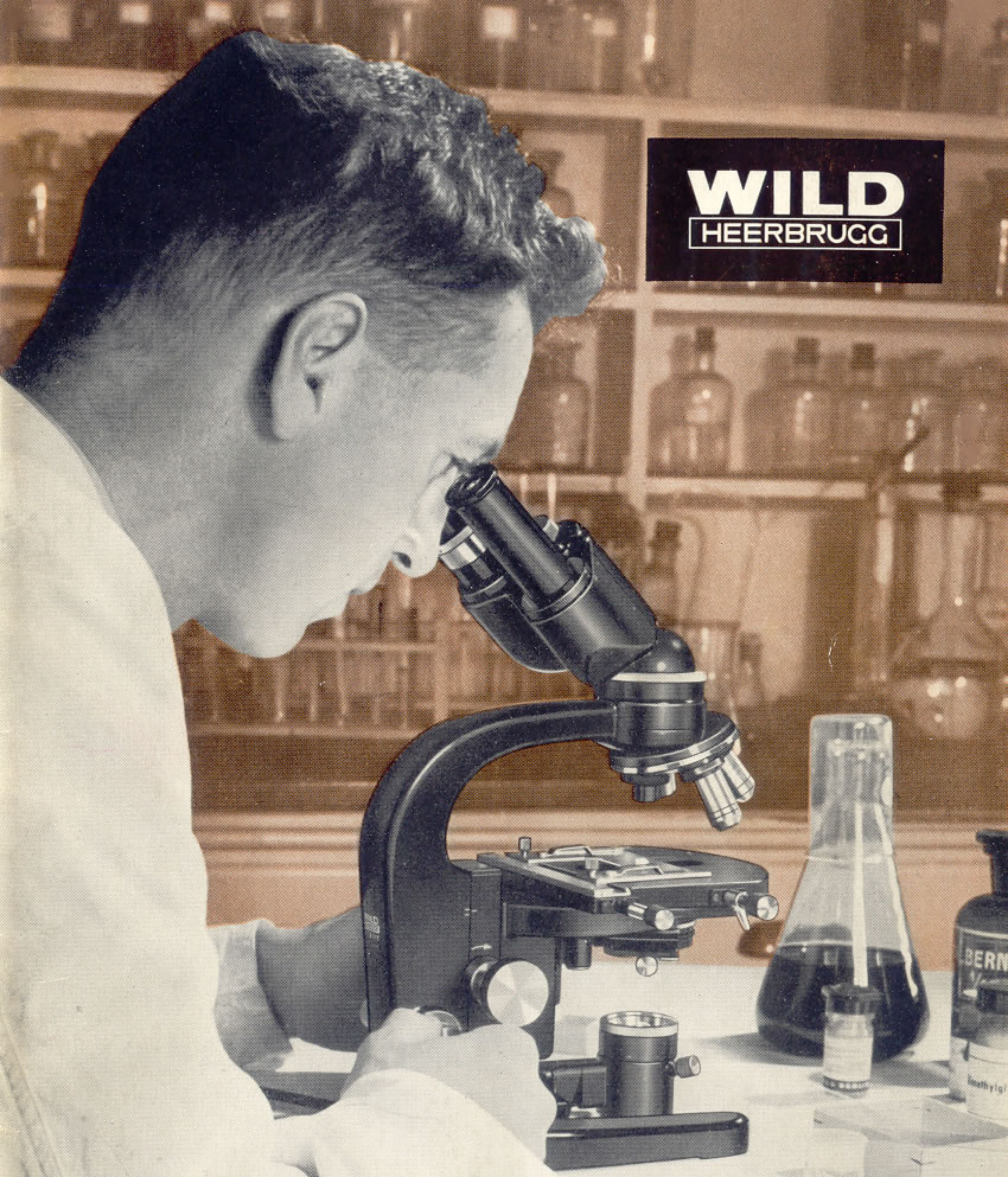

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WILD MICROSCOPES

GENERAL CATALOGUE

Mi 501 e

WILD HEERBRUGG

Henry Wild Surveying Instruments Supply Co. Ltd., Heerbrugg, Switzerland

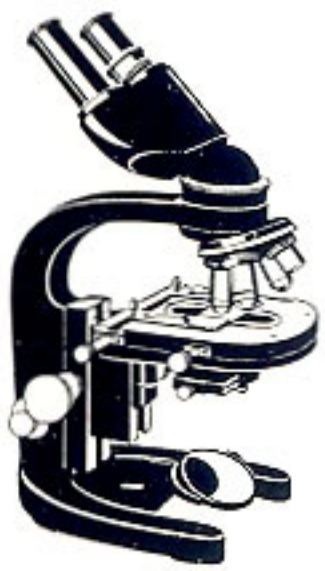
Telephone (071) 7 24 33 Cables: Wico Heerbrugg

Optical and Precision Instrument Makers

Representatives in all countries

The illustrations and descriptions in this catalogue are not binding as to all details of design of the instruments.

We shall be pleased to supply electros, as far as they may be available, for scientific publications.



WILD Heerbrugg is the first and the only firm to manufacture complete microscopes in Switzerland. This catalogue gives a general survey of the manufacturing programme.

Our geodetic instruments have won a world-wide reputation for their high quality. Everything possible has been done in the design and construction of our microscopes to maintain this reputation for the new branch of production.

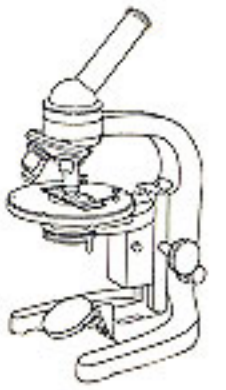
We stress particularly the following features of WILD Microscopes:

1. High precision, achieved by modern factory equipment and best methods of production.
2. Excellent optical performance.
3. Modern, pleasing design.
4. Convenience in use achieved by suitable arrangement of all adjusting heads.
5. Careful choice of materials used.
6. Extensive interchangeability of component parts.
7. All models designed with the object of permitting later additions to be made without difficulty.

Brief Description of Wild Microscopes

General

At the present time we manufacture two types of microscope stands, the M 10 and the M 9.



The *Stand M 10* is a research and routine microscope for exacting requirements and is available with either a binocular or monocular inclined tube.

The *Stand M 9* is a monocular laboratory microscope for general microscopy; it is suitable as a student's microscope for Universities and for the naturalist. The very compact construction and light weight make the M 9 the ideal portable microscope.

Both microscope stands are obtainable with various stages, illuminating apparatus, and eyepiece tubes; the purchaser of a WILD Microscope can therefore always select an outfit meeting his own particular requirements.

We use the very best materials in our microscope stands and manufacture all parts with the highest precision. The requirements of all modern methods of microscopy have been considered in the design of these microscopes.

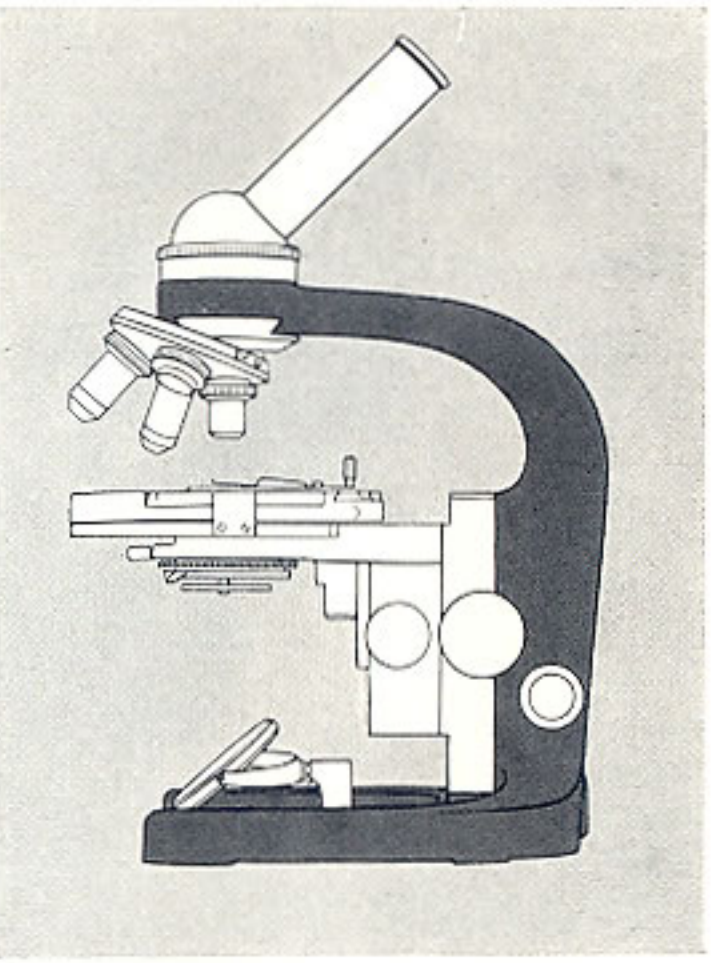
Very great care has been given to the computation, design and manufacture of the optical parts of WILD Microscopes. Our objectives and eyepieces will therefore stand comparison with the best microscope lenses of other make.

The Wild Stands

The *Research and Routine Stand M 10* presents a modern type of design. A special feature to be noted is that the foot, body, and tube arm are one single piece. Stability is thereby increased, which is of particular benefit when using heavy tube accessories, such as the binocular tube, and the attachable photomicrographic camera.

The built-in electrical connections from a common plug for both transmitted and incident light are another new feature. The device for holding the mirror also serves as a socket connection for the WILD Plug-in Lamp.

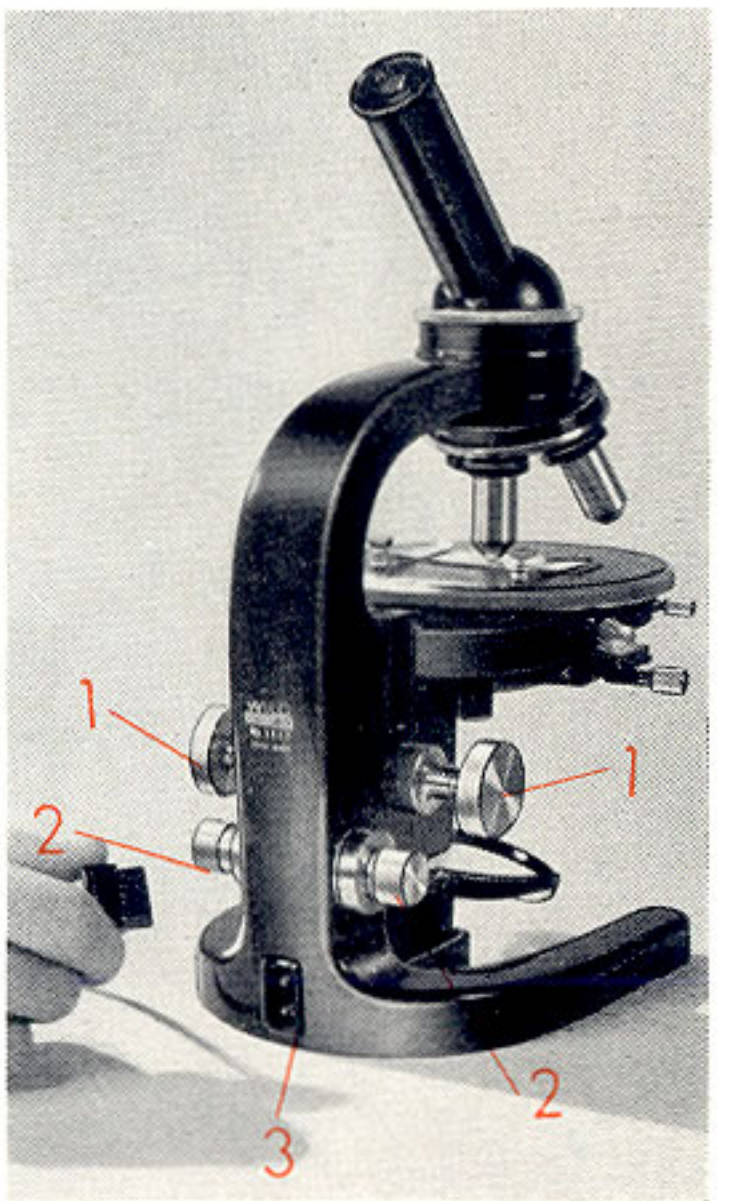
The very precise fine adjustment (micrometer screw) of special design with low placed adjusting head, is built into the lower part of the stand; it operates on the coarse adjustment box, by means of which the stage is racked up and down in the direction of the optical axis of the microscope. On the right side, this focussing movement is provided with a brake, which is used to regulate the freedom of movement.

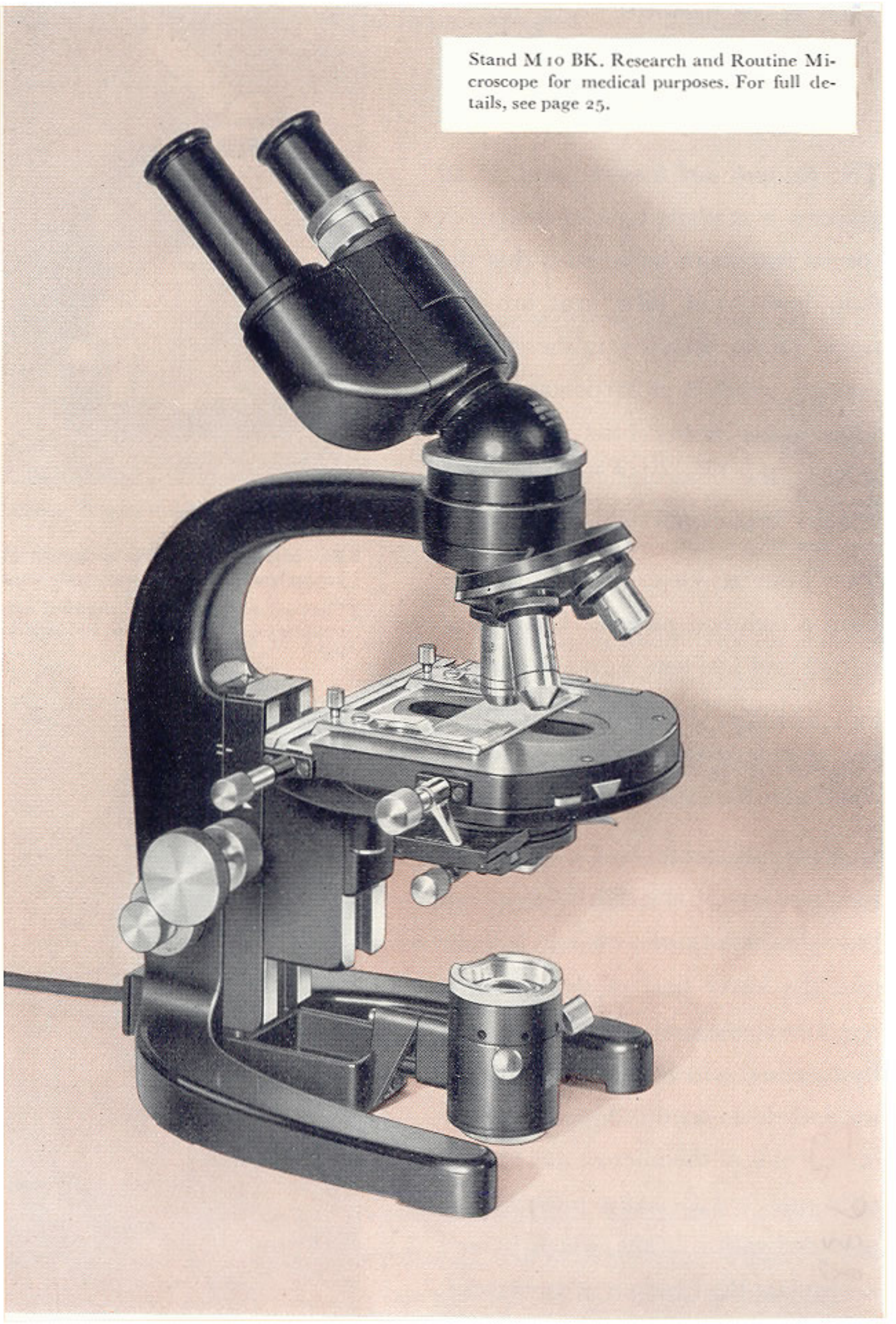


1 Coarse adjustment.

2 Fine adjustment. Note the low-placed adjusting heads, allowing comfortable work.

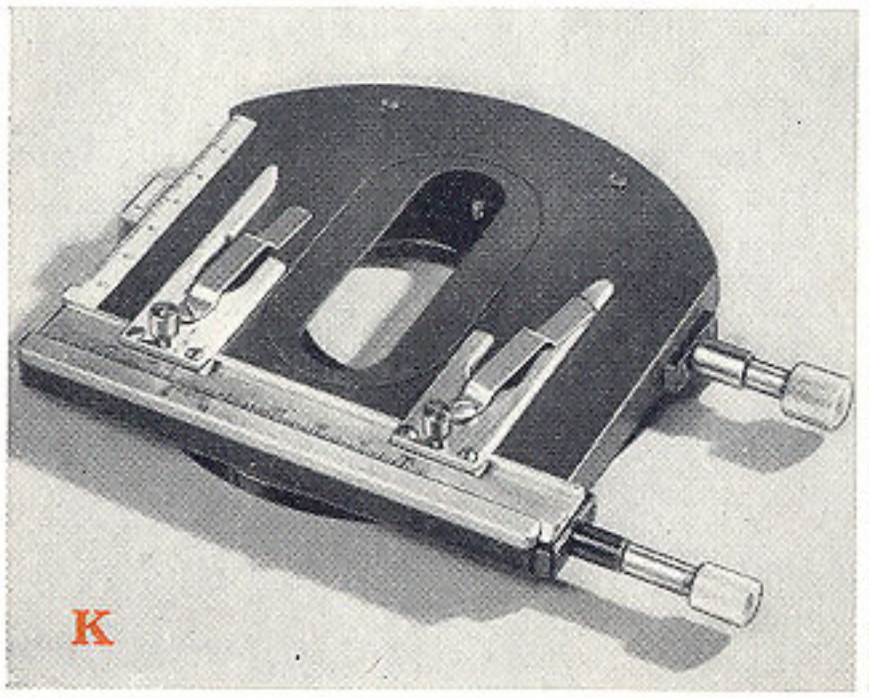
3 Common plug for built-in electrical connections for both transmitted and incident light.

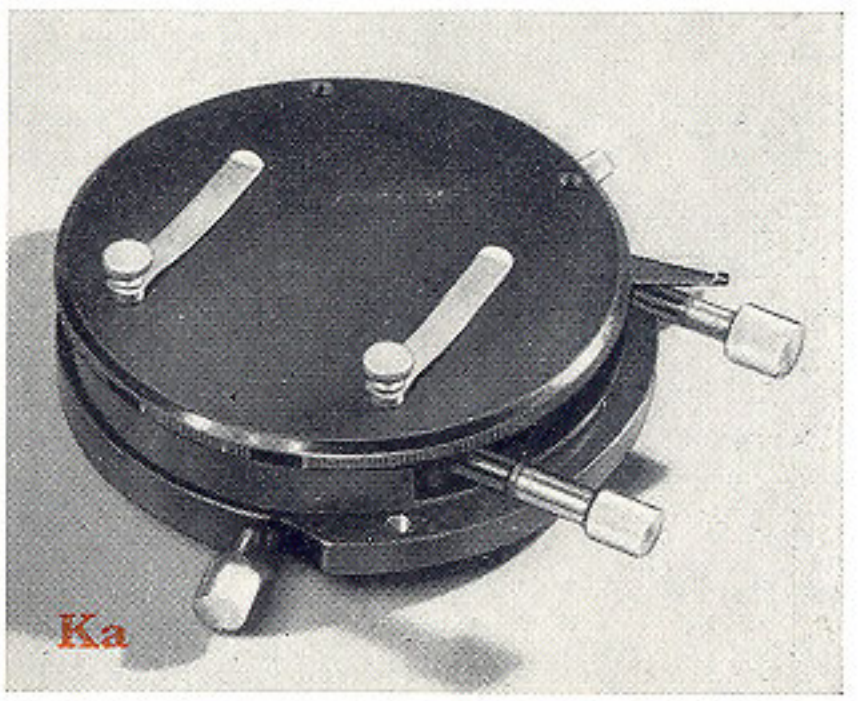




Stand M 10 BK. Research and Routine Microscope for medical purposes. For full details, see page 25.

Stand M 10 can be provided with two different types of illuminating apparatus, type A or type B. Type A consists of a sliding sleeve, fixed underneath the stage. The condenser can be inserted easily from below. Type B is in the form of a substage mounted on the stage carrier, and is adjustable by rack and pinion. When racked fully down into its lowest position, the condenser holder can be swung to the right out of the optical axis.


K


Ka

The following *Stages* are available for Stand M 10:

Stage Kd: large round, rotating and centering mechanical stage with scales and verniers.

Stage K: large, fixed mechanical stage with scales and verniers.

Stage Rd: plain round, rotating and centering stage with ebonite top plate.

Stage R: plain round fixed stage.

Stage Ka: round, rotating and centering stage for opaque objects.

Stages Kd, Rd, Ka are attached to the stage carrier by means of a centering mount, while stages K and R are attached directly to the carrier. Attachable mechanical stages may be supplied as an accessory to stages Rd and R.

The upper end of the limb carries the tube mounting, and the underside of this mounting is provided with a dove-tail slide for the reception of the revolving nosepiece and other accessories, such as vertical illuminators, epi-condensers, etc. The upper part of the tube mounting has slip-ring contacts and connections for the Oblique Light Epi-lamps, and is threaded to take any of the following tubes:

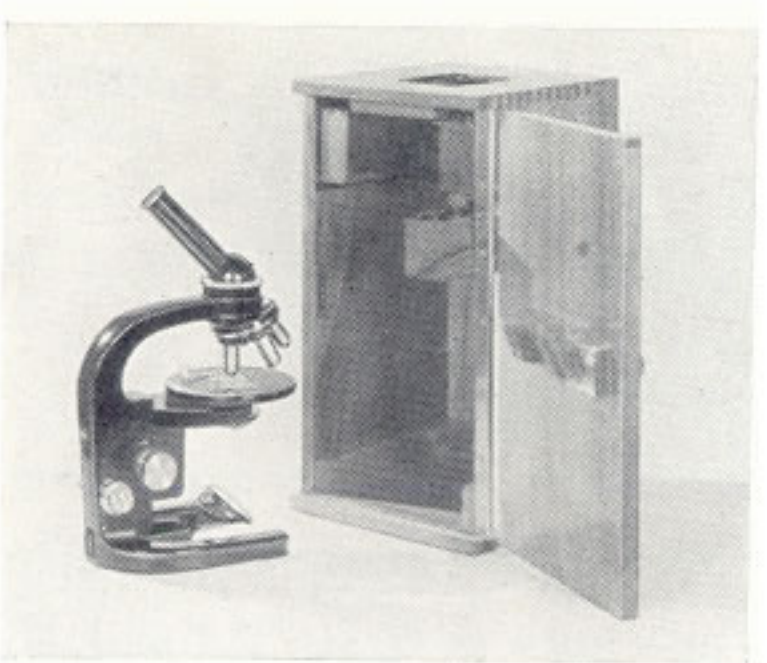
Binocular Inclined Tube (Inclination 45°) for 240 mm mechanical tube length, with scale for interpupillary distance, and clamping screw. The left eyepiece holder is adjustable for difference of vision (anisometropia).

Monocular Inclined Tube (inclination 45°) for 160 mm mechanical tube length, with fixed eyepiece tube.

Monocular Inclined Tube (inclination 45°) with eyepiece drawtube with millimetre scale for reading the mechanical tube length (especially suitable for measuring purposes).

Straight Monocular Tube for 160 mm mechanical tube length, with fixed eyepiece tube.

Straight Monocular Tube with eyepiece drawtube, with millimetre scale for reading the mechanical tube length.



Stand M 10 is supplied in a solidly made hardwood case.

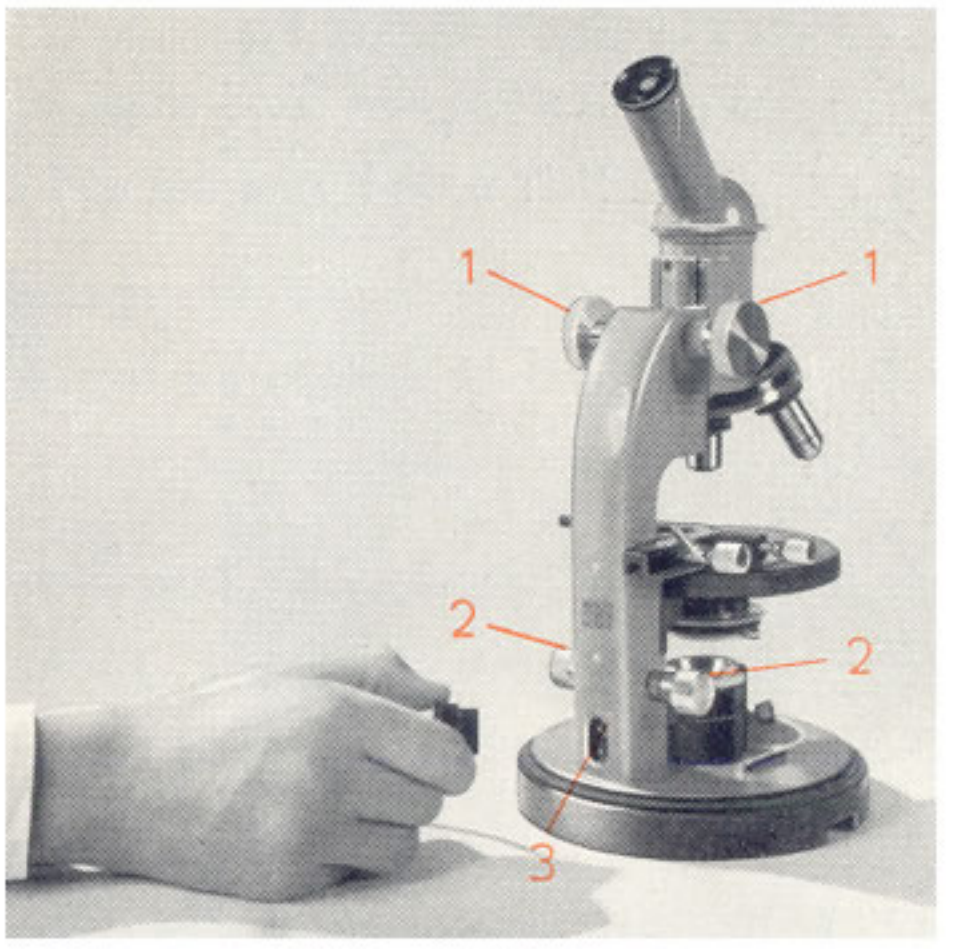
The constantly horizontal position of the microscope stage prevents any flow of the immersion oil or mounting fluid. It is frequently sufficient to place the slide preparation or opaque object on the stage without clips, as the specimen cannot slide off, as it could on older type inclined microscopes.

The microscope stage is placed at a low level above the work-table, particularly in our new small Stand M 9; the hand used to move the specimen therefore tires less when using the microscope for long periods.

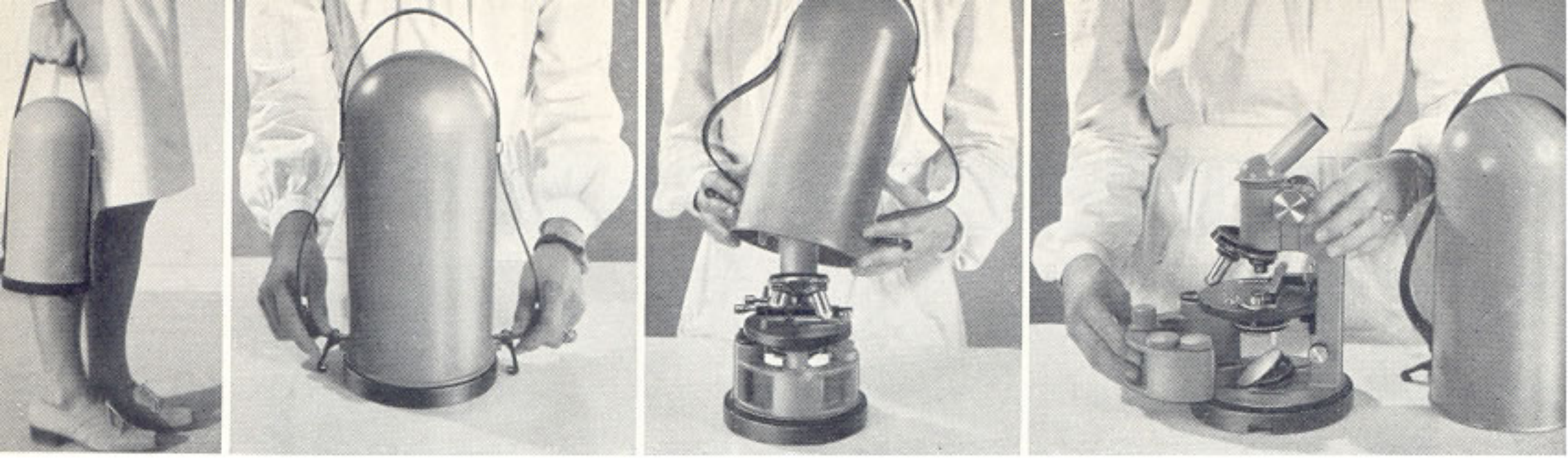
The Laboratory, Student's and Portable Microscope M 9 is constructed according to the same principles as the large stand already described. The foot and limb are solidly fitted together. The coarse and fine adjustments, however, operate on the tube, while the stage remains fixed. The micrometer screw actuated by the milled heads is placed on the limb about halfway below the stage, so that the user can rest his hand comfortably on the bench while using the fine adjustment.

Stand M 9 also has the built-in electrical connections for transmitted and incident light, already described on Stand M 10. The mirror carrier also serves as a socket connection for the WILD Plug-in Lamp, while the Oblique-light Epi-lamp is attached by a special ring holder with sliding contact, on the upper part of the tube.

The foot of Stand M 9 is a round, stable base-plate, provided with a recess under the stage for the mirror and attachable lamp, and with a rubber



1 Coarse adjustment.
2 Fine adjustment.
3 Common plug for built-in electrical connections for both transmitted and incide light.



covering around the edge. A steel hood, protecting the whole microscope, fits down on to the rubber ring, and is provided with a leather carrying strap and with two securing clamps which fit into two grooves on the right and left of the foot, locking with a spring action when pressed upward.

The foot also bears two slides for the objective and eyepiece holder which slides in underneath the stage and holds two each objectives and eyepieces as well as a special double-bottle for oil and xylol. Three additional objectives in the nosepiece and one eyepiece in the tube can remain on the microscope, so that five objectives and three eyepieces may be easily accomodated.

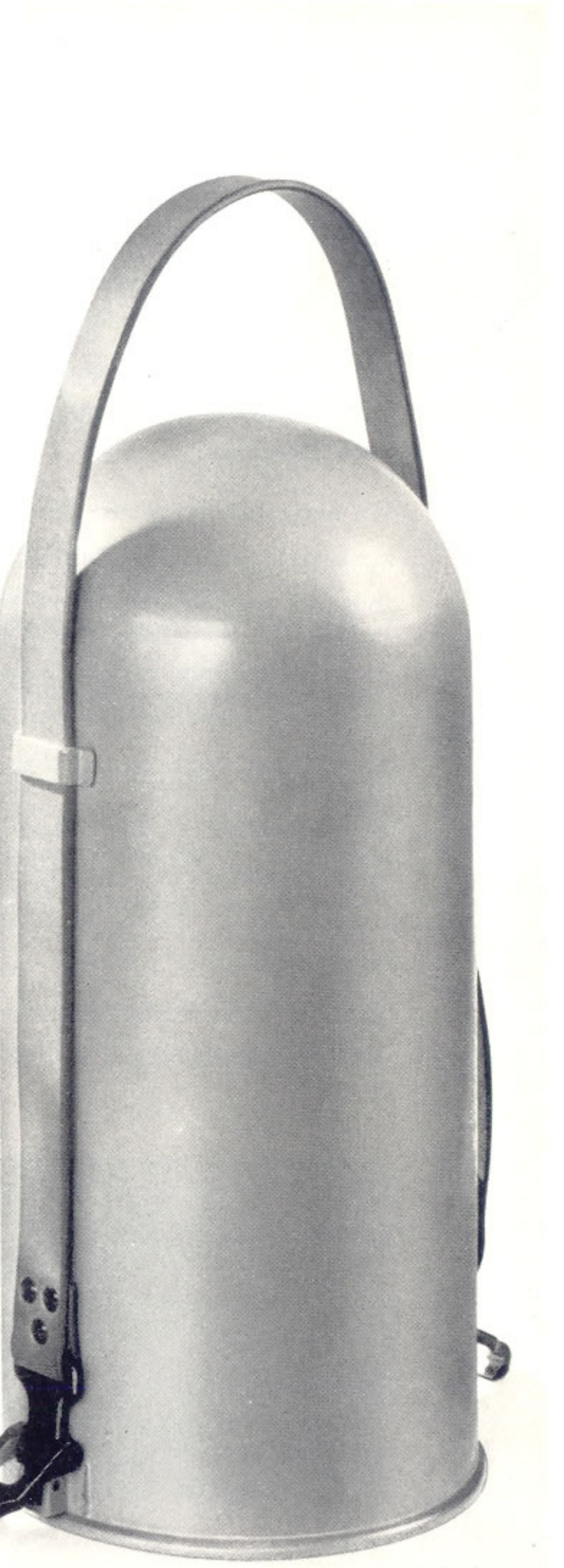
The *Stage* of the *M 9 Stand* is available in two types, as follows:

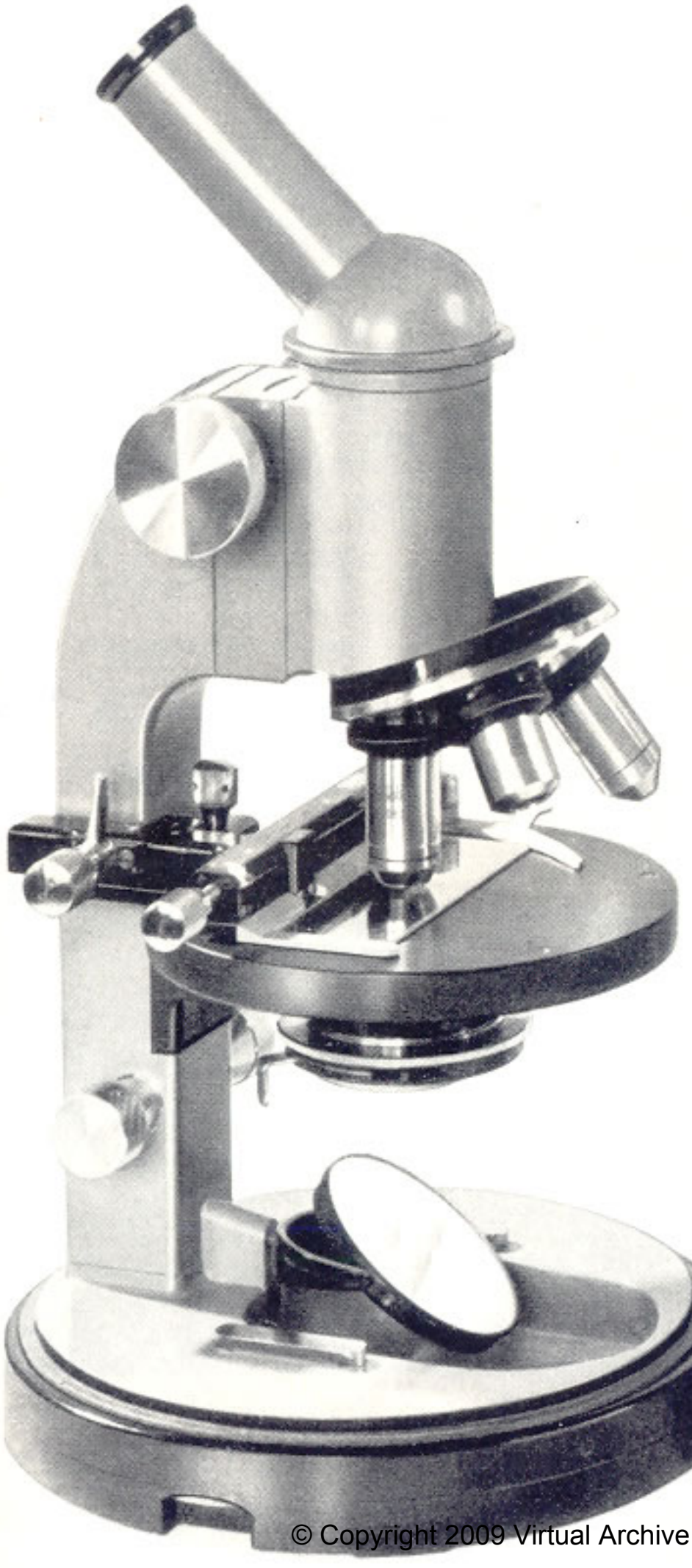
Stage R: round, fixed stage, and
Stage Rd: round, rotating and centering stage.

Both stages have a sliding sleeve carrier for the condenser underneath. Holes are provided in the top for fixing the attachable mechanical stage specially designed for the M 9 Stand.

The monocular inclined tube is interchangeable with a straight monocular tube, with or without a drawtube. These two tubes are however only supplied on special request.

We offer a simplified version of the M 9 Stand under the designation M 9 OR, without fine adjustment and without electrical connections (see Page 36).





Stand Mg AR (full description page 35)

Wild Optical Equipment

The optical equipment of a microscope consists essentially of

Objectives, eyepieces, condensers

the selection of which depends on the object and purpose for which the instrument is required.

Wild Objectives

We make two types, the Achromatic Series and the Fluorite Series; they are corrected for a mechanical tube length of 160 mm.

In the *Wild Achromatic Series*, the spherical and chromatic aberrations, curvature of field and distortion are removed as completely as is possible with this type of objective. The lens systems, manufactured from the best optical glasses, have been computed to give a well-balanced combination between initial magnification, resolving power and working distance. This applies particularly to the achromatic homogeneous oil-immersion 85 N.A. 1.25, which, due to a comparatively great working distance is most suitable as a routine objective for all microscopical examinations in general work.

The *Wild Fluorite Series* shows, in comparison with the Achromatic, a much more complete colour correction. At the same time, the curvature of the

Pictures of our modern optical manufacturing department. The illustrations show from left to right: grinding and polishing of front-lenses for oil-immersion objective 85 N.A. 1.25. In the hands of experienced opticians, the small lenses undergo a very precise working process. Specially light polishing machines have been built for series manufacture of high-quality objective lenses.

image field is practically eliminated, especially when using orthoplanatic eyepieces. The excellent characteristics of our Fluorite Series could only be obtained by the use of a new and valuable synthetic optical material, the characteristics of which correspond almost exactly with those of the natural fluorspar, but surpass the latter in purity. The WILD Fluorite objectives meet the highest requirements of microscopical investigations, and are particularly recommended for photomicrography in natural colour.

Wild Eyepieces

We supply three types of eyepiece for our objectives, namely, Huygens, Orthoplanatic and Compensating eyepieces.

Huygens eyepieces are designed for use with achromatic objectives and with these they yield good images.

Orthoplanatic eyepieces give a flatter field than do the Huygens, and are partially compensating, which is advantageous when using the higher powered dry and immersion achromatic objectives in giving a better image quality towards the edge of the field. These advantages of orthoplanatic eyepieces used with all fluorite objectives come to the fore in photomicrography, when the best results may be obtained by using the orthoplanatic Photo-eyepieces, in which the eye-lens is adjustable according to the camera extension.



These Photo-eyepieces can also be used as *micrometer eyepieces*, as they are provided with a device which permits an eyepiece micrometer to be placed in the eyepiece so that it lies exactly in the plane of the diaphragm. The scale can then be photographed with the specimen, which is frequently desirable.

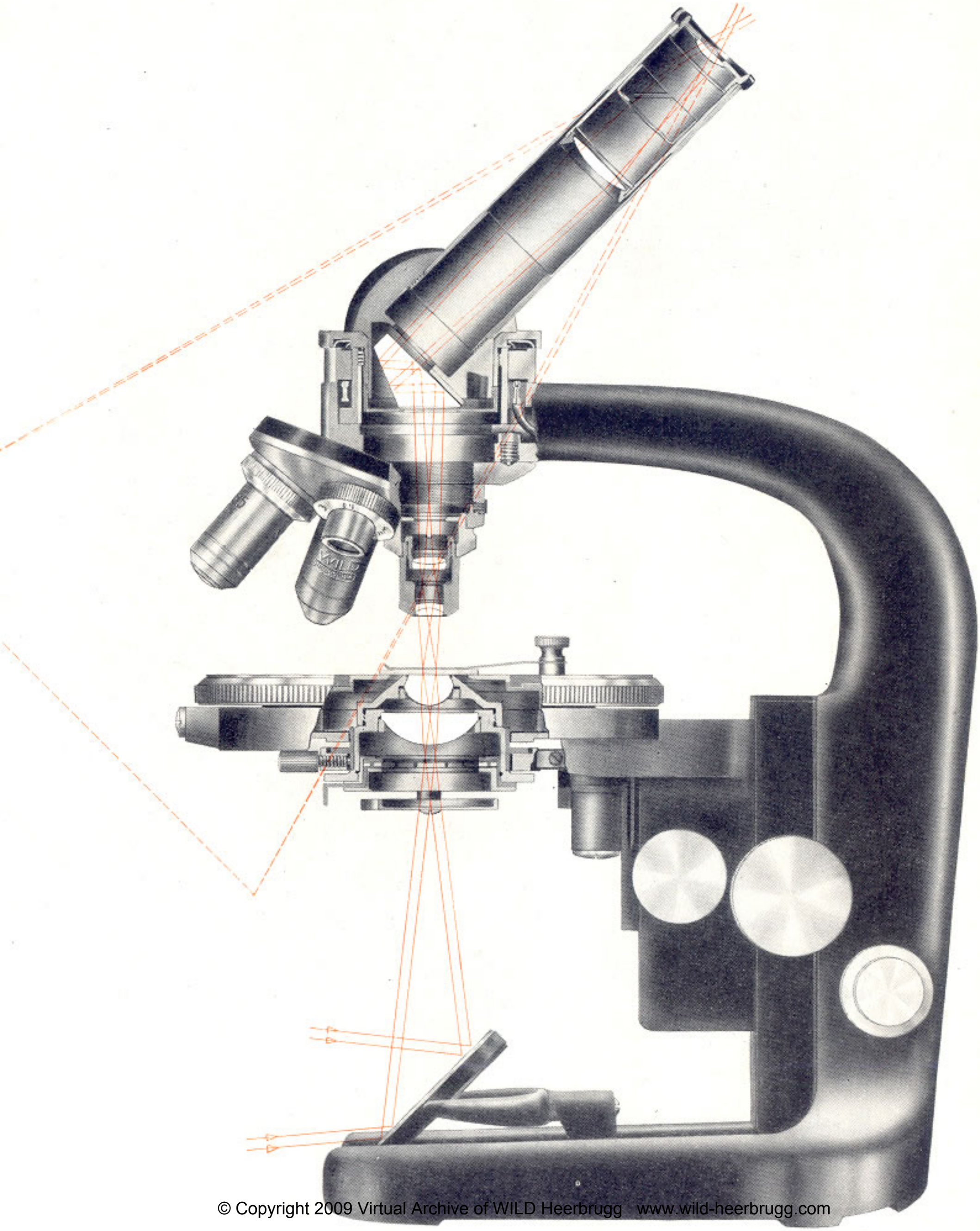
Compensating eyepieces have the effect of compensating for, or removing, the so-called chromatic difference of magnification of the objective, by a corresponding chromatic difference of magnification of the opposite kind, purposely given to the eyepiece when designing it. They are recommended for visual work with the higher powered achromatic objectives, especially the oil immersion lenses, as well as with the fluorite series. For use with the lower powered achromatic objectives up to and including the achromatic 20 N.A. 0.45, the Huygens or orthoplanatic eyepieces are preferable.

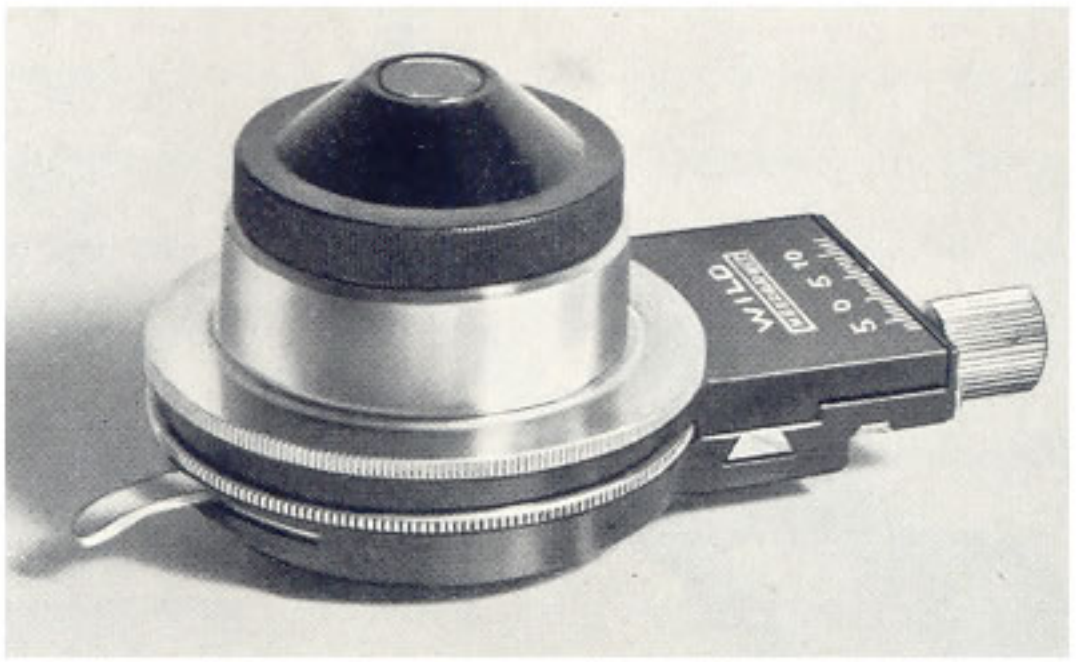
As our objectives are engraved with their initial magnification, and the eyepieces with their factorial magnification, the total magnification given by the optical equipment of the WILD *Microscope can be readily obtained by simple multiplication of these two values.*

Wild Condensers

We make two condensers for our microscopes; these are a simple double-lens condenser with the numerical aperture 1.20, and an achro-aplanatic condenser with the numerical aperture 1.30. With both, the front lens may be unscrewed, allowing the remaining lens system to be used as a condenser of longer focal length and lower numerical aperture.

The effective aperture of WILD condensers can be reduced as required by an iris diaphragm. This iris diaphragm is either permanently fitted to the condenser, or is fitted in a special carrier which allows it to rotate and to be decentred from the optical axis (for oblique lighting). While condensers





Double-lens condenser N.A. 1.20, with laterally displaceable and rotating iris diaphragm and swing-out filter holder, Key number 341

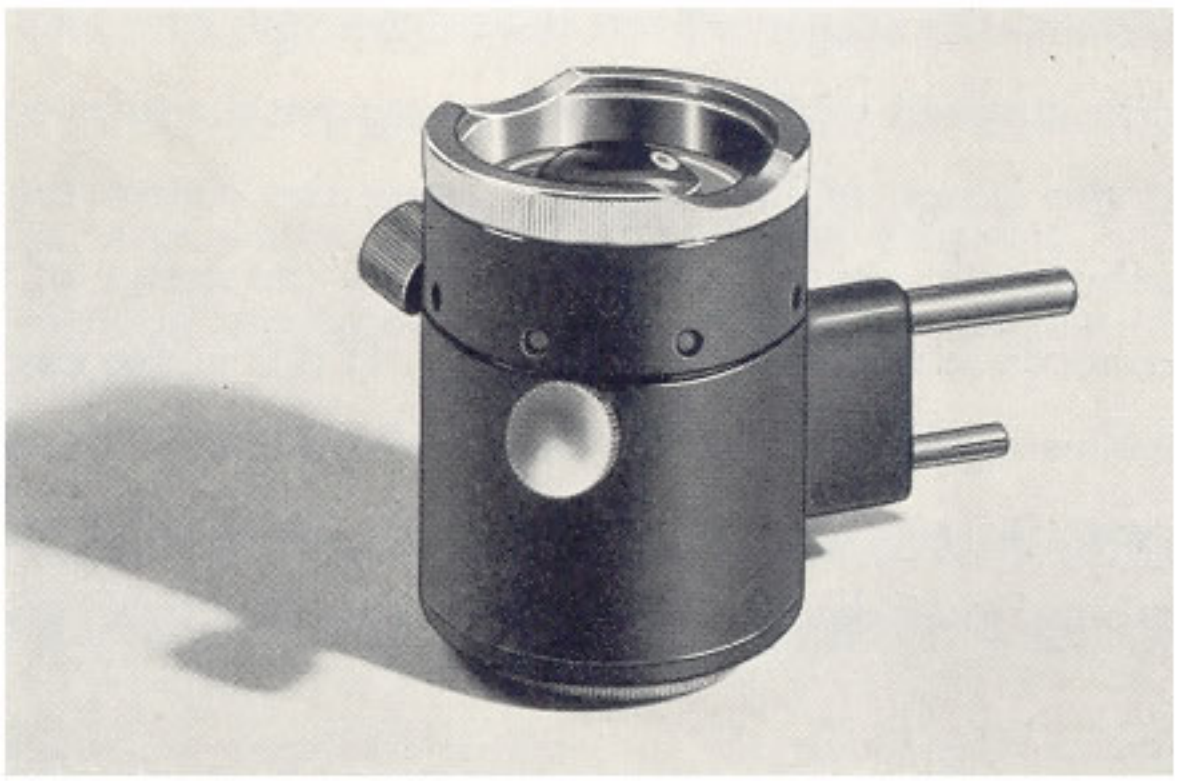
with fixed iris diaphragms are generally preferable for laboratory and medical microscopes, research microscopes are usually fitted with condensers having rotating and laterally displaceable iris diaphragms.

The double-lens condenser N.A. 1.20 is sufficient for almost all routine microscopy; it should be selected if the microscope is equipped with achromatic objectives and if daylight or the WILD Plug-in Lamp is to be used as a light-source. The achro-aplanatic condenser is particularly recommended for photomicrography, and is essential for photomicrography in natural colour. In the latter work, not only must the Köhler principle of illumination be strictly adhered to, but also the aperture of the cone of illumination must be matched with great care to the objective aperture.

The Wild Plug-in Lamp

Although daylight is frequently used as a light source, it is not very suitable for microscopy, owing to its changing intensity. Also the colour of microscope preparations does not always appear the same with daylight, depending as it does on whether the sky used for illumination is clear, cloudy, or completely overcast, and whether it is a morning, midday, or evening sky. In addition, the various seasons bring changes in the lighting conditions. The northern sky is the most suitable, and therefore a microscope used with daylight illumination should be set up in a room with the window facing north. Under no circumstances should direct sunlight be used.

A very much better and more even illumination is obtained by using an artificial light source, such as a low-voltage electric lamp. We have taken this into particular consideration in the design of our microscopes.



The new WILD Plug-in Lamp for visual observations can be exchanged against the illuminating mirror on stands M 10 and M 9. It is equipped with two screws for the centering of the aspherical collector lens, special 6 V bulb, opal glass filter, connecting cable with 2 plugs. Key number 344

The WILD *Plug-in Lamp* is primarily a microscope lamp for visual work. In using it, no wiring whatsoever is necessary because the actual plug and lamp-holder are combined. It can be plugged in, in place of the microscope mirror, on Stands M 10 and M 9 and thus remains securely fixed to the microscope. The light source is a low-voltage 6 volt bulb with bayonet-socket which can be connected to any alternating current supply through a transformer. In the WILD Plug-in Lamp the filament of the low-voltage bulb is situated approximately at the focus of a centering, aspherical condensing lens. The light from the latter thus falls as a nearly parallel bundle of rays on to the microscope condenser, which with correct focussing projects a reduced image of the filament into the plane of the specimen. After placing a blue glass filter with one side ground, or a thin milk glass disc in the filter-holder of the condensing lens mount, the field of view of the microscope is evenly illuminated. To reduce the intensity of the illumination, a neutral glass (grey) filter can be placed in position, and is supplied on request.

When using the WILD Plug-in Lamp with the various objectives, the following method should be adopted:

With no ground glass filter in place in the filter-holder of condensing lens, remove the eyepiece from the microscope tube, hold the blue ground glass disc supplied with each microscope over the tube opening and project on to it the image of the filament, using the coarse focussing adjustment, and achromatic objective 3 or 7. Usually the image of the filament will not be concentric with the tube opening. If this is the case, adjust by appropriate centering of the aspherical condensing lens of the Plug-in Lamp, using the centering screws provided, until the image of the filament is centered. The ground glass disc is then removed from the tube, and the eyepiece replaced.

The Individual Models

Our microscope stands, objectives, eyepieces and accessories are engraved with the registered trade-mark

WILD
HEERBRUGG

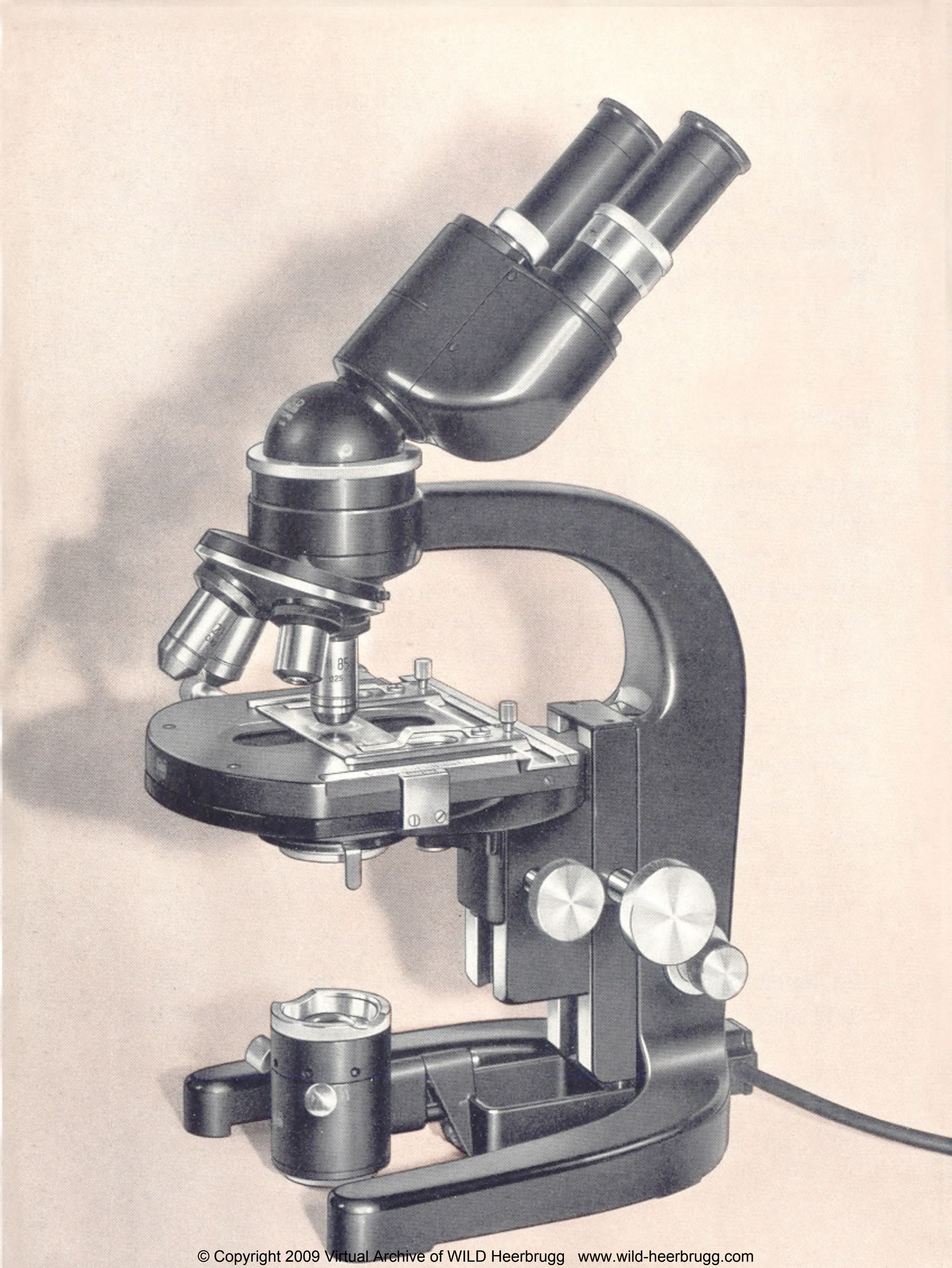
and are thus identified as high-grade products of our Company. Stands, mechanical stages, objectives, binocular tubes, etc., are also engraved with a factory serial number. In addition, objectives bear details of initial magnification, numerical aperture, and cover-glass thickness for which they are corrected whenever this has significance. The factorial magnification (power) of the eyepieces is shown on the eye-lens mount, and orthoplanatic eyepieces are identified by the additional lettering «Opl», Photo-eyepieces by «Photo» and Compensating eyepieces by «K». In this catalogue the microscope stands are designated according to the type of illuminating apparatus and stage, so that the first symbol indicates the stand model, the second one the illuminating apparatus, followed by the symbol for the stage. Designation

M 10 BK

for example, indicates the large stand M 10, equipped with focussing sub-stage B and large, non-rotating mechanical stage K. Similarly, designation

M 9 ARd

signifies the laboratory stand M 9 with illuminating apparatus A (fixed sleeve mount for the condenser) and round, rotating and centering stage Rd.



Research and Routine Microscope for Medical Purposes

Stand M 10 BK

	Key Number
Modern design, with low-placed coarse and fine adjustments (drum graduation: 1 division equals 0.002 mm). With rack and pinion focussing substage B with swing-out condenser carrier. Built-in electrical connections for transmitted and incident light, blue ground glass filter, mirror	
Large, non-rotating mechanical stage K with two adjustable slide holders, movement 50 × 75 mm, with scales and verniers	
In case with lock and key	1
Quadruple revolving nosepiece on slide	306
Double lens condenser N.A. 1.20, with fixed iris diaphragm and swing-out filter holder	342
	2
Stand M 10 BK, as key No. 2, with **binocular** inclined tube, factor 1.5, in case	3
with optical equipment No. 1, magnifications 22.5–892.5×	4
with optical equipment No. 3, magnifications 22.5–1020×	5
with optical equipment No. 5, magnifications 52.5–1020×	6
with optical equipment No. 7, magnifications 90 –1020×	7
Stand M 10 BK, as key No. 2, with **monocular** inclined tube	8
with optical equipment No. 2, magnifications 15–850 ×	9
with optical equipment No. 4, magnifications 21–1020×	10
with optical equipment No. 6, magnifications 49–1020×	11
with optical equipment No. 8, magnifications 60–1020×	12

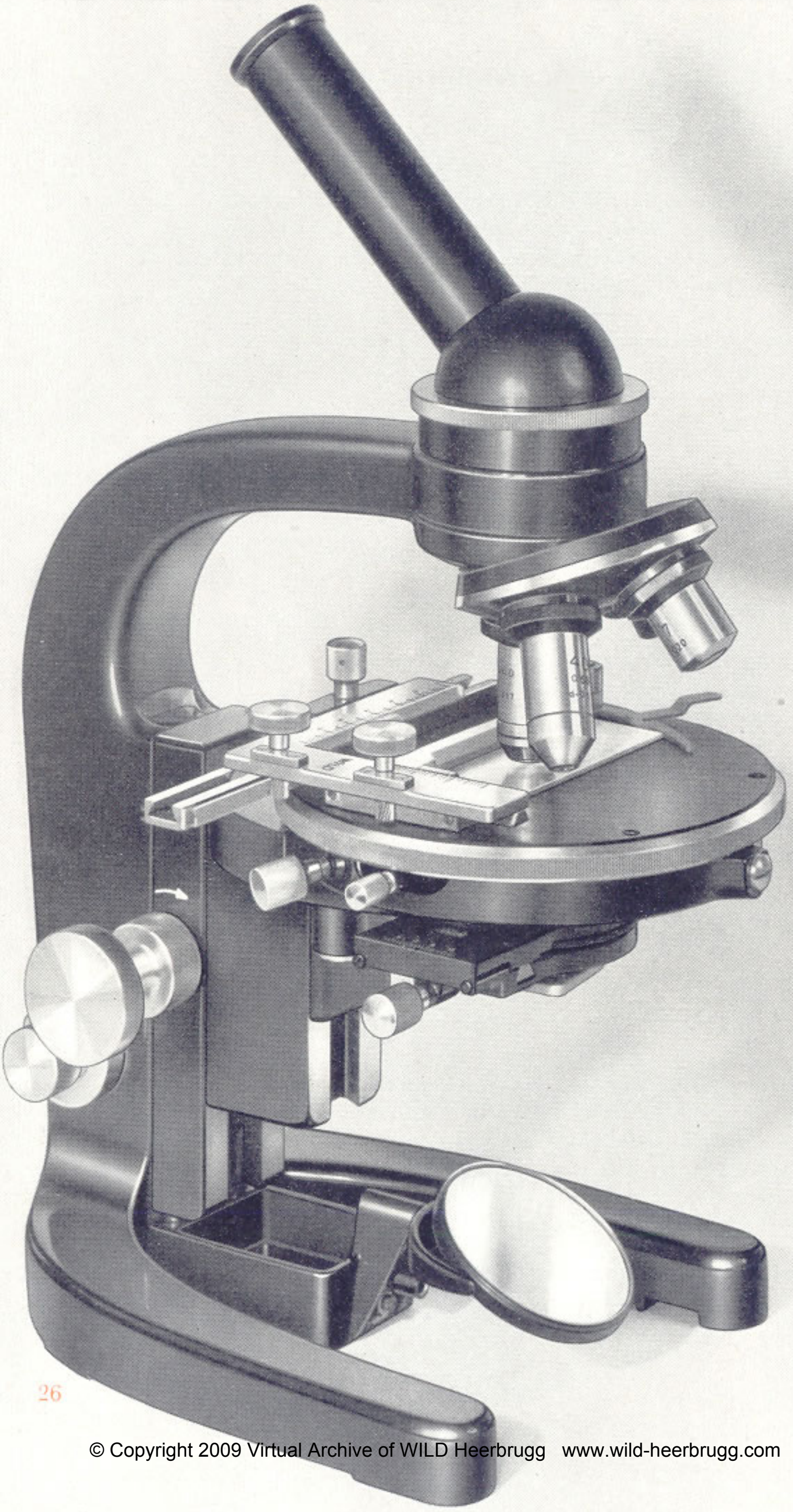
The optical equipments are listed on the folded leaf, pages 46/47, and the component parts on pages 40 and 41.

Recommended Accessories:

Illuminating devices for visual work with bright field, darkfield, and phase-contrast observations:

Plug-in Lamp for visual observations with centering, aspherical condenser lens, special 6 V bulb with bayonet-socket, opal glass filter, connecting cable with 2 special plugs	344
Transformer, 6 V, approx. 10.5 watt, protected from short-circuits, with voltage selector for primary supplies 110, 125, 145, and 220 V, including cable and plug for mains connection	353

Phase-contrast accessories see pages 38 and 39. Leaflet Mi 502e will be gladly supplied on request.



Research and Routine Microscope for Biological and Industrial Purposes

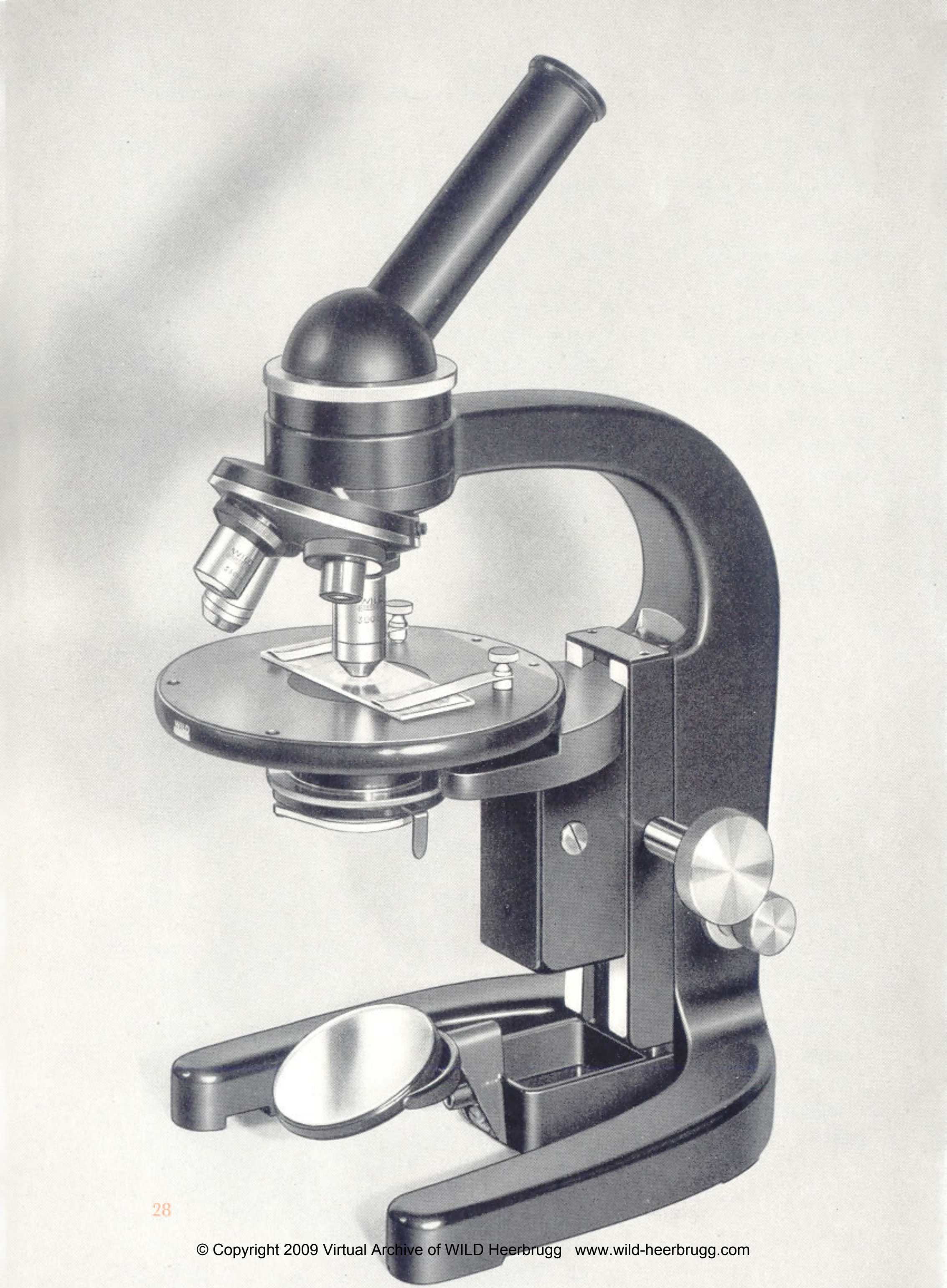
Stand M10 BRd

	Key Number
Modern design, with low-placed coarse and fine adjustments (drum graduation: 1 division equals 0.002 mm). With rack and pinion focussing substage B with swing-out condenser carrier. Built-in electrical connections for transmitted and incident light, blue ground glass filter, mirror	
Rotating and centering round stage Rd with ebonite top plate with clamping screw and two stage clips	
In case with lock and key	13
Quadruple revolving nosepiece on slide	306
Double-lens condenser N.A. 1.20 with laterally displaceable and rotating iris diaphragm and swing-out filter holder	341
	14
Stand M 10 BRd, as key No. 14, with **binocular** inclined tube, factor 1.5, in case	15
with optical equipment No. 1, magnifications 22.5–892.5×	16
with optical equipment No. 5, magnifications 52.5–1020×	17
with optical equipment No. 9, magnifications 52.5–892.5×	18
Stand M 10 BRd, as key No. 14, with **monocular** inclined tube	19
with optical equipment No. 2, magnifications 15–850×	20
with optical equipment No. 6, magnifications 49–1020×	21
with optical equipment No. 10, magnifications 35–850×	22
with optical equipment No. 17, magnifications 21–400×	23

The optical equipments are listed on folded leaf, pages 46/47, and the component parts on pages 40 and 41.

Recommended Accessories:

Attachable Mechanical Stage, range of movement 25×50 mm, with scales and verniers	317
Illuminating device for visual observations (Plug-in Lamp) see page 42.	



Basic Routine Microscope for General Work

Stand M 10 A R

	Key Number
Modern design, with low-placed coarse and fine adjustments (drum graduation: 1 division equals 0.002 mm). Built-in electrical connections for transmitted and incident light, blue ground glass filter, mirror, plain round stage R with ebonite top plate, condenser sleeve and two stage clips	
In case with lock and key	24
Quadruple revolving nosepiece on slide	306
Double-lens condenser N.A. 1.20, with fixed iris diaphragm and swing-out filter holder	342
	25
Stand M 10 AR, as key No. 25, with **monocular** inclined tube	26
with optical equipment No. 16, magnifications 35–400×	27
with optical equipment No. 17, magnifications 21–400×	28
with optical equipment No. 10, magnifications 35–850×	29

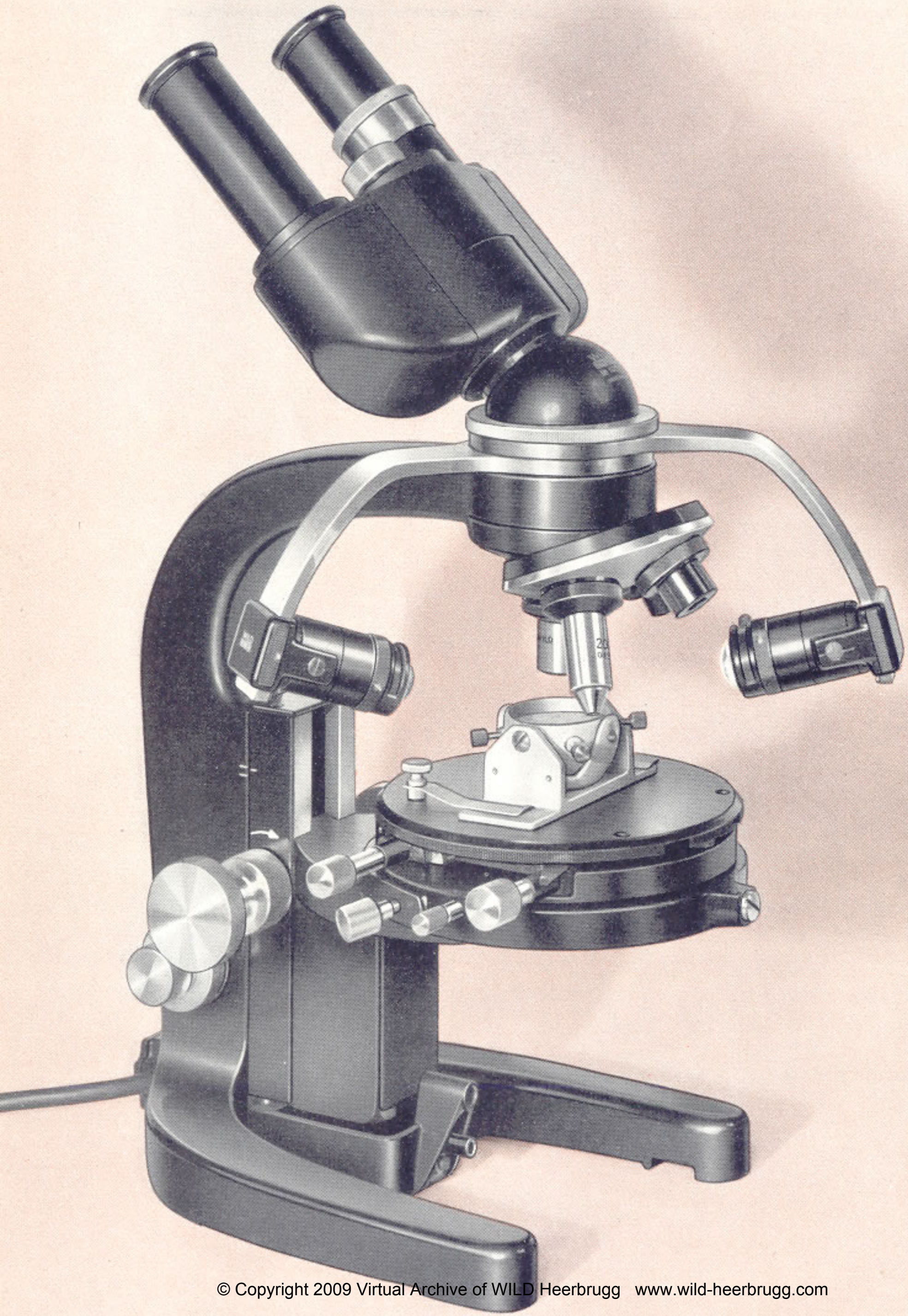
Provision is made on this stand for the later addition of the rack and pinion focussing substage B, if desired. Stages K, Rd or Ka can also be fitted.

The optical equipments are listed on the folded leaf, pages 46/47 and the component parts on pages 40 and 41.

Recommended Accessories:

Attachable Mechanical Stage, range of movement 25×50 mm, with scales and verniers	317

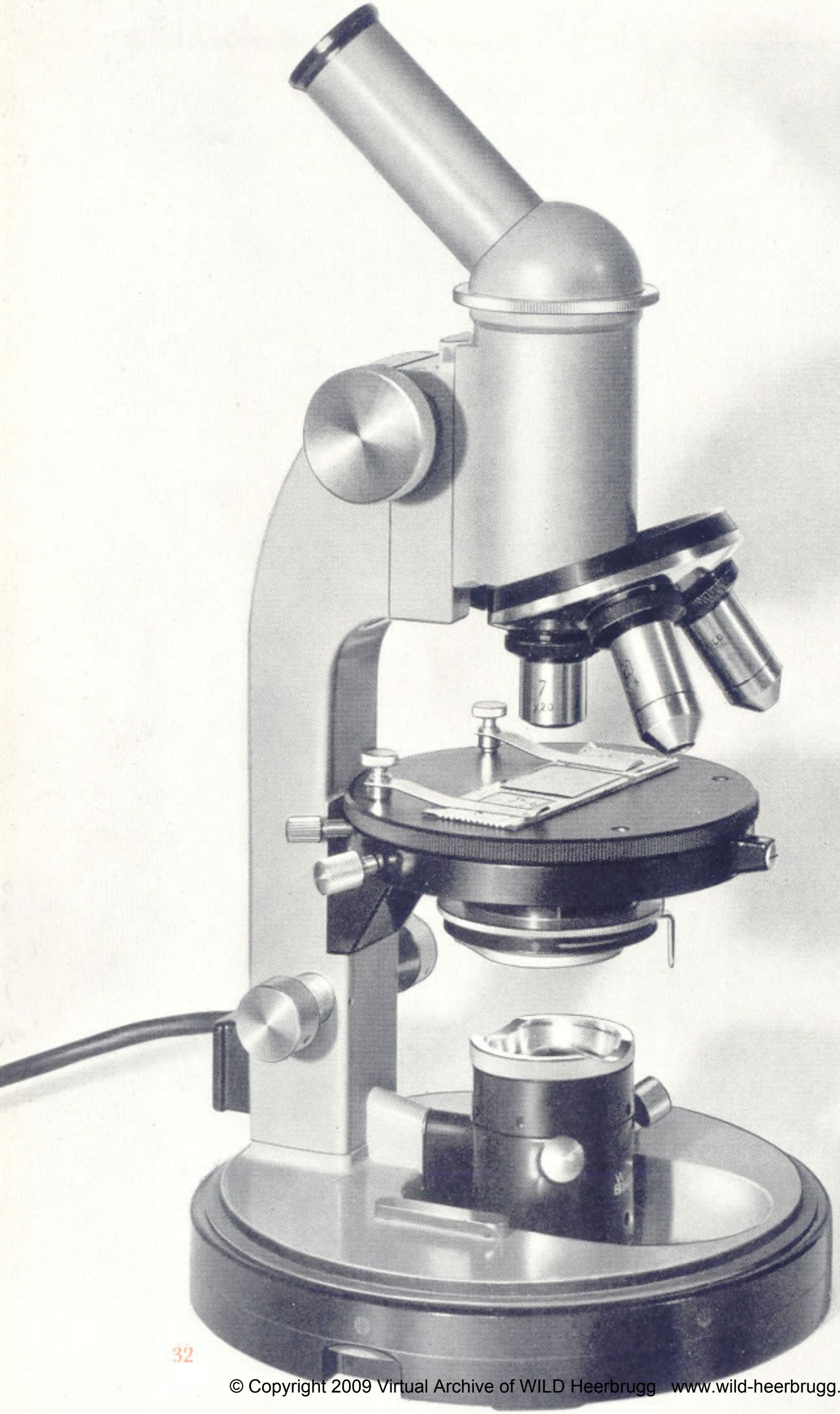
Illuminating devices for visual observations (Plug-in Lamp) see page 42.



Routine Microscope for Incident Light

Stand M 10 AKa

	Key Number
Modern design, withl ow-placed coarse and fine adjustments (drum graduation: 1 division equals 0.002 mm). Built-in electrical connections for transmitted and incident light, blue ground glass filter, mirror, rotating and centering incident light mechanical stage Ka with clamping screw, movement about 37×37 mm, two stage clips	
In case with lock and key	30
Triple revolving nosepiece on slide	305
Double Oblique-light Epi-lamp (upper and lower carrier), with variable angle of incidence, inclining lamp-houses, 2 special 6 V bulbs frosted in centering sockets, 2 single component condensing lenses, 2 blue filters, 2 circular masking plates. Including connecting cable with 2 special plugs and case	360
(The lower carrier can be used alone. Transformer see page 42.)	31
Stand M 10 AKa, as key No. 31, with **binocular** inclined tube, factor 1.5, in case	32
with optical equipment No. 13, magnifications 22.5–300×	33
Stand M 10 AKa, as Key No. 31, with **monocular** inclined tube	34
with optical equipment No. 14, magnifications 15–200×	35
Provision is made on this stand for the later addition of the rack and pinion focussing substage B, if desired. Stages K, Rd, and R can also be fitted.	
Recommended Accessories:	
For observations in transmitted light:	
Rotating and centering, round stage Rd with ebonite top plate, clamping screw, condenser sleeve and two stage clips	311
Double-lens condenser N.A. 1.20, with fixed iris diaphragm and swingout filter holder	342
Universally inclinable **Opaque Object Holder** for objects up to about 20 mm diameter, with one set each of long and short object holding screws and two cork insets, in case	320
Accessories for Oblique-light Epi-lamp:	
2 triple-lens condensers, aspherical, for small but intense light field, for use with medium and high power Epi objectives (these condensers screw on to the Epi-lamps)	364
2 green filters in mounts	366
2 heat absorbing filters in mounts	368



Laboratory Microscope for Chemical and General Scientific Investigations

Stand M 9 ARd

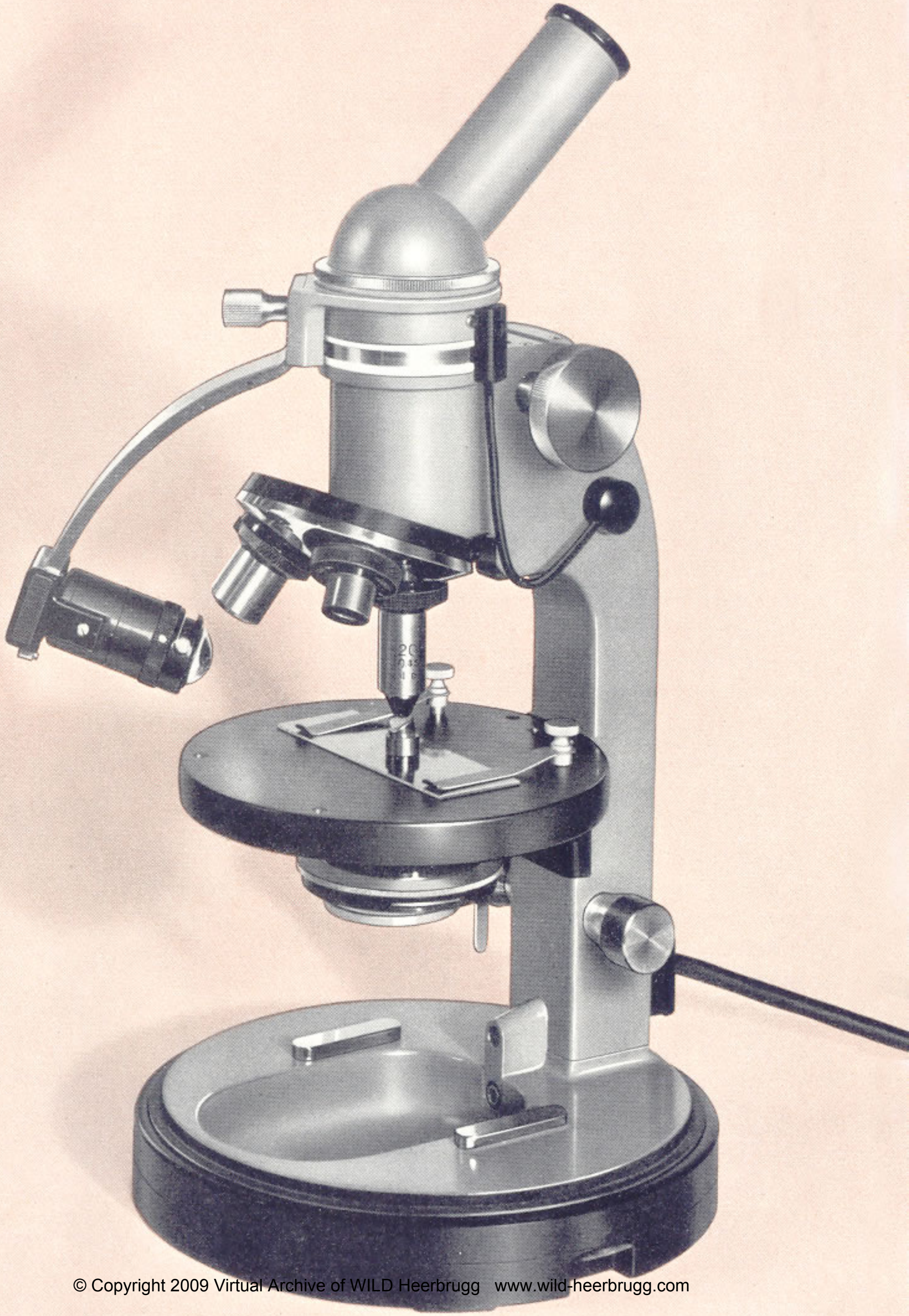
	Key Number
Modern design, with coarse adjustment and low-placed fine adjustment (drum graduation: 1 division equals 0.004 mm). Built-in electrical connections for transmitted and incident light. **Monocular inclined tube.** With blue ground glass filter and mirror	
Rotating and centering round stage Rd with clamping screw, condenser sleeve and two stage clips	
With objective and eyepiece holder and steel hood with leather carrying strap	36
Triple revolving nosepiece	503
Double lens condenser N.A. 1.20, with fixed iris diaphragm and swing-out filter holder	342
Stand M 9 ARd without optical equipment	37
with optical equipment No. 15, magnifications 15–200×	38
with optical equipment No. 16, magnifications 35–400×	39
with optical equipment No. 17, magnifications 21–400×	40
with optical equipment No. 10, magnifications 35–850×	41

The optical equipments are listed on folded leaf, pages 46/47 and the component parts on pages 40 and 41.

Recommended Accessories:

Plug-in Lamp for visual observations, with centering aspherical condensing lens, special 6 V bulb with bayonet-socket, opal glass filter, connecting cable with 2 special plugs	344
Transformer 6 V, approx. 10.5 watt, protected against short-circuits, with selector for primary supplies 110, 125, 145, and 220 V, including cable and plug for mains connection	353
Attachable Mechanical Stage, range of movement 25×50 mm, with scales and verniers	508

Illuminating device for incident light (Oblique-light Epi-lamp) see page 43



Student's, Laboratory and Portable Microscope

Stand M 9 AR

	Key Number
Modern design, with coarse adjustment and low placed fine adjustment (drum graduation: 1 division equals 0.004 mm). Built-in electrical connections for transmitted and incident light. **Monocular inclined tube,** with blue ground glass filter and mirror.	
Round fixed stage R with condenser sleeve and two stage clips.	
With objective and eyepiece holder and steel hood with carrying strap	42
Triple revolving nosepiece	503
Double-lens condenser N.A. 1.20 with fixed iris diaphragm and swing-out filter holder	342
Stand M 9 AR without optical equipment	43
with optical equipment No. 15, magnifications 15–200×	44
with optical equipment No. 16, magnifications 35–400×	45
with optical equipment No. 17, magnifications 21–400×	46
with optical equipment No. 10, magnifications 35–850×	47
The optical equipments are listed on folded leaf, pages 46/47 and the component parts on pages 40 and 41.	
Recommended Accessories:	
Attachable Mechanical Stage, range of movement 25×50 mm, with scales and verniers	508
Illuminating device for incident light:	
Oblique-light Epi-Lamp, special model for the M 9, with variable angle of incidence, inclining lamphouse, special 6 V bulb in centering socket, single component condensing lens, blue filter, circular masking plate. Including connecting cable with 2 special plugs and case	530
Triple-lens aspherical condenser for small but intense light field, for use with medium and high power Epi objectives (screws on to the Epi-lamp	363
Green filter in mount	365
Heat-absorbing filter in mount	367
Transformer 6 V, approx. 10.5 watt, protected against short-circuits, with selector for primary supplies 110, 125, 145, and 220 V, including cable and plug for mains connection	353
Illuminating device for visual observations (Plug-in Lamp) see page 42.	

Microscope for School and Amateur Purposes

Stand M 9 OR

Modern design, with coarse adjustment, **without** fine adjustment and without built-in electrical connections. **Monocular inclined tube,** blue ground glass filter, mirror

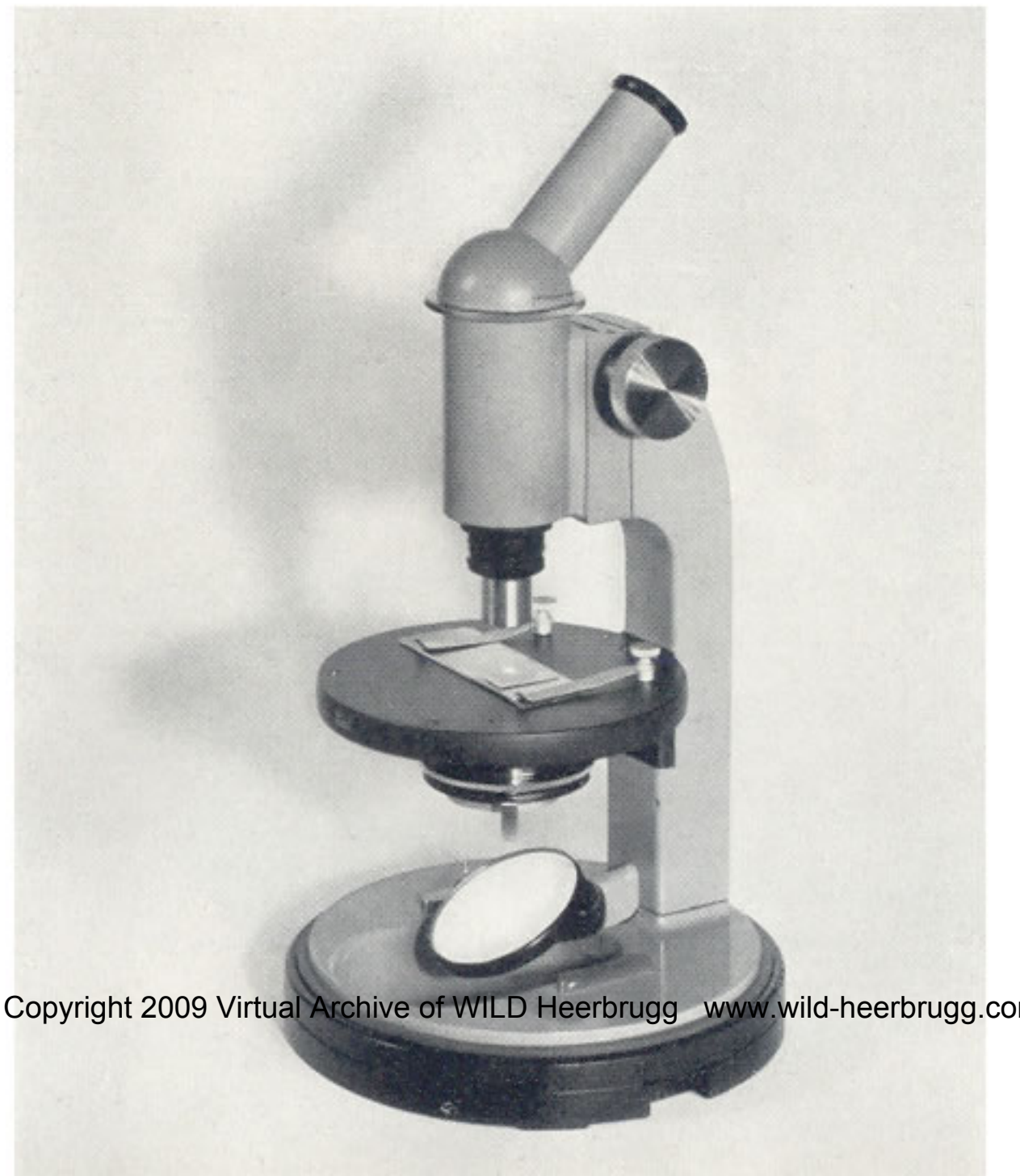
Fixed round stage R with condenser sleeve and two stage clips with objective and eyepiece holder and steel hood with leather carrying strap	48
Intermediate tube for the objective	505
Single lens condenser N.A. 0.66, with fixed iris diaphragm and swing-out filter holder*	520
Stand M9 OR without optical equipment	49
with optical equipment No. 15, magnifications 15–200×	50
with optical equipment No. 16, magnifications 35–400×	51
with optical equipment No. 17, magnifications 21–400×	52

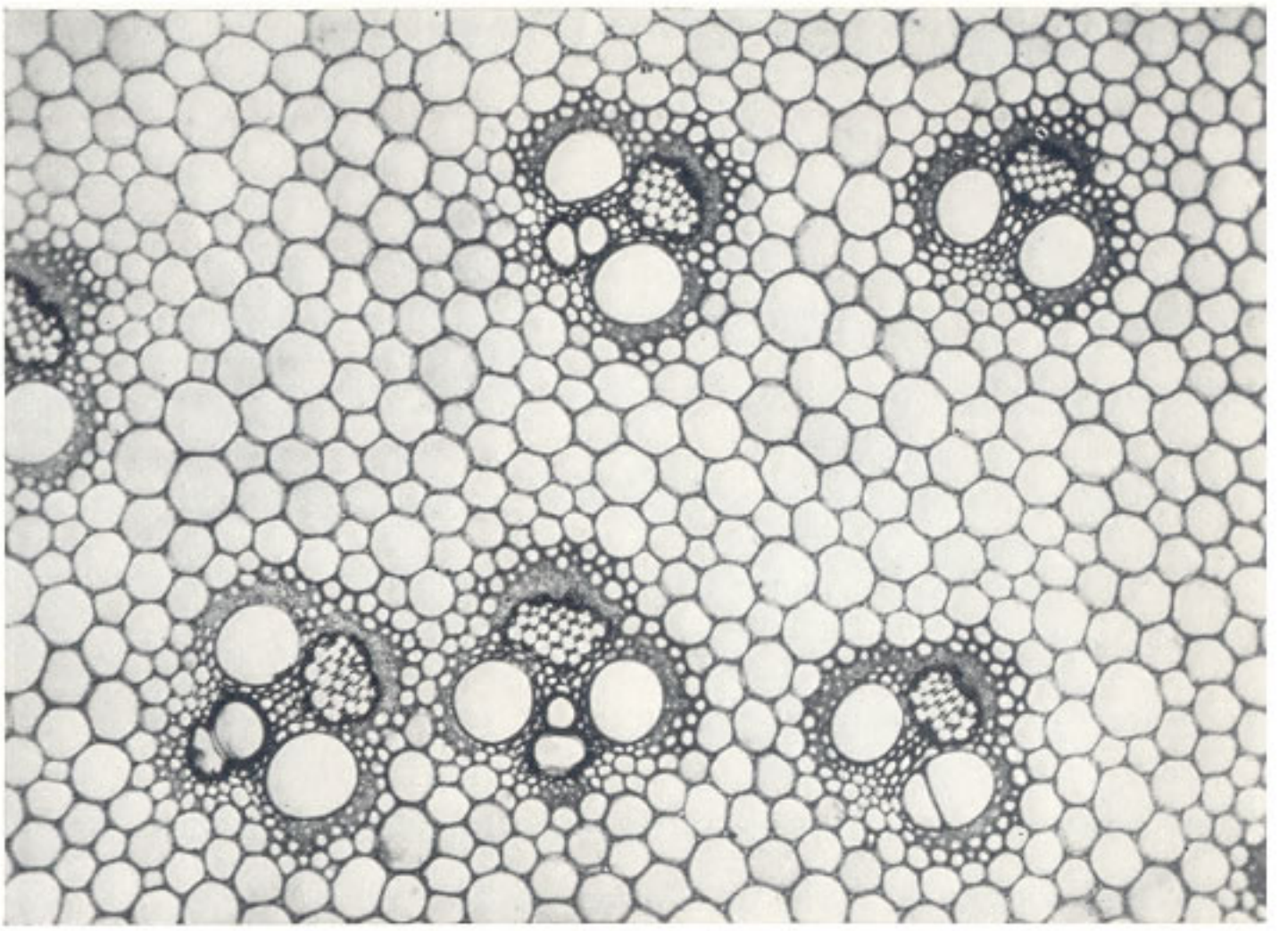
* If optical equipment No. 15 is selected, this condenser is not necessary. In its place we recommend:

Attachment for condenser sleeve with three diaphragm stops	521

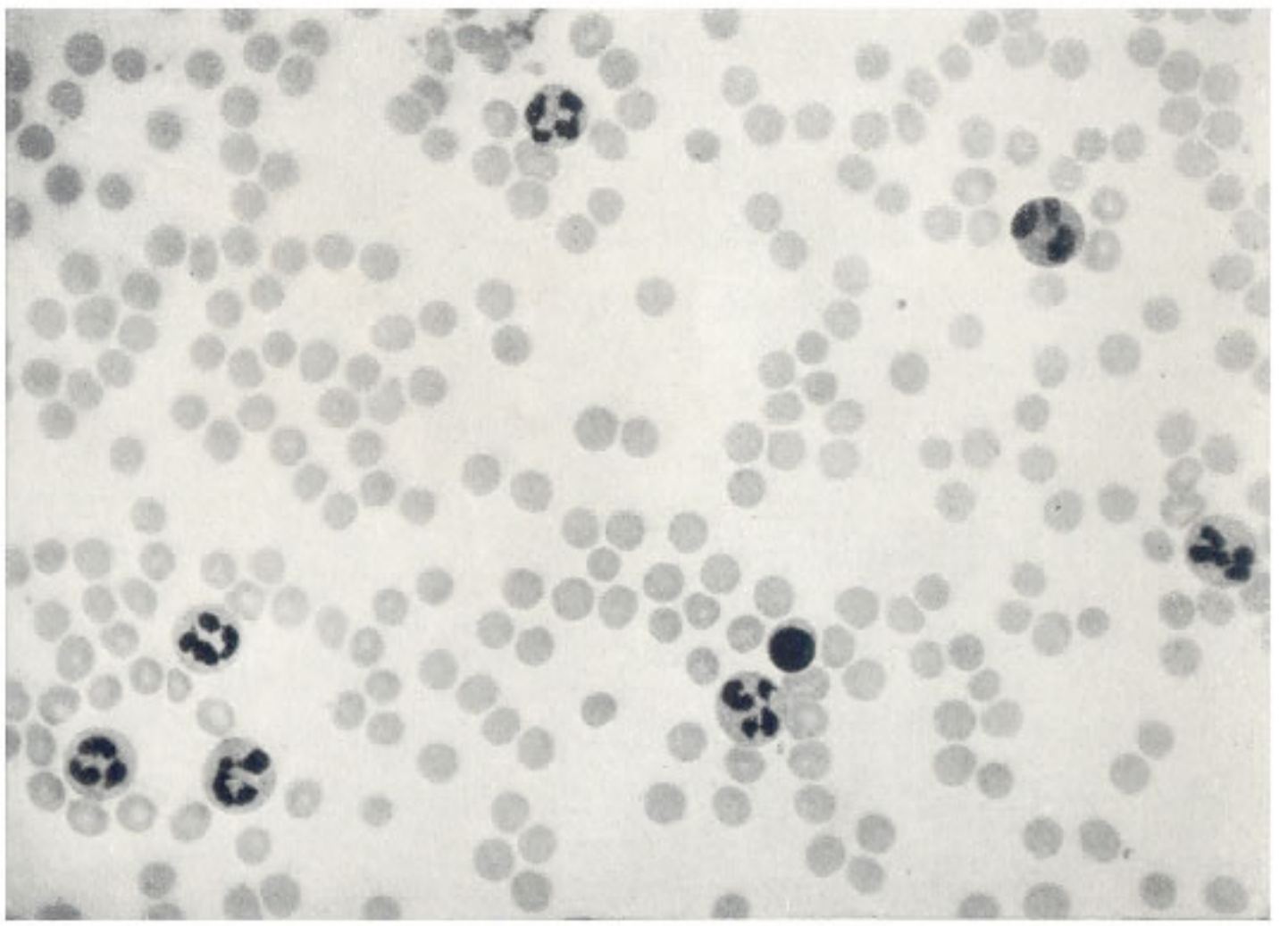
Stand M 9 OR can be fitted with a triple revolving nosepiece if desired.

The optical equipments are listed on folded leaf, pages 46/47, and the component parts on pages 40 and 41.





Arundo donax. Section through stalk. Stain: Hämatoxylin-Safranin Objective: WILD achromatic 7 N.A. 0.20 .60×.



Blood film (human). Stain: Pappenheim's combined May-Gruenwald Giemsa. Objective: WILD achromatic 40 N.A. 0.66, 380×.

Wild Phase-contrast Equipment

Phase-contrast is the term for a new method in microscopy which permits unstained preparations to be made visible with excellent contrasts.

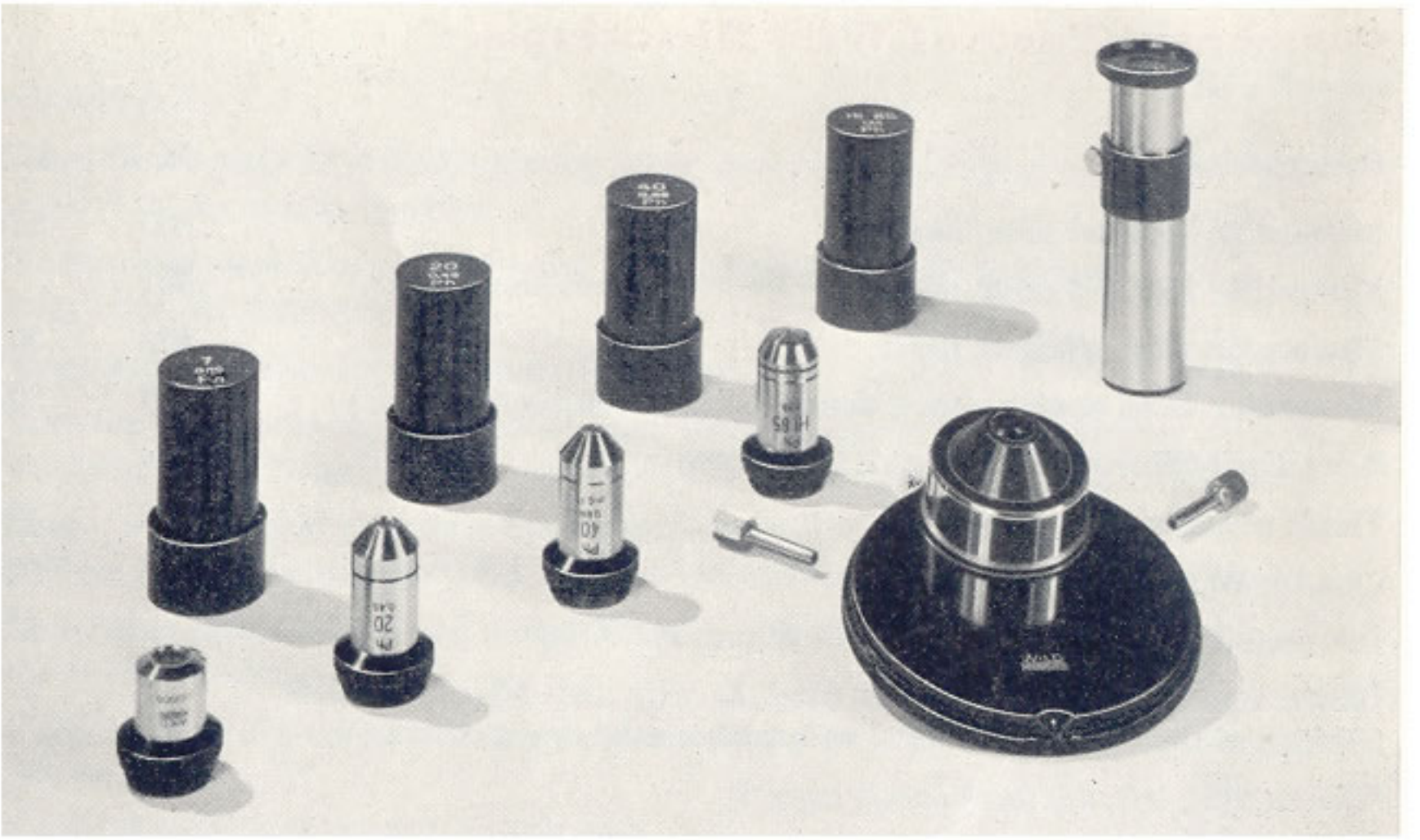
With the *phase-contrast* method, living and other microscope preparations such as cells, bacteria, fungus mycelia, textile fibres, fine crystals, etc., can be observed in their natural state. It is not necessary to fix, stain, or impregnate with fluorescent substances, etc.

The new method is especially suitable for photomicrography and cinephotomicrography. It is an indispensible aid in biological research.

Wild Phase-contrast Equipment, consisting of	Key Number
Phase-condenser N.A. 0.9	
with four individually centering diaphragm stops in revolving disc, including built-in iris diaphragm with swing-out filter holder for filters 33 mm in diameter, and	
Auxiliary microscope with focussing eye-lens, to fit eyepiece tube	400
Phase-contrast achromatic objectives:	
PH 7 N.A. 0.20	401
PH 20 N.A. 0.45	402
PH 40 N.A. 0.66	403
PH 85 N.A. 1.25 oil immersion	404
Complete outfit, in case	405

WILD Microscope Stands M 10 BK with equipment No. 8 and 3, and M 10 BRd with equipments 19 and 15 are particularly suitable for investigations with the WILD Phase-contrast Equipment.

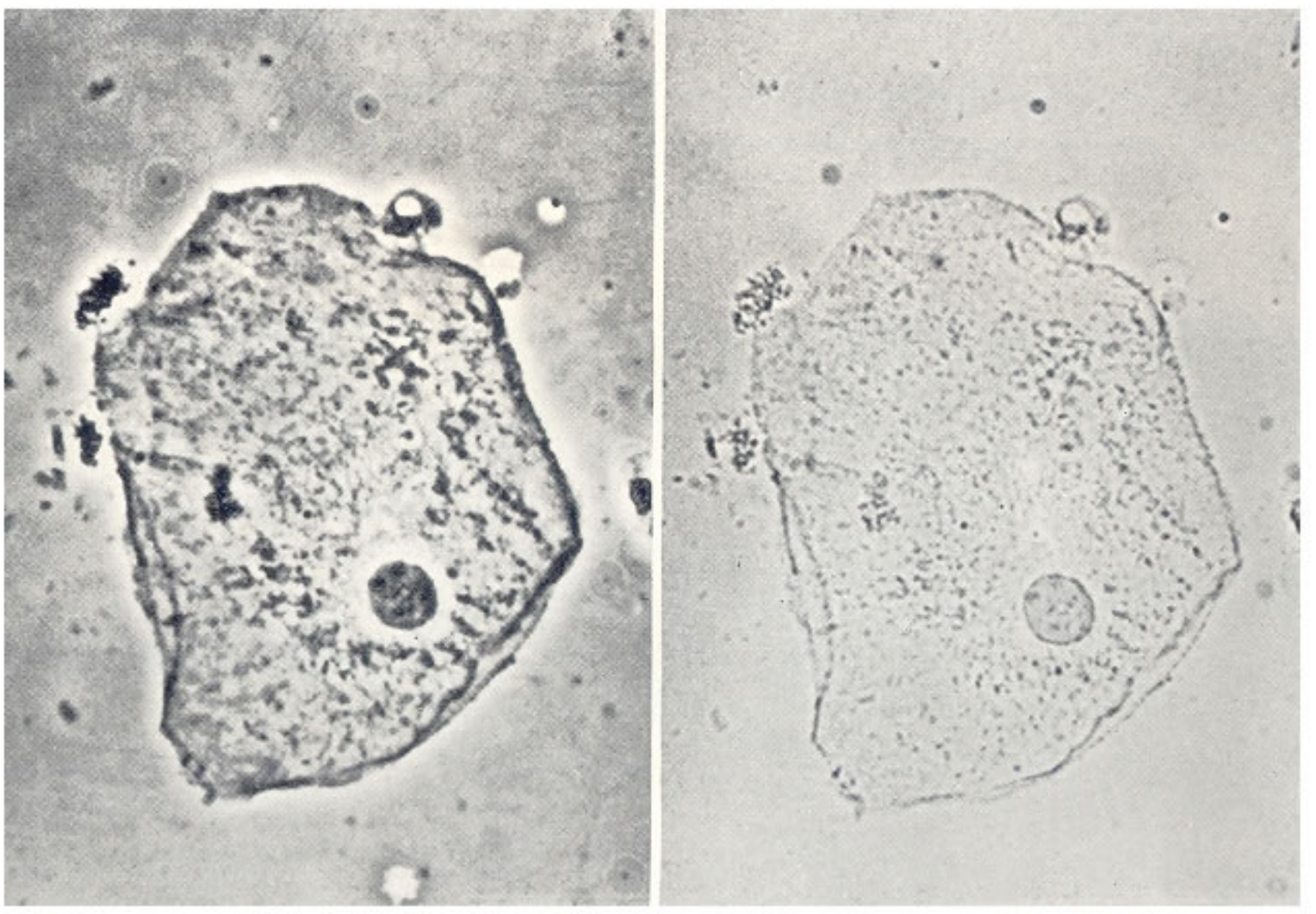
Detailed description in leaflet Mi 502 e, which we will be pleased to send to all who are interested.



WILD *Phase-contrast Equipment*. Complete outfit.

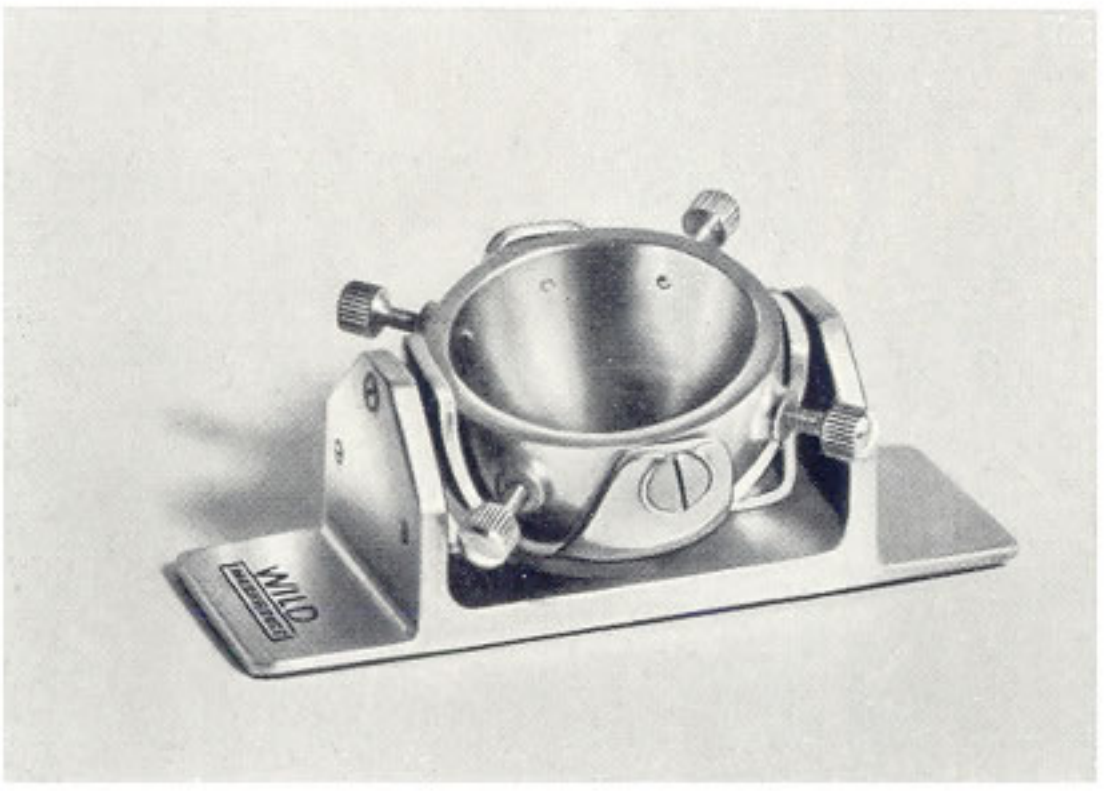
Epithelial cells from the mucous membrane of the mouth, in saliva.

Phase-contrast *Bright field*



Component Parts of Wild Microscopes

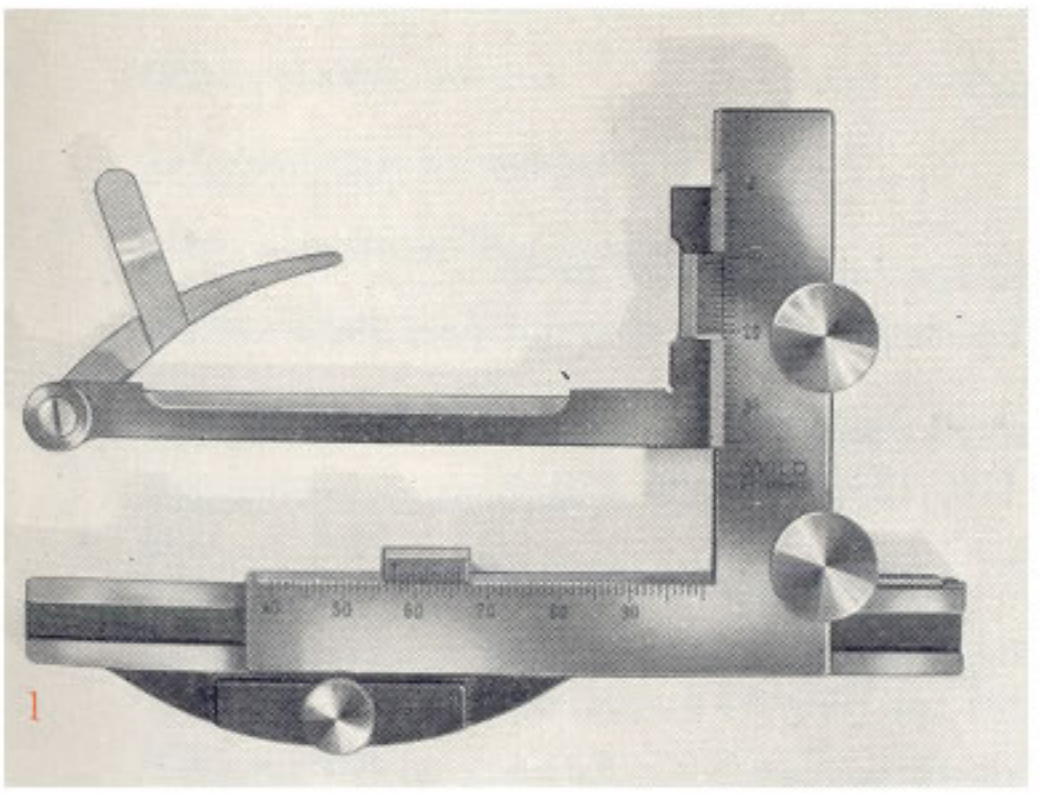
Description	Key Number M 10	Key Number M 9
Monocular inclined tube, fixed	300	500
Monocular inclined tube, with drawtube (with millimetre scale)	301	
Monocular tube, straight, fixed	302	501
Monocular tube, straight, with drawtube (with millimetre scale)	303	502
Binocular inclined tube, factor 1.5, in case	304	
Triple revolving nosepiece	305	503
Quadruple revolving nosepiece	306	504
Intermediate tube for objective (for Stand M 9 OR)		505
Large, non-rotating mechanical stage K with two adjustable slide holders, movement 50×75 mm, with scales and verniers	307	
Slide holder, left, for mechanical stage K	308	
Slide holder, right, for mechanical stage K	309	
Stage aperture stop, full, for mechanical stage K	310	
Rotating and centering round stage Rd with ebonite top plate, clamping screw, condenser sleeve and two stage clips, for stand M 10 A	311	
Rotating and centering round stage Rd with ebonite top plate, clamping screw and two stage clips, but without condenser sleeve, for stand M 10 B	312	
Rotating and centering round stage Rd with clamping screw condenser sleeve and two stage clips, for stand M 9		506



Left: New universally inclinable Opaque Object Holder for objects up to about 20 mm diameter, with one set each of long and short object holding screws and two cork insets, in case Key number 320

Right: Attachable mechanical stage, range of movement 25×50 mm, with scales and verniers.
1 for M 10 Key number 317
2 for M 9 Key number 508

	Key Number M 10	Key Number M 9
Fixed round stage R with ebonite top plate, condenser sleeve and two stage clips, for stands M 10 A	313	
Fixed round stage R with ebonite top plate, condenser sleeve and two stage clips, for stands M 9		507
Stage aperture stop, full, for stages R and Rd	314	314
Rotating and centering mechanical stage Ka for incident light, with clamping screw, range of movement about 37 × 37 mm, two stage clips	315	
Large, rotating and centering mechanical stage Kd, with two slide holders, range of movement 30 × 50 mm, with scales and verniers	316	
Attachable mechanical stage, range of movement 25 × 50 mm, with scales and verniers	317	508
1 pair of stage clips, standard length 45 mm (supplied with stages R, Rd, and Ka)	318	318
1 pair of stage clips, extra long (57 mm)	319	319
Universally inclinable Opaque Object Holder for objects up to about 20 mm diameter, with one set each of long and short object holding screws and two cork insets, in case	320	320
Test plate, with sector stop, in case	321	321
Stage Micrometer, graduation 5 mm in ½ mm, 2 mm in $^1/_{10}$ mm, 0.2 mm in $^1/_{100}$ mm, in case	322	322
Bottle of cedarwood oil, small (supplied with each oil immersion)	323	
Double bottle for oil and xylol, special type for M 9		509



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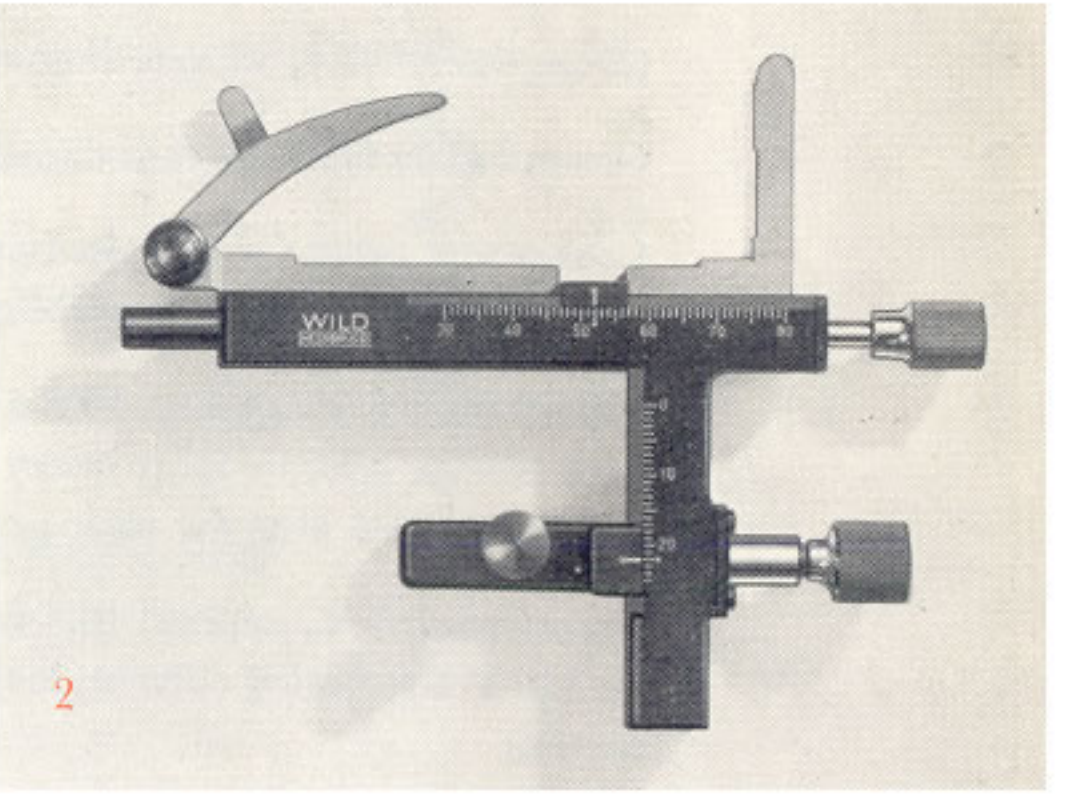


2

Illuminating Apparatus

For transmitted light	Key Number M 10	M 9
Illuminating mirror	340	340
Double-lens condenser N.A. 1.20, with laterally displaceable and rotating iris diaphragm and swing-out filter holder	341	
Double-lens condenser N.A. 1.20, with fixed iris diaphragm and swing-out filter holder	342	342
Single-lens condenser N.A. 0.66, with fixed iris diaphragm and swing-out filter holder		520
Attachment for condenser sleeve with 3 diaphragm stops		521
Achro-aplanatic condenser N.A. 1.30	343	
Plug-in Lamp for visual observations with centering aspherical condensing lens, special 6 V bulb, opal glass filter, connecting cable with 2 special plugs	344	344
Special 6 V bulb with bayonet-socket	345	345
Special 6 V bulb, frosted, with bayonet-sokcet	346	346
Opal glass filter, 33 mm diameter	347	347
Neutral glass filter, 33 mm diameter	348	348
Green filter VG 4, 33 mm diameter, thickness 2 mm	349	349
Green filter VG 4, 33 mm diameter, thickness 4 mm	350	350
Ground glass filter, 33 mm diameter	351	351
Connecting cable for Plug-in Lamp, with 2 special plugs (the same cable can be used with the Oblique-light Epi-lamp)	352	352
Transformer 6 V, approx. 10.5 watt, protected against short-circuits, with voltage selector for primary supplies 110, 125, 145, and 220 V with cable and plug for mains connection	353	353
Transformer 6 V, approx. 10.5 watt, protected against short-circuits, for 220 V alternating current, including cable and plug for mains connection	354	354

For Incident Light	Key Number M 10	M 9
Oblique-light Epi-lamp, double (upper and lower carriers), with variable angle of incidence, inclining lamphouses, 2 special bulbs 6 V, frosted, in centering socket, 2 single component condensing lenses, 2 blue filters, 2 circular masking plates. Including connecting cable with 2 special plugs and case. (The lower carrier can be used alone.)	360	
Oblique-light Epi-lamp, simplified, (lower carrier), with variable angle of incidence, inclining lamphouse, special 6 V bulb, frosted, in centering socket, single condensing lens, blue filter, circular masking plate. Including connecting cable with 2 special plugs and case. (The same case as for the double Epi-lamp.)	361	
Oblique-light Epi-lamp, upper carrier, with variable angle of incidence, inclining lamphouse, special 6 V bulb, frosted, in centering socket, single condensing lens, blue filter, circular masking plate. Without connecting cable and case. (This carrier can be added to the lower carrier at any time without special fitting. *It cannot be used alone.*)	362	
Oblique-light Epi-lamp, special model for the M 9, with variable angle of incidence, inclining lamphouse, special 6 V bulb, frosted, in centering socket, single lens condenser, blue filter, circular masking plate. Including connecting cable with 2 special plugs and case		530
Recommended accessories for the Oblique-light Epi-lamp:		
Condensing lens, triple component	363	363
2 Condensing lenses, triple component, for double lamp	364	
Green filter, in mount	365	365
2 Green filters in mounts	366	
Heat-absorbing filter in mount	367	367
2 Heat-absorbing filters in mounts	368	
Blue filter in mount	369	369
2 Blue filters in mounts	370	
Connecting cable with 2 special plugs (same cable as for Plug-in lamp)	352	352
Special 6 V bulb, frosted, in centering socket	355	355

Transformer see page 42, key numbers 353 and 354.

Wild Optical Equipments

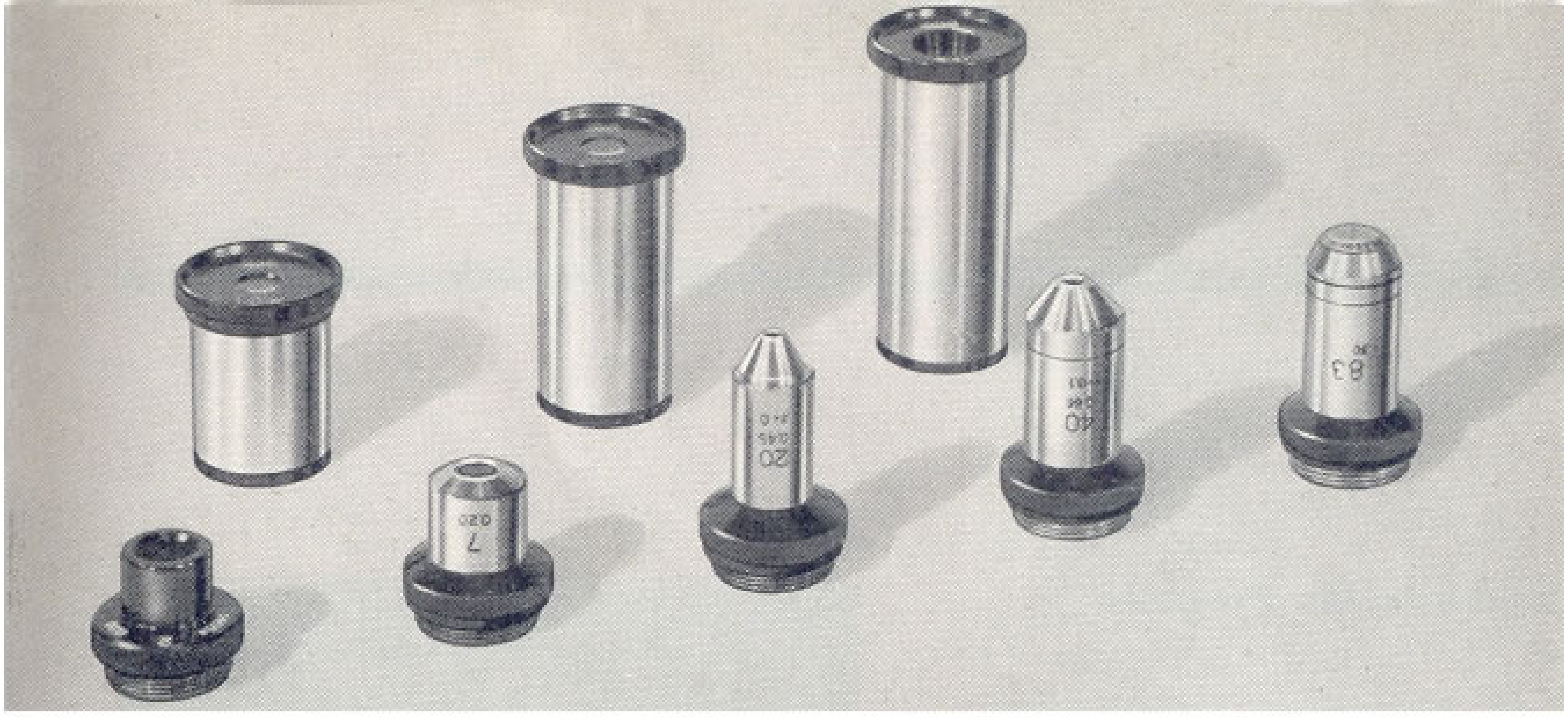
Wild Objectives

Description	Initial Magnification Tube 160 mm	Numerical Aperture	Focal length mm	Working distance	Key number
Dry Achromatic series	3	0.10	36		201
	7	0.20	20	14	203
	20	0.45	8.6	1.7	205
	40	0.66	4.4	0.55	206
Incident light Objective, in narrow mount, for use without coverglass	20 Epi	0.42	8.6	1.9	207
Achromatic oil immersions	85	1.25	2.2	0.25	210
	85 with iris diaphragm (for dark field)	1.25	2.2	0.25	211
Dry Fluorite series *	10	0.30	17	3.5	213
Fluorite oil immersions *					

The *working distance* is measured from the upper surface of the coverglass to the front lens-mount, provided the cover-glass is 0.17 mm thick and the specimen is directly against it.

The magnification indicated on the objective mount is correct.

* Changes in manufacture reserved



Wild Eyepieces

Description	Factorial magnification	Field of view number	Focal length mm	Remarks	Key number each	Key number per pair
Huygens eyepieces	5 7 10	22 17.5 14	50 36 25	For use with dry achromatics	232 234 236	233 235 237
Orthoplanatic eyepieces *				For use with Fluorite series and the achromatic oil immersions		
Compensating Eyepieces	12 16	11.5 10	21 16	For use with Fluorite series and the high power achromatics	252 254	253 255
Orthoplanatic Photo-eyepieces with adjustable eye-lens						
Huygens Micrometer eyepieces with micrometer discs 5:100 5:50	7 10	17.5 14	36 25		268 270	

The power of the eyepiece is given on the mount.

The *field of view* numbers are used to calculate the field of view. The field of view S is equal to the product of the diameter of the field of view in millimetres D and the initial magnification of th [illegible] given field of view is then given by D equals $\frac{S}{Vob}$

* Changes in manufacture reserved

For General Scientific Investigations

		Binocular Key number	Monocular Key number
No. 1	Achromatic Objectives 3 N.A. 0.10	201	201
	7 N.A. 0.20	203	203
	40 N.A. 0.66	206	206
	85 N.A. 1.25 oil immersion	210	210
	Huygens Eyepieces, paired 5× (bi 7.50)	233	
	7× (bi 10.5)	235	
	Magnifications 22.5 – 892.5	100	
No. 2	Objectives as for equipment No. 1, but with		
	1 Huygens Eyepiece 5×		232
	1 Huygens Eyepiece 10×		236
	Magnifications 15 – 850×		101
No. 3	Achromatic Objectives 3 N.A. 0.10	201	201
	7 N.A. 0.20	203	203
	40 N.A. 0.66	206	206
	85 N.A. 1.25 oil immersion with iris diaphragm	211	211
	Huygens Eyepieces, paired 5× (bi 7.5)	233	
	Compensating Eyepieces, paired 8× (bi 12)	251	
	Magnifications 22.5 – 1020×	102	
No. 4	Objectives as for equipment No. 3, but with		
	1 Huygens Eyepiece 7×		234
	1 Compensating Eyepiece 12×		252
	Magnifications 21 – 1020×		103
No. 5	Achromatic Objectives 7 N.A. 0.20	203	203
	20 N.A. 0.45	205	205
	40 N.A. 0.66	206	206
	85 N.A. 1.25 oil immersion	210	210
	Huygens Eyepieces, paired 5× (bi 7.5)	233	
	Compensating Eyepieces, paired 8× (bi 12)	251	
	Magnifications 52.5 – 1020×	104	
No. 6	Objectives as for equipment No. 5, but with		
	1 Huygens Eyepiece 7×		234
	1 Compensating Eyepiece 12×		252
	Magnifications 49 – 1020×		105
No. 7	Fluorite Objective 10 N.A. 0.30	213	213
	Achromatic Objectives 40 N.A. 0.66	206	206
	85 N.A. 1.25 oil immersion	210	210
	Orthoplanatic Eyepieces, paired 6× (bi 9)	241	
	Compensating Eyepieces, paired 8× (bi 12)	251	
	Magnifications 90 – 1020×	106	
No. 8	Objectives as for equipment N° 7, but with		
	1 Orthoplanatic Eyepiece 6×		240
	1 Compensating Eyepiece 12×		252
	Magnifications 60 – 1020×		107

For Medical Purposes

		Binocular Key number	Monocular Key number
No. 1	Magnifications 22.5 – 892.5×	100	
No. 2	Magnifications 15 – 850×		101
No. 9	Achromatic Objectives 7 N.A. 0.20	203	203
	40 N.A. 0.66	206	206
	85 N.A. 1.25 oil immersion	210	210
	Huygens Eyepieces, paired 5× (bi 7.5)	233	
	7× (bi 10.5)	235	
	Magnifications 52.5 – 892.5×	108	
No. 10	Objectives as for equipment No. 9, but with		
	1 Huygens Eyepiece 5×		232
	10×		236
	Magnifications 35 – 850×		109
No. 11	Achromatic Objectives 7 N.A. 0.20	203	203
	20 N.A. 0.45	205	205
	40 N.A. 0.66	206	206
	85 N.A. 1.25 oil immersion	210	210
	Huygens Eyepieces, paired 5× (bi 7.5)	233	
	7× (bi 10.5)	235	
	Magnifications 52.5 – 892.5×	110	
No. 12	Objectives as for equipment No. 11, but with		
	1 Huygens Eyepiece 5×		232
	10×		236
	Magnifications 35 – 850×		111

For the Examination of Opaque Objects

		Binocular Key number	Monocular Key number
No. 13	Achromatic Objectives 3 N.A. 0.10	201	201
	7 N.A. 0.20	203	203
	20 N.A. 0.42 Epi	207	207
	Huygens Eyepieces, paired 5× (bi 7.5)	233	
	10× (bi 15)	237	
	Magnifications 22.5 – 300×	112	
No. 14	Objectives as for equipment No. 13, but with		
	1 Huygens Eyepiece 5×		232
	10×		236
	Magnifications 15 – 200×		113

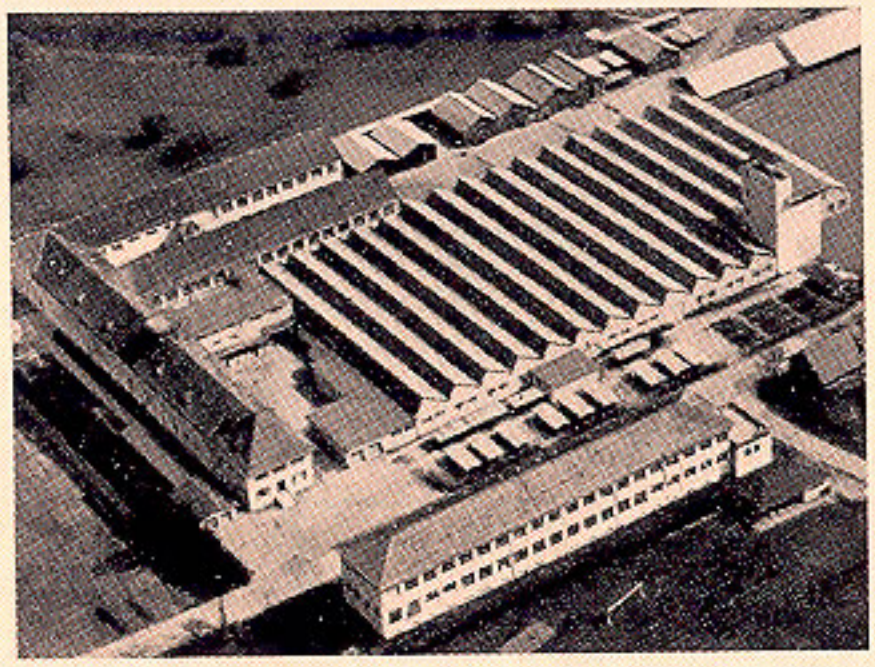
For Student and Laboratory Purposes

No. 15	Achromatic Objectives 3 N.A. 0.10		201
	7 N.A. 0.20		203
	20 N.A. 0.45		205
	1 Huygens Eyepiece 5×		232
	10×		236
	Magnifications 15 – 200×		114
No. 16	Achromatic Objectives 7 N.A. 0.20		203
	40 N.A. 0.66		206
	1 Huygens Eyepiece 5×		232
	10×		236
	Magnifications 35 – 400×		115
No. 17	Achromatic Objectives 3 N.A. 0.10		201
	7 N.A. 0.20		203
	40 N.A. 0.66		206
	1 Huygens Eyepiece 7×		234
	10×		236
	Magnifications 21 – 400×		116

Manufacturing Program

Leveling Instruments
Theodolites
Precision Telemetres
Plane-table Outfits
Pentagonal Prisms
Glass Scales
Astronomical Instruments
Photogrammetric Apparatus
Microscopes
Drawing Instruments
of Stainless Steel
Magnifiers
Hunting Gunsights and
Rangefinders
Optical Instruments for Military Use

Detailed descriptions upon request.



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