (Fig. 55) with the desired base.

The following special glasses are available:

- a) Reflex Finder Hood with ground glass and clear centre spot of 3 or 10 mm diameter (both with hairline cross in the clear centre spot),
- b) Reflex Finder Hood with all clear glass and hairline cross,
- c) For the Penta Prism: Ground glass with clear centre spot of 3 or 10 mm diameter (both with hairline cross in the clear centre spot),
- d) For the Penta Prism: Clear glass, but with hairline cross.

Further special types of focussing glasses for technical photos, architecture, copy work etc. can be manufactured according to your wishes (e. g. with etched rectangles, cm or mm graduations etc.). Please apply to our "Service Department"!

To facilitate focussing with the Penta Prism the Distance Meter is available. It shows two part images of the subject in one measuring range. When focussed inaccurately, the partial images are dislocated against each other; in correct focus, their outlines, horizontal or vertical, as the case may be, precisely meet. Focussing must be performed at a wide lens aperture (no less than $f/5,6$).

The Stereo-Attachments for the EXAKTA Varex (Fig. 56) have been developed for three-dimensional photography. The large Stereo-Attachment permits taking pictures from ∞ (infinity) up to 2 meters, whereas the small attachment yields photos at distances ranging between 2 m and 0,15 m. Both Stereo-Attachments can be screwed into the front mount of the normal 5 cm lenses (with 42 or 32 mm front mount). Give details of lens when ordering. The three-dimensional effect is brought about, relative to the human eye, by two pictures: the one inclining more to the left, the other more to the right of the subject. With the Stereo-Attachment, both pictures of the same subject are produced simultaneously, each one, however, by a separate prismatic system. The $1 \times 1\frac{1}{2}$ in. (24×36 mm) negative is separated into two upright pictures, $\frac{3}{4} \times 1$ in. (18×24 mm), with a useful area of $\frac{7}{8} \times \frac{11}{12}$ in. (15×22 mm) (Fig. 57). The right-hand picture is reflected into the lens by the left-hand prism, and the left-hand picture by the right-hand prism (crosswise). When printing or enlarging the negatives you need not exchange the two pictures. The transparencies made from your stereo-photos can be observed with our Stereoscopic Viewfinder "Stereoflex" (see page 55 and Fig. 56) or in other stereo-viewers. It is also possible to project the transparencies by a miniature projector,

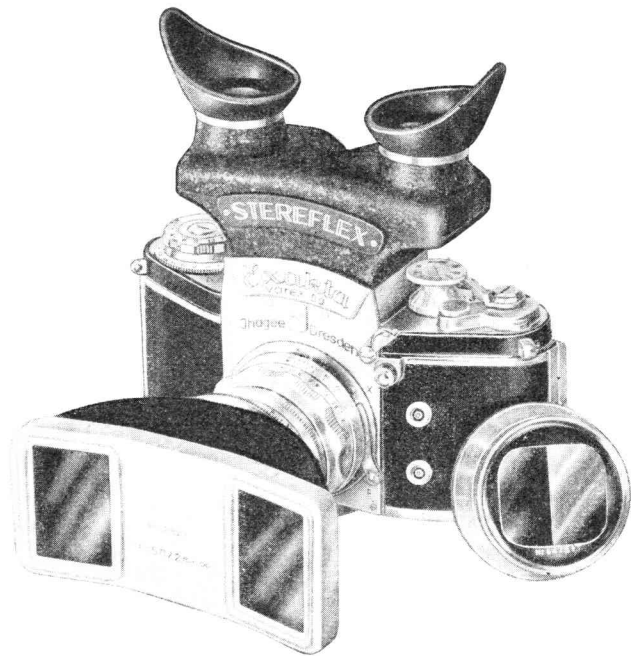


Fig. 56

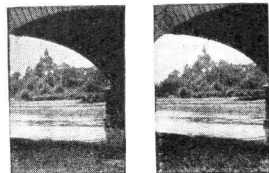
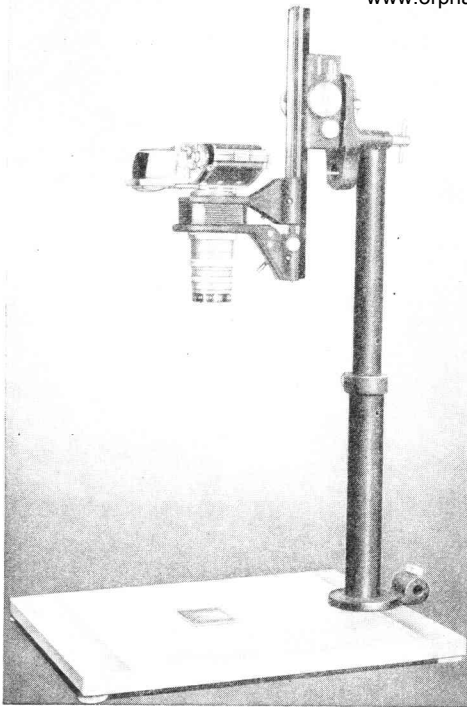


Fig. 57

fitted with a stereo projection attachment, and to view them stereoscopically (three-dimensionally) through polarizing spectacles. Our "Service Department" will be pleased to give you further information on demand.

The two Stereo-Attachments are screwed into the front mount of the lenses and fixed by turning the fastening ring in the opposite direc-



tion as soon as the separation line in the centre of the ground glass screen runs perfectly parallel with the vertical lines of the 18×24 mm images. The ground glass must already reveal two rectangular stereo frames. Perpendicular setting is facilitated by paying attention to the fact that a certain point in either picture has to be at the same distance from the bottom edge of the image. Focussing is performed, as usual, on the ground glass image only. The range of application of the two Stereo-Attachments must be precisely observed. When taking close-ups from 0,15 to 2 m distance the smaller base between the prismatic systems of the small attachment is sufficient, whereas pictures ranging from 2 m distance up to infinity require the more extensive base of the large attachment, in order to secure a sufficiently plastic reproduction of the whole subject. When using the Stereo-Attachments the exposure time must be increased 1,5 times. Due to the fact that the two pictures always have to stand side by side, the EXAKTA

Fig. 58

Varex can be used only in a horizontal position, always producing upright stereo-photos.

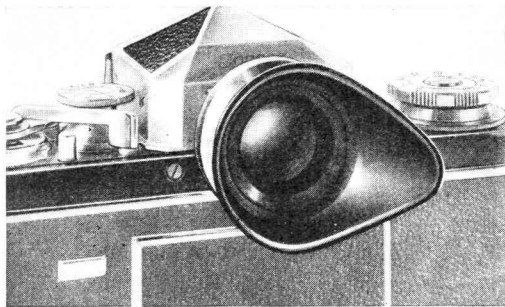
In order to be able to pre-judge the effect of the future stereophoto on the ground glass you insert into your EXAKTA Varex the mentioned stereo-view-finder "Stereoflex" instead of the reflex Finder Hood or Penta Prism attachment. The stereo-view-finder may also be used to view the finished transparencies. For this purpose the ground glass magnifier must be removed from the stereo-view-finder by taking hold of it on the longitudinal sides and lifting it out. Then a special transparency-frame, which we deliver together with the "Stereoflex", is pushed on from outside making snap in the small pivots into the slits of the springs.

The Ihagee "Vielzweck" (Multi-combination) (Fig. 58), by its variety of combinations, opens further new possibilities in photographing. The "Vielzweck" enables you to obtain without difficulty reproductions with lower and upper light, miniature transparencies, difficult micro and macro pictures a. s. o. Please see for details in our booklet "Interesting Photos — easily obtainable" and in the directions for use "The Ihagee Vielzweck".

The Kolpofot is a part of the "Vielzweck". It is especially used in medical photography. For further details we refer to the special booklet "The Ihagee Kolpofot".

Small accessories

The Penta Prism Eyepiece (Fig. 59) facilitates focussing considerably by eliminating stray side



lights. You will find it possible to concentrate upon the reflex image and to press the camera with the eyepiece securely against your face. Persons with faulty eyesight may insert a corrective glass corresponding to their spectacles into a mount of the eyepiece, so that they can focus without any further visual help.

The Giant Release Button (Fig. 60) can be screwed into the shutter release knob enlarging its surface and enabling you to operate the release easily and safely while wearing gloves or when your fingers are stiff with cold.

Fig. 59

Colour Filters

The purpose of filters in black-and-white photography is to render the colours of the subject in the grey tone values corresponding to the impression upon the human eye, the reaction of the film upon the colours being different from that of the human eye. The filter colour appears brighter, and the complementary colour darker, in the final positive, e. g. a yellow filter will produce tones of a lighter grey for the yellow areas and darker grey tones for the blue areas of the object, for to the human eye yellow appears to be the lightest and blue the darkest colour. Thus the blue sky will appear darker in the picture and the white clouds will show in good contrast. Light conditions and colour sensitivity of the film also play an important part. For more detailed information please consult the technical literature!

Push the filter on the front of the lens mount. The filter mounts are shaped to take a push-on lenshood or soft focus disk. The colour filters absorbing a certain amount of light, it is necessary to prolong the exposure time when using them :

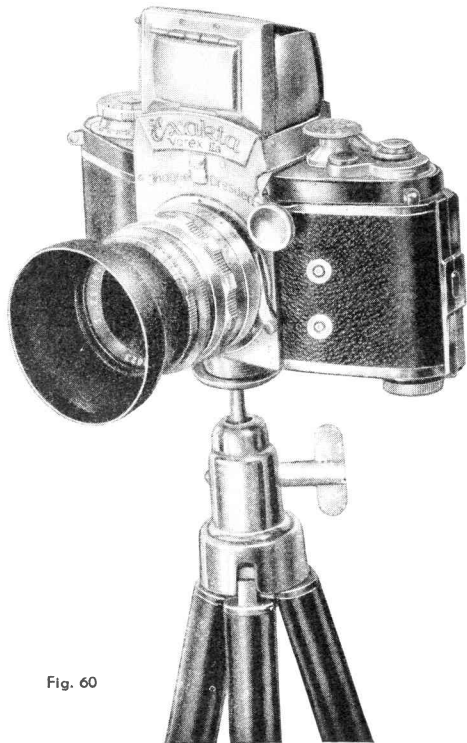


Fig. 60

Yellow filters, light and medium	approx.	2—4 times the normal exposure time
Yellow filters, dark	approx.	5 times the normal exposure time
Yellow-green filters, light	approx.	3 times the normal exposure time
Green filters, medium	approx.	4 times the normal exposure time
Blue filters, light	approx.	2 times the normal exposure time
Red filters, light	approx.	8 times the normal exposure time

The lens Hood (Fig. 60) is far more important than generally believed. It protects the lens, not only against direct sunlight, but also in every case against side-lights and glares, thus enhancing the contrasts in the picture. The lens hood is pushed on the front of the lens mount or on the front ring of the filter mount.

Soft-focus Disks are widely estimated to create "atmosphere" causing the bright areas to appear slightly over-emphasized towards the darker areas. They help to express a sunny atmosphere in the photo. The disks are also pushed on the front of the lens mount.

Polarizing Filters have the purpose to render light reflections on bright objects in the photo (glass, surfaces of liquids, varnish etc.) invisible. The light, bouncing down and radiating in all directions is, when reflecting, reduced in its oscillations, and the reflected light swings in one direction only. You can eliminate this polarized light by a cross-bar window (Polarizing Filter) and by photographing in a certain angle to the reflecting surface (with glass, about 35°). Push the Polarizing Filter on the lens mount, rotating it until you see the reflections disappear on the ground glass. Changing the position of the camera will either increase or diminish these light reflections. Take your photograph, therefore, in an oblique angle to your subject. Examine the position of your camera and that of the Polarizing Filter as shown by the reflex image, adjusting both until you perceive a maximum decrease of light reflexes. Owing to its dim yellow colouring the Polarizing Filter requires twice the normal exposure time. Special literature will give you further details. With metallic surfaces there is no light polarization, and the filter gives no effect (e. g. with polished metallic surfaces, silvered mirrors etc.).

L. Careful handling of camera and lens

The Camera closed, with inserted lens or protective cover, ought always to be kept, if possible, in the Everready Case or wrapped in a smooth dust proof cloth. All easily accessible parts must be kept clean and, if necessary, dusted with a soft camel-hair-brush. Especially the film track with film guides (32), film chambers (30 and 39), camera back (40) with film pressure plate (41) must always be cleaned. Occasionally, the mirror of the EXAKTA Varex has to be dusted delicately with a soft hair-brush.

Protect your EXAKTA Varex carefully against dust, sand, etc. and, of course, against moisture of any kind. Never touch the glass surfaces of the lens, Finder Hood or Penta Prism attachments with your fingers! If necessary, lenses and other glass surfaces may carefully be cleaned with a very soft leather or a piece of soft, smooth linen.

Do not, under any circumstances, interfere with the camera mechanism. Repairs are the business of the expert and should whenever possible, be carried out in our works.

If you are desirous of further information, we recommend the following **EXAKTA-Literature**:

Instruction Booklets:

1. Macrophotography – Photomicrography,
2. The Ihagee Vielzweck (Multicombination),
3. The Ihagee Kolpofot,
4. The Ihagee Flashgun.

Our works will be pleased to place these booklets at your disposal, if desired.

Special Literature:

'EXAKTA Kleinbild-Fotografie' by Werner Wurst. The authoritative, complete instruction book (Published by W Knapp, Halle/Saale).

'EXAKTA Makro- und Mikro-Fotografie' by Georg Fiedler. An indispensable guide for two of the most important spheres of EXAKTA Varex photography (Published by W. Knapp, Halle/Saale).

'EXAKTA Tips' by Werner Wurst. A short preliminary study dealing with the main points in EXAKTA Varex photography (Published by Heering-Verlag, Seebuck/Chiemsee).

'Liebe zur EXAKTA' by Heinz Müller-Brunke. A picture book with 128 first-class photos by the distinguished photographer (Published by Verlag Bruckmann, Munich).

'35 mm EXAKTA Handbook' by K. L. Allinson A. R. P. S. (Published by Fountain Press, London).

'35 mm Photography with an EXAKTA' by K. L. Allinson A. R. P. S. (Published by Fountain Press, London).

EXAKTA Photography' by Jacob Deschin (Published by Camera Craft Publishing Company, San Francisco 5, California).

'EXAKTA GUIDE' by W. D. Emmanuel (Published by Focal Press, London).

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