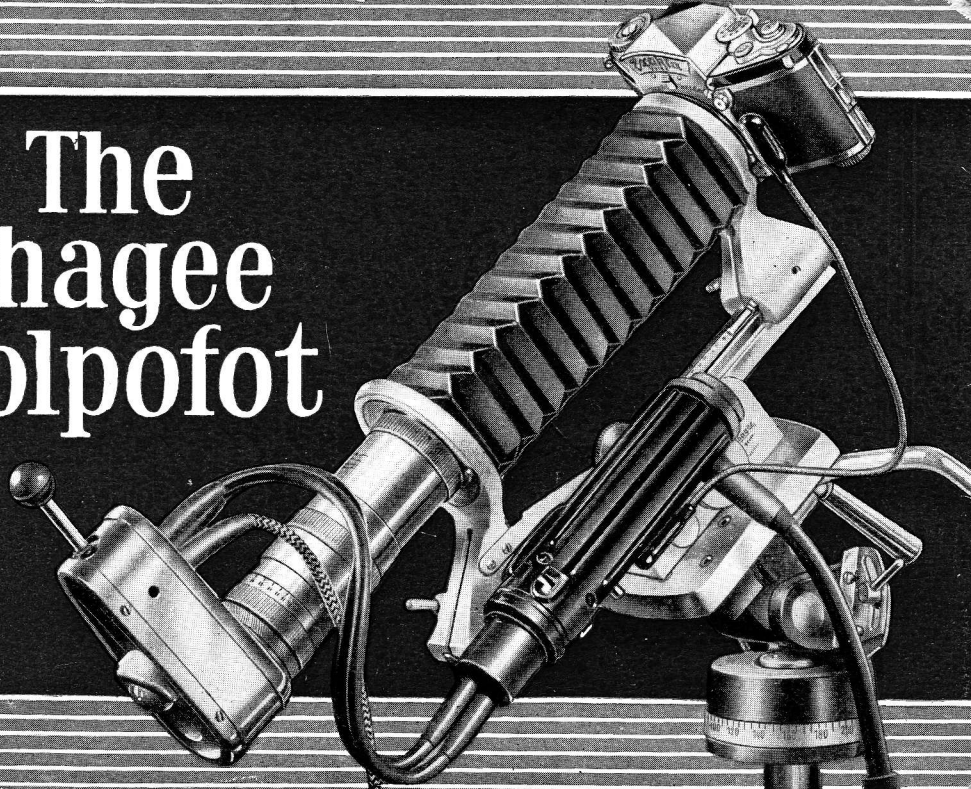


# The Ihagee Kolpofot



Please turn over this page to the left, leaving open the full view of figure 1 while studying the text.

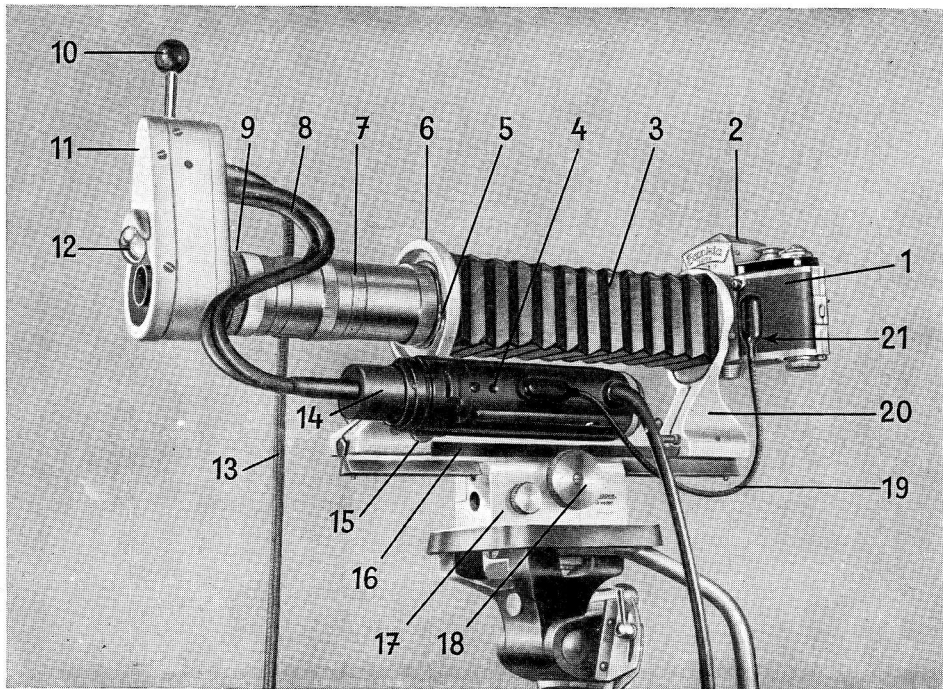


Fig. 1

# **INSTRUCTIONS**

**FOR USING THE**

**IHAGEE "KOLPOFOT"**

**The IHAGEE "KOLPOFOT" is an instrument designed for all kinds of photographic work with the magnifier, particularly where moveable objects are concerned. It is chiefly used for photographing cavities of the human body (vagina, mouth, pharynx etc.).**

The "Kolpofot" consists of the following parts:

- a) **the complete close-up bellows attachment**, comprising the gliding rail (16/17), the camera holder (20), the lens holder (6) and the bellows (3). (A supporting device with fastening screw for the Blohm Reflektor rod [4] is available on special order).
- b) **a special lens** (7) f/4, focal length 135 mm (with diaphragm stops down to f/45), and
- c) **the Central Flash Equipment ZB 3** (11), comprising the electronic flash tube, the pilot light (12) and three flexible cables (8/13).

Further requirements for practical work with the "Kolpofot" will be:

- d) an EXAKTA Varex (1) with the Penta Prism Viewfinder (2) equipped with an all-clear-class-hairlined magnifier,
  - e) a sturdy tripod with universal swing-and-tilt head, e.g. the "Gigant" tripod with the "Gigant" swing head, manufactured by Berlebach, of Mulda (Saxony),
  - f) an electronic flash unit (500 to 1000 volts) and
  - g) a 6 volt, 15 watt transformer, or accumulator, for the pilot light.
- (Flash unit and transformer are supplied in one, as Electronic Unit, for connection to the house circuit, by Ing. H. Blohm, Plauen/Vogtland).

## How to assemble the "Kolpofot"

To begin with, the complete bellows attachment has to be mounted to the tripod, for which purpose the sliding block (17) is provided with two tripod sockets to fit either the continental or English thread. Loosen the fastening screw (15) on the lens holder (6) (lower left in viewing direction) and the catch on the camera holder (20) (lower right). – You are looking in viewing direction when being able to normally read the figures on the gliding rail (16). – Retract the camera holder (20) on the gliding rail (16), (turn the safety screw into locking position) and tighten the catch again. The lens holder (6) – as shown in the illustration – remains in its place at the front stop of the gliding rail (16).

When mounting the EXAKTA Varex (1) to the camera holder (20), take care that the red dots on the two bayonet rings stand opposite each other. Then turn the camera to the right (looking in the viewing direction) until the bayonet locking lever clicks in.

Before the lens (7) (set at infinity) is connected to the lens holder (6), the central flash equipment ZB 3 (11) has to be screwed to the front of the lens barrel. Make sure that the knurled counterring (9) is hereby screwed quite close to the housing of the central flash equipment (11). A safe way of positioning lens and flash equipment correctly is to hold the housing of the flash equipment in the left hand, with the regulator (10) for the pilot light pointing straight upwards. First screw the lens to the housing of the flash equipment as far as it will easily go, then turn it back again until the red ad-

justing marks on the lens scales are visible from above. The afore-mentioned counter-ring (9) of the flash equipment must now be screwed tightly against the objective. Finally, the objective with flash equipment are connected to the bayonet mount of the lens holder (6). (The locking lever [5] must click in). Please refer to the EXAKTA Varex instruction booklet for details.

The following directions for establishing the electric connections in the "Kolpofot" refer in the first place only to the use of the afore-mentioned Blohm Electronic Unit. It is possible, however, to use the "Kolpofot" also with other strobelight units, provided that they meet the following requirements: 500 to 1000 volts tension, 100 to 200 watts power, exchangeable flash tube (see also page 4). We are here giving the instructions for connecting the Blohm Electronic Unit to the "Kolpofot":

Pull the normal flash tube off the reflector rod (4) of the flash unit. Connect the plug (14) on the two high-tension cables (8) of the electronic unit to the socket in the reflector rod (4). Caution! As is the case with wireless valves, the plug (14) fits into the socket only in one definite position! The screw supplied with the apparatus serves to attach the reflector rod (4) to the support on the lens holder (6). This is achieved by running the screw through the hole in the holder and into the baseplate of the reflector rod (4). The third cable (13) of the electronic unit ZB 3, which is provided with a low-tension plug, is designed to put the pilot light (6 volts) into action and must be connected to the transformer sockets of the electronic flash unit. The connection between the reflector rod (4) and the X contact (21)

of the EXAKTA Varex (1) is produced by a special synchronous cable (19). The "Kolpofot" is now ready for use.

As already mentioned, the tube of the Blohm unit is exchangeable, and it is equipped with European socket. Attached to the cable cord of the central flash unit ZB 3 is a plug fitting the European socket mount of the reflector rod. It will, therefore, merely be necessary, when using any other electronic unit to ask a specialist to make a connecting piece, with mount for the European socket to take the cord plug, and also with a plug for the tube socket in the reflector rod of the other flash unit.

## **How to operate the "Kolpofot"**

To operate the "Kolpofot" means to be perfectly acquainted with the EXAKTA Varex. It is, therefore, advisable first to thoroughly study all details of the instructions for using the camera.

Before actual photographs are taken, the lamp of the pilot light (12) has to be set by means of the lever (10) to a position at which the coils of the wire reflect their light collectively towards the front (the complete image of the coils must be visible on a surface about 1 meter distant). The pilot light is then adjusted to a test object by swinging or vertical movement of the lever (10) to the point where the field of the object alone is illuminated and becomes visible in the finder. Based on this technique, the prism finder (2) of the EXAKTA Varex, even with the lens set at the smallest aperture, still reveals a bright image. The pilot light must now remain untouched in its position.



Moving the camera holder (20) on the gliding rail (16) will alter the ratio of the picture, whereas focusing is performed with the aid of the rack-and-pinion knobs (18) on the left and right. With the "Kolpofot" in a vertical position, the right-hand knob also serves to lock the gliding rail (16) in place, in which case the knob is screwed towards the sliding block (17) by clockwise rotation, whereby the left-hand knob (18) must be held fast. As soon as the right-hand rack-and-pinion knob is to act as focusing knob again, it must be turned away from the sliding block (17) and fixed in its position. During this performance, too, the left-hand knob (18) has to be held tight.

The camera holder (20) permits the EXAKTA Varex to operate either vertically or horizontally. According to requirement, the camera is swung around in either direction until it comes to a stop.

Before the exposure, the object must be lightened up by the pilot light, and the image is most conveniently focused by means of the right-hand rack-and-pinion knob. With the all-clear-glass magnifier in the prismatic finder and with the image in correct focus, the hairline cross and the image must remain in perfect line with each other while the observer's eye moves laterally to and fro in front of the eyepiece of the prismatic finder (2). Should the user of the "Kolpofot" not have normal eyesight, the image in the Penta Prism, focused free from parallax error as described above, will not reveal pin-point sharpness. This, however, makes no difference to the sharpness of the negative. Shutter-timing is  $\frac{1}{50}$ th second, synchronized to the electronic flash, the duration of which corresponds to the shutter speed.

## Negative material for the "Kolpofot"

With the flash tube working at 70 to 100 watts p.s., the following data, depending on the brightness of the subject, must be observed:

### Black-and-white film

Agfa Fluorapid film, diaphragm stop f/45, Röntgen Rapid developer, 4 to 6 minutes.

Agfa Isochrom film,  $17/10^0$  DIN, diaphragm stop f/16, Final developer, 7 to 10 minutes.

These two types of film are specially recommended for medical purposes, being insensitive to red and rendering red tones in dark contrast on the positive print.

### Color film

Agfacolor reversible film T, diaphragm stop f/4.

Agfacolor negative film T, diaphragm stop f/5.6.

The Agfacolor negative film T should be used rather than the Agfacolor reversible film T, the former permitting the use of smaller diaphragm stops as well as color control when making positive films and color paper prints. Do not forget, when sending your negative films T for processing to mark them as flash-tube "Kolpofot" exposures, needing longer than the usual developing time.

With a more powerful flash unit - e.g. 200 watts p.s. instead of 100 watts p.s. the diaphragm can be stopped down one stop more.

## **Some hints concerning specialized spheres of photography**

### **1. Kolpophotographic exposures**

The patient lies down in the usual manner on the clinical chair, and the examination is made with the aid of the Kolposcope. After this, the Kolposcope is replaced by the stand with the "Kolpofot" ready for use, the distance between the central flash unit (11) and the vagina being only a few centimeters. To open the vagina for the exposure, do not use a selfholding speculum, but two groove specula. The photographer, sitting on a stool behind the "Kolpofot", holds the lower groove speculum with his left hand, while the upper groove speculum is being held by an assistant standing to the left of the patient. Switch on the transformer for the pilot light and the flash unit, both of which are conveniently placed on the left of the photographer. The kolposcopic image is set in sharp focus through the widest aperture by the photographer rotating the right-hand rack-and-pinion knob (in viewing direction). The assistant having stopped down the diaphragm, the photographer is able to judge the depth of focus and can, if necessary, increase the sharpness by a slight turn of the right-hand knob. The shutter is released by means of a long cable release, the end of which must be hanging close to the right-hand of the photographer.

There being sufficient space to reach the portio with a small dab, all samples of extended kolposcopy may also be photographically documented. Provision is made for either horizontal or vertical positioning of the camera.

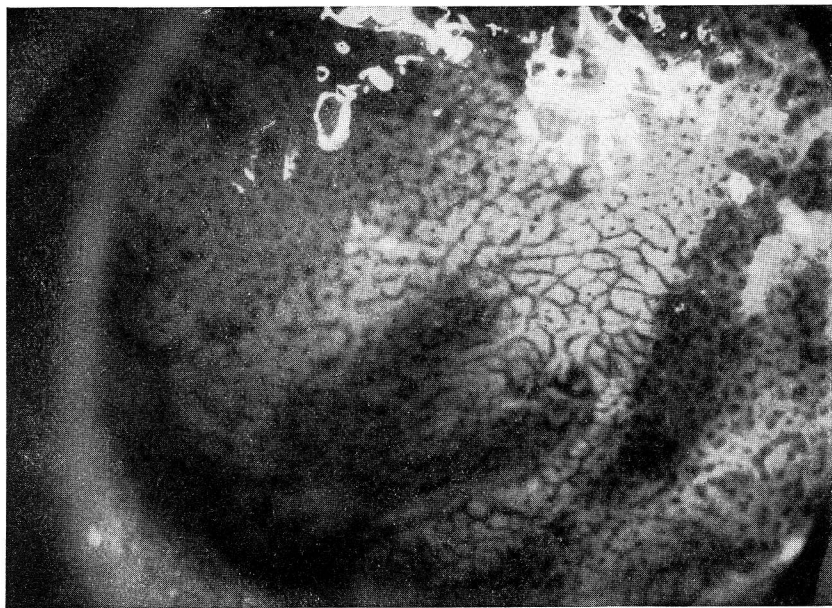


Fig. 2  
Mucous membrane  
of the  
human portio

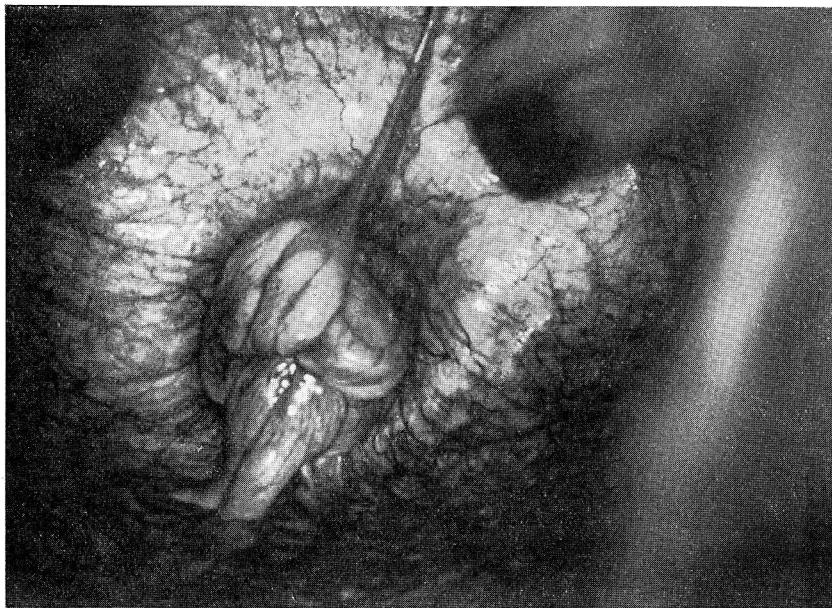


Fig. 3

Portio of a mare

To take photographs of the portio of larger animals (mare, cow etc.) (Fig. 3) in veterinary medicine, the instrument, as well as the mode of working, have to undergo a change. Please ask for details at the Service Department of the Ihagee Kamerawerk.

## **2. Exposures inside the mouth** (Fig. 4, 5, 6, 7)

When photographing the front teeth (Fig. 4 and 5) and the surrounding gums, you will find it most convenient to use one of the usual forehead and chin supports, however, you may also place the chin on any other firm base. The lips have to be drawn aside either by means of a mouth clip, or you let an assistant or the patient himself hold them.

During exposures of the tongue, (Fig. 6) the patient, resting his elbow, will usually prefer holding the point of his stretched out tongue with a cloth or piece of crape paper. The moisture on the tongue must be dabbed off to avoid disturbing reflections.

If you wish to make exposures of the verry interior of the mouth (gums [Fig. 7], back teeth, inside of the cheek, etc.), you will do well to use a head-rest. In some cases (e.g. for exposures of the gums) it is better to let the patient lie down, and to place his head in the most convenient position to the apparatus. You will, at all events, need an assistant to move the patient's head as required and to hold his mouth open with a suitable instrument. The seat of the chair, or the surface of the couch on which the patient is lying, must not be too large, to avoid difficulty in putting up the apparatus.

Fig. 4 (left)

Front surface  
of human incisor

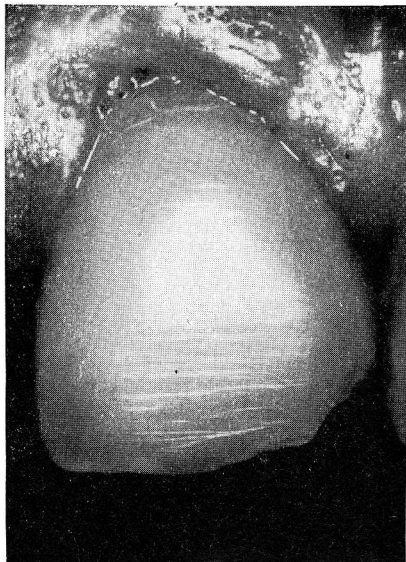
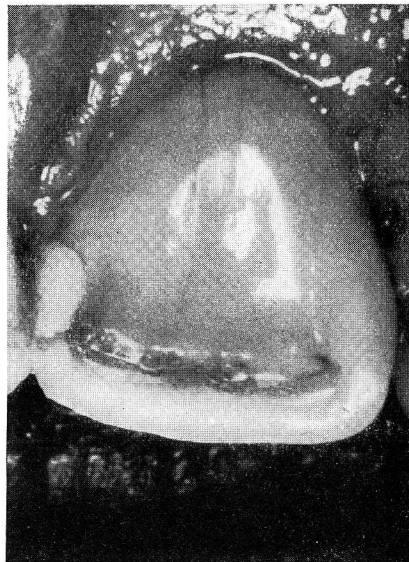


Fig. 5 (right)

Rear surface  
of human incisor  
taken with the aid  
of a mirror



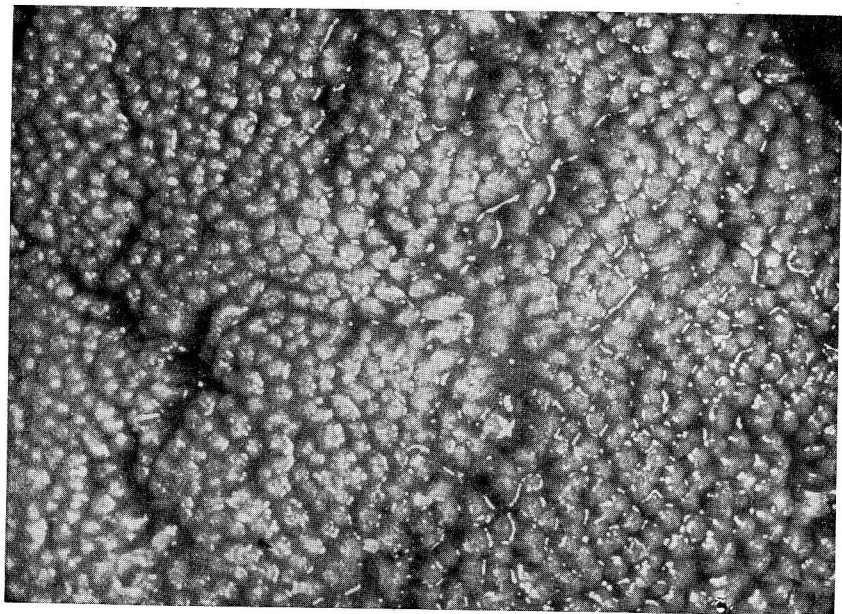
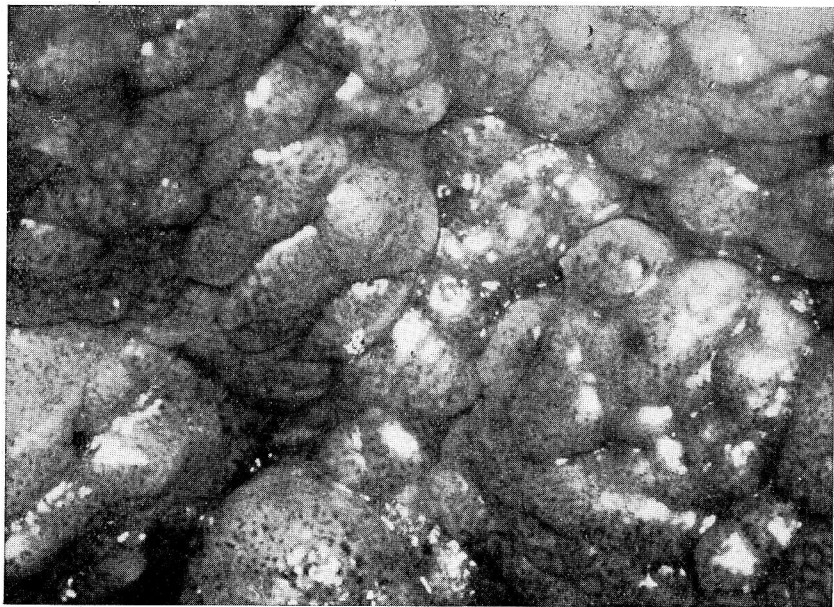


Fig. 6  
Verrucae  
in the living human  
tongue



Fig. 7

Old papillomatosis  
of the hard human  
gum, now clinically  
suspected of cancer



The tripod must be sturdy and very easily adjustable, and suitable for locking in any position, for you may require exposures in all possible directions, with the apparatus placed vertically, obliquely, or horizontally. (The Gigant tripod, with the Gigant swing head, already mentioned, has proved to be most practical). If possible, the subject should be arranged to stand vertically to the optical axis. Where tangential exposures are unavoidable, they must be specifically named in the protocol of the exposures.

All exposures of the mouth interior can be made also through the medium of an ordinary speculum, thus enabling you to photograph the rear part of the molar teeth. As already pointed out in the Instructions for Use, it is of utmost importance to precisely adjust and concentrate the light rays of the pilot light beforehand on some test object (e.g. a text with small letters). You need then only to lighten up the real object by the rays of the pilot light without first having to look into the prismatic finder of the EXAKTA Varex. This comes next, when you have to focus through the prismatic finder, with the lens at full aperture, by turning the right-hand rack-and-pinion knob of the "Kolpofot".

### **3. Exposures of the eye**

The "Kolpofot" permits making exposures of the eye-ball, the iris, the corner of the eye, etc. A forehead and chin support, or at least a firm chin rest, is necessary. In order not to dazzle the patient, the pilot light has to be directed slightly away from the pupil and not right into it, or, other lamps

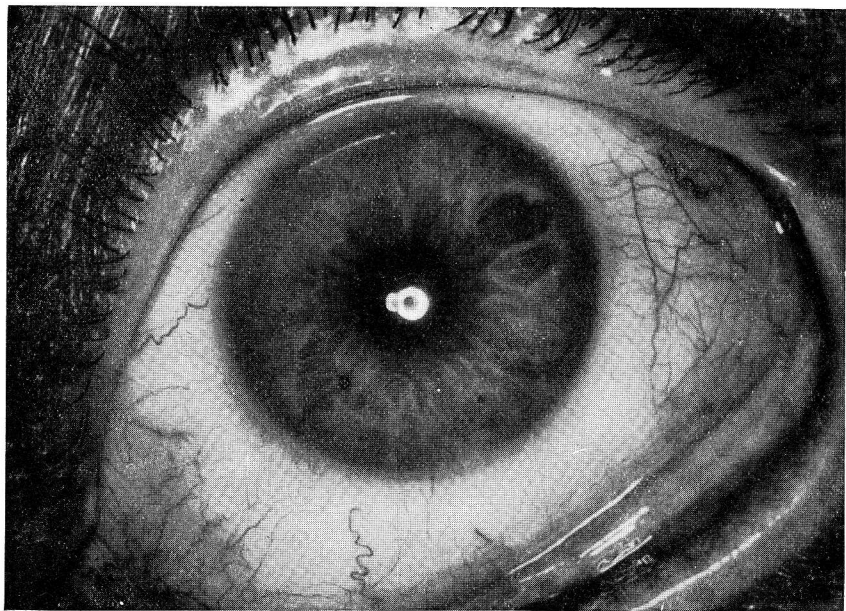


Fig. 8

Living human eye

may be used and put up at the sides. Perhaps the bright parts (e.g. the central flash equipment) will have to be covered with black paper or cloth, for they sometimes cause reflections in the eye-ball. It cannot, however, be avoided that the exposure shows the reflection of the flash and pilot light in the perfectly black pupil. This, however, has no detrimental influence on the picture itself.

During the exposure, the patient looks straight into the center of the lens. Owing to its very short duration, the flash tube will in no way be harmful to the eye.

## Special Literature

**"EXAKTA Kleinbild-Fotografie"** by Werner Wurst.  
("EXAKTA Miniature Photography")

The leading complete instruction book  
(Published by W. Knapp, Halle/Saale)

**"EXAKTA Makro- und Mikrofotografie"** by Georg Fiedler  
("EXAKTA Macrophotography - Photomicrography")

An indispensable guide in two of the most important spheres of working  
with the EXAKTA Varex  
(Published by W. Knapp, Halle/Saale)

**"Kolpofotogramme"**

Parts 1 and 2, by Dr. med. Robert Ganse.

An introduction to Kolposcopy and Kolpophotography with the EXAKTA Varex  
(Published by Akademie-Verlag, Berlin NW 7)

For the first these books are available only in German



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