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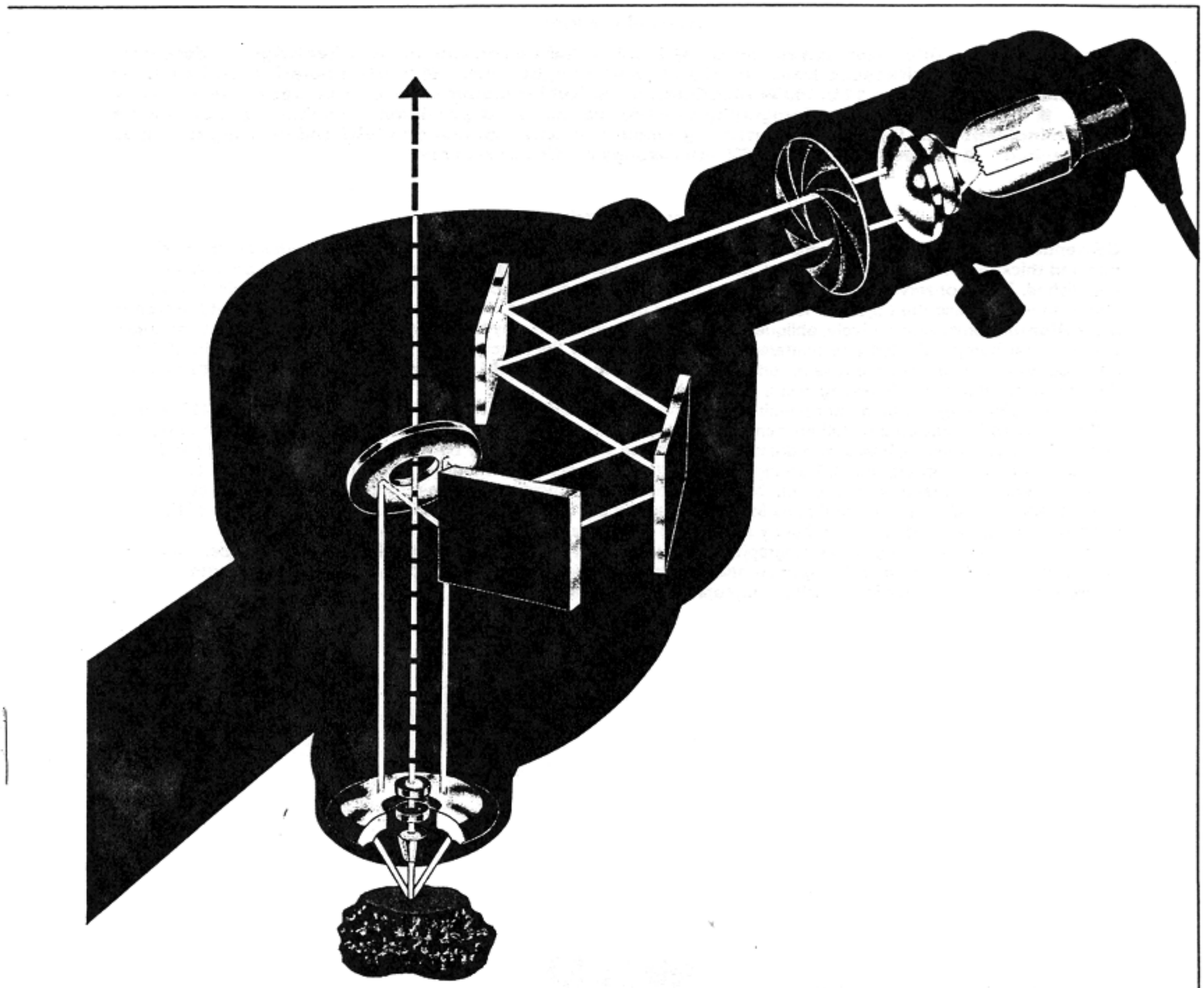
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Incident Light Attachment
for
Wild M12 and M20 Microscopes

WILD
HEERBRUGG
Switzerland



Incident Light Attachment for Wild M12 and M20 Microscopes

Special features:

■ attachment readily fitted and removed ■ incident light observations in either bright or dark field ■ facilities for simultaneous transmitted and incident light work ■ built-in polariser and analyser ■ choice of 6 V/20 W or 12 V/100 W illumination ■ Köhler illumination may be set up even in dark field ■ incident light photomicrography at all format sizes ■ provision for subsequent expansion into an incident light interference outfit ■ discussion tube, comparison tube and drawing tube may be attached ■ projection head and TV-microscopy outfit can be used

General description

Conventional microscopy, using transmitted light illumination, is concerned with transparent slides of standard size and thickness. Industrial microscopy, however, often deals with **non-transparent surfaces,** both polished and unpolished. To be observed through the optical microscope, such surfaces require perpendicular illumination from above, in which case the objective lens also acts as a condensing lens. This system is termed **bright field incident light illumination.** Alternatively, oblique incident light illumination may be required, whereby part of the light enters the lens after being reflected and scattered at various angles by the specimen surface. If essentially no part of the reflected original main beam enters the objective lens, then true **dark field illumination** conditions are attained and the visible detail appears bright against a dark background.

The Wild incident light attachment permits the routine and research transmitted light microscopes Wild M12 and M20 to be easily built up into full incident light microscopes which will permit the use of the techniques described above. The attachment is basically a drum-shaped device which fits readily between the microscope body and the monocular or binocular head. It incorporates all the necessary components for bright field, dark field, and polarised light observations. In addition, both conventional and incident light microscopy can be carried out simultaneously under certain conditions for the inspection of semi-transparent objects. The potentialities of the apparatus can be extended still further by adding the Wild interference attachment. A complete range of accessories is available for photomicrography, cinemicrography and TV-microscopy. The discussion tube, comparison tube, drawing tube and projection head can also be used. Complete attachments for precise length measurements are also available (ask for appropriate prospectuses).

Title page: Light path in the Wild incident light attachment at the incident light dark field setting

WILD HEERBRUGG

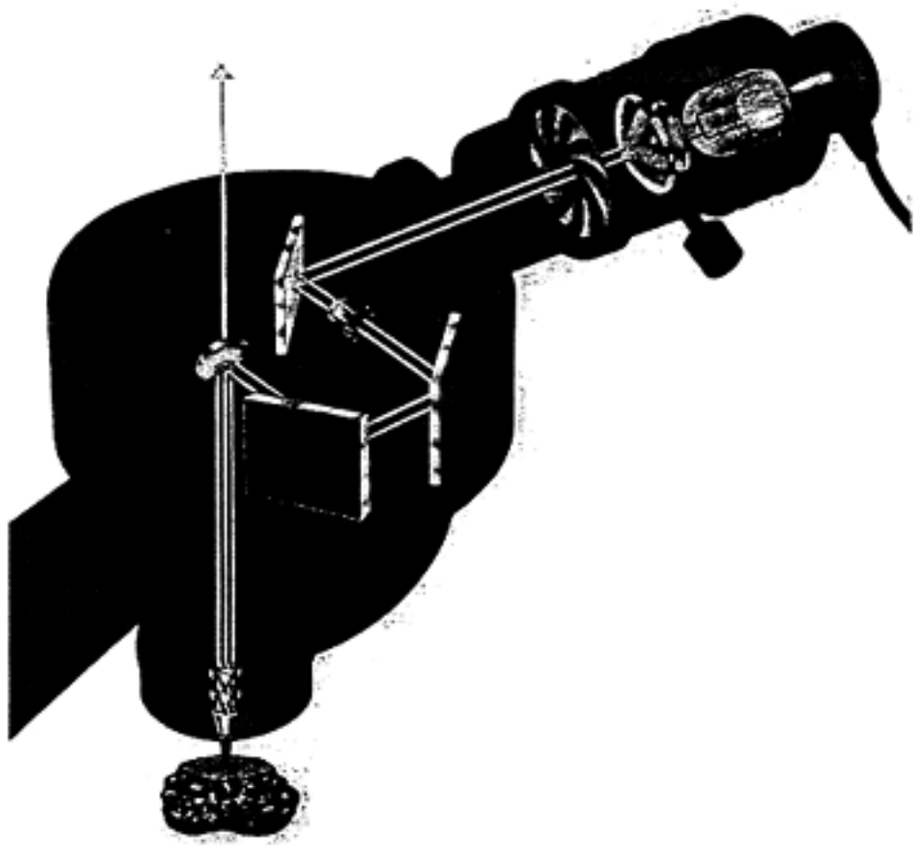
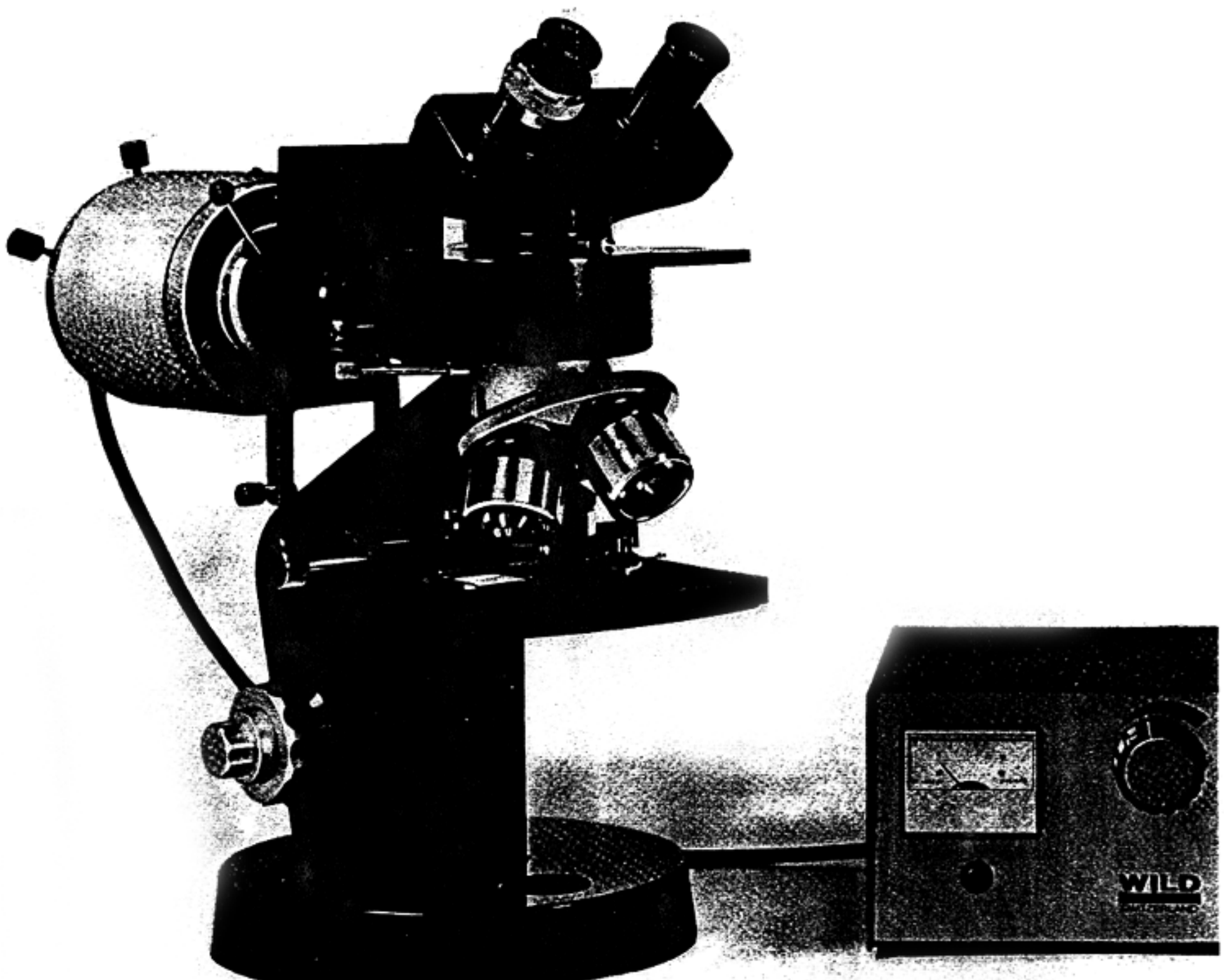
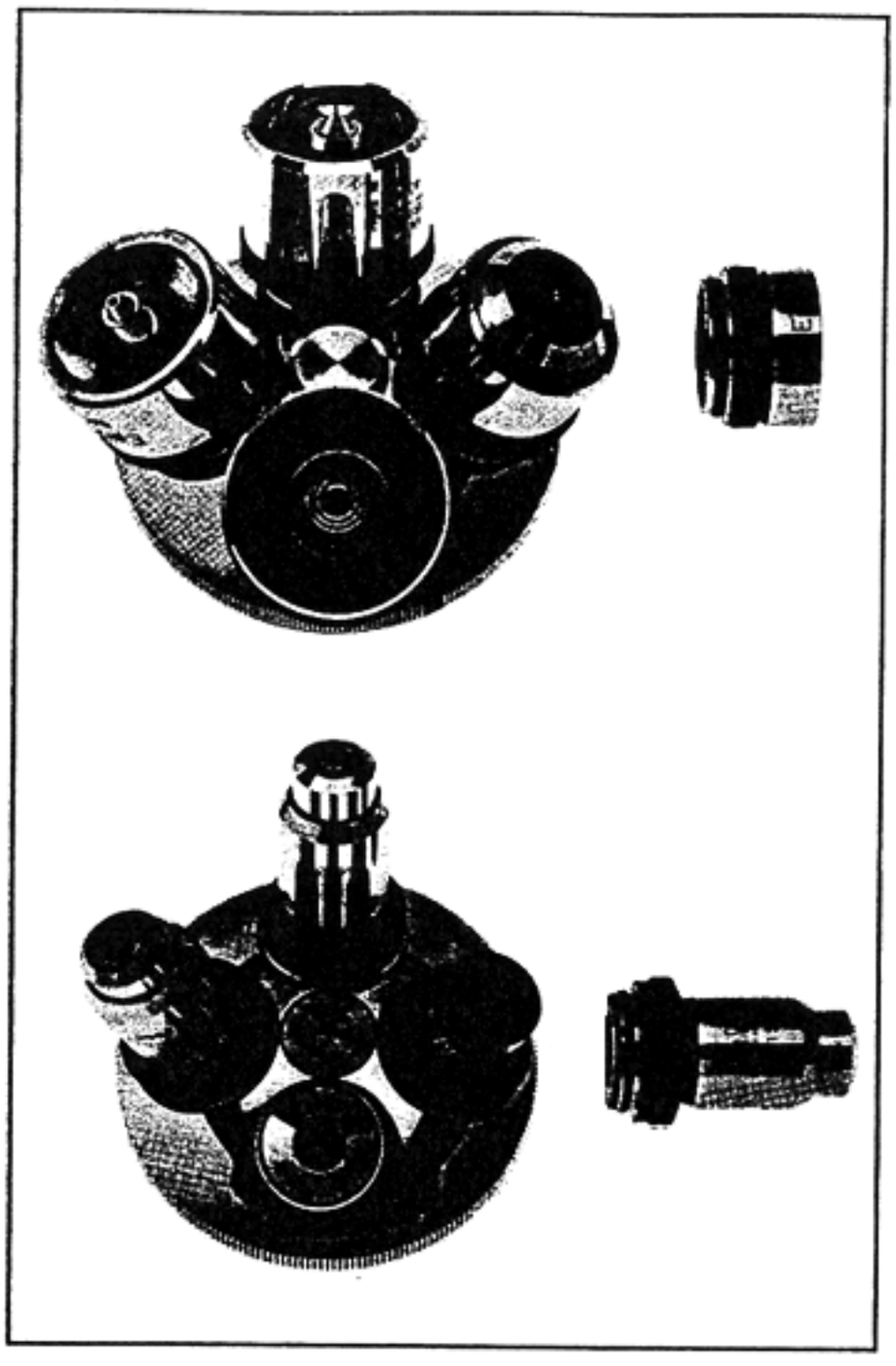


Figure right: Light path in the Wild incident light attachment at the incident light bright field setting

Figure below: Wild M12 microscope with 12V/100W incident light attachment and Universal Epi-Achromat objectives, outfit 3 with optics set 051, stock no. 234 939





Above: Quadruple incident light nosepiece, stock no. 190 575, with Universal Epi-Achromat objectives
Below: Quadruple nosepiece, stock no. 184 946, with Epi-Achromat objectives

Optics

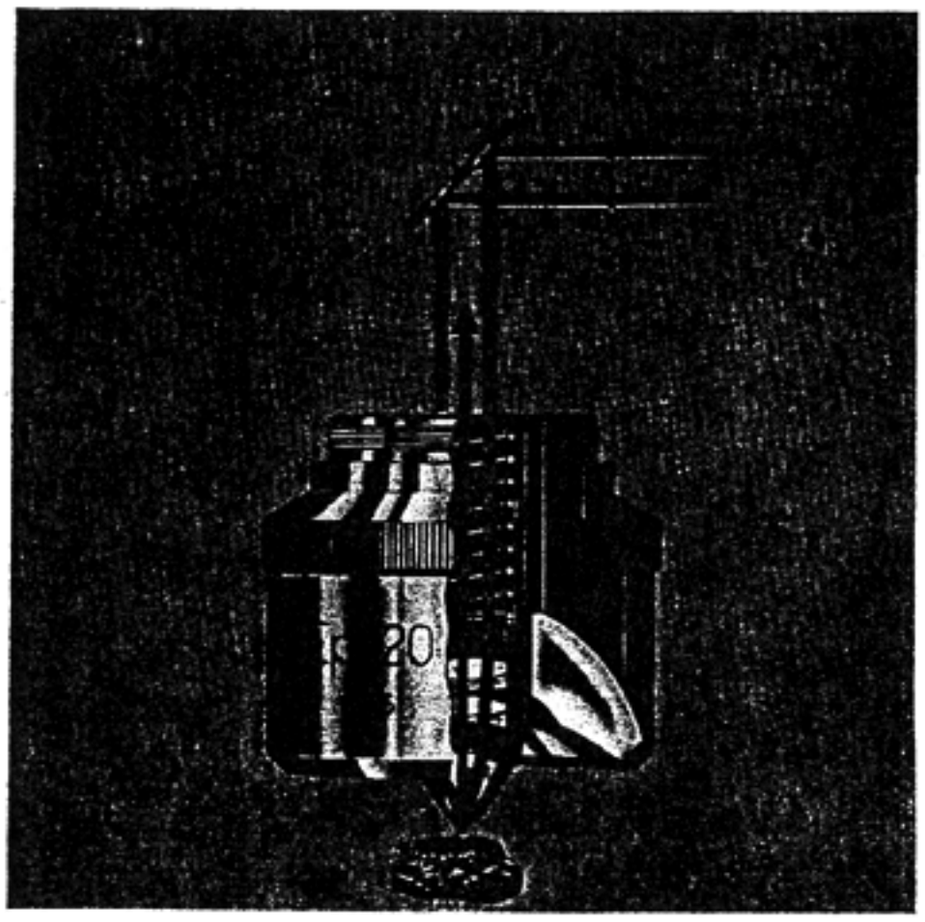
A special quadruple nosepiece is available for use with the incident light attachment. The holes are larger than on the conventional nosepiece and will take the Universal-Epi-Objectives, which are constructed for incident light work in bright and dark field. These five objectives (4×, 10×, 20×, 40× and 100× oil immersion) incorporate ring condensers which ensure symmetrical illumination in incident light dark field conditions.

If incident light observations in bright field alone are required, the normal transmitted light objectives up to 10× may be used in the conventional quadruple or sextuple nosepiece, as can also the 50×, 85× and 100× oil immersion objectives. For medium and high power dry bright field systems, however, special objectives corrected for use with uncovered specimens are required, and the following are available:

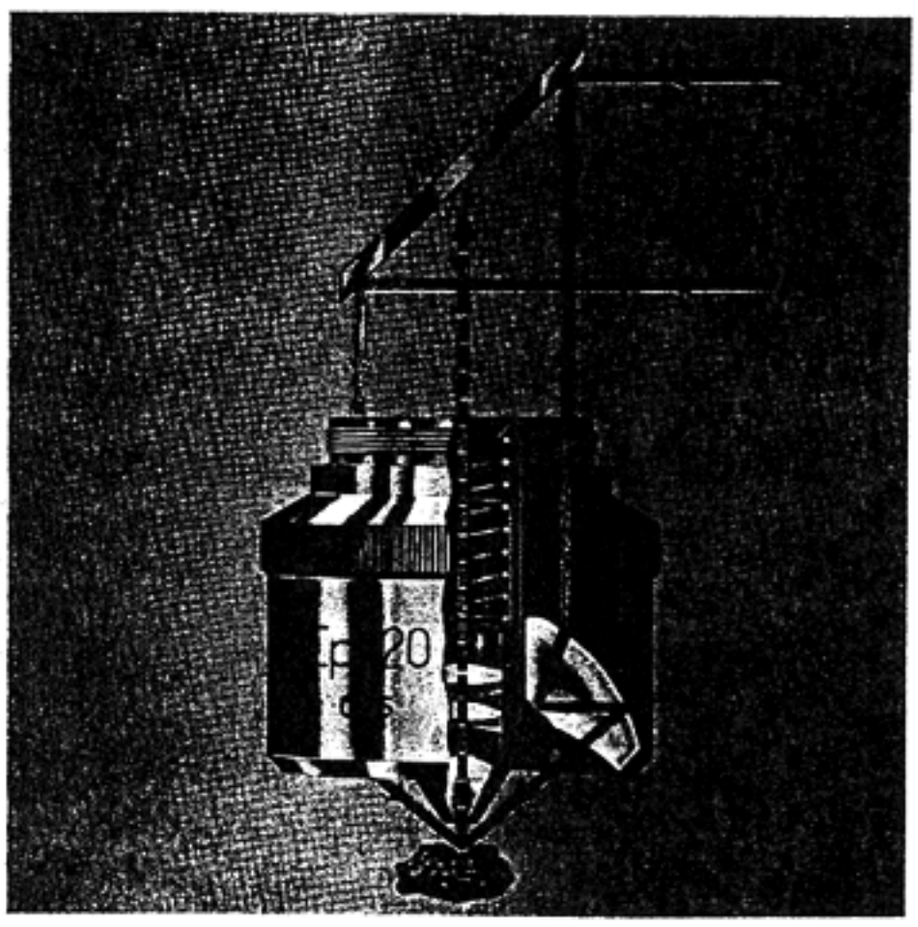
Epi-Achromat 20× and 40×
Epi-Plan-Fluotar 20× and 40×

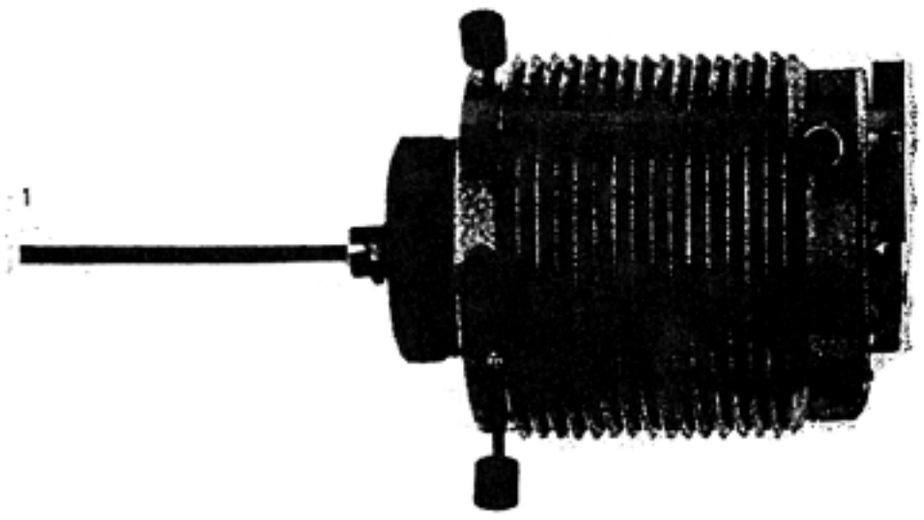
If any of these bright field objectives are to be used in the special quadruple nosepiece for incident light, they require adapters, which are available.

Light path in the Universal Epi-Achromat objective at the incident light bright field setting

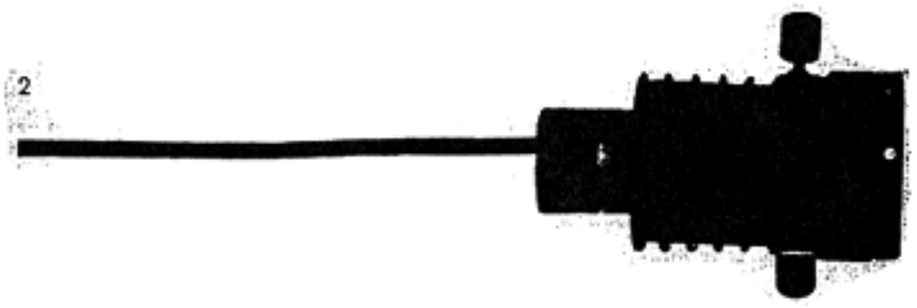


Light path in the Universal Epi-Achromat objective at the incident light dark field setting

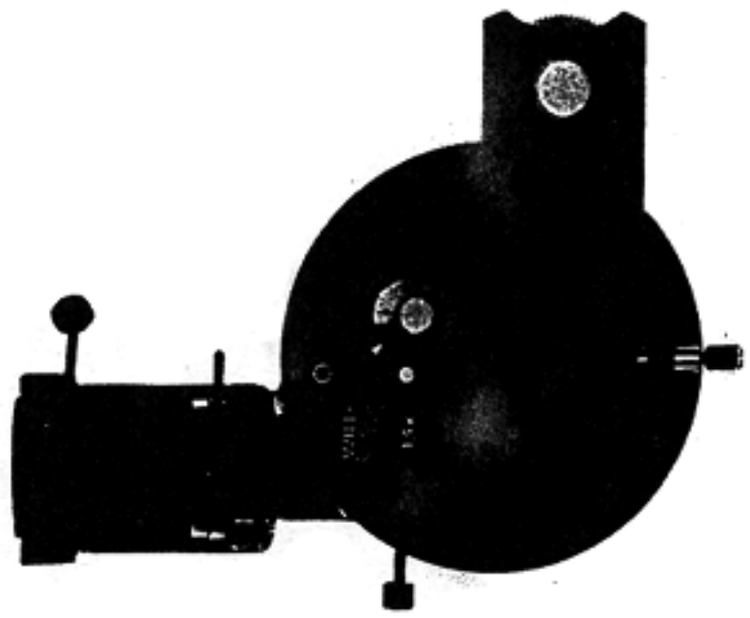




1



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3

Illumination

On the side of the incident light drum, mounted tangentially, is a tube which will accept swing-out filters of various types, including a polariser. The illumination source is to be mounted on the end of this tube and may be either a 6V/20W low voltage lamp or a 12V/100W quartz-iodine lamp, both of which can be set up for Köhler illumination. They are housed respectively in a small tube-shaped housing and a larger finned housing.
A control knob on the drum slides from the bright field to the dark field position; its rotation controls the illumination aperture diaphragm in bright field. The light is centred by moving a laterally situated pin. The drum is provided with a rotatable analyser which can be slid into and out of the light path.

1
Quartz-iodine lamp 12V/100W, stock no. 255 545

2
Low voltage lamp 6V/20W, stock no. 255 544

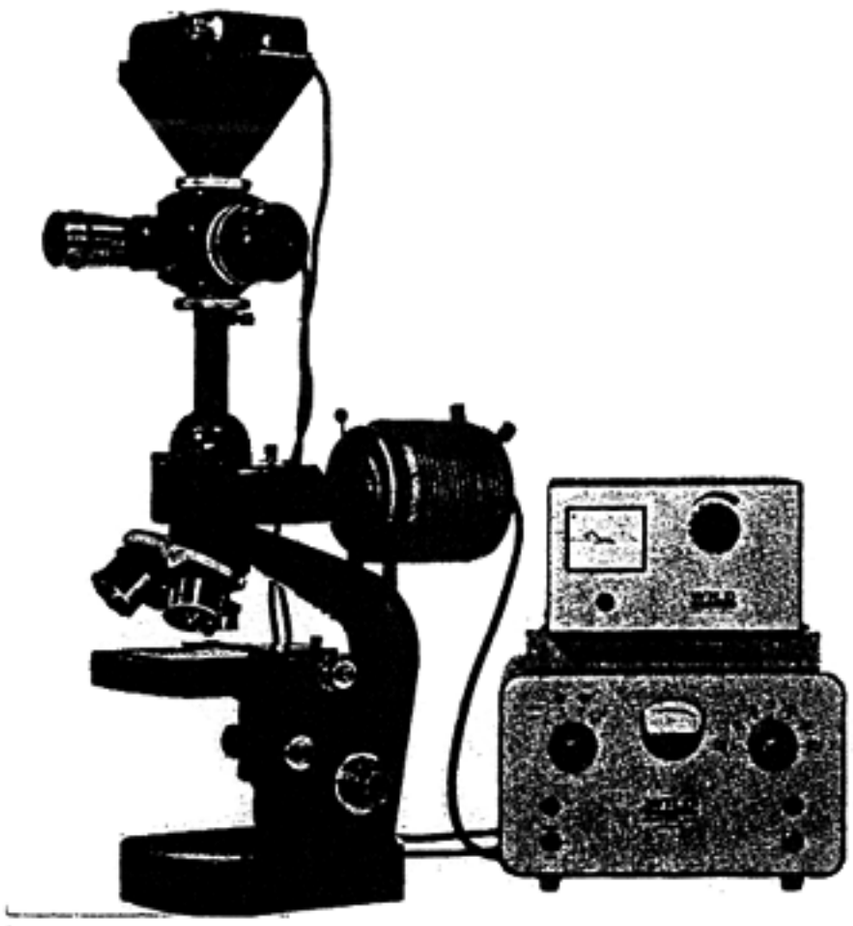
3
Incident light housing with collector, field diaphragm and polarisation outfit stock no. 255 543

Wild M12 microscope with 12V/100W incident light attachment and projection head 197 951



Wild M12 microscope with 12V/100W incident light attachment, discussion tube 256 547 and observation tubes. The left is the inclined binocular tube G, the right is the inclined binocular tube G 256 519 with both eyetubes adjustable





1
Wild M20 microscope with 12V/100W incident light attachment and attachable automatic camera (Photoautomat) MKa4

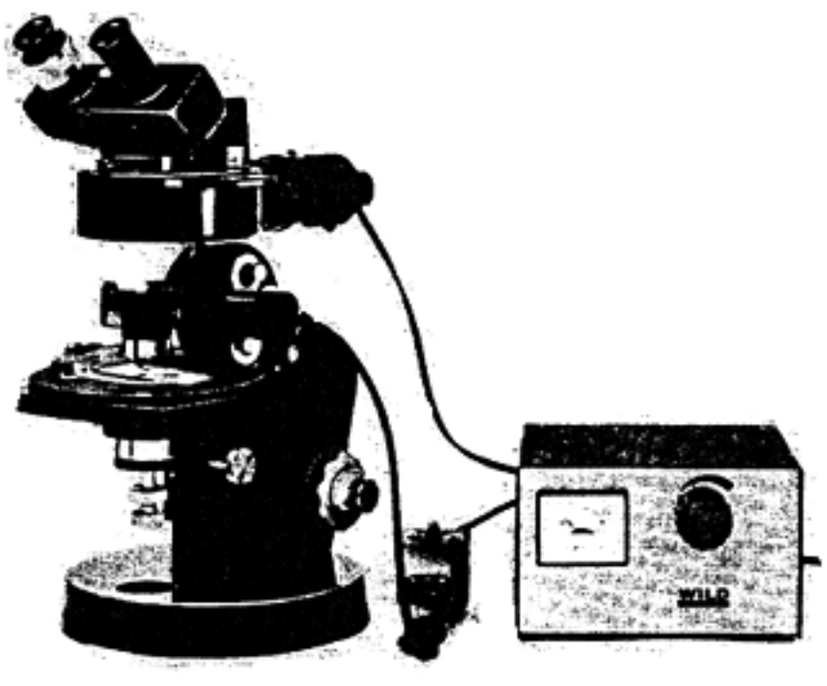
2
Wild M12 microscope with incident light interference attachment 4× for interferometric measurements, stock no. 266 813

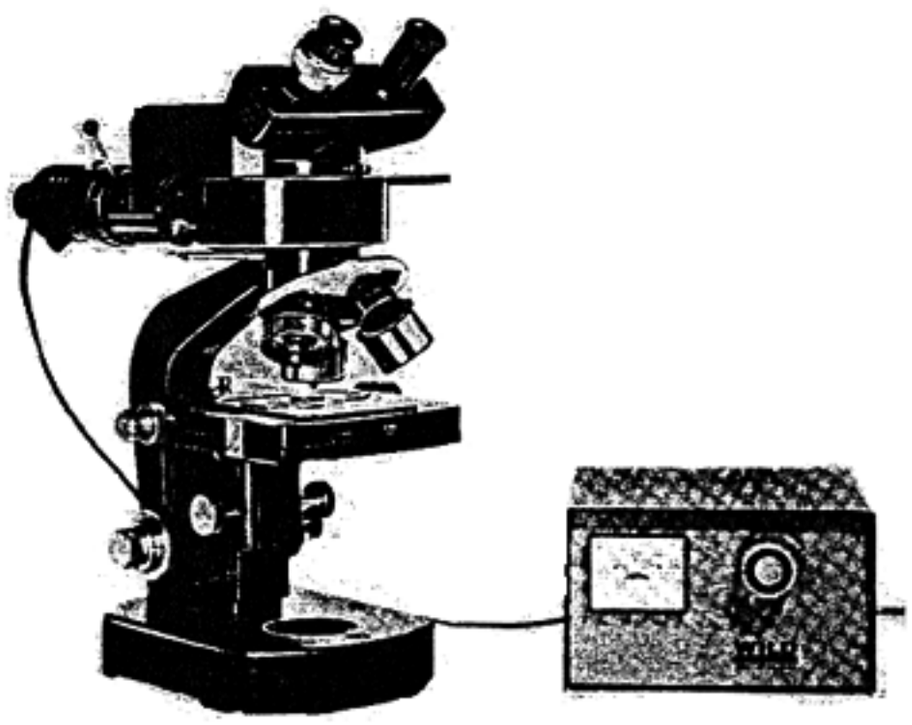
3
Wild M20 microscope with 6V/20W incident light attachment, for observations in incident light, bright and dark field and polarisation. Stock no. 268 075

4
Wild M12 microscope with 12V/100W incident light attachment and drawing tube 256 577

5
Comparison tube 184 555 on two M12 microscopes with 12V/100W incident light attachments

6
Wild M20 microscope with 12V/100W incident light attachment, Universal Epi-Achromat objectives and Wild/Tesa electronic micro-length measuring instrument (Special prospectus available)

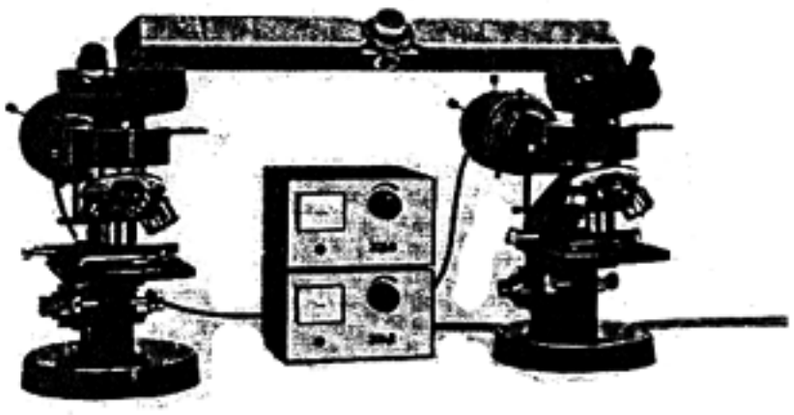




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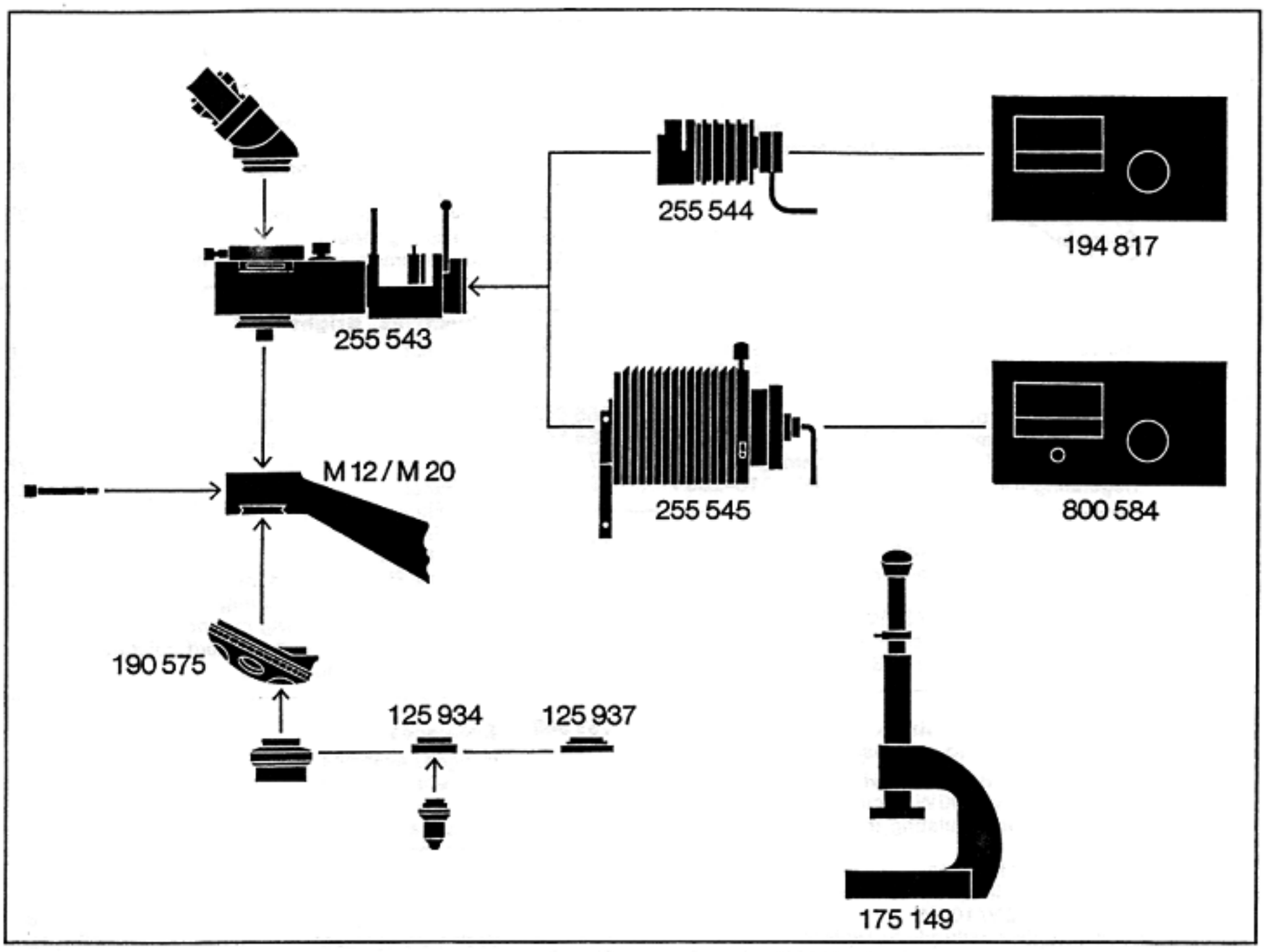


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6



Assembly Diagram for the Wild Incident Light Attachment

Catalogue References

	Stock No.
Incident light supplementary outfit AR1, illuminator 20 W, comprising:	**268 108**
Universal-Epi-Achromat objective 4×/0.10	188 511
Universal-Epi-Achromat objective 10×/0.25	201 149
Universal-Epi-Achromat objective 20×/0.45	196 521
Universal-Epi-Achromat objective 40×/0.65	202 465
Incident light attachment with low voltage illuminator 6 V/20 W, regulating transformer 110–250 V, incident light nosepiece and spare bulb	255 547

	Stock No.
Incident light supplementary outfit A1, illuminator 20 W, comprising:	**268 109**
Epi-Achromat objective 20×/0.45	175 118
Epi-Achromat objective 40×/0.65	175 120
Incident light housing with low voltage illuminator 6 V/20 W, regulating transformer 110–250 V, and spare bulb	255 548

	Stock No.
Incident light supplementary outfit A20, illuminator 20 W, comprising:	**268 110**
Epi-Plan-Fluotar objective 20×/0.45	105 928
Epi-Plan-Fluotar objective 40×/0.65	105 933
Incident light housing with low voltage illuminator 6 V/20 W, regulating transformer 110–250 V, and spare bulb	255 548

	Stock No.
Incident light supplementary outfit AR5, illuminator 100 W, comprising:	**268 111**
Universal-Epi-Achromat objective 4×/0.10	188 511
Universal-Epi-Achromat objective 10×/0.25	201 149
Universal-Epi-Achromat objective 20×/0.45	196 521
Universal-Epi-Achromat objective 40×/0.65	202 465
Incident light attachment with quartz-iodine illuminator 12 V/100 W, regulating transformer 110–250 V, incident light nosepiece and spare bulb	255 549

	Stock No.
Incident light supplementary outfit A5, illuminator 100 W, comprising:	**268 112**
Epi-Achromat objective 20×/0.45	175 118
Epi-Achromat objective 40×/0.65	175 120
Incident light housing with quartz-iodine illuminator 12 V/100 W, regulating transformer 110–250 V, and spare bulb	255 550

	Stock No.
Incident light supplementary outfit A25, illuminator 100 W, comprising:	**268 113**
Epi-Plan-Fluotar objective 20×/0.45	105 928
Epi-Plan-Fluotar objective 40×/0.65	105 933
Incident light housing with quartz-iodine illuminator 12 V/100 W, regulating transformer 110–250 V, and spare bulb	255 550

	Stock No.
Incident light illuminators 6 V / 20 W for M12 and M20 microscopes	**255 547**
Incident light attachment with low voltage illuminator 6 V/20 W, incident light quadruple nosepiece, and regulating transformer 110–250 V, comprising:	
Incident light housing	255 543
Low voltage lamp 6 V/20 W	255 544
Spare bulb 6 V/20 W, clear, in centring socket	177 160
Incident light quadruple nosepiece	190 575
Regulating transformer 0–8 V/50 VA, 110–250 V	194 817
Incident light housing with low voltage illuminator 6 V/20 W and regulating transformer 110–250 V, comprising:	**255 548**
Incident light housing	255 543
Low voltage lamp 6 V/20 W	255 544
Spare bulb 6 V/20 W, clear, in centring socket	177 160
Regulating transformer 0–8 V/50 VA, 110–250 V	194 817
Low voltage incident light illuminator 6 V/20 W with regulating transformer 110–250 V, comprising:	**255 546**
Low voltage lamp 6 V/20 W	255 544
Spare bulb 6 V/20 W, clear, in centring socket	177 160
Regulating transformer 0–8 V/50 VA, 110–250 V	194 817
Incident light illuminators 12 V / 100 W for M12 and M20 microscopes	**255 549**
Incident light attachment with quartz-iodine illuminator 12 V/100 W, incident light quadruple nosepiece, and regulating transformer 110–250 V, comprising:	
Incident light housing	255 543
Quartz-iodine lamp 12 V/100 W	255 545
Spare bulb 12 V/100 W	193 049
Incident light quadruple nosepiece	190 575
Regulating transformer 0–12 V/120 VA, 110–250 V	800 584
Incident light housing with quartz-iodine illuminator 12 V/100 W and regulating transformer 110–250 V, comprising:	**255 550**
Incident light housing	255 543
Quartz-iodine lamp 12 V/100 W	255 545
Spare bulb 12 V/100 W	193 049
Regulating transformer 0–12 V/120 VA, 110–250 V	800 584
Quartz-iodine illuminator 12 V/100 W with regulating transformer 110–250 V, comprising:	**255 551**
Quartz-iodine lamp 12 V/100 W	255 545
Spare bulb 12 V/100 W	193 049
Regulating transformer 0–12 V/120 VA, 110–250 V	800 584

Common Accessories

Incident light housing with collector, field diaphragm and Pol. outfit, without lamp	255 543
Red I compensator, ⌀ 33 mm	183 381
Specimen holder with glass plate (85×89 mm), for M20 microscope	201 624
Hand press	175 149

Objectives: Bright and dark field		Stock No.
Universal-Epi-Achromat	4×/0.10	188 511
Universal-Epi-Achromat	10×/0.25	201 149
Universal-Epi-Achromat with spring mount	20×/0.45	196 521
Universal-Epi-Achromat with spring mount	40×/0.65	202 465
Universal-Epi-Achromat with spring mount	HI 100×/1.25	175 122
Plug for empty incident light nosepiece sockets		125 937

Objectives: Bright field		
Achromat	4×/0.10	203 586
Achromat	7×/0.20	217 331
Achromat	10×/0.25	184 541
Epi-Achromat with spring mount	20×/0.45	175 118
Epi-Achromat with spring mount	40×/0.65	175 120
Achromat	HI 85×/1.25	175 094
Achromat	HI 100×/1.25	188 374
Plan-Fluotar	3×/0.10	106 017
Plan-Fluotar	6×/0.20	217 342
Plan-Fluotar	10×/0.25	198 282
Epi-Plan-Fluotar with spring mount	20×/0.45	105 928
Epi-Plan-Fluotar with spring mount	40×/0.65	105 933
Plan-Fluotar with spring mount	HI 100×/1.30	217 350
Adapter ring for use of standard objectives in incident light nosepiece		125 934

Eyepieces		
Huygens eyepiece	6×/18	175 153
Huygens eyepiece	10×/14	197 722
Compensating eyepiece	6×/18	175 095
Compensating eyepiece	10×/14	198 130
Compensating eyepiece	15×/11	175 097
Compensating eyepiece	25×/6.5	175 101
Wide field eyepiece	10×/18	191 915
Wide field eyepiece	12.5×/18	250 237
Wide field eyepiece	15×/18	198 451
Huygens measuring eyepiece 6× with scale 10 mm : 100		255 504
Huygens measuring eyepiece 10× with scale 5 mm : 100		255 505
Compensating measuring eyepiece 10× with scale 5 mm : 100		255 506
Wide field measuring eyepiece 10× with scale 12 mm : 120 and crosshair		250 793
Compensating goniometer eyepiece 15×		201 646
Compensating filar micrometer eyepiece 15×, in case		256 510
Matching eyepiece 15× for filar micrometer eyepiece		250 250
Stage micrometer for incident light, 5 mm scale with 0.5, 0.1 and 0.01 mm silvered divisions, in case		310 344

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