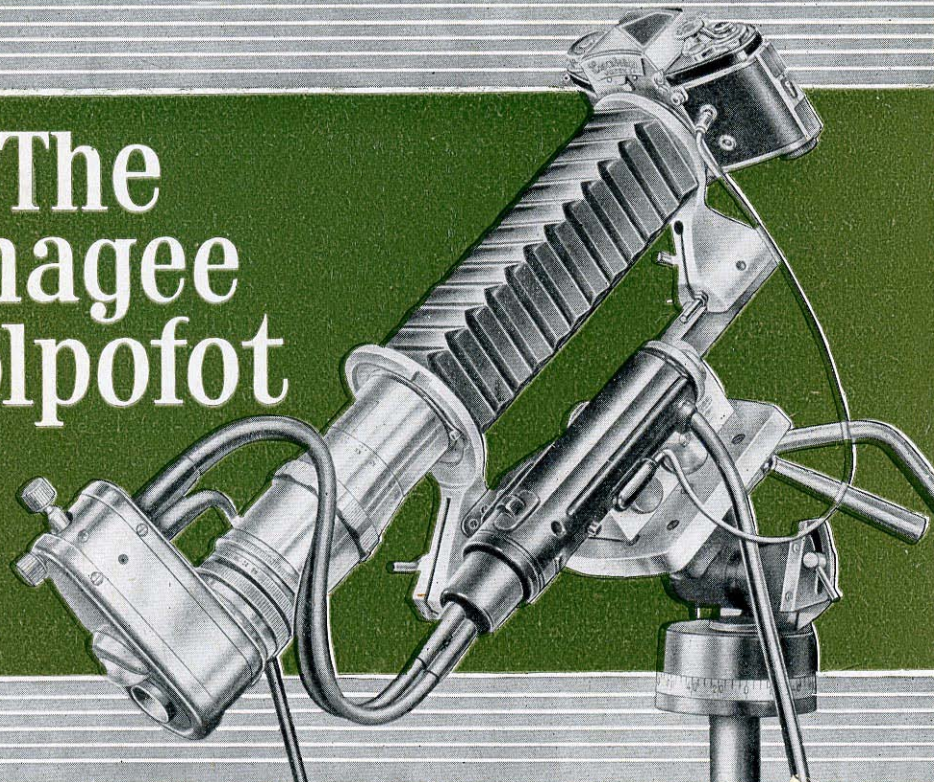


The
Ihagee
Kolpofot



INSTRUCTIONS

FOR USING THE

IHAGEE "KOLPOFOT"

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

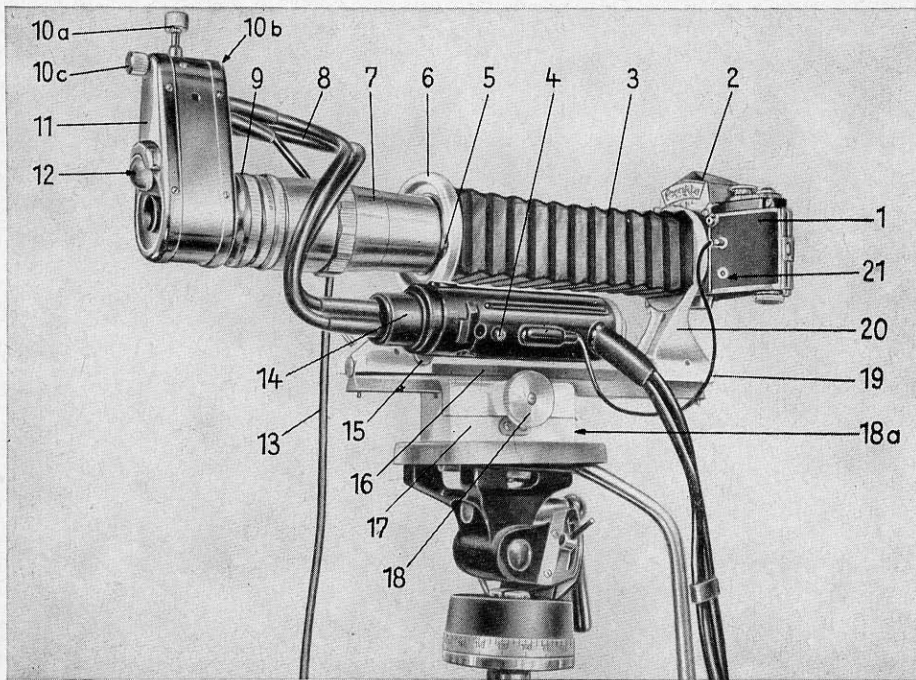


Fig. 1
(Complete
"Kolpofot"
equipment
see Fig. 11
page 20)

The important parts of the IHAGEE KOLPOFOT

1. EXAKTA Varex
2. Penta Prism
3. Bellows
4. Reflector rod
5. Locking lever on the lens holder (6)
6. Lens holder
7. Special lens f/4, 135 mm. with diaphragm down to f/45
8. High-tension cable
9. Counter-Ring
- 10 a, b, c) Regulator screws for the pilot light
11. Central flash equipment
12. Lamp of the pilot light
13. Cable for the pilot light
14. Plug of the flash equipment
15. Fastening screw on the lens holder
16. Sliding rail
17. Sliding block
18. Left-hand knob
- 18a) Right-hand rack-and-pinion knob
19. Synchronous cable
20. Camera holder
21. X contact of the EXAKTA Varex

There may be slight deviations between the models and the illustrations in this booklet

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 bellows attachment**, comprising sliding rail (16/17), camera holder (20), lens holder (6) and bellows (3). (A supporting device with fastening screw for the Reflector rod [4] is available, too.)
- 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 work with the "Kolpofot" are:

- d) an EXAKTA Varex (1) with Penta Prism (2) equipped with a glass-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 volts, 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 "Elgawa" Plauen/Vogtland).

How to assemble the "Kolpofot" (Fig. 1)

To begin with, the complete bellows attachment has to be mounted on 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 sliding rail (16). – Retract the camera holder (20) on the sliding 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 place at the front stop of the sliding rail (16).

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

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. Ensure 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 upper regulator screw (10a) of 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 adjusting marks on the lens scales are visible from above. The afore-mentioned counter-ring (9)

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of the flash equipment must now be screwed tightly against the objective. Finally, the lens with flash equipment is 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 Electric 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 p. secs. power, exchangeable flash tube (see also page 4).

We are here giving instructions for connecting the 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.

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How to operate the "Kolpofot" (Fig. 1)

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 three regulator screws (10a, b and c) to a position at which the coils of the wire reflect their light collectively towards the front. The pilot light is then adjusted to a test object to the point where the field of the object alone is illuminated and becomes visible in the finder. The upper regulator screw 10a moves the light rays in vertical direction, the screw 10b in horizontal direction, and the screw 10c alters the dimension of the illumination. Based on this technique, the Penta Prism (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 unaltered in this position.

Moving the camera holder (20) on the sliding 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 sliding 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.

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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 illuminated by the pilot light, and the image is most conveniently focused by means of the right-hand rack-and-pinion knob. With the clear-glass magnifier in the Penta Prism 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 Penta Prism (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"

If the flash-tube goes with 140 watt-seconds, the following dates are about valid depending upon brightness of the subject. Moreover they assume nearly the full bellows extension (scale of reproduction about 1,6).

Black-and-white film

Agfa Fluorapid film, diaphragm stop f/45, Röntgen Rapid developer, 4 to 6 minutes (18° C).

Agfa Isochrom film, $\frac{17}{10}^{\circ}$ DIN, diaphragm stop f/16, Final developer, 7 to 10 minutes.

Agfa Isopan F film, $\frac{17}{10}^{\circ}$ DIN, fine grain developer, 8 to 10 minutes.

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The first two types of film are especially recommended for medical purposes, being insensitive to red and rendering red tones in dark contrast on the positive print. The third type of film is suitable for photographing the iris.

Colour film

Agfacolor reversible film Ultra T, ($1^6/10^0$ DIN), diaphragm stop f/5.6.

Agfacolor negative film Ultra T, ($1^7/10^0$ DIN), diaphragm stop f/8.

The Agfacolor negative film Ultra T should be used rather than the Agfacolor reversible film Ultra T, the former permitting the use of smaller diaphragm stops as well as colour control when making positive films and colour 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 140 watts p. s. the diaphragm can be stopped down one stop more.

Some hints concerning specialized spheres of photography

1. Colpophotographic exposures (Fig. 2)

The patient lies down in the usual manner on the clinical chair, and the examination is made with the aid of the Colposcope. After this, the Colposcope is replaced by the stand with the "Kolpofot"

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ready for use, the distance between the central flash unit (11) and the vagina being only a few centimetres. To open the vagina for the exposure, do not use a selfholding speculum, but two groove specula. The photographing physician, 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 colposcopic image is set in sharp focus through the widest aperture by the physician rotating the right-hand rack-and-pinion knob (in viewing direction). The assistant having stopped down the diaphragm, the physician 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 dap, all samples of extended colposcopy may also be photographically documented. Provision is made for either horizontal or vertical positioning of the camera.

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 Cameraworks.

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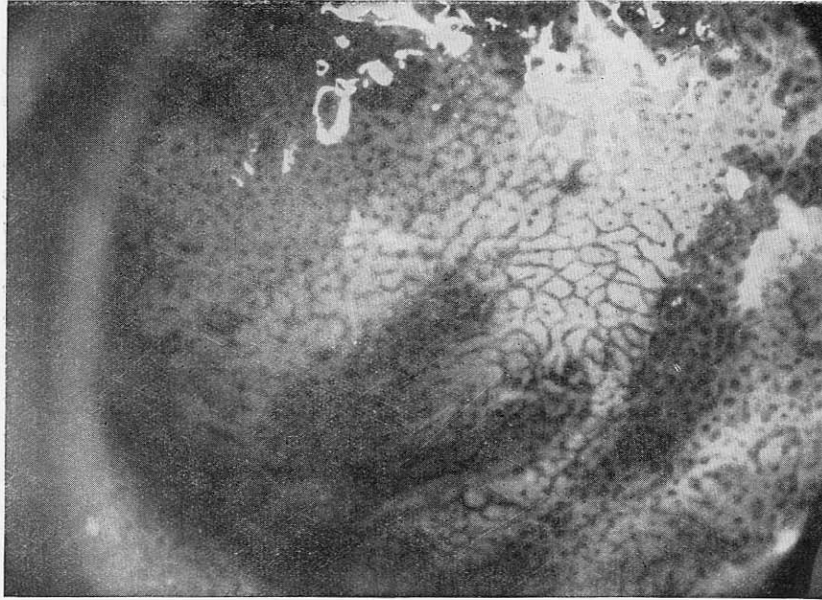


Fig. 2
Mucous membrane
of the
human portio

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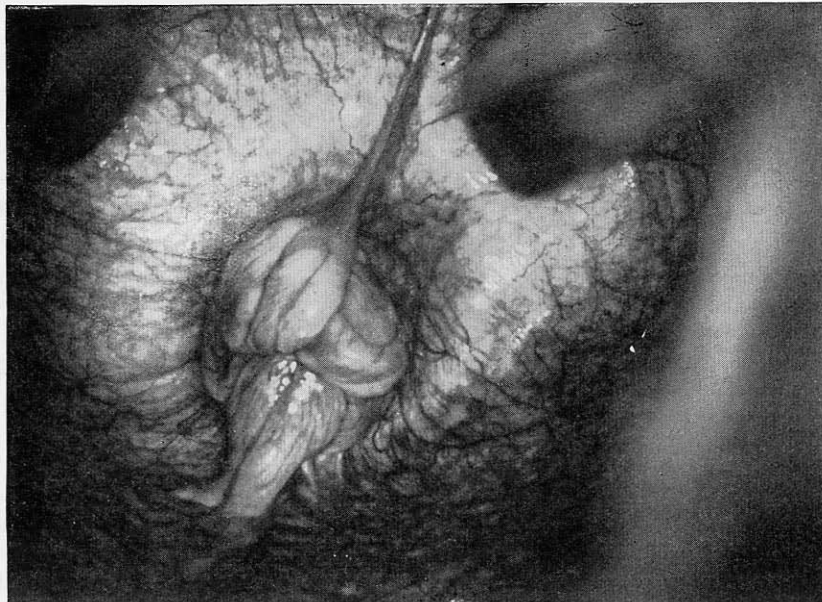


Fig. 3
Portio of a mare

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2. Exposures inside the mouth (Figs. 5, 6, 7, 8, 9)

When photographing the front teeth (Figs. 5 and 6) and the surrounding gums it is better to use the arrangement of equipment shown in figure 4. It consists of an instrument-table whereupon there is a cross-table, which carries the "Kolpofot". On one side the chin and forehead support is fastened with clamps. The equipment can be drawn from the VEB Carl Zeiss, Jena. The table-leaf of the instrument-table must have a length of 70 cm. at least. If necessary, you may have the table-leaf delivered without the top and arranged with the joiner to make a corresponding long leaf.

The lips are drawn aside either by means of a mouth-clip or this manipulation is done by an assistant or the patient himself. On the illustrations 5 and 6 (page 12) you may well perceive horizontal lines and vertical fissures in the tooth-enamel.

During exposures of the tongue, (Fig. 7) the patient, resting his elbow, will usually prefer holding the point of his stretched out tongue with a cloth or piece of crepe paper. The moisture on the tongue must be dabbed off to avoid disturbing reflections.

If you wish to make exposures in the very interior of the cavity of the mouth (palate [Fig. 8], molar teeth, inside of the cheek, etc.) you will do well to use a tripod of the shape shown in figure 4, and a chair with a head-rest adjustable. 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

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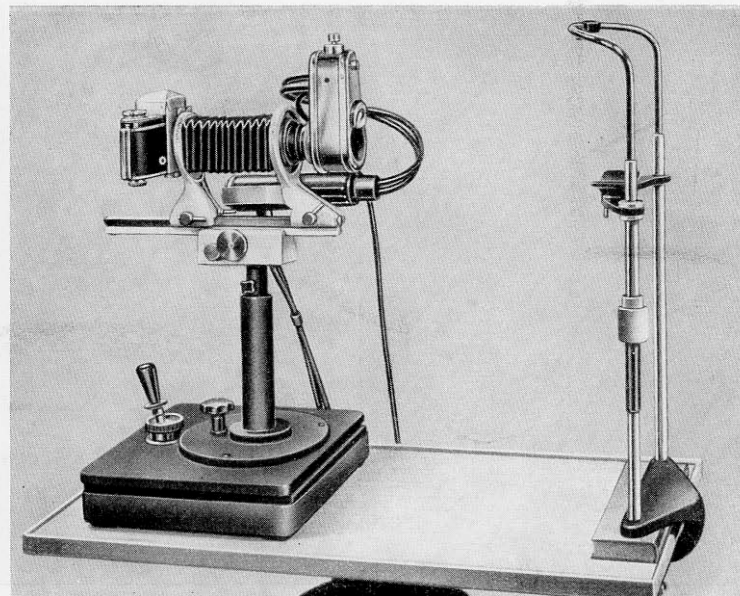


Fig. 4

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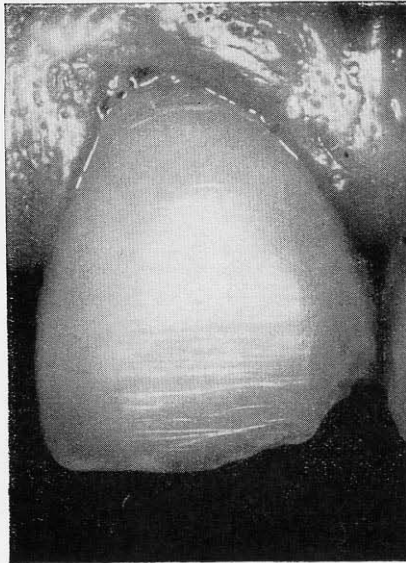


Fig. 5 (left)
Front surface
of human incisor

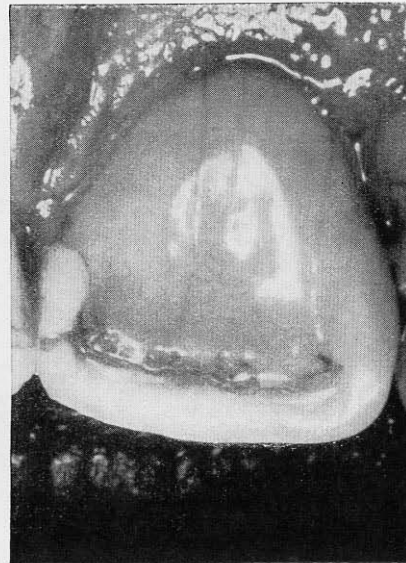


Fig. 6 (right)
Rear surface
of human incisor
taken with the aid
of a mirror

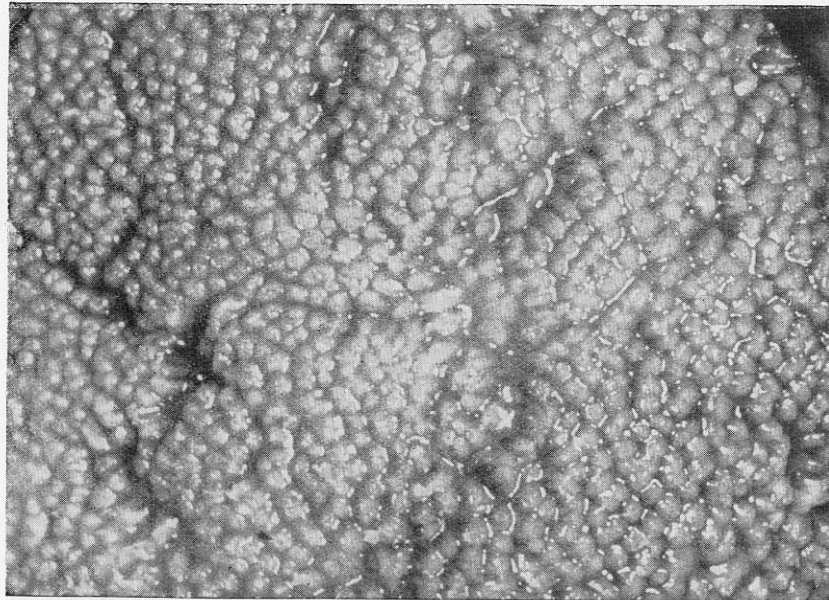


Fig. 7
Verrucae
in the living human
tongue



Fig. 8
Old papillomatosis
of the hard human
gum, now clinically
suspected of cancer

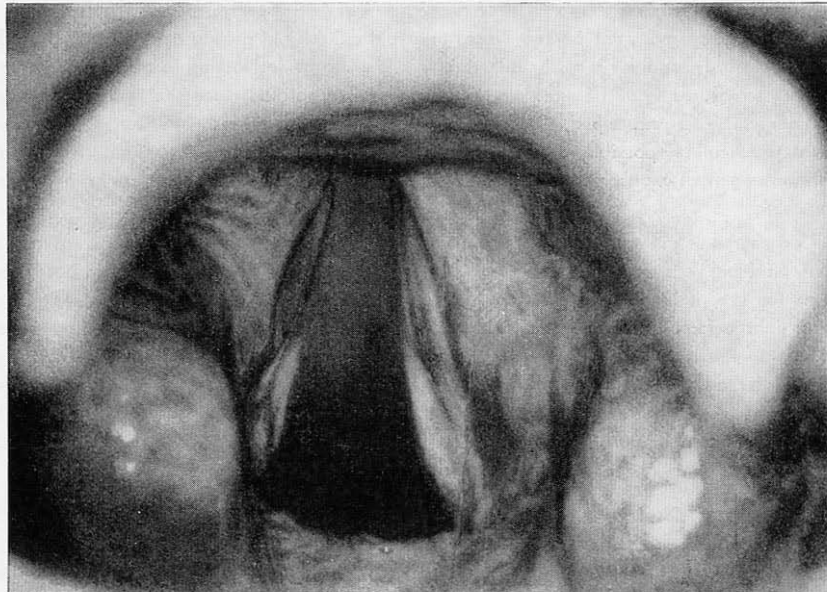


Fig. 9
Normal
human larynx

patient is lying, must not be too large, to avoid difficulty in putting up the apparatus. 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 an incisor. 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 illuminate the real object by means of the pilot light without first having to look into the Penta Prism of the EXAKTA Varex. This comes next, when you have to focus through the Penta Prism, with the lens at full aperture, by turning the right-hand rack-and-pinion knob of the "Kolpofot". After stopping down the diaphragm, you are able once more to control the depth of field what, at the intensive pilot light, is possible without further ado. Then the shutter is released.

3. Exposures of the larynx –

especially the vocal cords (Fig. 9) – are somewhat complicated. It is generally known that with certain patients there is some difficulty in examining the larynx with the speculum. Skill and practice are necessary to make exposures of the larynx and the vocal cords.

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The patient has to be seated on a chair, the seat of which must not be too large, to enable convenient placing of the tripod close to it. Lean the patient's head against an adjustable support. As a rule, the patient will prefer holding the tip of his stretched out tongue himself with a handkerchief or a piece of crepe paper. An assistant holds the forehead firmly to prevent it from sinking forward (she may also hold the tongue) and sees to it that the mouth remains wide open.

Set up the "Kolpofot" with the optical axis in horizontal position or very slightly inclined upward or downward. The front edge of the Central Flash Unit is placed at a distance of about 12 to 15 cm. away from the mouth and has to remain in this position. The bulb of the pilot light is adjusted so as to direct the cone of light, which has to be as broad as possible, straight into the open mouth. Focusing on the rear part of the palate and on the uvula is performed by moving the camera holder to and fro with the left hand (do not actuate the rack-and-pinion knobs! The distance between the flash capsule and the mouth must remain unchanged). Introduce the pre-warmed speculum with your right hand into the anesthetized throat. The main factor now is, by inclining the larynx speculum or by slightly changing the position of the optical axis, to view the condition of the larynx over the speculum in the Penta Prism and to focus by means of the camera holder. As mentioned before, this is not quite a simple matter and needs some practice. After focusing a second assistant stops down the diaphragm and releases the shutter.

4. For exposures of the ear

(auditory passage, tympanum), the patient has to sit or lie down. Arrange his head so that the tripod can be placed conveniently near it, and introduce the usual ear funnel with its axis slanting

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upwards. The photographing physician holds the ear funnel with his right hand, while he uses his left hand for adjusting the rack-and-pinion mechanism of the bellows attachment. The bellows are drawn out at full length. The most important thing is to adjust the axis of the objective precisely in the same direction as the axis of the ear funnel. This is done firstly, by regulating the optical axis. Final, critical focusing is then performed with the right hand on the ear funnel, or by a very slight movement of the head. As soon as the object is in sharp focus, an assistant stops down the diaphragm and releases the shutter.

5. Nasal exposures

are difficult to take, these being chiefly meant to reveal the condition of oblique surfaces and requiring great depth of field. It will, therefore, only be possible to photograph surfaces yielding a greater angle to the optical axis. For the frontal parts, this may be brought about by arranging the nose funnel obliquely. To obtain a greater depth of field, it is occasionally advisable not to extend the bellows to their full length. The enlargement of the negative will then, of course, be somewhat smaller.

6. Exposures of the eye (Fig. 10)

The "Kolpofot" permits making exposures of the eye-ball, the iris, the corner of the eye, etc. A forehead and chin support, as seen in Fig. 4, 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 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 eyeball.

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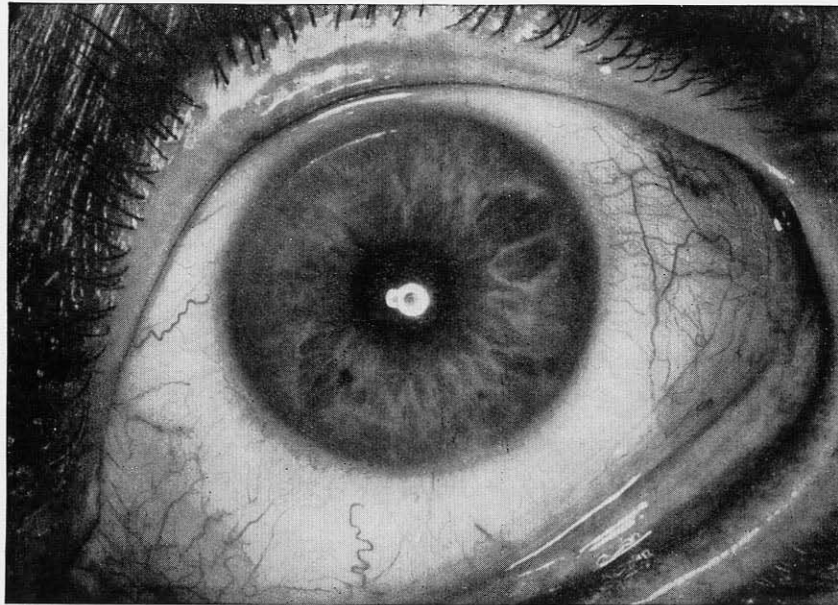


Fig. 10
Living human eye

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The important parts of the IHAGEE KOLPOFOT

1. EXAKTA Varex
2. Penta Prism
3. Bellows
4. Reflector rod
5. Locking lever on the lens holder (6)
6. Lens holder
7. Special lens f/4, 135 mm. with diaphragm down to f/45
8. High-tension cable
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14. Plug of the flash equipment
15. Fastening screw on the lens holder
16. Sliding rail
17. Sliding block
18. Left-hand knob
- 18a) Right-hand rack-and-pinion knob
19. Synchronous cable
20. Camera holder
21. X contact of the EXAKTA Varex

There may be slight deviations between the models and the illustrations in this booklet

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 no way be harmful to the eye.

Should you wish to make further inquiries regarding the use of the "Kolpofot" for various spheres of photography, please apply to our "Service Department"

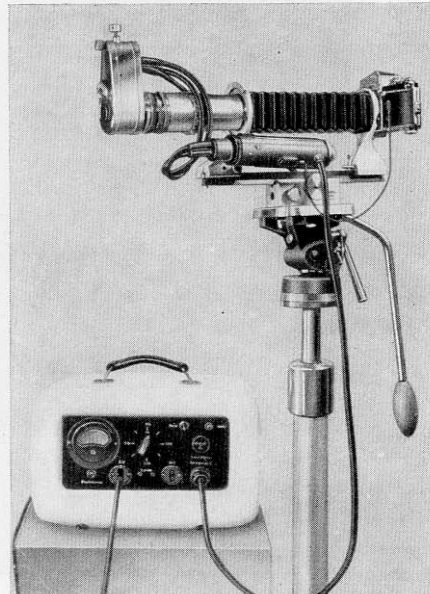


Fig. 11



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