Wild M 11

An Expansible Microscope Ideal for Field Work, Courses and Laboratory

WILD
HEERBRUGG
Switzerland

Wild M11
Field, Course and Laboratory Microscope

A microscope such as the M11, which is basically a simple course instrument but which is capable of being built up if necessary into a versatile and sophisticated piece of equipment, needs to be of the highest mechanical precision. Over a period of twenty years the M11 has established a record of excellence both in its mechanical and its optical performance. Its outstanding character has been proved in rigorous conditions in all climates of the world.

Special features:

Excellently protected from dirt and climatic influences by metal hood.

●

Easily and comfortably carried.

●

Conventional design, simple operation.

●

Maximum working comfort ensured through bilaterally-arranged controls.

●

Condenser drive with adjustable ease of movement, if required.

●

Coarse and fine focussing controls with adjustable ease of running.

●

Highest precision micrometer screw, without backlash.

Interchangeable tubes.

●

Interchangeable illuminators.

●

Large selection of stages.

●

Kit mode of construction permits simple building-up into small research microscope.

●

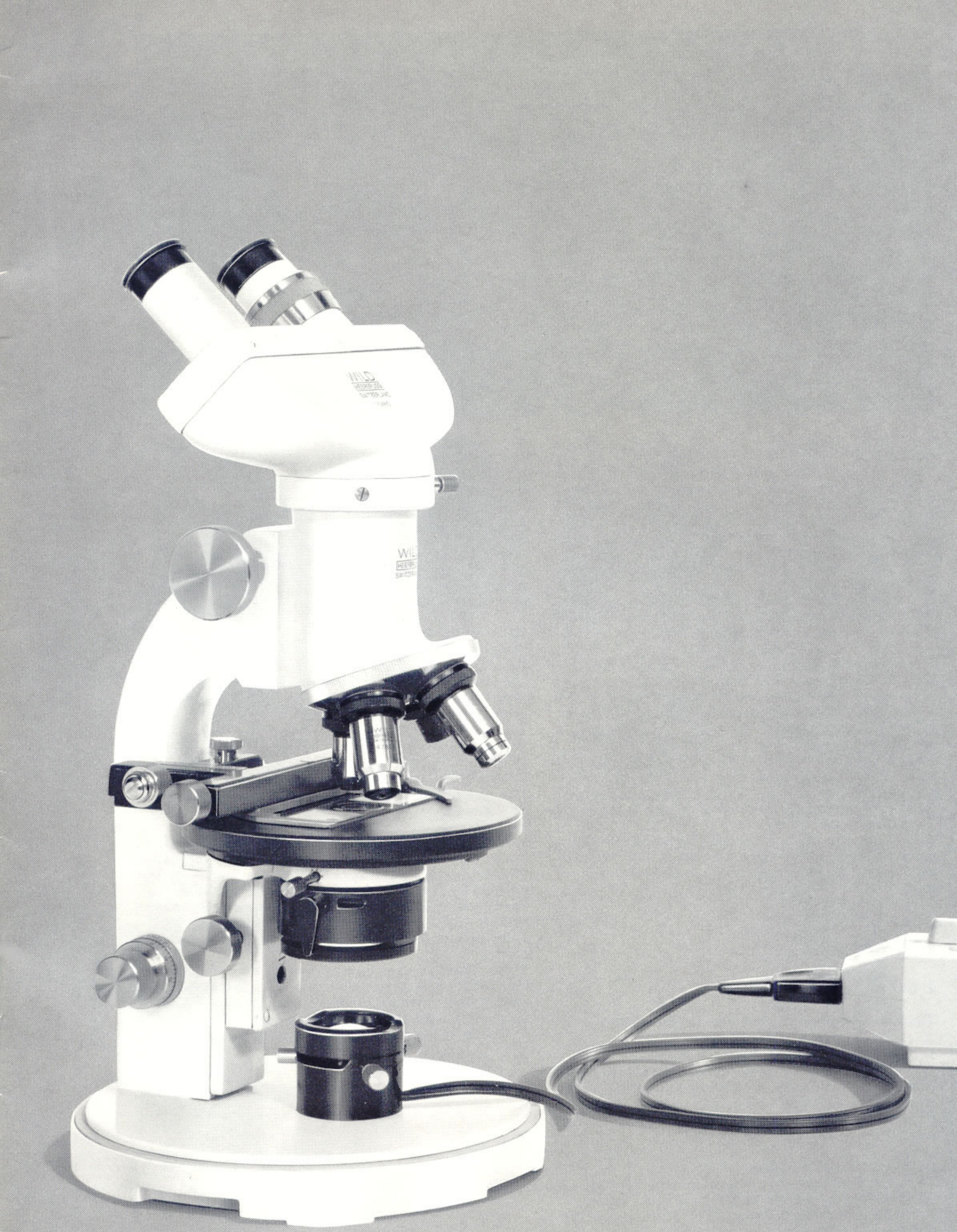
Can be set up for all investigational techniques, such as bright field, dark field, polarisation, phase contrast and fluorescence.

●

Accessories available for photomicrography and cinemicrography.

The microscope can be conveniently carried by means of a leather strap.
One person can safely carry several microscopes simultaneously.
The metal hood effectively protects the instrument against dirt, humidity and corrosive vapours.

Page 3: M11 BRCGP Outfit 7, binocular, with optics set 014; stock no. 242 951.



1: Straight monocular tube E, stock no. 256 534. 2: Inclined monocular tube F, stock no. 256 521. 3: Inclined monocular drawtube Fa, stock no. 256 522. 4: Inclined binocular tube G, stock no. 256 517.
5: Phototube H (observation 25%), stock no. 256 541.

1 2 3 4 5

Design

The Wild M11 microscope stands on a firm round base, in which is a cut-out for the reception of various illumination systems ranging from simple mirrors to the high-output 6 V/20 W attachable Köhler illuminator.
The limb is rigidly fixed to the base plate and carries in its upper part the coarse focussing, which operates on the tube and has bilateral controls with ease of running adjustable by hand.
In the lower part of the limb is the micrometer screw, which operates on the stage. This fine control is also bilateral, and has a calibrated drum which can be read to 1 μm.
The M11 can be provided with or without condenser drive. If it is provided with drive, the controls for this are also bilateral and the ease of movement of the drive is adjustable. Various stages and interchangeable tubes are available, according to the particular application of the instrument. The quadruple ball-bearing-mounted nosepiece, which is built-in, includes a modern click-stop and has a milled edge which facilitates the changing of objectives. A Plexiglass optics holder can be stored between the base and the stage. It serves for the storage of objectives and eyepieces and relieves the load on the fine movement during transport. A strong metal hood provides optimum protection for the microscope. A simple wooden cabinet is also available if required.

Interchangeable Tubes

The following interchangeable tubes are available:

Inclined Monocular Tube

This is used with the simpler outfits. It is interchangeable, and fully rotatable. A monocular drawtube is also available, for instances when the optical tube length must be altered for measuring purposes or for the compensation of cover glass thicknesses.

Inclined Binocular Tube

This tube is provided for more comfortable viewing using both eyes, and can be fitted using an adapter (magnification factor 1.0× or 1.5×). The interpupillary distance can be adjusted in the range from 55 to 75 mm and is read off on a scale. The resulting alteration in the mechanical tube length of the system is automatically balanced by optical means (Wild patent). The left eyetube is adjustable in order to compensate for anisometropia.

Straight Monocular Tube

This serves mainly for the accommodation of photomicrographic cameras, cinemicrographic attachments, and microprojection equipment.

Phototubes H, Hu, Hz

These tubes are used in conjunction with the trinocular assembly for photomicrography, cinemicrography and television microscopy. They allow the limits and focussing of the image in the camera to be controlled using the normal binocular tube in conjunction with various format-indicating eyepieces. This eliminates tedious changing of the observation tubes and the phototubes.
Phototube H or Hu is used for a vertical camera assembly.
Phototube H has a fixed built-in prism which passes into the binocular 25% of the light received; the remaining 75% goes to the camera. The phototube Hu has a three-position changer, allowing either 100% of the light to the binocular, or 100% to the camera, or the same 25%/75% splitting as in the standard H-tube.
Phototube Hz is used for a horizontal camera assembly, and has a fixed beam-splitter prism which passes 25% of the light to the observation tube and 75% to the camera.
These phototubes can also be ordered later, and will thus permit the setting up of a trinocular assembly if used with the existing binocular. More detailed information about the attachable cameras and about the Photoautomat is given in separate prospectuses.

Stages

The following stages are available, to meet various applications:

Fixed Circular Stage R
This is suitable for use with a simple outfit. The specimen is moved by hand. If higher magnifications are used, or if the specimen is to be moved along the co-ordinates, an attachable mechanical stage C should be used.

Rotating Centring Circular Stage Rd
With this stage, the specimen can be completely rotated. The attachable mechanical stage can also be used here.

Rotating Gliding Stage Rg
This stage is particularly well suited to outfits of low or medium magnifications. The specimen can be moved about 20 mm in any direction and can be rotated. The stage is very reasonably priced and takes over part of the function of a mechanical stage.

Sliding Cross-Stage Kg
The sliding movement is similar to that of the simple rotating gliding stage, except that the specimen can be moved very precisely along either co-ordinate, even at high magnifications. The rotatory movement is dispensed with. An engraved Vernier scale facilitates the relocation of features of interest.

Hot-and-Cold Stage
This is used if a constant temperature is necessary for biological specimens. The hot-and-cold stage can be fitted to the circular stages R or Rd.
Further details of this accessory are given in the descriptive sheet M1 409e, which is available on request.

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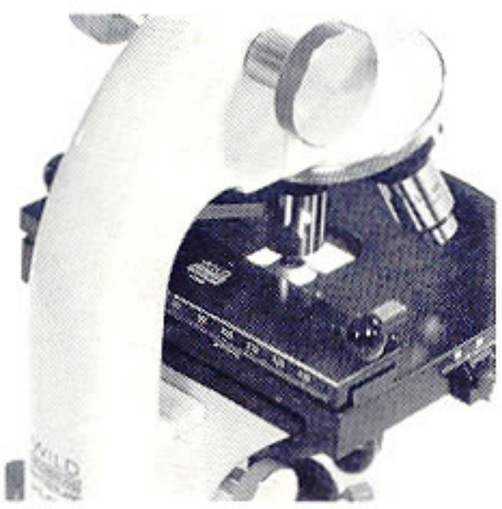
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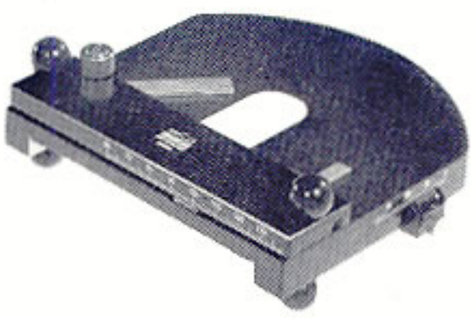
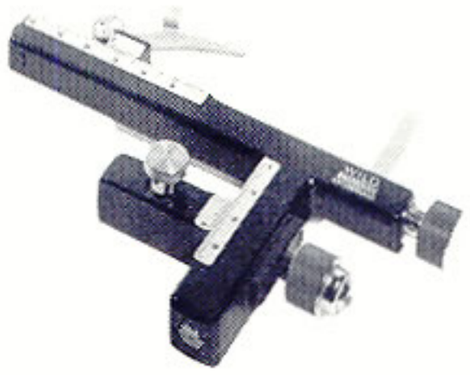


1
Fixed circular stage R, for M11B, stock no. 241 261.
2
Rotating centring circular stage Rd, for M11B, stock no. 241 267
3
Rotating gliding stage Rg, for M11B, stock no. 241 273.
4
Sliding cross-stage Kg, for M11B, stock no. 234 464.
5
Attachable mechanical stage C, stock no. 188 368.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Illumination Outfits

The illuminators which can be fitted into the basal cut-out of the microscope stand include the following:

Mirror with mirror carrier
This is used if the specimen is illuminated by daylight, or with a separate light source (Wild 30 W low voltage lamp, or Wild Universal lamp housing with quartz-iodine lamp or with xenon or mercury vapour lamp).

Mains (line) lamp M
For bright field observations at low or medium magnifications.

Condenser lamp, 6 V/6 W
The condenser lamp has a built-in condenser, and is to be fitted into the condenser holder. It is suitable for bright-field observations at any magnification.

Socket lamp P, 6 V/5 W
This facilitates the setting-up of critical (Abbe) illumination. It is used for bright field observations at all magnification ranges.

Attachable Köhler lamp Q, 6 V/20 W
This is a powerful low voltage lamp constructed on the Köhler illumination principle. It is particularly suitable for observations in bright field, dark field, phase contrast and polarisation conditions, and for photomicrography and television microscopy.

These and other light sources are described in the brochure M1 310e, entitled "Microscope Illuminators".

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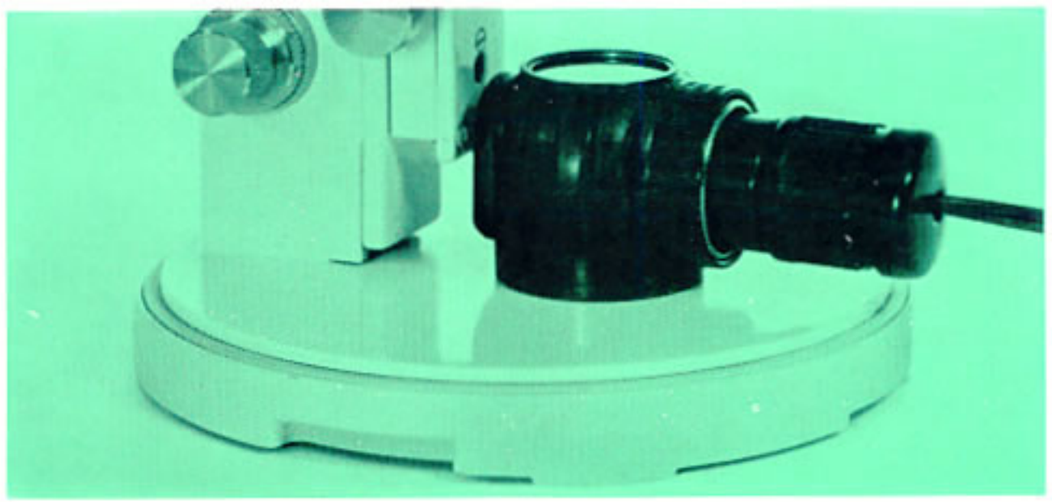

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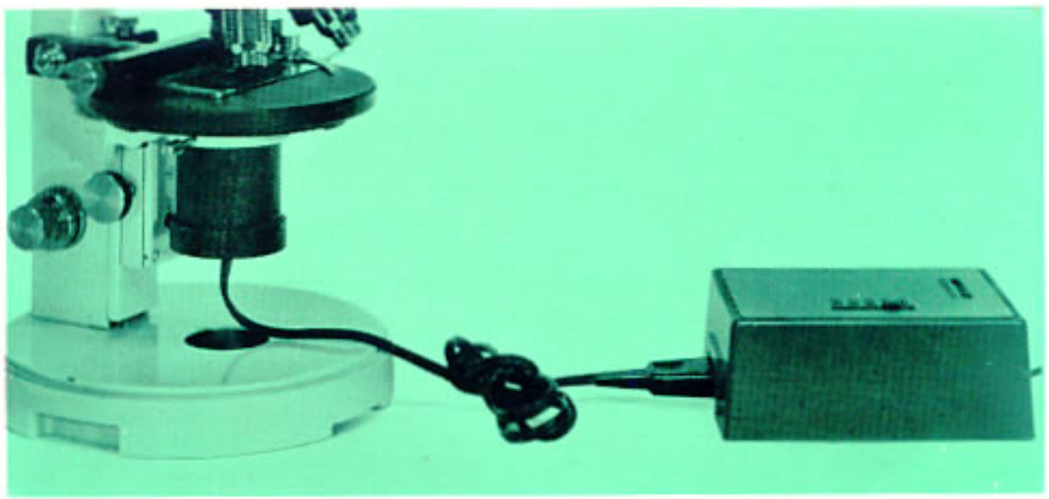

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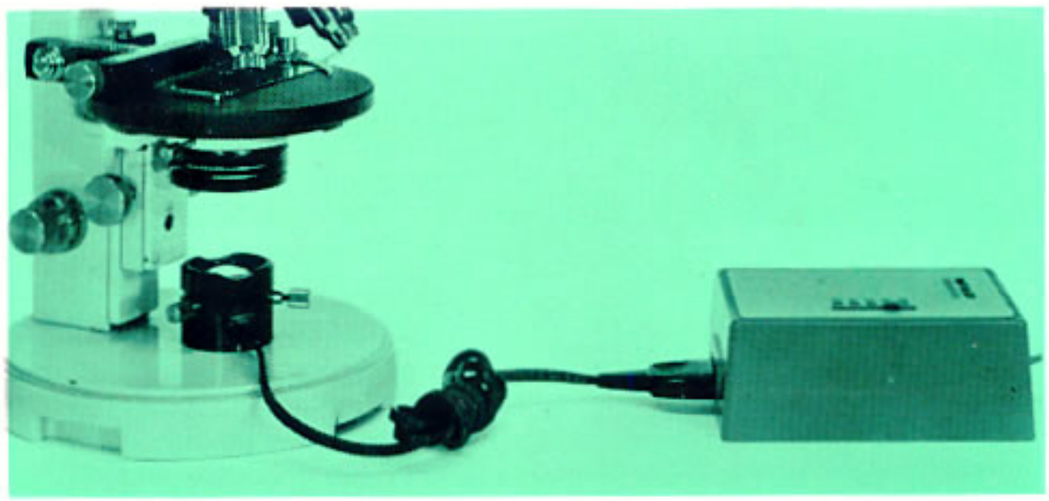

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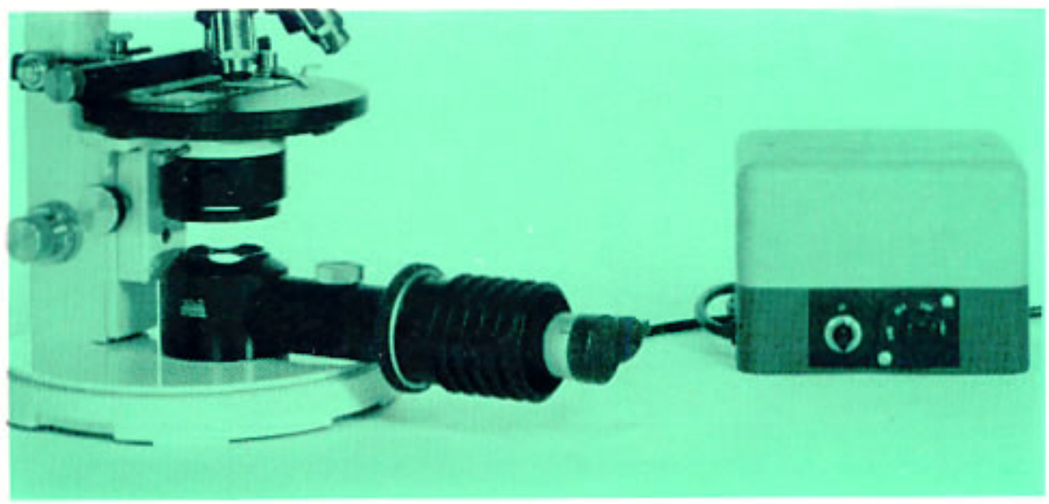


5

1
Plano-concave mirror and mirror carrier with gimbal, L, stock no. 242 920.
2
Mains (line) lamp M, 25 W.
3
Condenser lamp 6V/6W (stock no. 313 702) and step transformer 4, 5, 6V/6VA, 110-250 V (stock no. 127 931)
4
Socket lamp P, 6V/5W, stock no. 241 295, and step transformer 4, 5, 6V/6VA, prim. 110-250V, stock no. 127 931.
5
Attachable Köhler lamp Q, 6V/5W, stock no. 241 286, and step transformer 2/4/6/8V / 30VA, prim. 110-220V, stock no. 127 933.

Optical Outfits

The quality of the image, and consequently also the precise evaluation of the specimen, is dependent on the quality of the optics used and on their logical combination in the microscope. The optics available for the Wild M11 are of the same high quality as those available for our research instruments.

The following **objectives** are available:

Wild Achromats	– for routine work
Wild Phase-Achromats	– for routine work using phase contrast
Wild Fluotars	– for highest level research work
Wild Phase-Fluotars	– for highest level research work using phase contrast
Wild Plan-Fluotars	– for highest level research work. In conjunction with wide field eyepieces, they produce extremely large fields of view, combined with good definition to the edge of the field. Specially recommended for photomicrography, cinemicrography, television microscopy, microprojection and diagnostic work.

The following matched **eyepieces** are available:

Huygens eyepieces	– for Achromat objectives
Compensating eyepieces	– for all Fluotar objectives, and for Achromats of the higher magnifications
Wide field eyepieces	– for Plan-Fluotar objectives
Complanat eyepieces	– for flattening of the field of view in visual observation, photomicrography, cinemicrography and microprojection, using Achromats and Fluotars
Measuring eyepieces	– for measurements of length and angles, and for counting

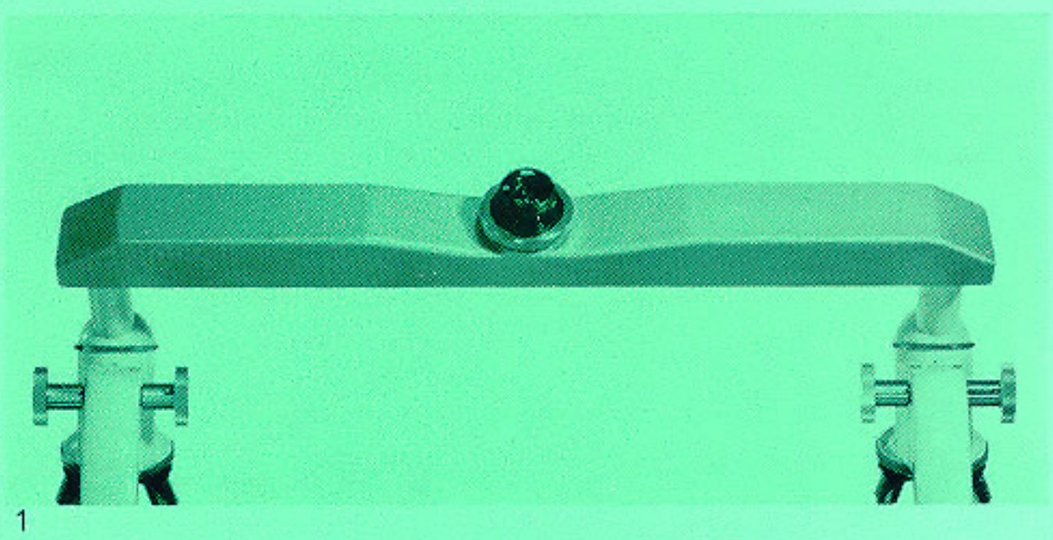
All Wild eyepieces and objectives are bloomed, i.e. they are coated with an anti-reflection layer. The objectives of medium and high magnifications are spring-mounted for the protection of the specimen and the front lens.

The importance of using the correct **condenser** is not to be underestimated. This component is responsible for producing satisfactory illumination of the specimen. The following types are available:

Single-lens condenser	N.A. 0.65
Aplanatic condenser	N.A. 0.65/1.30 with screw-on front lens
Swing-out condenser	N.A. 0.65/1.30
Swing-out condenser	N.A. 0.30/0.90
Achromatic-aplanatic condenser	N.A. 0.70/0.95/1.30 with interchangeable front lenses
Wide field condenser	N.A. 0.20 for objectives of low magnification (3× to 6×)
Quartz condenser	N.A. 0.40/1.30 for UV-fluorescence
Dark field immersion condenser	N.A. 1.40 for dark field at high magnifications
Phase condenser with rotating diaphragm changer	N.A. 0.90 for phase contrast and bright field
Universal condenser with rotating diaphragm changer	N.A. 0.90 for phase contrast, bright field, and dark field (N.A. 1.45)
Fluorescence phase condenser with rotating diaphragm changer	N.A. 0.90 for phase contrast, bright field, and fluorescence
Long working distance phase condenser with rotating diaphragm changer	N.A. 0.52; working distance 22 mm for phase contrast and bright field

A special prospectus (M1 210e) is published giving all relevant information about our range of optics. A number of suggestions regarding suitable combinations of equipment are given in the outfit sheets accompanying this microscope.

Accessories



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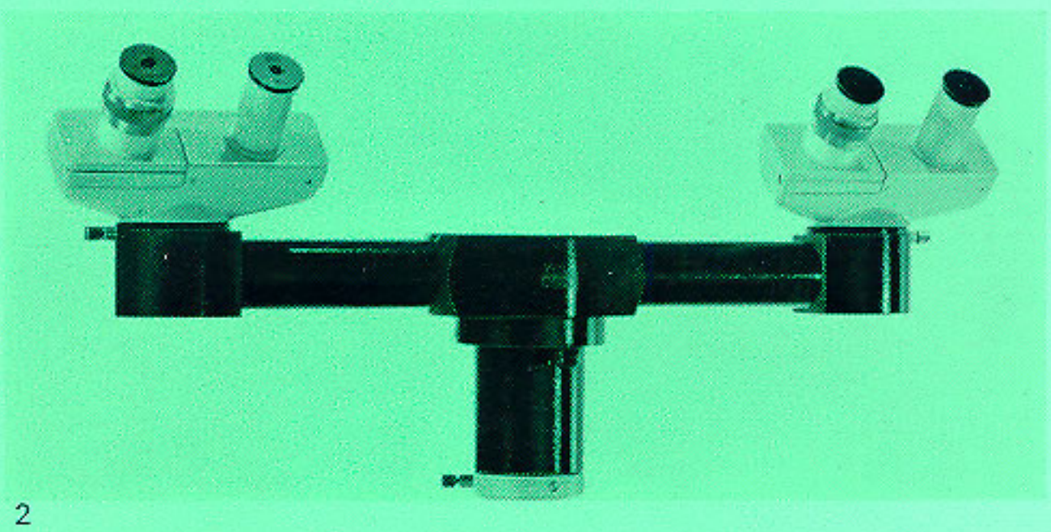
Comparison tube
This facilitates the simultaneous observation of two specimens using two identical microscopes. The two images are presented in the two halves of the field of a special eyepiece.



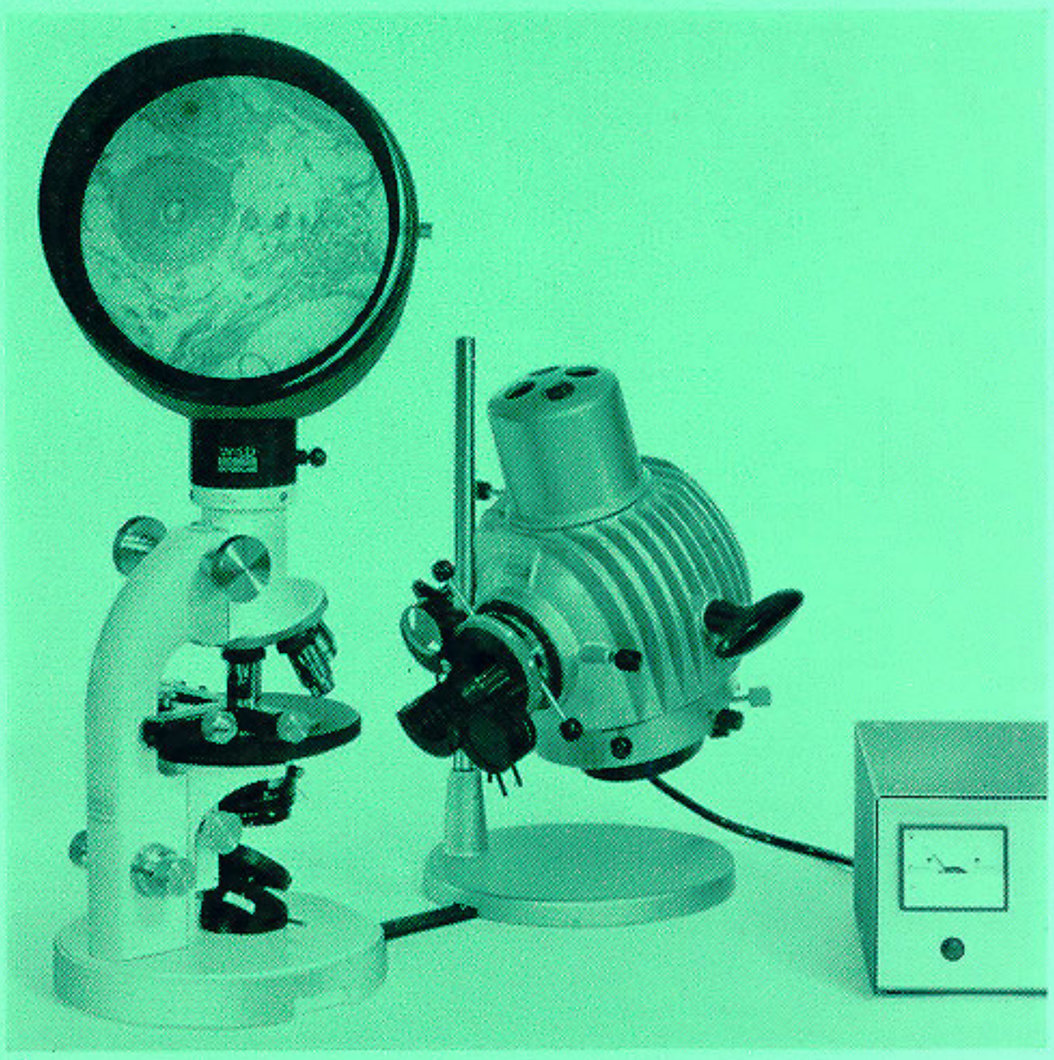
2

Discussion tube
Used if a specimen is to be observed simultaneously by two people (e.g. for teaching and demonstration purposes). This accessory can be equipped with two monocular or binocular inclined tubes. To accommodate possible marked differences between the vision of the two observers, it is recommended that one of them should use either an inclined binocular tube with both eyetubes adjustable or an inclined monocular drawtube. A pointer, movable to all positions in the field and visible by both observers, facilitates the discussion of features of the specimen. The manipulation of the specimen and the discussion of its features are rendered easier by the fact that the image produced is **erect** and **laterally correct.** The discussion tube can be converted into an **image-superimposing** tube by means of a set of adapters.

Drawing tube
Permits comfortable and fatigue-free drawing with binocular observation in a normally-lit room. The scale can be varied continuously over the range 1 : 2, and the drawing surface and pencil can be individually focussed. An intermediate attachment with an additional 2.5× magnification is available for the drawing of very small specimens. The drawing tube is fitted between the binocular tube and the top of the limb.

3

Projection head
The image can be projected on a frosted screen of 160 mm diameter using the projection head, which in this case replaces the normal observation tube and is one of the most important optical aids for schools and for group discussions. If a straight monocular tube is used in conjunction with a **projection prism,** the image can be projected on to a large free-standing screen.



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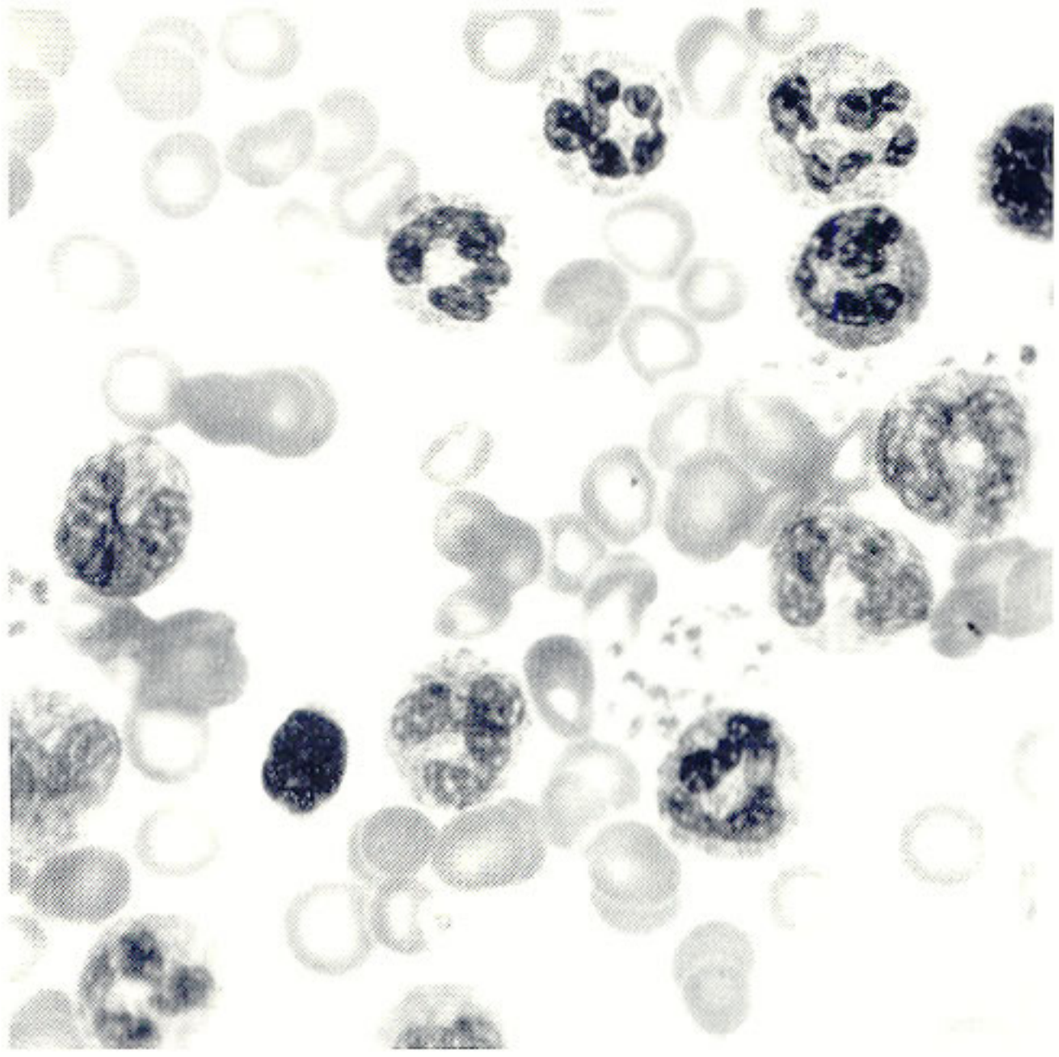
1
Comparison tube, stock no. 184 555, fitted to two monocular M11 microscopes.
2
Discussion tube, stock no. 256 547, fitted up for use with M11 microscope.
3
Drawing tube, stock no. 256 577, with intermediate attachment, 2.5×, stock no. 214 066, fitted to M11 microscope.
4
Projection head, stock no. 197 951, and 12V/100W quartz-iodine illuminator, with M11 microscope.



Leukaemia cells in blood.

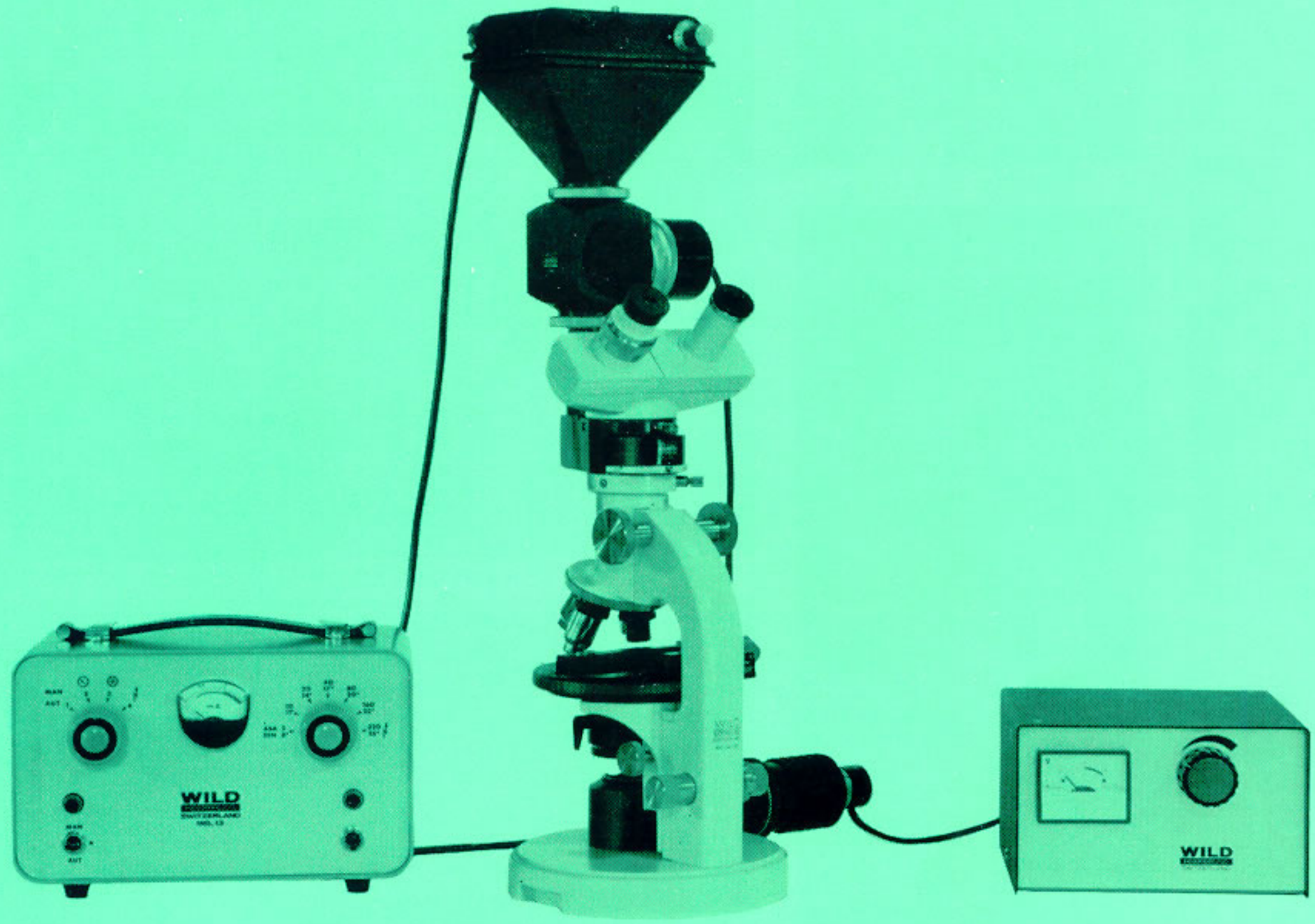
Photomicrography

By fitting attachable cameras to it, the M11 microscope can be quickly and easily built up into a photomicroscope for all current film formats from 35 mm to 9×12 cm (or 4×5"). All conventional Wild attachable cameras are fitted with a built-in photocell for connection to a light meter. The Wild Photoautomat, with its electronic control of the exposure time and its automatic film transport, permits even the inexperienced to obtain correctly exposed photomicrographs. The format limits and the focussing can be controlled through either a monocular or a binocular tube. In the monocular assembly, the attachable camera (with built-on focussing telescope) is fitted to the straight monocular tube. The trinocular assembly permits the use of an H, Hu or Hz phototube, which is fitted between the binocular tube and the top of the stand. The format limits and the focussing are carried out through the normal inclined binocular tube, in conjunction with a special format-indicating eyepiece (ask for prospectus M1 610e, "Outfits for Photomicrography").

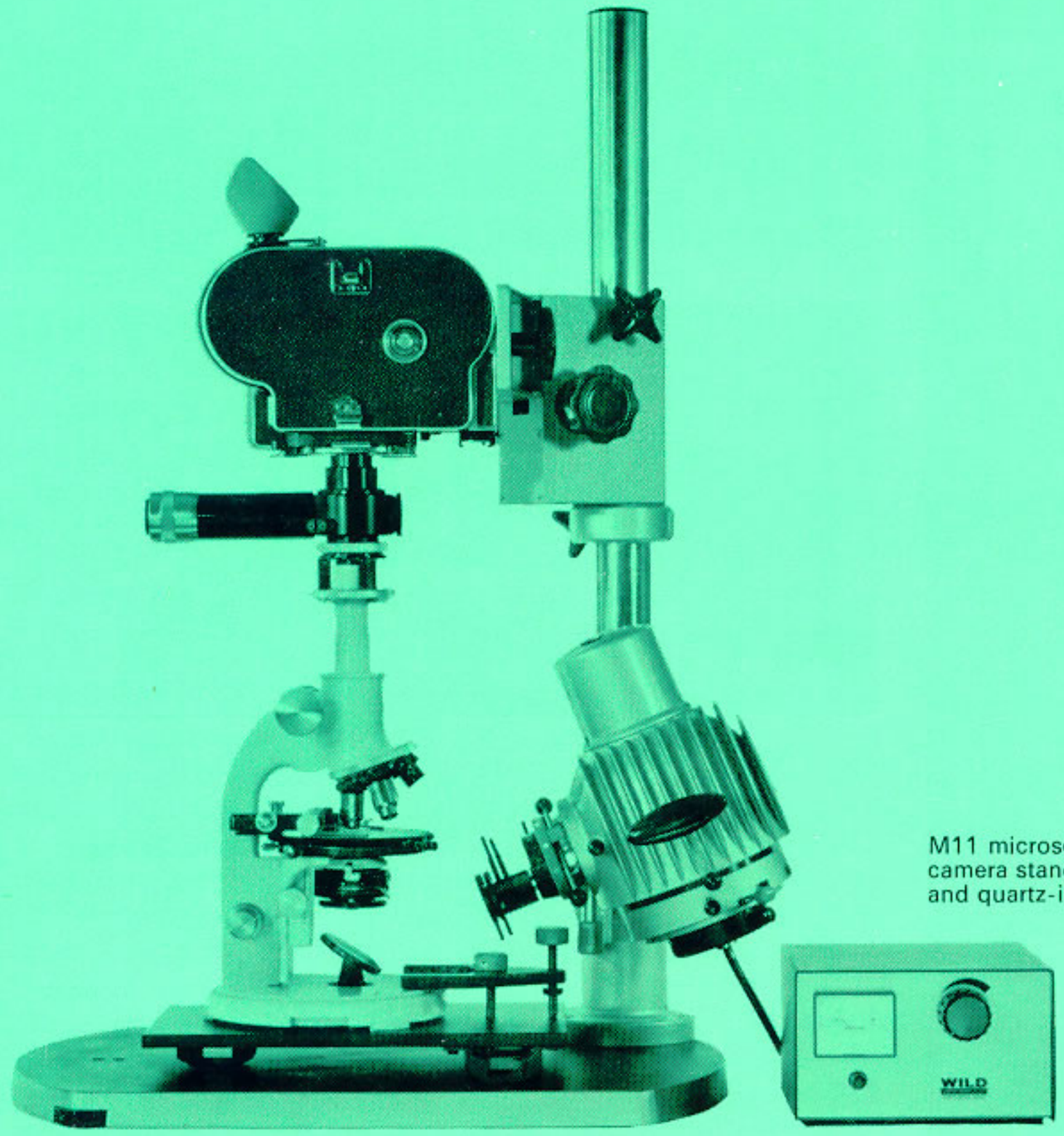
Cinemicrography and television microscopy

Accessories are available with which the M11 microscope can be easily adapted for use with apparatus for cinemicrography and television microscopy (ask for prospectus M1 621e, "The Multipurpose Camera Stand and Outfits for Cinemicrography and Television Microscopy").

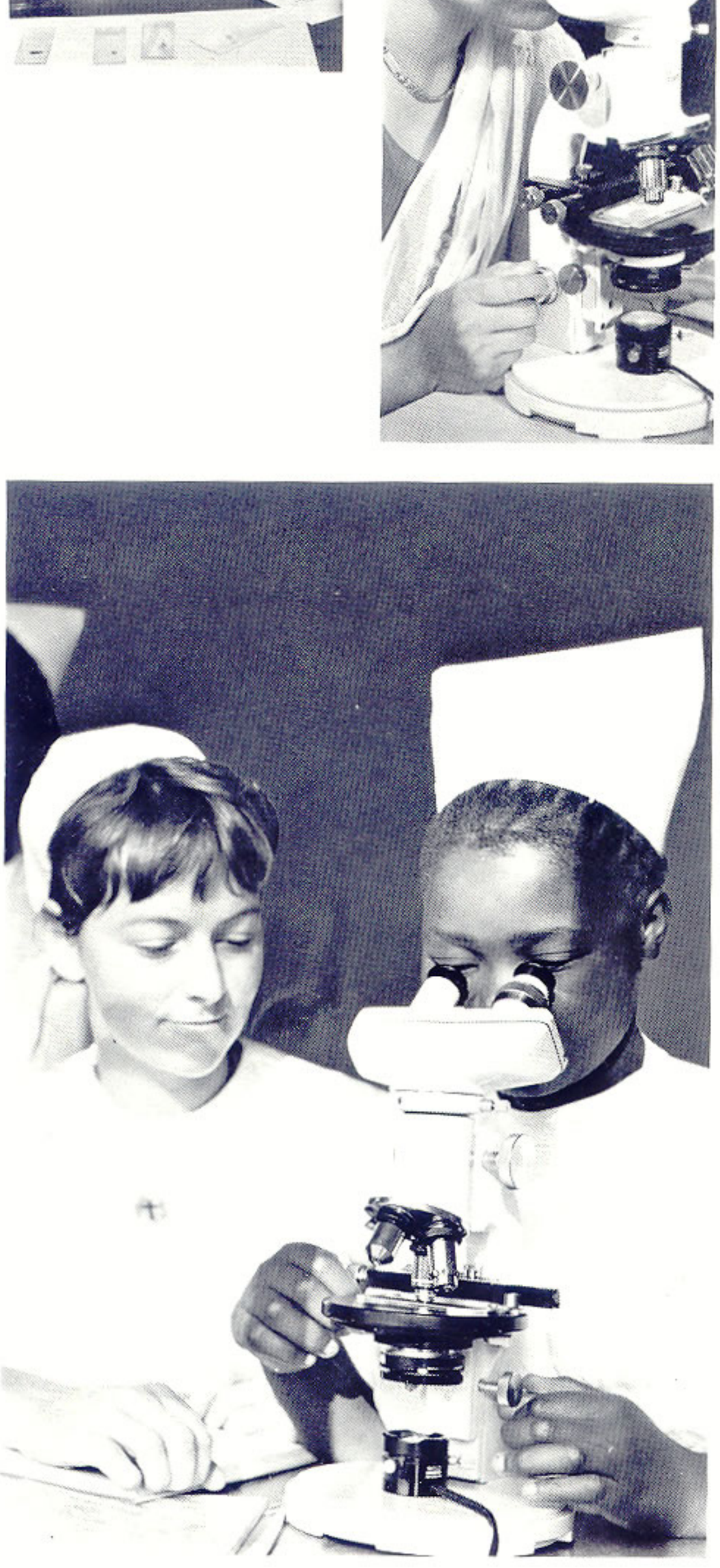
M11 microscope with sliding cross-stage Kg, straight monocular tube E, Wild attachable camera MKal, and free-standing low voltage illuminator 6V/30W.



M11 microscope with fixed circular stage R and attachable mechanical stage C, attachable Köhler illuminator Q, 6V/20W, phototube Hu and Wild Photoautomat MKa5 for trinocular assembly.



M11 microscope and assembly for cinemicrography; Wild multi-purpose camera stand, anti-vibration plate, focussing telescope for cinemicrography, and quartz-iodine illuminator 12V/100W.



The Wild M11 is the ideal microscope for schools and courses.
This easily-carried precision instrument has been proved on expeditions under extreme climatic conditions.

Catalogue References

Stands	Stock No.
M11 B stand, with condenser drive, quadruple nosepiece, and standard accessories, without other equipment	241 271
M11 A stand, with quadruple nosepiece and standard accessories, without other equipment	264 928

Tubes	
Adapter, factor 1.0×, for use of inclined binocular tube G on M11	230 936
Adapter, factor 1.5×, for use of inclined binocular tube G on M11	234 561
Inclined binocular tube G, for M11	256 517
Inclined monocular tube F, for M11	256 521
Inclined monocular drawtube Fa, for M11	256 522
Straight monocular tube E, for M11	256 534
Phototube H (observation 25%)	256 541
Phototube Hu (observation 100%/25%/0%)	256 543
Phototube Hz (observation 25%)	256 544
Phototube Hz (observation 95%)	256 545

Stages	
Fixed circular stage R with two stage clips, for M11 B	241 261
Fixed circular stage R with condenser sleeve and two stage clips, for M11 A	241 264
Rotating centring circular stage Rd with two stage clips, for M11 B	241 267
Rotating centring circular stage Rd with two stage clips, for M11 A	241 270
Rotating gliding stage Rg, with two stage clips, for M11 B	241 273
Rotating gliding stage Rg with condenser sleeve and two stage clips, for M11 A	241 276
Sliding cross-stage Kg for M11 B	234 464
Sliding cross-stage Kg with condenser sleeve, for M11 A	241 279
Attachable mechanical stage C, for R and Rd stages	188 368
Hot-and-cold stage for M11, with supply unit 110–250 V	243 374

Illuminators	
Plano-concave mirror and mirror carrier with gimbal, L	242 920
Mirror carrier with gimbal	250 744
Mirror carrier with precision centring screws	212 420
Plano-concave mirror, for mirror carriers 250 744 or 212 420	212 416
Cold mirror, for mirror carriers 250 744 or 212 420	127 670
First-surface mirror, for mirror carriers 250 744 or 212 420	212 418
Mains (line) illuminator M, 220 V/25 W, with spare bulb	241 274
Mains (line) illuminator M, 150 V/25 W, with spare bulb	241 277
Mains (line) illuminator M, 115 V/25 W, with spare bulb	241 280
Condenser illuminator 6 V/6 W with step transformer 110-250 V and spare bulb	319 979
Socket illuminator P, 6 V/5 W, with step transformer 110–250 V, spare bulb and frosted filter ⌀ 33 mm	243 376
Attachable Köhler illuminator Q, 6 V/20 W, with regulating transformer 110–250 V and spare bulb	243 384
Attachable Köhler illuminator Q, 6 V/20 W, with step transformer 110–220 V and spare bulb	243 382
Condenser lamp 6 V/6 W	313 702
Socket lamp P, 6 V/5 W, with frosted filter ⌀ 33 mm	241 295
Attachable Köhler lamp Q, 6 V/20 W	241 286
Step transformer 4, 5, 6 V/6 VA, prim. 110–250 V, with mains cable	127 931
Regulating transformer 0–8 V/50 VA, prim. 110–250 V, with mains cable	194 817
Step transformer 2, 4, 6, 8 V/30 VA, prim. 110–220 V, with mains cable	127 933

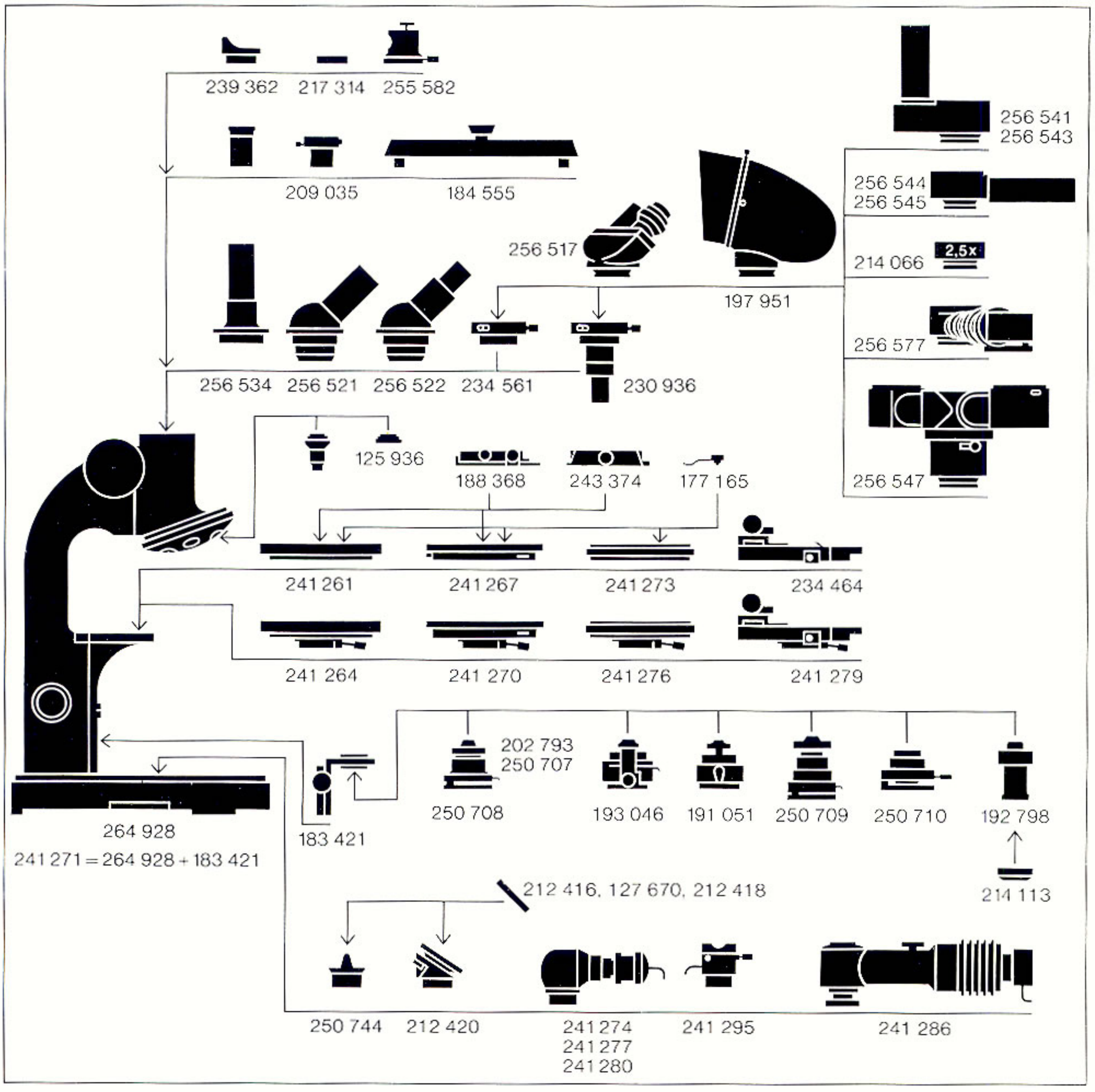
Spare bulbs	Stock No.
Bulb 220 V/25 W for mains (line) illuminator M	166 359
Bulb 150 V/25 W for mains (line) illuminator M	166 351
Bulb 115 V/25 W for mains (line) illuminator M	166 350
Bulb 6 V/5 W, clear, for socket lamp P	191 987
Bulb 6 V/5 W, frosted, for socket lamp P	166 321
Bulb 6 V/6 W, clear, for condenser lamp	317 010
Bulb 6 V/20 W, clear, in centring socket for attachable Köhler lamp Q	177 160
Bulb 6 V/20 W, matt, in centring socket for attachable Köhler lamp Q	193 167

Special accessories	
Drawing tube, in case	256 577
Intermediate attachment 2.5×, for drawing tube 256 577	214 066
Projection prism for tube ⌀ 25 mm	255 582
Projection head	197 951
Discussion tube, in case	256 547
Inclined binocular tube G, both eyetubes adjustable, for use as second tube for discussion tube	256 519
Inclined monocular drawtube Fa, for use as second tube for discussion tube	256 524
Discussion and image-superimposing tube, in case	256 579
Adapter set (3 pieces) for conversion of discussion tube into image-superimposing tube	105 941
Comparison tube	184 555

Optical accessories, bright field		
Achromat objective (not parfocal)	2×/0.06	175 090
Achromat objective	4×/0.10	203 586
Achromat objective	7×/0.20	217 331
Achromat objective	10×/0.25	184 541
Achromat objective	20×/0.45	175 092
Achromat objective	40×/0.65	209 023
Achromat objective	50×/0.85	175 098
Achromat objective	60×/0.70	207 781
Achromat objective	HI 85×/1.25	175 094
Achromat objective	HI 100×/1.25	188 374
Fluotar objective	10×/0.40	175 124
Fluotar objective	20×/0.60	184 662
Fluotar objective	40×/0.75	207 786
Fluotar objective	HI 50×/1.00	175 126
Fluotar objective	HI 100×/1.30	175 128
Plan-Fluotar objective	3×/0.10	106 017
Plan-Fluotar objective	6×/0.20	217 342
Plan-Fluotar objective	10×/0.25	198 282
Plan-Fluotar objective	20×/0.45	184 902
Plan-Fluotar objective	40×/0.65	183 281
Plan-Fluotar objective	HI 100×/1.30	217 350
Objectives for uncovered specimens:		
Epi-Achromat objective	20×/0.45	175 118
Epi-Achromat objective	40×/0.65	175 120
Epi-Plan-Fluotar objective	20×/0.45	105 928
Epi-Plan-Fluotar objective	40×/0.65	105 933

Eyepieces		
Huygens eyepiece	6×/18	175 153
Huygens eyepiece	10×/14	197 722
Huygens pointer eyepiece	10×/14	209 035
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

Condensers	Stock No.
Single-lens condenser N.A. 0.65 with iris diaphragm	250 707
Front lens N.A. 1.30, for single-lens condenser 250 707	202 793
Aplanatic condenser N.A. 0.65/1.30 with iris diaphragm	250 708
Swing-out condenser N.A. 0.30/0.90 with iris diaphragm	191 051
Swing-out condenser N.A. 0.65/1.30 with iris diaphragm	193 046
Wide field condenser N.A. 0.20	192 798
Iris diaphragm, for wide field condenser 192 798	214 113
Achromatic-aplanatic condenser N.A. 0.70/0.95/1.30 with iris diaphragm	250 709
Long working distance condenser N.A. 0.52 with iris diaphragm	250 710

Miscellaneous	Stock No.
Wooden cabinet for M11	241 244
Stage clip	177 165
Metal hood, height 32 cm, for M11 monocular	209 091
Metal hood, height 37 cm, for M11 binocular	191 984
Daylight filter, clear, ⌀ 33 mm	126 126
Daylight filter, frosted, ⌀ 33 mm	126 127
VG 4 green filter ⌀ 33/2 mm	126 128
NG 4 neutral filter ⌀ 33 mm, D = 1.0	126 131
Eyecup, single	239 362
Eyecup for spectacle wearers, single	217 314
Dust cover for M11	126 270
Glass bottle with 15 cm³ of immersion oil	270 784
Plug for empty standard nosepiece sockets	125 936
Standard accessories for M11, comprising: dust cover, optics holder, clear daylight filter	

Assembly Diagram for the Wild M11 Microscope.