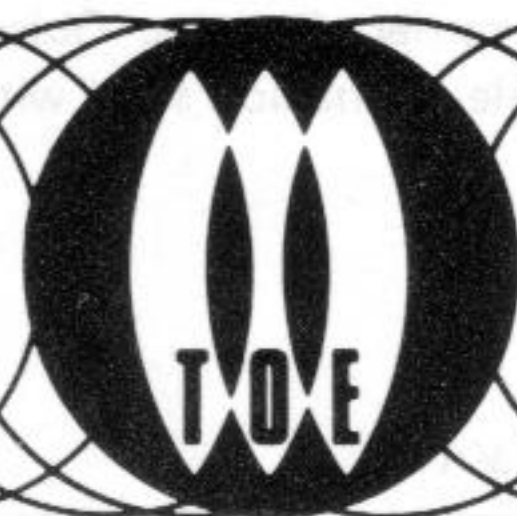


zenith

BIOLAM 70
D10 & 11



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874

Portable Microscope



BIOLAM 70-D10&D11

A high quality performance instrument designed for maximum portability, of similar design and specification to the Biolam models S and R, it incorporates a deep angular limb which allows large culture plates to be used on the stage.

STAGE. 87 x 105mm.

SUBSTAGE. Rack and pinion focusing with Abbe Condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives.

SUBSTAGE MIRROR. Plan-concave.

NOSEPIECE. Quadruple.

EYEPIECE TUBE. Inclined monocular, may be rotated about its axis and clamped in any desired position.

WEIGHT. Total when packed 13½ lbs. (6.1 Kg.)

SPECIFICATION

DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
OBJECTIVES Magnification	Type	Focal Length mm.	Numerical Aperature	Working Distance mm.	Field of View with x7 eyepiece mm.
x9	Planachromatic	15.50	0.20	13.13	2.00
x20	Achromatic	8.40	0.40	1.70	0.90
x40	Achromatic*	4.25	0.65	0.41	0.45
x90	OI. Achromatic*	1.90	1.25	0.10	0.20

* Spring-Loaded Mount

EYEPIECES

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnification with Objectives			
				x9	x20	x40	x90
x7	Hughenian	36.0	18	63	140	280	630
x10	Compensating	25.0	13	90	200	400	900
x15	Compensating	16.7	11	135	300	600	1,350

OUTFITS

Biolam 70 - D10

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x9, x20, and x40. Eyepieces x7, x10, and x15. Case £54.40

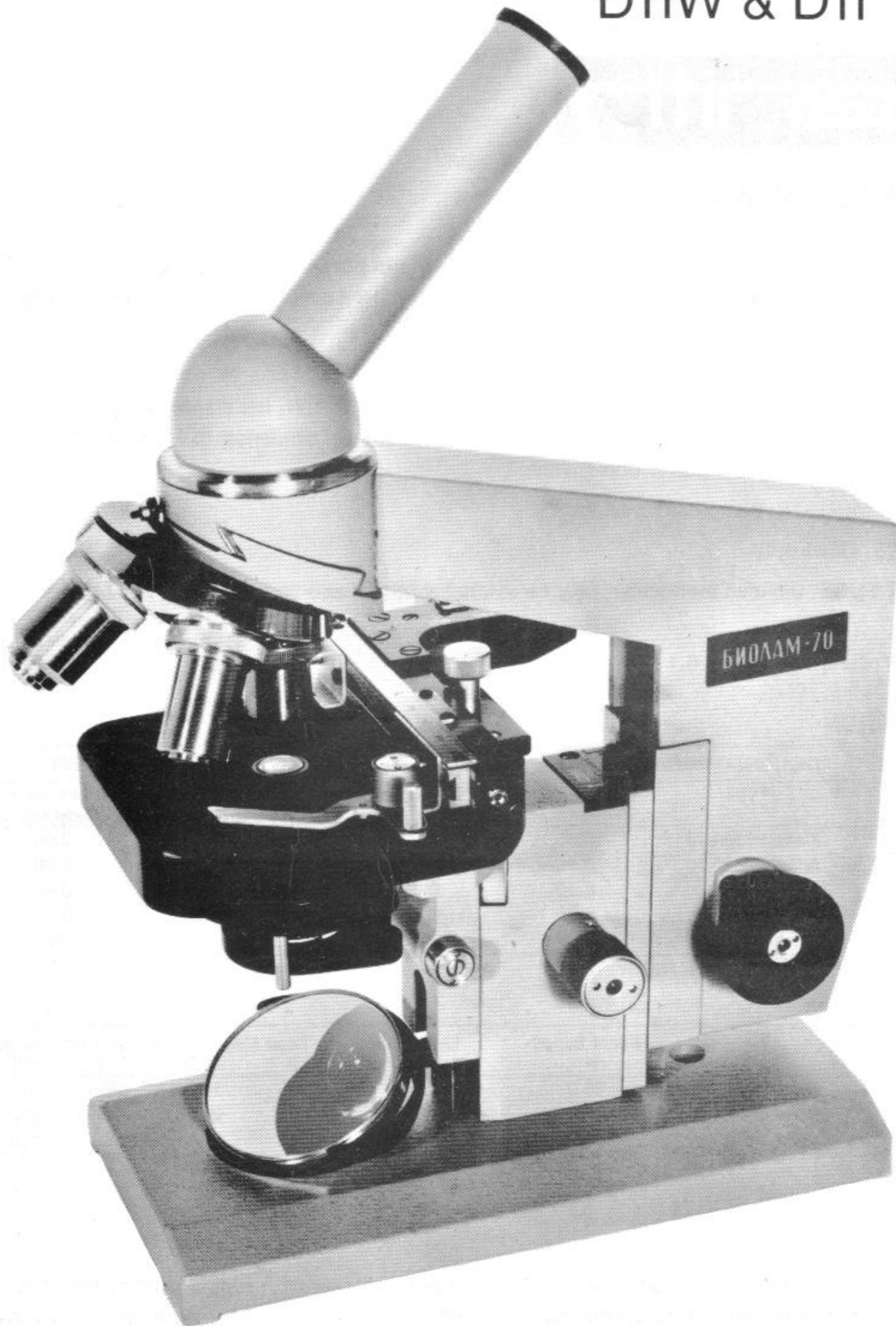
Biolam 70 - D11 (illustrated)

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x9, x20, x40, and x90 OI. Eyepieces x7, x10, x15. CT-12 attachable mechanical stage with scales and verniers. Case £79.10

All prices subject to VAT.

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**BIOLAM
D11W & D11**



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, The Hyde, Edgware Road,
London NW9 6EE.
Tel: 01-200 6505 Telex: 261874

Portable Microscope



BIOLAM D11W & D11

A high quality performance instrument designed for maximum portability, of similar design and specification to the Biolam models S and R, it incorporates a deep angular limb which allows large culture plates to be used on the stage.

STAGE. 87 x 105mm.

SUBSTAGE. Rack and pinion focusing with Abbe Condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives.

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

EYEPIECE TUBE. Inclined monocular, may be rotated about its axis and clamped in any desired position.

WEIGHT. Total when packed 6.1 Kg.

SPECIFICATION

OBJECTIVES DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 eyepiece mm.
x9	Planachromatic	15.50	0.20	13.13	2.00
x20	Achromatic	8.40	0.40	1.70	0.90
x40	Achromatic*	4.25	0.65	0.41	0.45
x40	W.I. Achromatic	4.30	0.75	1.64	0.45
x90	O.I. Achromatic*	1.90	1.25	0.10	0.20

*Spring-Loaded Mount

EYEPIECES

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnification with Objectives			
				x9	x20	x40	x90
x7	Huyghenian	36.0	18	63	140	280	630
x10	Compensating	25.0	13	90	200	400	900
x15	Compensating	16.7	11	135	300	600	1,350

OUTFITS

Biolam - D11W

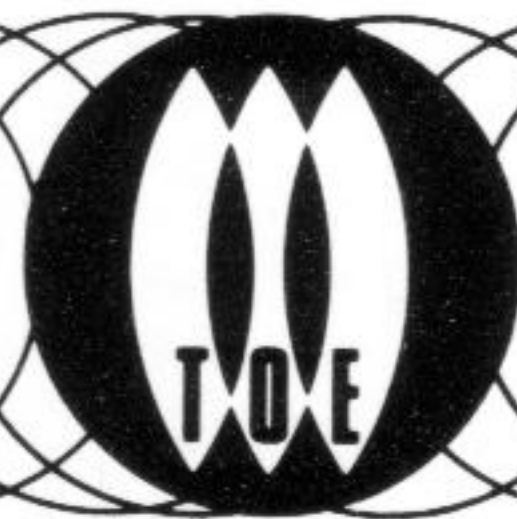
Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x9, x40, x40WI and x90 O.I. Eyepieces x7, x10, and x15. CT-12 attachable mechanical stage with scales and verniers. Metal case.

Biolam - D11 (illustrated)

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x9, x20, x40, and x90 O.I. Eyepieces x7, x10 and x15. CT-12 attachable mechanical stage with scales and verniers. Metal case.

zenith

**BIOLAM
D13**



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874

Portable Binocular Microscope



BIOLAM · D13

A portable inclined binocular Microscope of modern design incorporating a deep angular limb which allows large culture plates to be used on the stage. Both the coarse and fine adjustments are situated in the lower part of the instrument and they actuate the limb while the stage remains stationary. Both movements operate via gear trains for longer working life. The fine adjustment is graduated into 0.002mm divisions and there is a ratchet safety device which prevents overturning. The stand is fitted with a quadruple nosepiece, rack and pinion focusing substage with Abbe condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight Blue and ground glass filters are also included. The plain stage has removable spring clips to facilitate the fitting of the CT-12 mechanical stage, which has scales and verniers reading to 0.1mm. The instrument is fitted with a plan/concave substage mirror.

When packing the microscope into its fitted metal case the binocular head, objectives and mechanical stage are removed from the stand.

SPECIFICATION

DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
OBJECTIVES	Type	Focal Length mm.	Numerical Aperture	Working Distance mm	Field of View with x7 Eyepiece mm.
x9	Planachromatic	15.50	0.20	13.13	
x20	Achromatic	8.40	0.40	1.70	
x40	Achromatic*	4.25	0.65	0.41	0.30
x90	OI. Achromatic*	1.90	1.25	0.10	0.125

* Spring-Loaded Mount

EYEPIECES (Paired)

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnifications with Objectives			
				x9	x20	x40	x90
x7	Compensating	35.0	18	94.50	210	420	945
x10	Compensating	25.0	13	135	300	600	1350

Includes magnification factor x15 of binocular head.

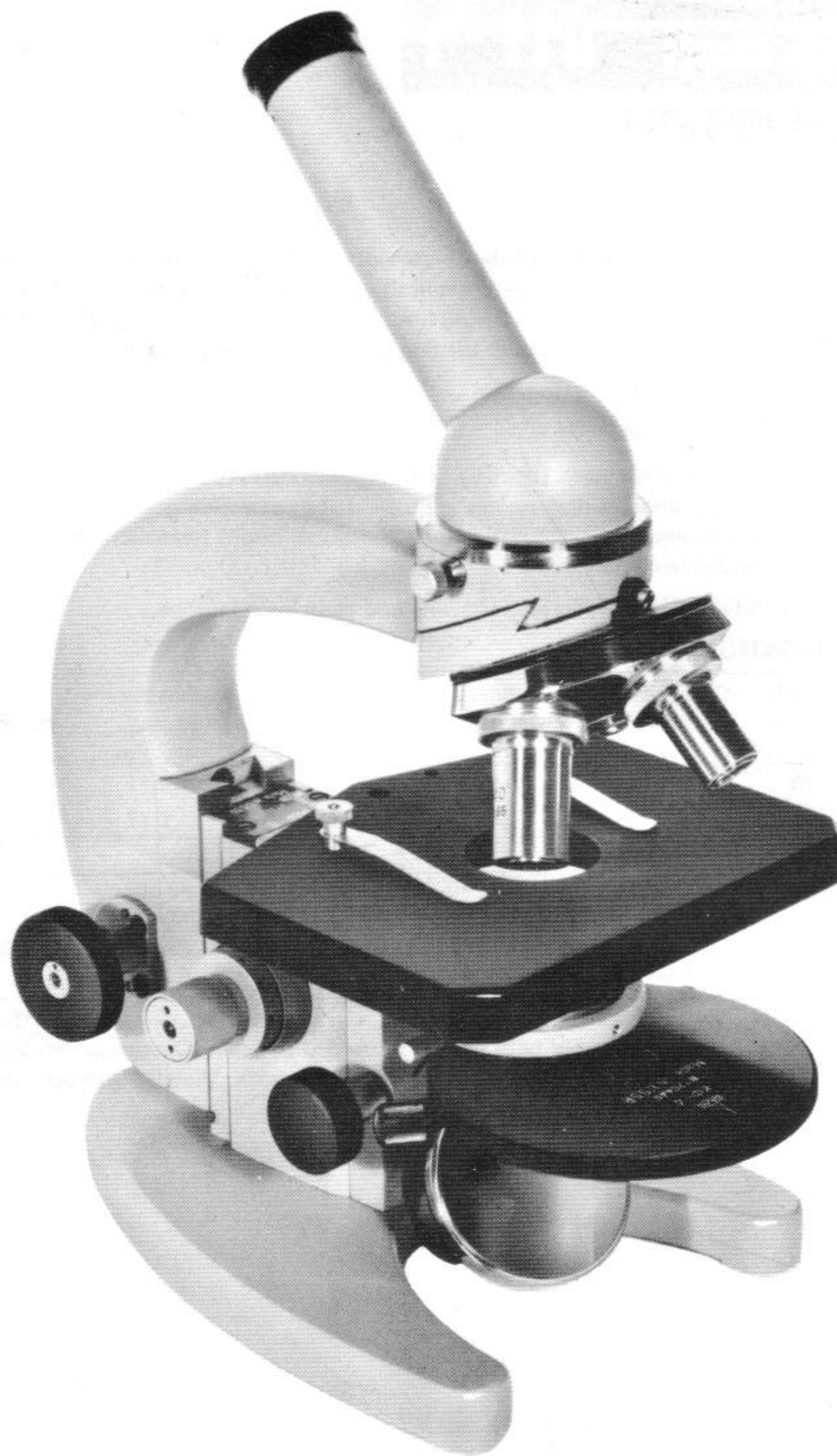
OUTFIT

Biolam - D13

Inclined binocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 Filters. Objectives x9, x20, x40 and x90 OI Eyepieces (paired) x7 and x10. CT-12 attachable mechanical stage with scales and verniers. Case

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MBR·IES·PH



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874

All prices subject to V.A.T.

Student Phase Contrast Microscope



MBR·IES·PH

A reliable, full size inclined monocular microscope with coarse and fine adjustments, situated in the lower part of the stand which actuate the limb whilst the stage remains stationary. Both movements operate via gear trains for longer working life. The fine adjustment is graduated in divisions of .002 mm. and is prevented from over-turning by a ratchet safety device.

STAGE. Rectangular with spring clips.

NOSEPIECE. Quadruple.

SUBSTAGE. Rack and pinion focusing, with phase contrast condenser unit with iris diaphragm and filter carrier. Four annular diaphragms are mounted in a revolving, centring disc. One clear aperture is also provided to enable a rapid changeover to normal bright field illumination. Filters, Daylight Blue, Green and ground glass.

INCLINED MONOCULAR TUBE. Viewing and centring telescope.

SPECIFICATION

OBJECTIVE					
Designed for 160 mm tube length and 0.17 mm. cover glass thickness					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of view with x10 eyepiece.
x10	Achromatic	15.5	0.30	7.77	1.30
x40	Achromatic	4.35	0.65	0.77	.34

EYEPIECE

Magnification	Type	Focal Length mm.	Linear Field of view mm.	Total Magnifications with Objectives	
				x10	x40
x10	Huyghenian	25	14	100	400

OUTFIT

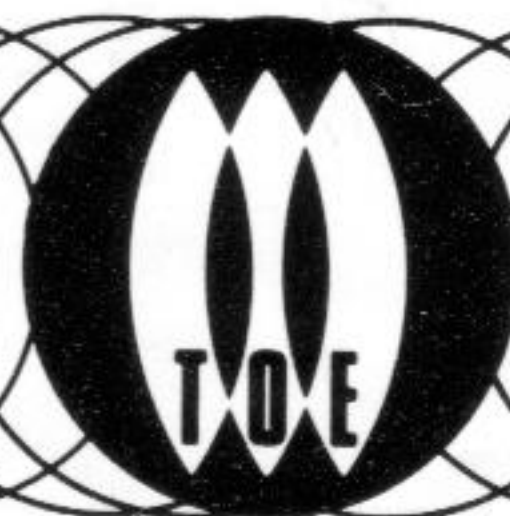
MBR-1ES-PH Microscope stand with inclined monocular head. Quadruple nosepiece phase contrast substage apparatus. Objectives x10 and x40. Eyepiece x10. Viewing and centring telescope. 3 filters. Case.

£79.00

All prices subject to V.A.T.

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BIOLAM
R10 & R11



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874



Biological Microscope



BIOLAM · R10 & R11

A robust, monocular microscope of modern design, similar to the Biolam - S series but incorporating a circular, centring, and rotating stage designed primarily for the additional function of photomicrography.

STAGE. Circular, Centring, Clamped Rotation, Diameter 120mm.

SUBSTAGE. Rack and pinion focusing with Abbe' condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight Blue and ground glass filters.

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

INCLINED MONOCULAR TUBE. May be rotated about its axis and clamped in any desired position.

SPECIFICATION

OBJECTIVES DESIGNED FOR 160mm. TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 Eyepiece mm.
x8	Achromatic	18.20	0.20	8.53	2.25
x40	Achromatic*	4.25	0.65	0.41	0.45
x90	Ol. Achromatic*	1.90	1.25	0.10	0.20

* Spring-Loaded Mount

EYEPIECES

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnifications with Objectives		
				x8	x40	x90
x7	Compensating	35.0	18	56	280	630
x15	Compensating	16.7	11	120	600	1350

OUTFITS

Biolam - R10

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 Filters. Objectives x8 and x40. Eyepieces x7 and x15. Case £44.05

Biolam - R11

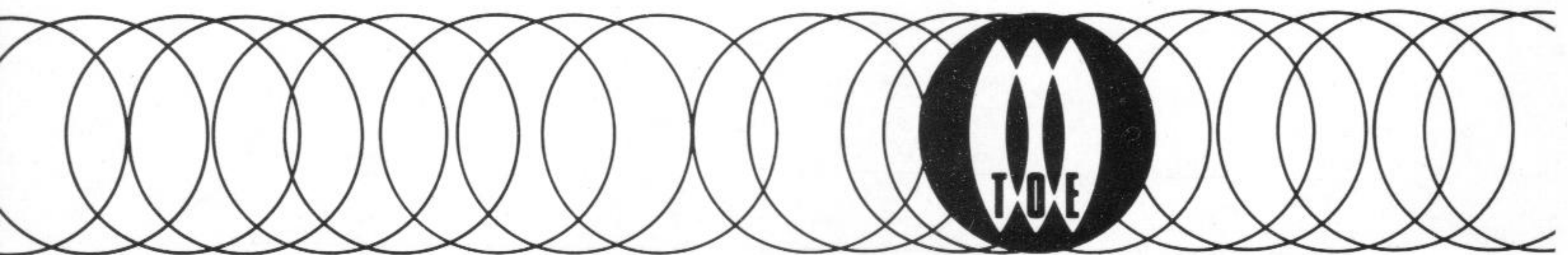
Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens. Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40 and x90Ol. Eyepieces x7 and x15. Case

R10 73.42
R11 91.85

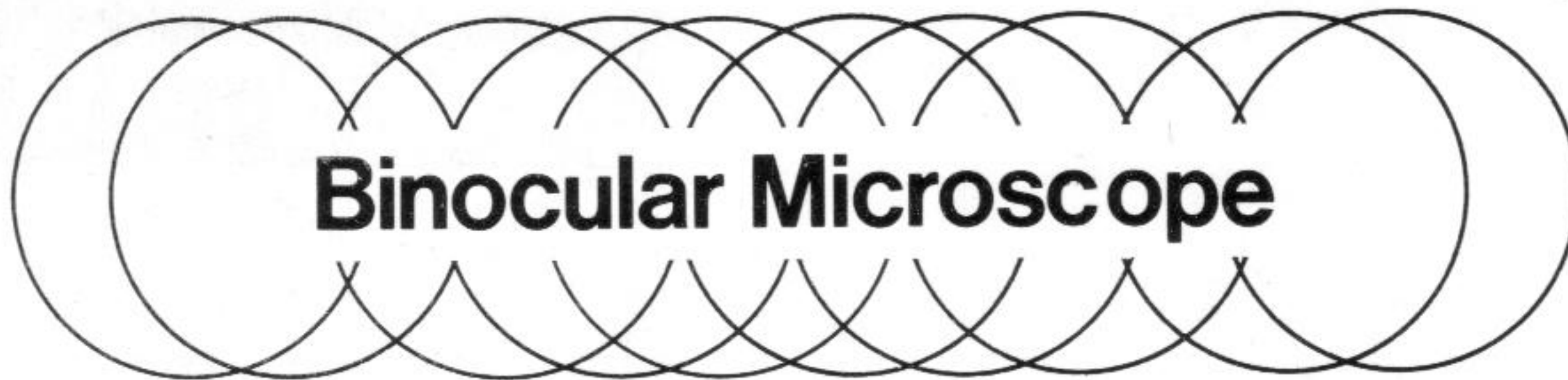
56
120
280
600
56 120
280 600
360 1350

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**BIOLAM
R13**



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
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Binocular Microscope



BIOLAM · R13

A binocular microscope of modern design incorporating a deep angular limb which allows large culture plates to be used on the stage. Coarse and fine focusing mechanisms are situated in the lower part of the limb permitting actuation of the limb while the stage remains stationary. Both movements operate via gear trains for longer working life. The coarse adjustment has a vertical movement of 40mm. The fine adjustment is graduated in .002mm divisions and its range of movement is 2mm. A ratchet safety device prevents over-turning.

STAGE. Circular, centring, clamped rotation. Diameter 120mm.

SUBSTAGE. Rack and pinion focusing with Abbe condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight Blue and ground glass filters.

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

INCLINED BINOCULAR HEAD. Magnification factor x1.5 May be rotated about its axis and clamped in any desired position.

SPECIFICATION

OBJECTIVES DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 Eyepieces mm.
x8	Achromatic	18.20	0.20	8.53	1.45
x40	Achromatic*	4.25	0.65	0.41	0.30
x90	OI. Achromatic*	1.90	1.25	0.10	0.125

*Spring-Loaded Mount.

EYEPIECES (Paired)

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnification with Objective		
				x8	x40	x90
x7	Compensating	35.0	18	84	420	945
x10	Compensating	25.0	13	120	600	1350

Includes magnification factor x1.5 of Binocular head

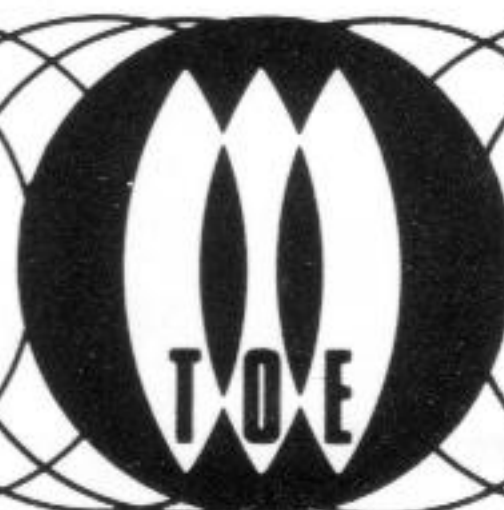
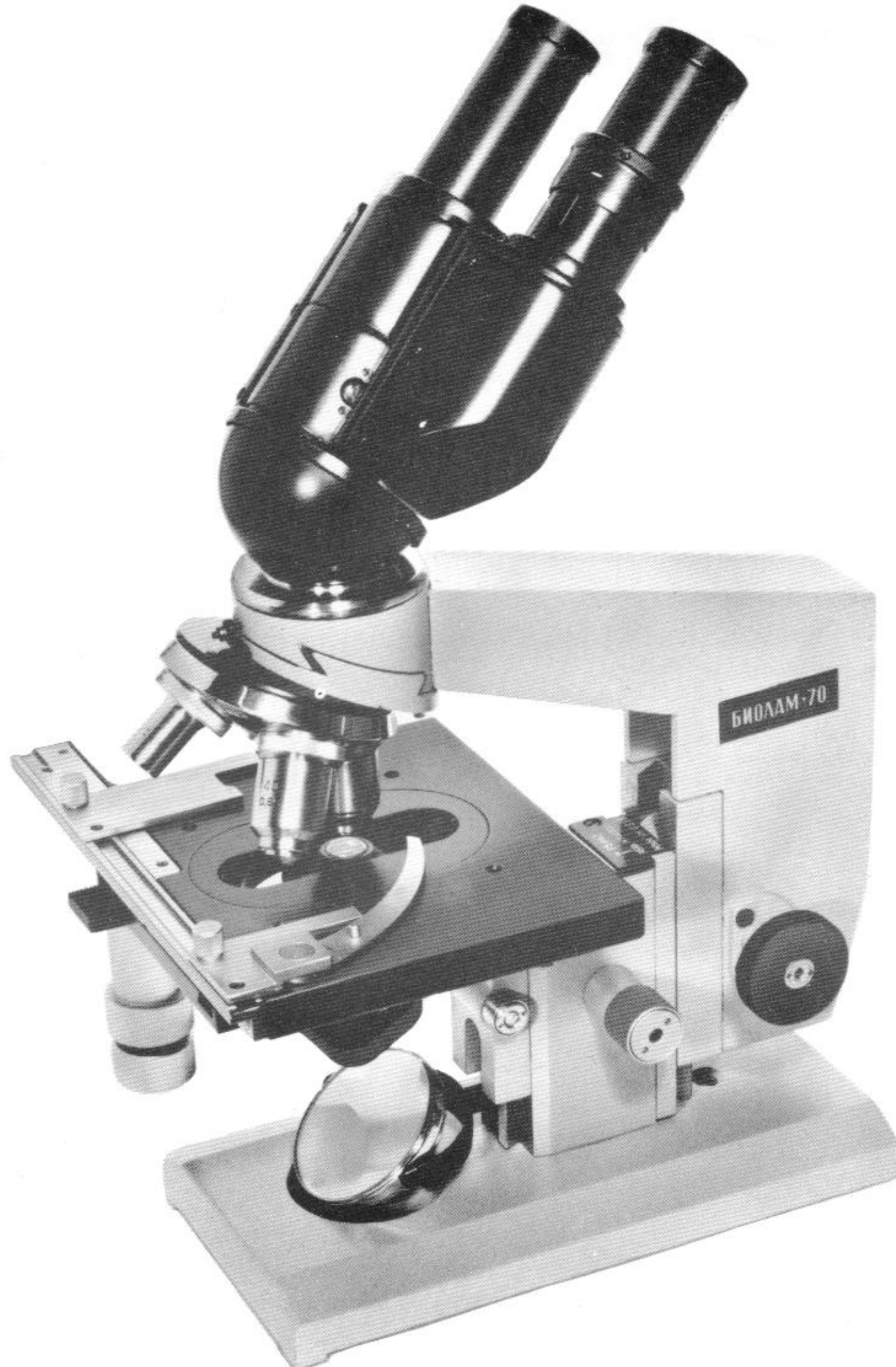
OUTFIT

Biolam - R13

Inclined binocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40 and x90 OI. Eyepieces (paired) x7 and x10. Case

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BIOLAM 70
R15

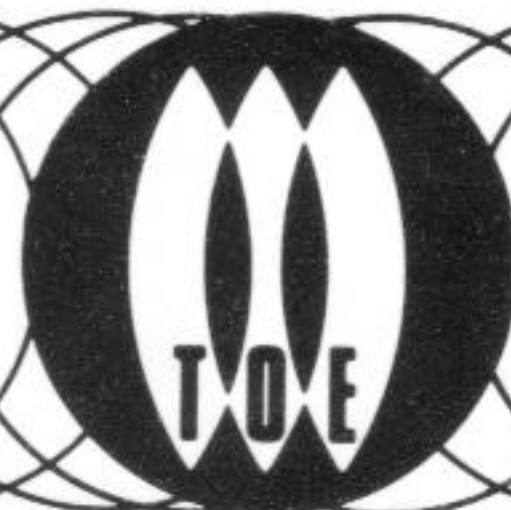


Microscope Division,
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BIOLAM

R16



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874

Binocular Biological Microscope



BIOLAM · R16

An advanced binocular microscope of the Biolam series. The coarse adjustment has a vertical movement of 40mm. The fine adjustment is graduated in 0.002mm. divisions and its range of movement is 2mm. A ratchet safety device prevents overturning.

STAGE. Built-in rectangular mechanical 115 x 135mm. with scales and verniers. Reading to 0.1mm. The co-axial controls are conveniently situated.

SUBSTAGE. Rack and pinion focusing with Abbe condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objective daylight blue and ground glass filters

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

INCLINED BINOCULAR HEAD. Magnificant factor x1.5. May be rotated about its axis and clamped in any desired position.

LAMP UNIT. Provides Kohler illumination and consists of an 8 volt 20 watt lamp in centring mount. Iris Daphragm. Focusing condenser. Surface silvered mirror with centring screws. Transformer with Rheostat and on-off switch.

SPECIFICATION

OBJECTIVES DESIGNED FOR 160mm. TUBE LENGTH AND 0.17mm. COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperature	Working Distance mm.	Field of View with x7 Eyepiece mm.
x8	Achromatic	18.20	0.20	8.53	1.45
x40	Achromatic*	4.25	0.65	0.41	0.30
x90	Ol. Achromatic*	1.90	1.25	0.10	0.125

* Spring-loaded Mount

EYEPIECES (Paired)						
Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnifications with Objectives		
				x8	x40	x90
x7	Compensating	35.0	18	84	420	945
x10	Compensating	16.7	11	120	600	1350
x7	Micrometer Huyghenian	36.0	19	Includes magnification factor x1.5 of binocular head.		

OUTFIT

Biolam - R16.

Inclined binocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40, and x90 01. Eyepieces (paired) x7 and x10. Lamp unit with transformer and Rheostat. 3 spare bulbs. Case.

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BIOLAM R17



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874



Research Microscope



BIOLAM R17

A modern high power binocular microscope for use in laboratories and research establishments. In keeping with modern practice both the coarse and fine focusing movements are situated below the level of the stage and in close proximity to the adjustments for the substage and mechanical stage. This arrangement enables the user's hands to rest in a comfortable position on the bench. Both adjustments operate via gear trains for longer working life.

The coarse adjustment has a vertical movement of 48 mm and is so designed that by rotating one of the knurled focusing heads in relation to the other, tension on the focusing movement may be quickly eased or tightened according to the preference of the user.

The fine adjustment control has a graduated drum divided into fifty divisions, each equivalent to a movement of 0.002 mm, and a ratchet safety device prevents overturning.

A rack and pinion focusing substage is provided with an aplanatic condenser (N.A. 1.40) oil immersed for high power work, interchangeable low power condenser (N.A. 0.3).

Oblique illumination may be obtained by offsetting the substage diaphragm ± 10 mm by its rack and pinion, in the plane perpendicular to the condenser axis and by simultaneous rotation of the iris diaphragm in the one hundred and fifty degree range.

The circular, centring, rotating mechanical stage is fitted with scales and verniers reading to 0.1 mm.

The stage rotates through three hundred and ten degrees and a clamp may be applied to lock the rotating movement in any desired position. A quadruple nosepiece mounted on a dovetail slide, is fitted to the limb.

The inclined binocular attachment has coated optics, a magnification factor of x 1.5, interocular adjustment and independent focusing to the left hand eyepiece tube to enable the user to correct for difference of power between the eyes. The microscope may be used in the 'back to front' position by simply rotating the binocular attachment through one hundred and eighty degrees. Interchangeable with the binocular attachment is a vertical monocular body with divided drawtube which has a standard objective thread in the lower end to enable very low power objectives to be accommodated.

SPECIFICATION

OBJECTIVES DESIGNED FOR 160 mm TUBE LENGTH AND 0.17 mm COVER GLASS THICKNESS

Apochromatic	System	Numerical Aperture	Working Distance mm	Field of View x 7 Monocular, mm
x10	Dry	0.30	4.8	1.20
x20	Dry	0.65	0.67	0.60
x60†	Oil Immersion	0.7-1.0	0.22	0.20
x90*	Oil Immersion	1.30	0.12	0.14
Achromatic				
x90*	Oil Immersion	1.25	0.10	0.20

†With Iris Diaphragm *Spring Loaded Mount

PAIRED EYEPIECES

	Magnification	Focal Length mm	Application
Compensating	x 5	50.0	With Apochromatic and High Power Achromatic Objectives
Compensating	x 7	35.0	
Compensating	x10	25.0	

SINGLE EYEPIECES

	Magnification	Focal Length mm	Application
Compensating	x 7	35.0	Measuring. With Graticule.
Compensating	x15	16.7	Photomicrography
Compensating	x20	12.6	Photomicrography

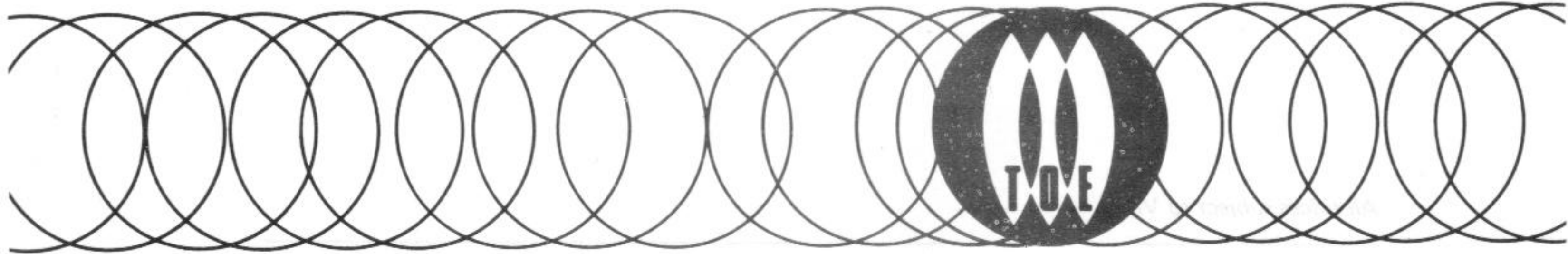
RESEARCH MICROSCOPE BIOLAM R17 as described above with one achromatic and four apochromatic objectives. Pairs of compensating eyepieces x5, x7 and x10. Single compensating eyepiece x7 (Combined scale and crossline graticule), x15 and x20. Centring stage plate. Eyepiece graticule ruled in .5 mm squares. Substage filters, daylight blue, green, neutral and ground glass. Complete in fitted case with lock and key:

All prices subject to VAT.

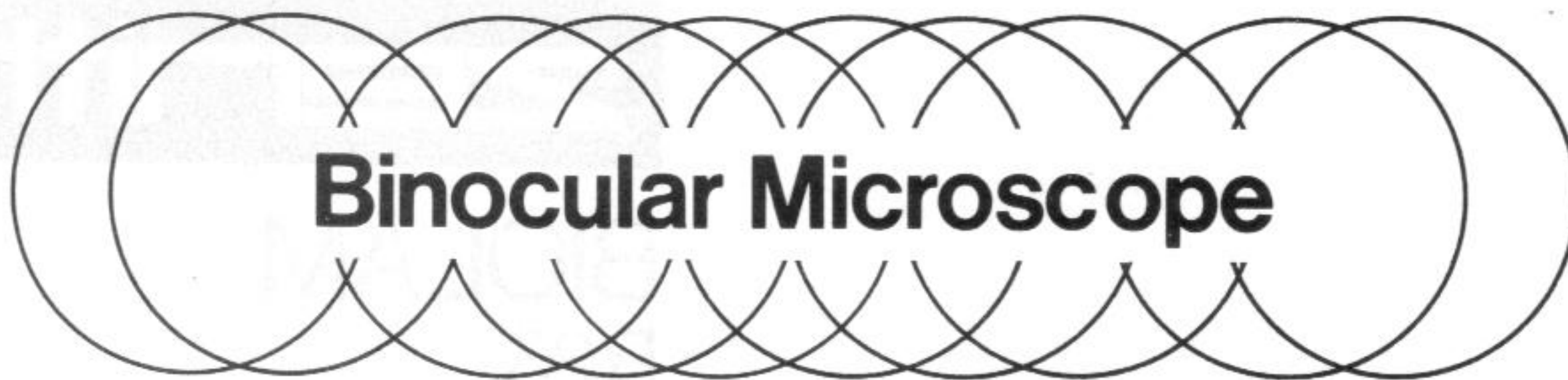
T.O.E. reserve the right to vary, modify or improve any specification and/or design at any time without prior notice.

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**BIOLAM
R23**



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, The Hyde, Edgware Rd,
London NW9 6EE



BIOLAM·R23

A binocular microscope of modern design incorporating a deep angular limb which allows large culture plates to be used on the stage. Coarse and fine focusing mechanisms are situated in the lower part of the limb permitting actuation of the limb while the stage remains stationary. Both movements operate via gear trains for longer working life. The coarse adjustment has a vertical movement of 40mm. The fine adjustment has a range of movement of 2mm.

STAGE. Circular, centring, clamped rotation. Diameter 120mm.

SUBSTAGE. Rack and pinion focusing with Abbe condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight Blue and ground glass filters.

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

INCLINED BINOCULAR HEAD. Magnification factor x1.5 May be rotated about its axis and clamped in any desired position.

SPECIFICATION

DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 Eyepieces mm.
x8	Achromatic	18.20	0.20	8.53	1.45
x40	Achromatic*	4.25	0.65	0.41	0.30
x90	OI. Achromatic *	1.90	1.25	0.10	0.125

**Spring-Loaded Mount.*

EYEPIECES (Paired)

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnification with Objective		
				x8	x40	x90
x7	Compensating	35.0	18	84	420	945
x10	Compensating	25.0	13	120	600	1350

Includes magnification factor x1.5 of Binocular head

OUTFIT

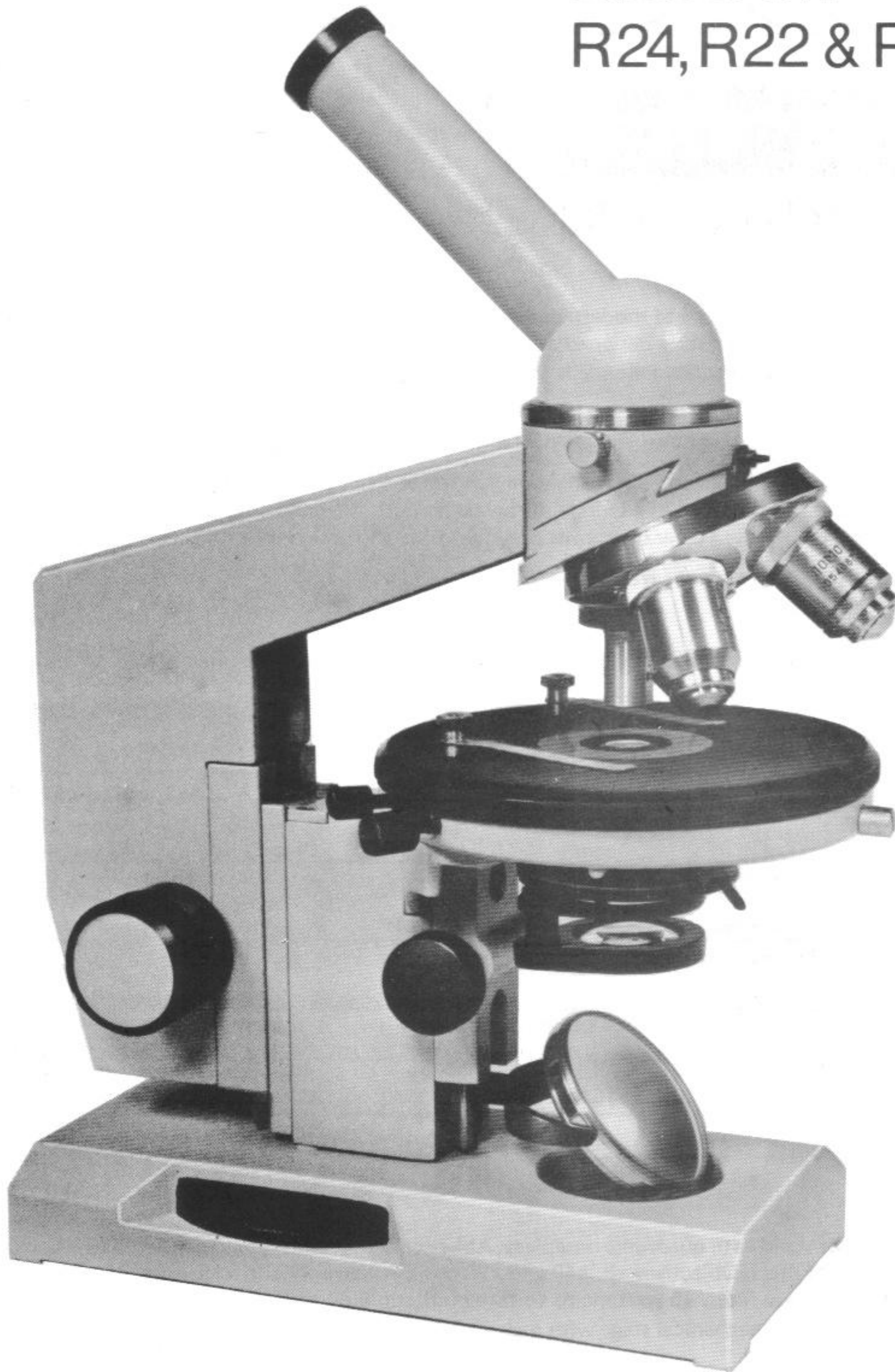
Biolam - R23

Inclined binocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40 and x90 OI. Eyepieces (paired) x7 and x10. Case

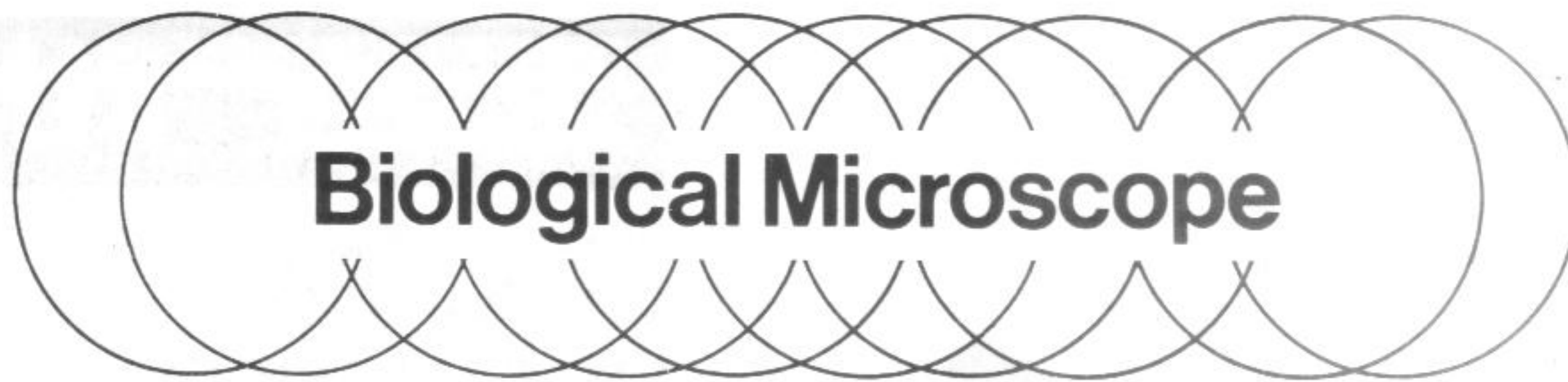
All prices subject to VAT.

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BIOLAM
R24, R22 & R21



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, The Hyde, Edgware Rd,
London NW9 6EE
Telephone: 01-200 6505 Telex: 261874



Biological Microscope



BIOLAM R24, R22 & R21

A robust, monocular microscope of modern design, similar to the Biolam - S series but incorporating a circular, centring, and rotating stage designed primarily for the additional function of photomicrography, enabling the specimen to be rotated about its axis until the image can be conveniently accommodated within the camera film format.

STAGE. Circular, Centring, Clamped Rotation, Diameter 120mm.

SUBSTAGE. Rack and pinion focusing with Abbe condenser (N.A. 1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight Blue and ground glass filters.

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

INCLINED MONOCULAR TUBE. May be rotated about its axis and clamped in any desired position.

SPECIFICATION

OBJECTIVES DESIGNED FOR 160mm. TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 Eyepiece mm.
x8	Achromatic	18.20	0.20	8.53	2.25
x40	Achromatic*	4.25	0.65	0.41	0.45
x90	O.I. Achromatic*†	1.90	1.25	0.10	0.20

*Spring-Loaded Mount †Oil Immersion

EYEPIECES

Magnification	Type	Focal Length	Linear Field of View mm.	Total Magnification with Objectives		
				x8	x40	x90
x7	Compensating	35.0	18	56	280	630
x15		16.7	11	120	600	1350

OUTFITS

Biolam - R24

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens. Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40 and x90 o.i. Eyepieces x7 and x15. Case. SL-5 Substage Lamp with daylight blue filter. 15 watt mains voltage bulb, supplied with 2 metres of 3 core cable. CT-12 attachable mechanical stage with scales and verniers reading to 0.1mm.

Biolam - R22

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens. Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40 and x90 o.i. Eyepieces x7 and x15. Case. SL-5 Substage Lamp with daylight blue filter. 15 watt mains voltage bulb, supplied with 2 metres of 3 core cable.

Biolam - R21 (Illustrated)

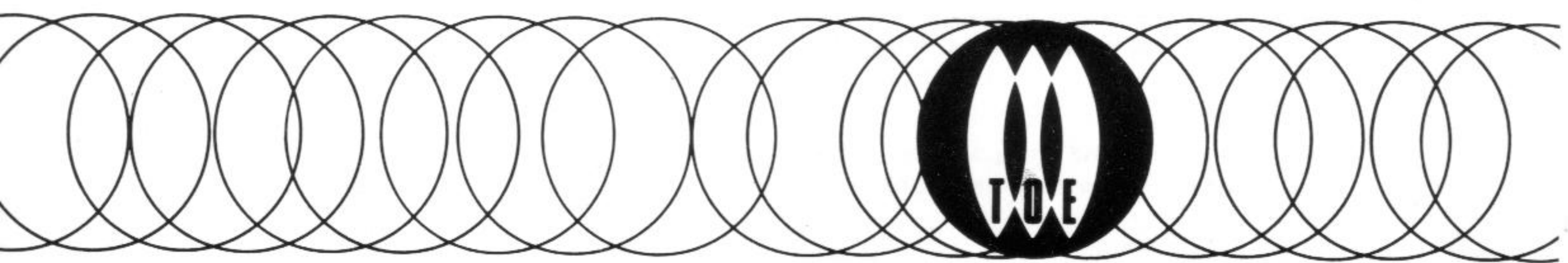
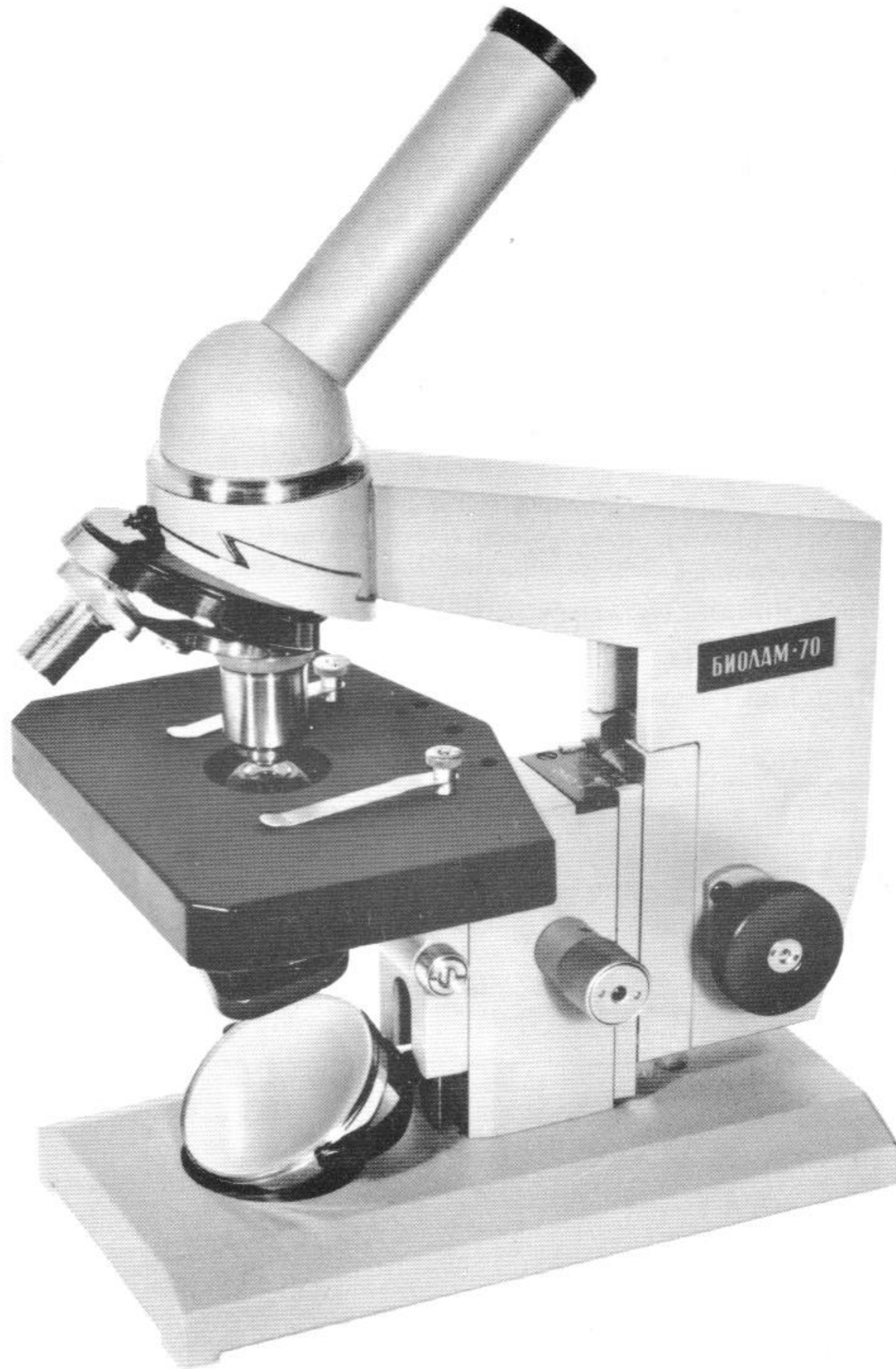
Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens. Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40 and x90 o.i. Eyepieces x7 and 15. Case.

Many accessories available including

01-19 High Intensity Lamp, suitable for photomicrography, phase contrast and dark field techniques.

zenith

BIOLAM 70
S10, 11 & 12



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874

Biological Microscope



BIOLAM 70·S10, S11 & S12

A reliable, full-size microscope of modern design incorporating a deep angular limb which allows large culture plates to be used on the stage.

Coarse and fine focusing mechanisms are situated in the lower part of the limb, permitting acutation of the limb while the stage remains stationary. Both movements operate via gear trains for longer working life. The coarse adjustment has a vertical movement of 40mm. The fine adjustment is graduated in .002mm divisions and its range of movement is 2mm. A ratchet safety device prevents over-turning.

STAGE. Plain rectangular 130 x 95mm with spring clips. The stage is drilled and tapped to accommodate the CT-12 attachable mechanical stage which is available as an extra.

SUBSTAGE. Rack and pinion focusing with Abbe condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight blue and ground glass filters.

SUBSTAGE MIRROR. Plan-concave.

NOSEPIECE. Quadruple.

EYEPIECE TUBE. Inclined monocular may be rotated about its axis and clamped in any desired position.

SPECIFICATION

DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 Eyepiece mm.
x8	Achromatic	18.20	0.20	8.53	2.25
x20	Achromatic	8.40	0.40	1.70	0.90
x40	Achromatic*	4.25	0.65	0.41	0.45
x90	OI. Achromatic*	1.90	1.25	0.10	0.20

* Spring-Loaded Mount

EYEPIECES

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnifications with Objectives			
				x8	x20	x40	x90
x7	Huyghenian	36.0	18	56	140	280	630
x10	Compensating	25.0	13	80	200	400	900
x15	Compensating	16.7	11	120	300	600	1,350

OUTFITS

Biolam 70 - S10

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x8 and x40. Eyepieces x10 and x15. Case £40.00

80
120
400
600

Biolam 70 - S11

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x8, x20, and x40. Eyepieces x7, x10 and x15.

Case

Biolam 70 - S12

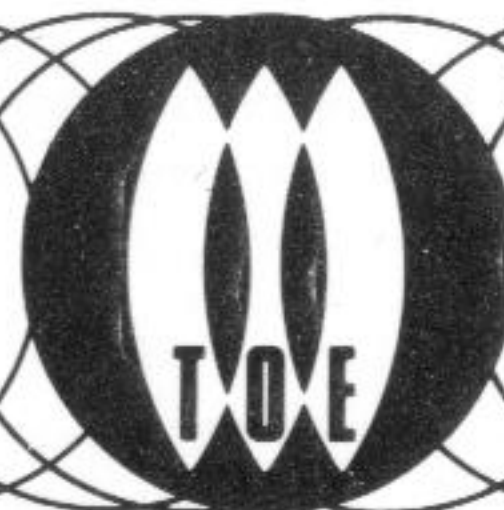
Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x8, x40, and x90. OI. Eyepieces x7, x10, and x15.

Case

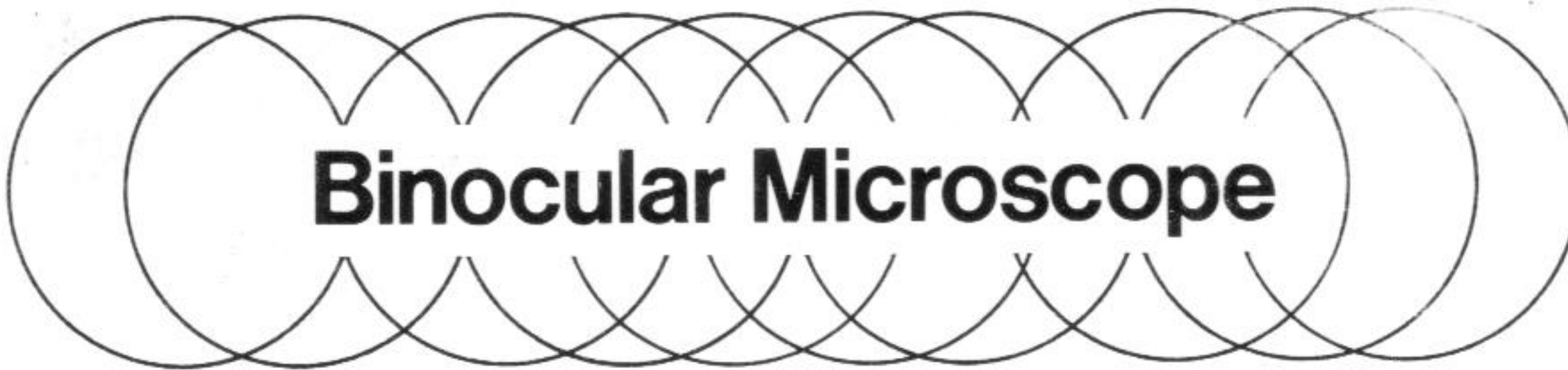
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zenith

BIOLAM
S13 & 14



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874



BIOLAM · S13 & S14

A binocular microscope of modern design incorporating a deep angular limb which allows large culture plates to be used on the stage. Coarse and fine focusing mechanisms are situated in the lower part of the limb, permitting actuation of the limb while the stage remains stationary. Both movements operate via gear trains for longer working life. The coarse adjustment has a vertical movement of 40mm. The fine adjustment is graduated in .002mm divisions and its range of movement is 2mm. A ratchet safety device prevents over-turning.

STAGE. Plain rectangular 130 x 95mm with spring clips. The stage is drilled and tapped to accommodate the CT-12 attachable mechanical stage which is available as an extra.

SUBSTAGE. Rack and pinion focusing with Abbe condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight Blue and ground glass filters.

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

INCLINED BINOCULAR HEAD. Magnification factor x1.5. May be rotated about its axis and clamped in any desired position.

SPECIFICATION

OBJECTIVES DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm	Field of View with x7 Eyepiece mm.
x8	Achromatic	18.20	0.20	8.53	1.45
x40	Achromatic*	4.25	0.65	0.41	0.30
x85	Wl. Achromatic	2.10	1.00	0.18	0.125
x90	Ol. Achromatic*	1.90	1.25	0.10	0.125

* Spring-Loaded Mount

EYEPIECES (Paired)

Magnification	Type	Focal Length mm.	Linear Field of View mm	Total Magnifications with Objectives			
				x8	x40	x85	x90
x7	Compensating	35.0	18	84	420	892.5	945
x10	Compensating	25.0	13	120	600	1275	1350

Includes magnification factor x1.5 of Binocular Head

OUTFITS

Biolam - S13

Inclined binocular stand with quadruple nosepiece. Abbe Condenser with supplementary lens, Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40, x85WI and x90OI. Eyepieces x7 and x10 Case

Biolam - S14

Inclined binocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 Filters. Objectives x8, x40 and x90OI. Eyepieces x7 and x10. Case

zenith

BIOLAM
S20, S21, S21A & S22



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
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London NW9 6EE
Telephone: 01-200 6505 Telex: 261874

Biological Microscope

zenith

BIOLAM·S20,S21,S21A & S22

A reliable, full-size microscope of modern design incorporating a deep angular limb which allows large culture plates to be used on the stage.

Coarse and fine focusing mechanisms are situated in the lower part of the stand, permitting actuation of the limb while the stage remains stationary. The coarse adjustment has a vertical movement of 40mm. The fine adjustments range of movement is 2mm.

STAGE. Plain rectangular 130 x 95mm with spring clips. The stage is drilled and tapped to accommodate the CT-12 attachable mechanical stage which is available as an extra.

SUBSTAGE. Rack and pinion focusing with Abbe condenser (N.A.1.2), Iris diaphragm and filter carrier. A supplementary lens is provided in a swing-out mount beneath the condenser to illuminate the entire field of view when using low power objectives. Daylight blue and ground glass filters.

SUBSTAGE MIRROR. Plano-concave.

NOSEPIECE. Quadruple.

EYEPIECE TUBE. Inclined monocular may be rotated about its axis and clamped in any desired position.

SPECIFICATION

DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS					
Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 Eyepiece mm.
x8	Achromatic	18.20	0.20	8.53	2.25
x20	Achromatic	8.40	0.40	1.70	0.90
x40	Achromatic*	4.25	0.65	0.41	0.45
x90	OI. Achromatic*	1.90	1.25	0.10	0.20

* Spring-Loaded Mount

EYEPIECES

Magnification	Type	Focal Length mm.	Linear Field of View mm.	Total Magnifications with Objectives			
				x8	x20	x40	x90
x7	Compensating	35.00	18	56	140	280	630
x10	Compensating	25.00	13	80	200	400	900
x15	Compensating	16.70	11	120	300	600	1,350

OUTFITS

Biolam - S20

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x8 and x40. Eyepieces x7 and x15. Case.

Biolam - S21

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x8, x20, and x40. Eyepieces x7, x10 and x15. Case.

Biolam - S21A

Outfit as Model S21 with addition of x3.5 Planachromatic objective.

Biolam - S22

Inclined monocular stand with quadruple nosepiece. Abbe condenser with supplementary lens, Iris diaphragm and filter carrier. 2 filters. Objectives x8, x40, and x90. OI. Eyepieces x7, x10, and x15. Case.

ZENITH

BM-51-2 Stereoscopic Binocular Microscope



This stereoscopic binocular microscope is suitable for use in schools, factories and research laboratories. The microscope's working distance and field of view are relatively large and these features ensure convenience to the observer who works with both hands while assembling precision mechanisms or handling various medical, biological or botanical specimens.

The microscope is focused by a rack and pinion movement operated by two milled heads and the prism boxes are revolved to suit the interocular distance of the observer.

The height of the binocular body from the stage may be adjusted by means of the clamp screw on the 7 $\frac{3}{4}$ " vertical pillar. A reversible black/white metal disc and stage clips are fitted to the 6 $\frac{1}{4}$ " diameter base. Magnification x8.75.

Supplied complete in fitted wooden case.

All prices subject to V.A.T.

**T.O.E. Specialise in
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INSPECTION AND PRODUCTION CONTROL**

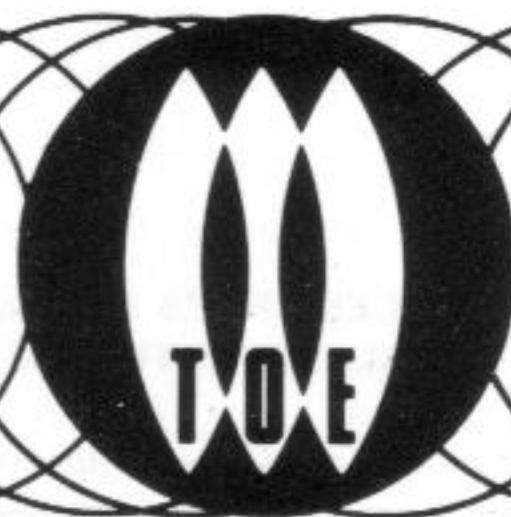
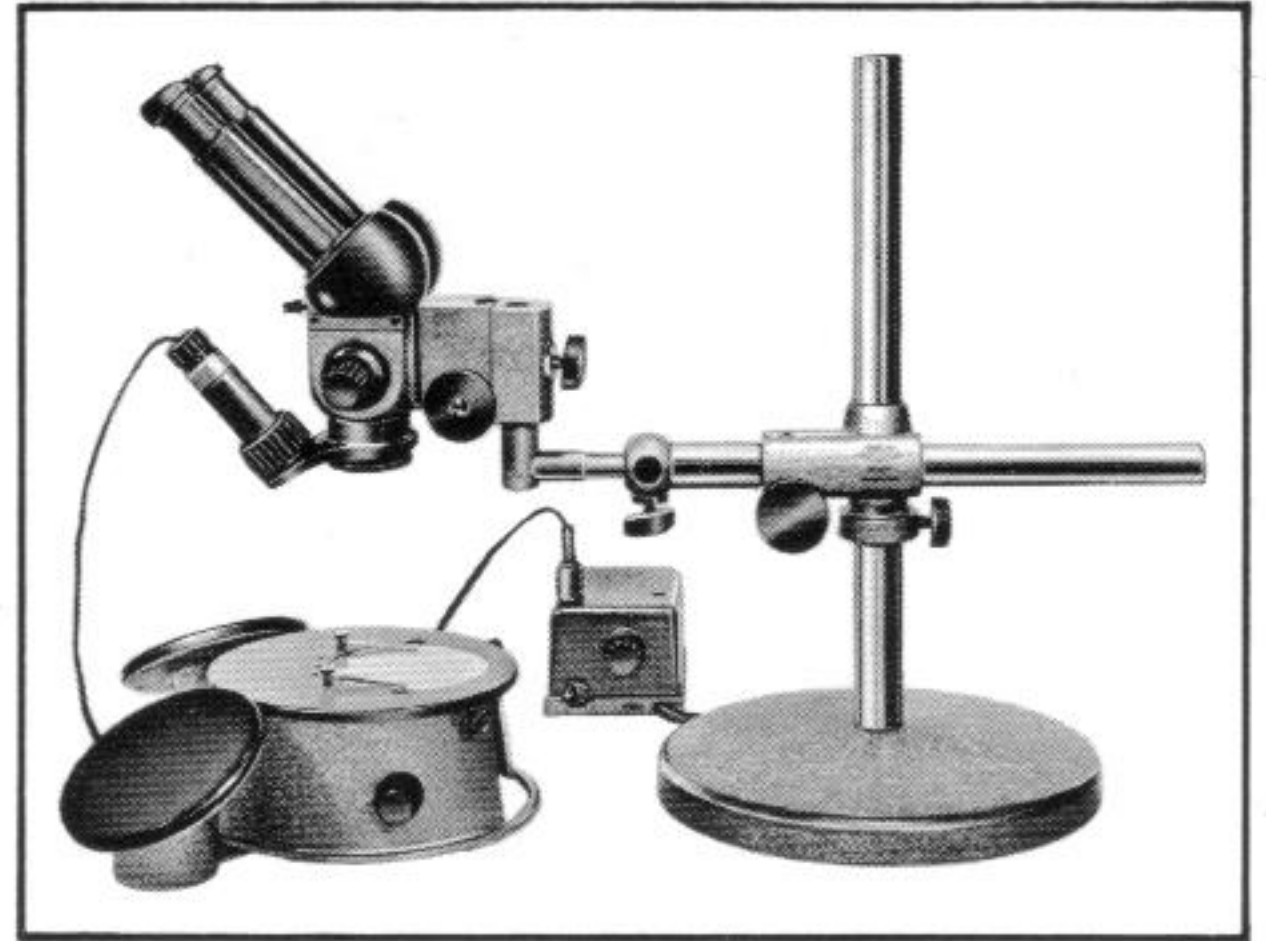
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**Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874**

zenith

MBS-1 & MBS-2



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
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Telephone: 01-263 0951 Telex: 261874

Stereoscopic Microscopes



MBS-1 & MBS-2

MBS-1

A modern Stereoscopic Microscope giving a brilliant erect image in either transmitted or reflected light. The revolving indexed drum on the main body of the microscope has magnification factors of x0.6, x1, x2, x4 and x7. Pairs of x6, x8 and x12.5 eyepieces are included in the outfit and the microscope has a range of total magnifications from x3.6 to x87.5.

The circular base is fitted with an adjustable mirror and matt reflector for use with transmitted light, the lighting unit being screwed into the rear of the base. The stage aperture holds either a clear glass plate or a metal disc and provision is made for fitting the attachable mechanical stage CT-12, should this be required.

The Binocular head is reversible and the body unit is adjustable for height on the vertical column. Focusing is by rack and pinion.

OBJECTIVE	Total Magnifications with Eyepieces			Field of View with Eyepieces, mm.		
	x6	x8	x12.5	x6	x8	x12.5
x0.6	x3.6	x4.8	x7.5	42	35	32
x1	x6	x8	x12.5	24	20	18
x2	x12	x16	x25	12	10	9
x4	x24	x32	x50	6	5	4.5
x7	x42	x56	x87.5	3.4	2.9	2.6

The working distance approximately 64mm.

Stereoscopic Microscope Model MBS-1 complete with pairs of x6, x8 and x12.5 eyepieces. Single x8 micrometer eyepiece with combined scale and crossing graticule. Lighting unit with transformer and rheostat. Two spare bulbs, arm rests, in case.

MBS-2

This Stereoscopic Microscope is identical optically to the Model MBS-1. The Binocular body is mounted on a Universal stand having a vertical column 15¾ ins. high and a horizontal arm 13¾ ins. long, which is adjustable by means of a rack and pinion movement. The heavy circular base is 10½ ins. in diameter. Both the MBS-1 and MBS-2 Microscopes operate on the principle of inserting one of two pairs of differing and invertible Galilean lens systems into a parallel beam of light rays formed by the special front objective lens. The inversion of each Galilean system gives two different final magnifications, the two pairs thus giving four variants. A fifth variant is obtained by omitting both systems. The two pairs of Galilean systems and two clear apertures are housed in a revolving drum inside the main body of the microscope. Further lens and prism systems behind the Galilean lenses form images in the focal planes of the eyepieces.

Stereoscopic Microscope Model MBS-2 complete on Universal Stand with pairs of x6, x8 and x12.5 eyepieces. Single x8 micrometer eyepiece with combined scale and crossline graticule. Circular base with arm rests. Lighting unit with transformer and rheostat. Two spare bulbs.

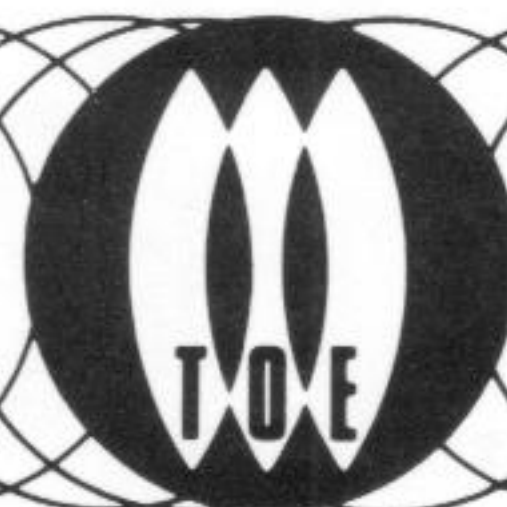
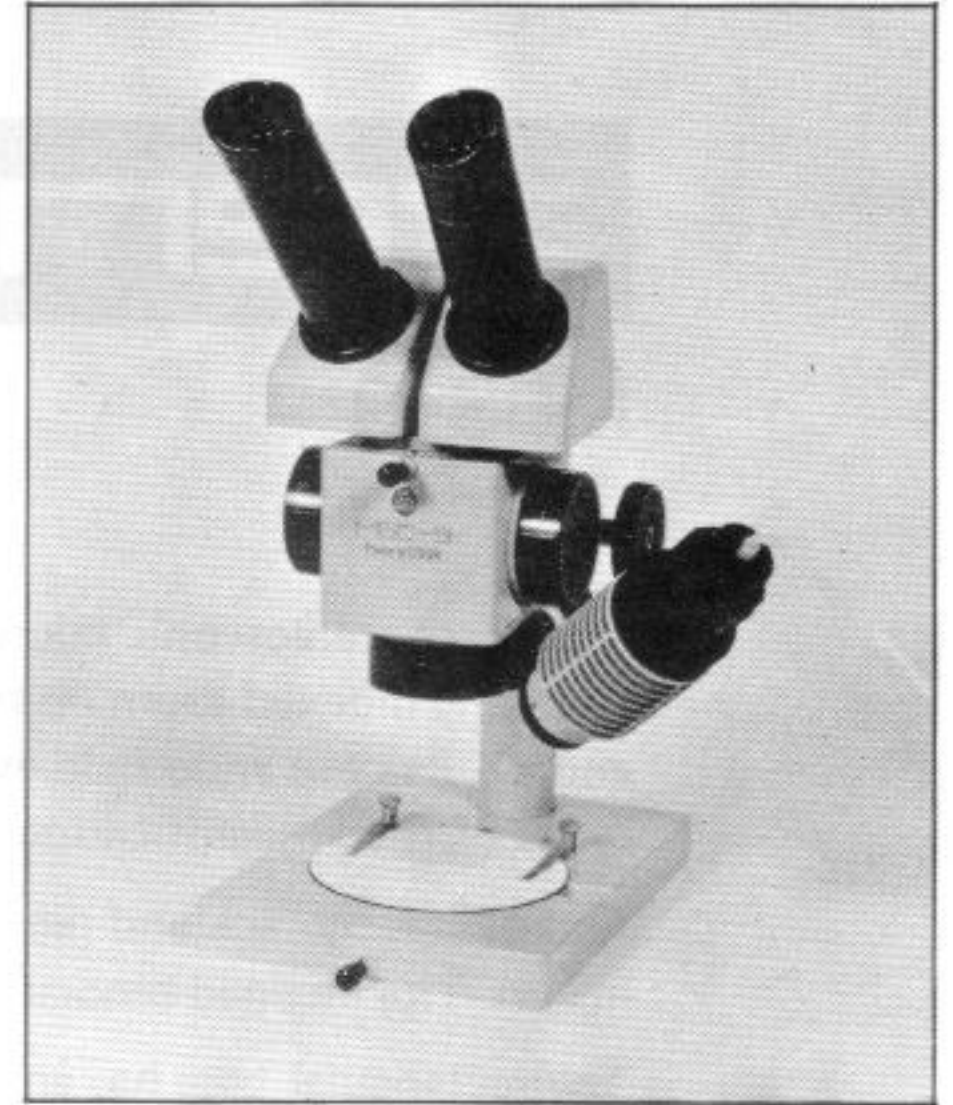
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All prices subject to VAT

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MBS-9



Microscope Division
Technical & Optical Equipment (London) Ltd.
Zenith House, The Hyde, Edgware Road
London NW9 6EE
Telephone: 01-200 6505 Telex: 261874

Stereoscopic Microscope

zenith

MBS-9

A modern stereoscopic microscope giving an erect image in either transmitted or reflected light. The revolving indexed drum on the body of the microscope has magnification factors of x0.6, x1, x2, x4 and x7. Pairs of wide field eyepieces x6, x8, x12.5 and x14 are included in the optical outfit and the range of total magnifications is from x3.6 to x98.

Focusing is by rack and pinion and the body unit mounted on the vertical column is adjustable for height. The inclined binocular head is reversible, and the interpupillary distance is from 56 to 72mm.

The rectangular base has an adjustable plano mirror/opal glass reflector and the stage aperture accommodates either the clear glass plate or reversible black/white metal plate. The microscope and stage may be removed from the illuminating base and placed directly onto any large surface to be examined.

The lamp unit is mounted onto the body of the microscope for incident light by means of an adjustable clamping system and the 8 volt 20 watt bulb operates from a mains transformer, rheostat controlled with on/off switch, for transmitted light the lamphouse is fitted into the base. For continuous use at the lowest magnification of x3.6 the bulb and bulb holder are inserted into the base when the field of view will be illuminated by means of the built-in circular reflector and mirror.

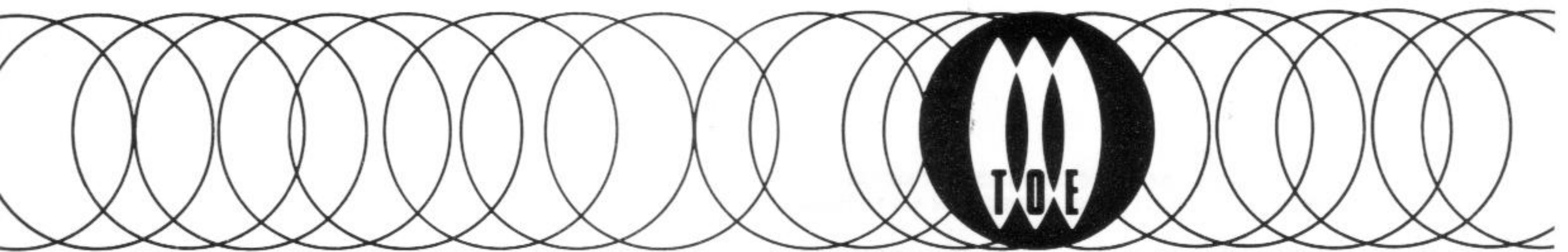
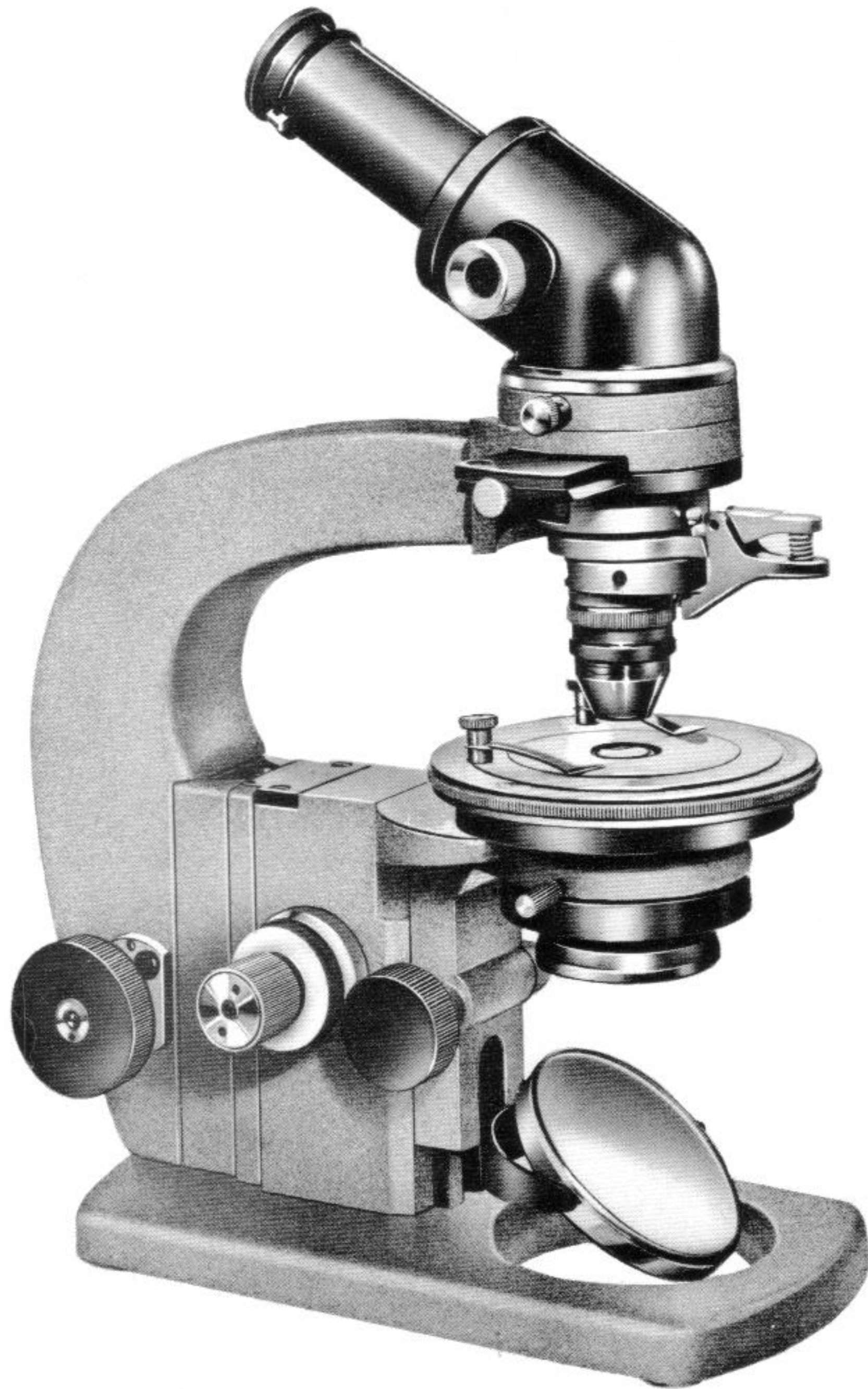
OBJECTIVES	Total Magnifications				Fields of View with Eyepieces (mm)			
	x6	x8	x12.5	x14	x6	x8	x12.5	x14
x0.6	3.6	4.8	7.5	8.4	39.3	34	32	28
x1	6	8	12.5	14	23.4	20	18	16
x2	12	16	25	28	11.2	10	8.9	8.1
x4	24	32	50	56	5.5	4.9	4.4	4
x7	42	56	87.5	98	3.1	2.8	2.5	2.3

THE WORKING DISTANCE IS APPROXIMATELY 64mm

MBS-9 Stereoscopic Microscope As described above complete with pairs of x0.6, x1, x2, x4 and x7 objectives. Pairs of x6, x8, x12.5 and x14 wide field eyepieces. Single x8 focusing micrometer eyepiece with combined scale and cross line graticule interchangeable with a graticule ruled in 1mm squares. Lamp unit with mains transformer and rheostat. Arm rests. Two spare bulbs. Transit case.

zenith

MPD-1



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874

Field Polarising Microscope

zenith

MPD-1

Field Polarising Microscope MPD-1

This Polarising Microscope is suitable for field investigations and due to its compact design the instrument and accessories are contained in a strong metal carrying case measuring 10½ ins. x 9 ins. x 4½ ins.

The microscope has a coarse and divided fine adjustment (0.002mm) situated at the base of the limb. Rack and pinion focusing substage with Abbe condenser and iris diaphragm.

Rotating polariser in mount, graduated 0°, 30°, 45°, and 90°.

Circulating rotating stage graduated in 2° divisions. Clamp to rotation. Centring objective changers.

Body slot at 45° to the axis of the microscope for the insertion of the compensation wedge or compensating plate. The analyser is mounted into a carrier that may be slid out of the optical axis.

Inclined monocular tube with Bertrand lens capable of being swung in and out of the optical path.

Range of Total Magnifications from x45 to x900.

The Phase Contrast outfit KF-4 and the Dark Field Condenser OI-13 may be used with this instrument.

OBJECTIVE	MAGNIFICATION	NUMERICAL APERTURE	WORKING DISTANCE	FIELD OF VIEW WITH x5 EYEPIECE
Planachromat	x9	0.20	MM. 13.8	MM. 2.55
Achromatic	x40	0.65	0.4	0.57
Achromatic	x60	0.85	0.14	0.38

Field Polarising Microscope Model MPD-1 as described above complete with objectives, Planachromatic x9 with iris diaphragm, achromatic x40 and x60.

Micrometer Eyepieces x5 (combined scale and crosslines), x8(crosslines), x15 compensating eyepiece.

Quartz wedge and compensating Quartz plate both mounted in metal carriers.

In Metal Case. £98.44

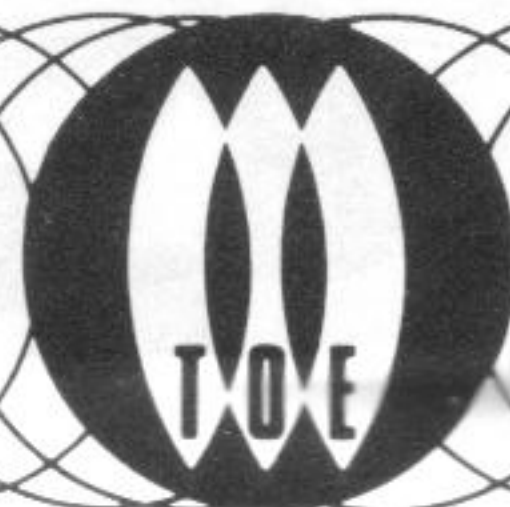
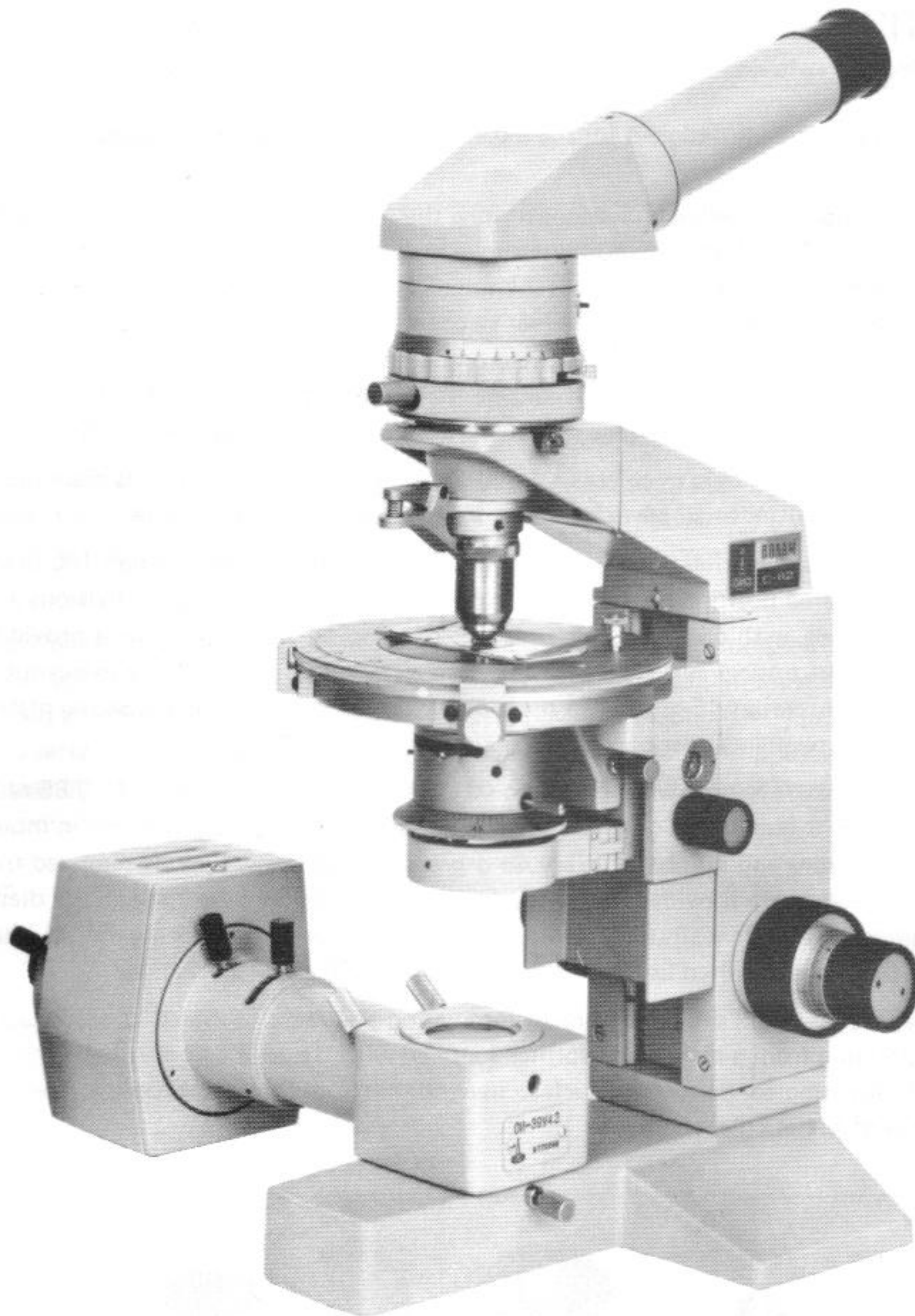
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**POLAM C-112
POLARISING
MICROSCOPE**



Microscope Division
Technical & Optical Equipment (London) Ltd.
Zenith House, The Hyde, Edgware Road
London NW9 6EE
Telephone: 01-200 6505 Telex: 261874

Polarising Microscope

zenith

POLAM C-112

The Polam polarising microscope is designed for the examination of crystalline and other transparent specimens in transmitted polarised light.

Stand with co-axial coarse and fine adjustments controlling the focusing stage are situated on both sides of the limb and in a convenient working position just above bench level. The fine adjustment is graduated in 0.002mm divisions and its range of movement is 2.5mm. The instrument has a single nosepiece, the objectives being mounted in individual centring objective changers, to enable them to be centred to the optical axis of the microscope. Rotating stage mounted on ball bearings. The stage is divided into 360 degrees and numbered every 10 degrees. Two verniers are fitted reading to 6 minutes of arc and a clamp is provided to lock the rotation. The centre stage disc is removable. The stage is provided with spring clips.

Inclined monocular tube for wide field eyepieces (30mm diameter) is fitted with an iris diaphragm to isolate the conoscopic figure from small particles. Slots are provided to locate the crossline eyepiece.

Intermediate body tube has a magnification factor of $\times 1.2$. The analyser rotates through 180 degrees and may be clamped in any desired position. The analyser scale is graduated into 2 degree divisions and numbered every ten divisions, with a vernier scale reading to 6 minutes. A control lever is provided to swing the analyser out of the optical axis. The focusing Bertrand lens is also fitted in a swing-out mount. Below the analyser is a body slot at 45 degrees to the axis for the insertion of compensating plates. The slot is provided with a revolving dust cover.

Substage with rack and pinion focusing movement. The KOH-4 two lens condenser N.A. 0.85 reduces to N.A. 0.3 with the top lens removed. Condenser aperture diaphragm. Rotating polariser in mount graduated in 5 degree divisions and numbered every 45 degrees. The polariser may be removed from the optical system. Centring screws are provided in the condenser mount for use with the annular diaphragms included with the optical outfit. Beneath the condenser a supplementary lens in swing mount is used to illuminate the entire field of view when using the lower powered $\times 3.5$ and $\times 9$ objectives.

High intensity substage lamp OI-39 provides Kohler illumination and comprises an 8 volt 20 watt bulb in centring mount operating from a mains transformer supplied with rheostat and on/off switch. The unit has a field diaphragm, focusing condenser and surface silvered mirror in adjustable mount. The lamp is clamped onto the base of the microscope.



OBJECTIVES DESIGNED FOR 160mm TUBE LENGTH AND 0.17mm COVER GLASS THICKNESS

Magnification	Type	Numerical Aperture	Focal Length (mm)	Working Distance (mm)	Conoscopic Angle Degree
x3.5	Planachromatic	0.10	29.92	23.45	12
x9	Planachromatic†	0.20	15.50	13.13	23
x20	Achromatic	0.40	8.40	1.70	47
x40	Achromatic*	0.65	4.35	0.55	81
x60	Achromatic*	0.85	2.99	0.14	116

†With Iris Diaphragm *Spring-Loaded Mount All Objectives are Strain Free

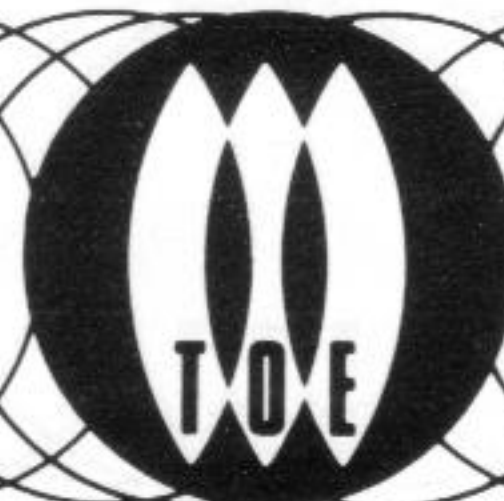
EYEPIECES

Magnification	Type	Graticule Type	Eyepiece Diameter
x6.3	Focusing Micrometer	Crossline and Interchangeable Graticule with 10mm square grid divided into 0.5mm squares	23.2
x10	Focusing Micrometer Wide-Angle	Crossline	30
x10	Focusing Micrometer Wide-Angle	Combined 18mm Scale and Crossline	30

TOTAL MAGNIFICATIONS WITH OBJECTIVES AND x1.2 MAGNIFICATION FACTOR

Eyepieces	x3.5	x9	x20	x40	x60
x6.3	26.4	68	151.2	302.4	453.6
x10	42	108	240	480	720

Polam polarising microscope model C-112 as illustrated and described complete with objectives, x3.5, x9, x20, x40 and x60 in centring mounts. Micrometer eyepieces x6.3 (crossline) with 30mm adaptor, x10 (crossline) and x10 (scale and crossline). Two eyepiece pinhole diaphragms. Stage micrometer 1mm into 100 parts. Quartz compensating wedge. Quartz compensating plate. Substage filters, blue and ground glass. Substage mirror in gymbal. High intensity substage lamp with transformer. 2 spare bulbs. Accessories supplied in polished wooden cases.



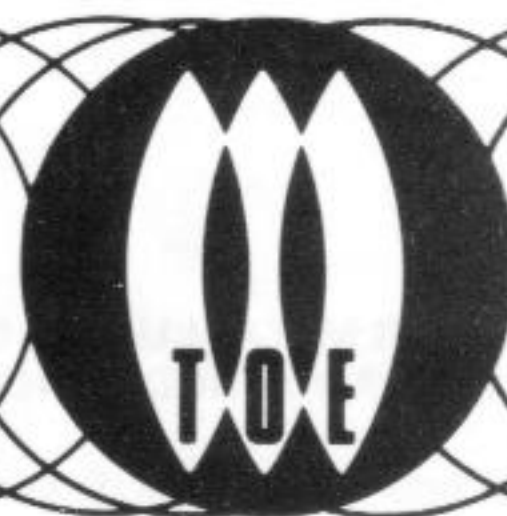
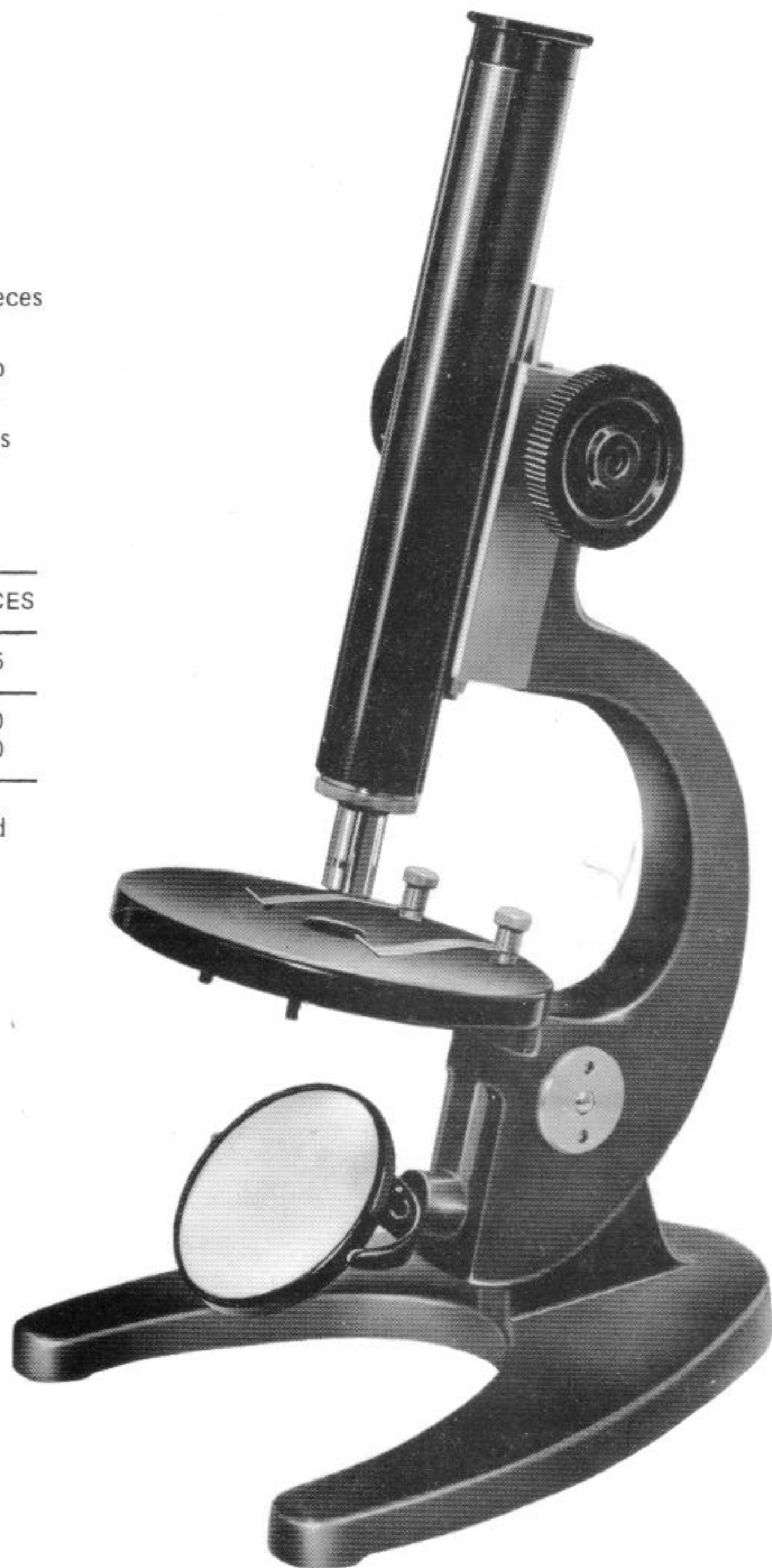


SHM-1 JUNIOR MICROSCOPE

A monocular microscope using standard R.M.S. objectives and eyepieces giving a range of magnifications from x56 to x300. The focusing mechanism is by rack and pinion. The microscope has a die-cast limb and foot which is inclinable through 45° and a non-corrosive circular stage with spring clips. A substage aperture control with click stops is provided together with a 60 mm dia. concave/opal mirror. It is finished throughout in matt black.

OBJECTIVES	TOTAL MAGNIFICATION WITH EYEPIECES		
	x7	x10	x15
x 8 (N.A. 0.20)	56	80	120
x20 (N.A. 0.40)	140	200	300

SHM-1 Microscope complete with x8 and x20 objectives, x7, x10 and x15 eyepieces, all in case with accessories which include mask for pointer eyepiece, lens dusting brush and cleaning cloth.



Microscope Division,
Technical & Optical Equipment (London) Ltd.,
Zenith House, Thane Villas, London N7 7PB
Telephone: 01-263 0951 Telex: 261874



MBU-4 JUNIOR MICROSCOPE

A monocular microscope using standard R.M.S. objectives and eyepieces giving a range of magnifications from x56 to x300. The coarse focusing mechanism is by rack and pinion and the fine adjustment is graduated in .002 mm divisions. The microscope has a die-cast limb and foot which is inclinable through 90° and a non-corrosive circular stage with spring clips. The substage is provided with three interchangeable diaphragms which are selected in accordance with the objective used. The finish is matt-black and chromium plate.

OBJECTIVES	TOTAL MAGNIFICATION WITH EYEPIECES		
	x7	x10	x15
x 8 (N.A. 0.20)	56	80	120
x20 (N.A. 0.40)	140	200	300

MBU-4 Microscope complete with x8 and x20 objectives, x7, x10 and x15 eyepieces. Three substage diaphragms in fitted case with lock and key.



**T.O.E. specialise in
MICROSCOPES AND ACCESSORIES FOR METALLURGY, DISSECTION,
RESEARCH, INDUSTRIAL INSPECTION AND PRODUCTION CONTROL.**

We reserve the right to vary, modify or improve any specification and/or design at any time without prior notice.

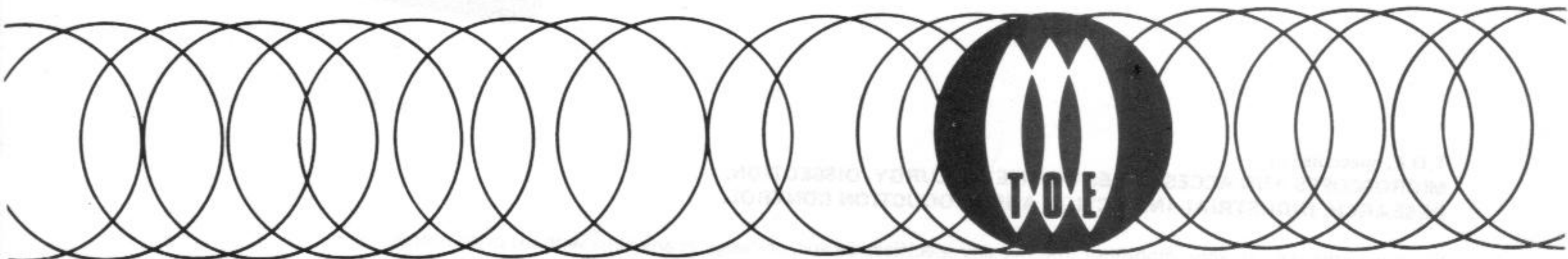
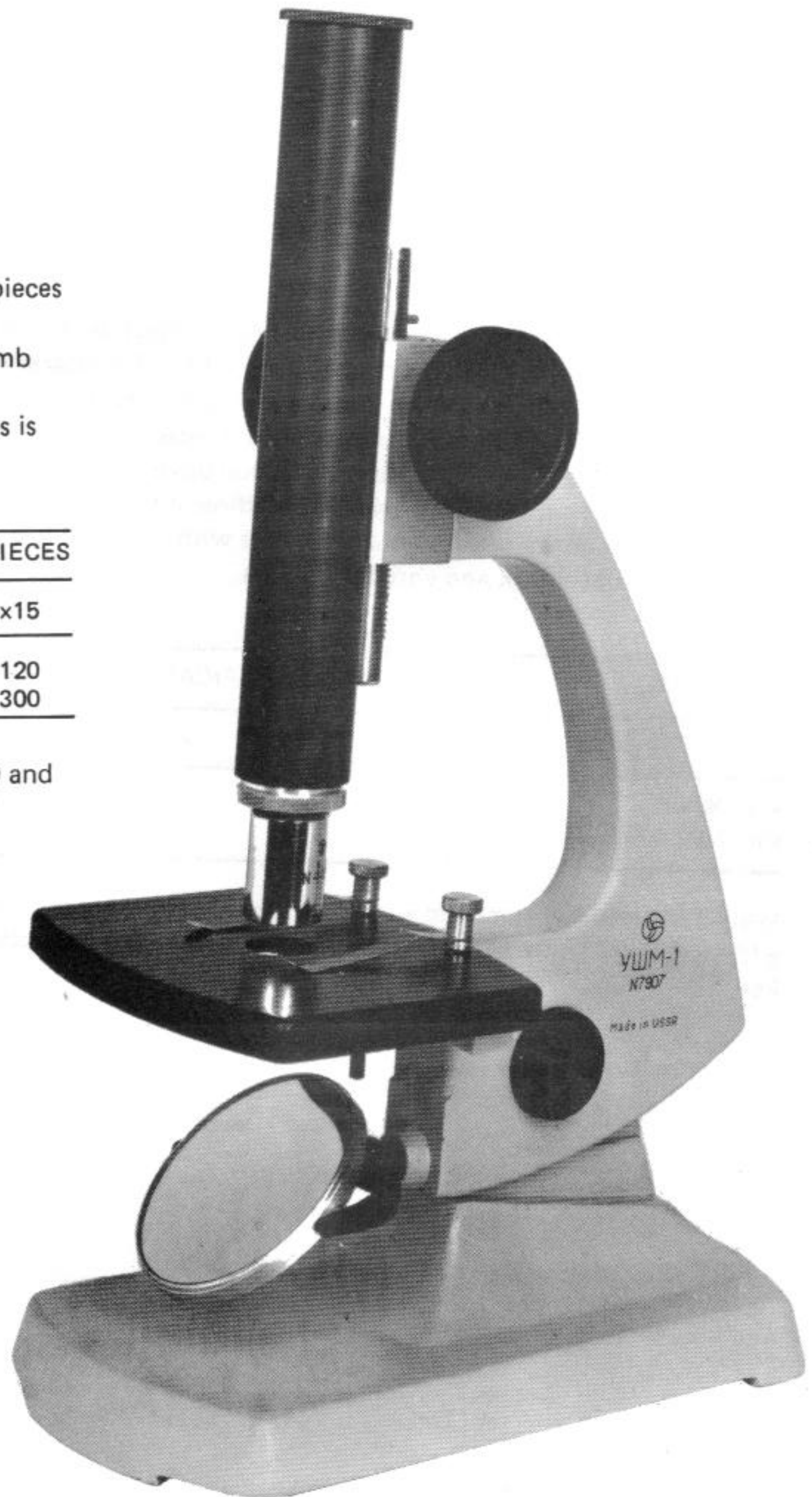


YWM-1 JUNIOR MICROSCOPE

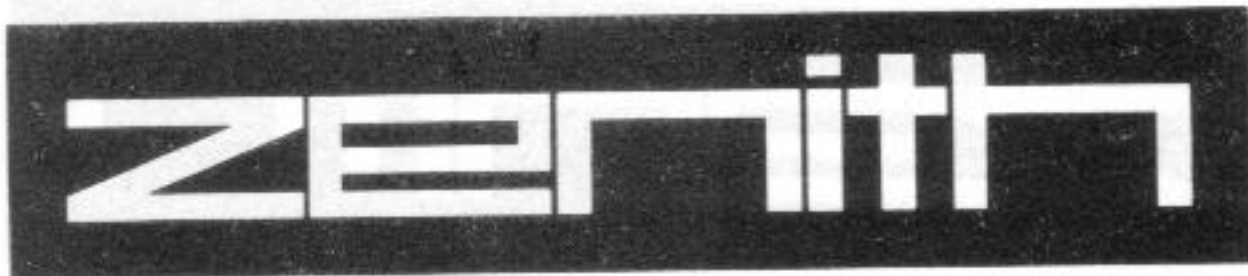
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YWM-1 Microscope complete with x8 and x20 objectives, x7, x10 and x15 eyepieces, all in case with accessories which include mask for pointer eyepiece, lens dusting brush and cleaning cloth.



Microscope Division
Technical & Optical Equipment (London) Ltd.
Zenith House, The Hyde, Edgware Road
London NW9 6EE
Telephone: 01-200 6505 Telex: 261874



MBU-4 JUNIOR MICROSCOPE

A monocular microscope using standard R.M.S. objectives and eyepieces giving a range of magnifications from x56 to x300. The coarse focusing mechanism is by rack and pinion and the fine adjustment is graduated in .002 mm divisions. The microscope has a die-cast limb and foot which is inclinable through 90° and a non-corrosive circular stage with spring clips. The substage is provided with three interchangeable diaphragms which are selected in accordance with the objective used. The finish is matt-black and chromium plate.

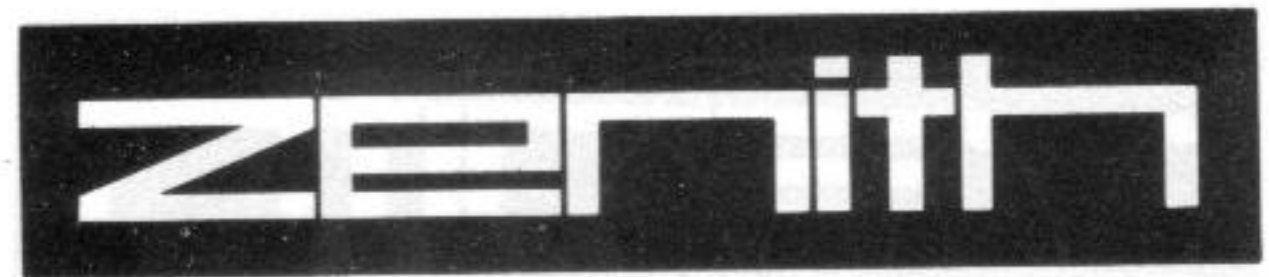
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x 8 (N.A. 0.20)	56	80	120
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MBU-4 Microscope complete with x8 and x20 objectives, x7, x10 and x15 eyepieces. Three substage diaphragms; Fitted case with lock and key.



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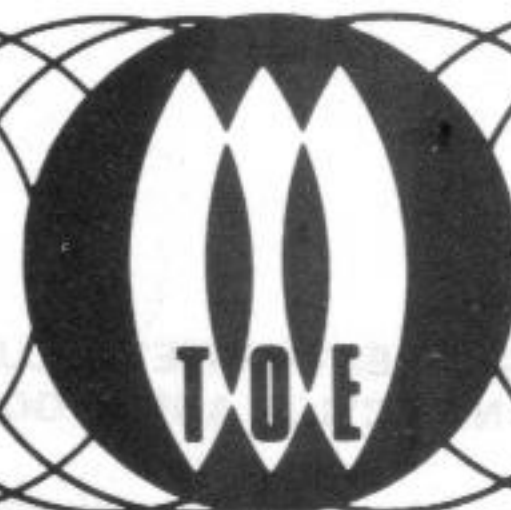
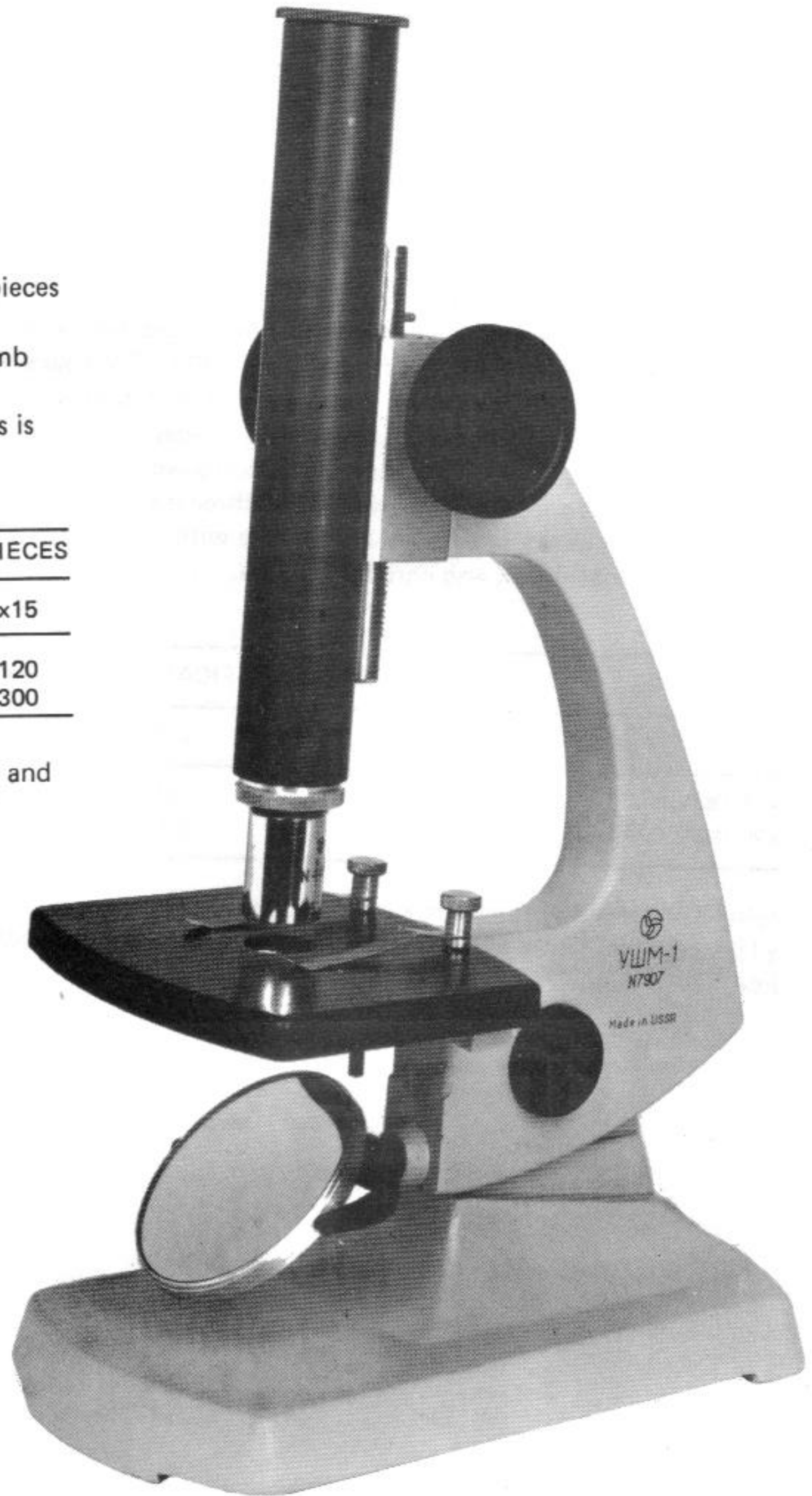


YWM-1 JUNIOR MICROSCOPE

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Microscope Accessories and Attachments

BINOCULAR ATTACHMENT AY-12

The AY-12 binocular attachment allows the observer to work under more natural conditions by using both eyes, thereby considerably reducing eye fatigue. One of the eyepiece tubes is provided with a dioptric adjustment of ± 5 diopters. Supplied with matched x7 and x10 eyepieces. Packed in case.

CODE AY-12

SPECIFICATION

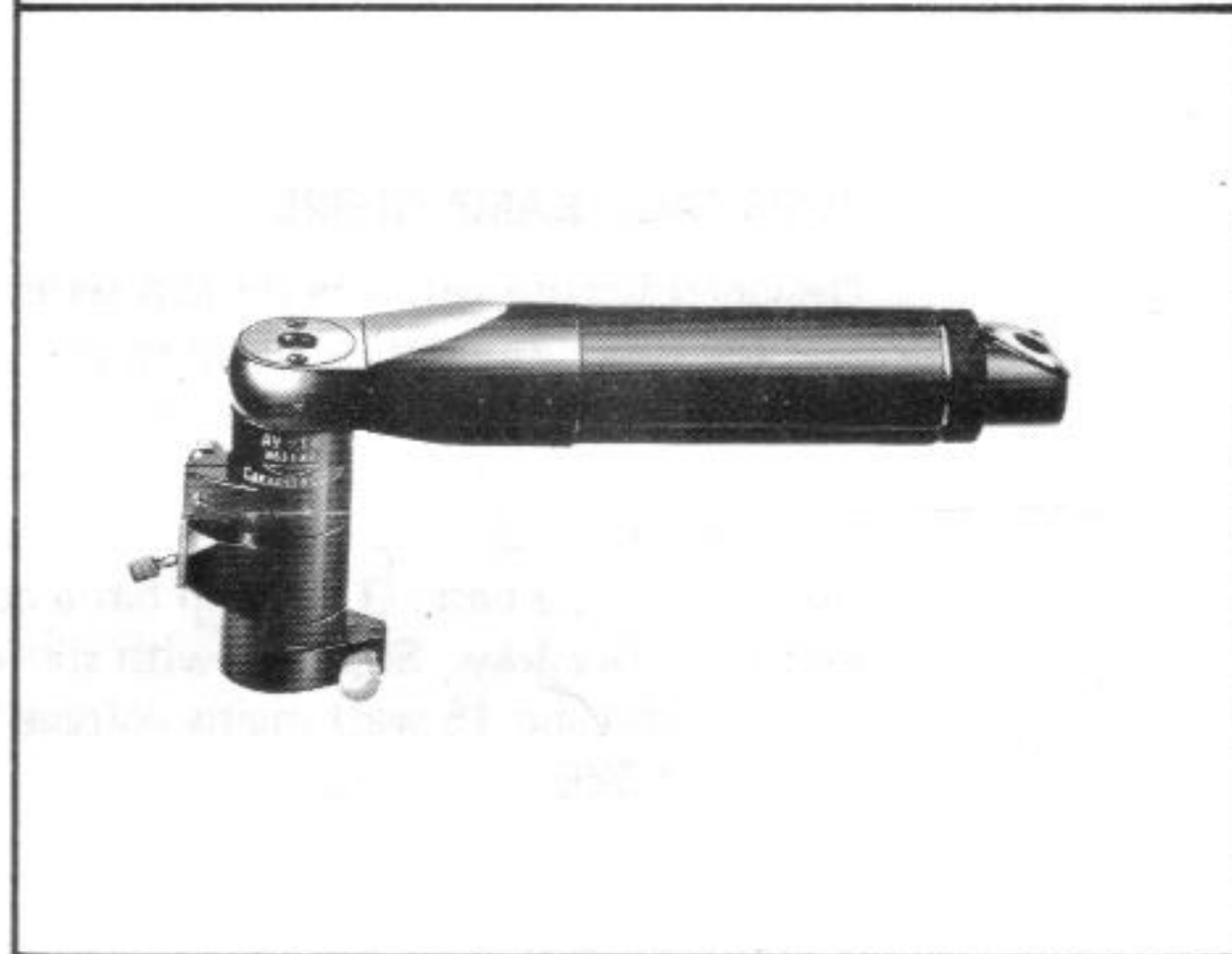
Initial magnification of attachment x1.5.
Magnification of Huyghenian eyepieces x7 and x10. Range of interocular adjustment, mm from 55 to 75.



DEMONSTRATION ATTACHMENT AY-14

This attachment is designed for the simultaneous observation of specimens by two observers. The x10 eyepiece clamps on to the microscope tube and, by means of the movable pointer, attention may be directed to a particular feature of the specimen. The magnification is identical for both observers. The auxiliary eyepiece has an adjustment of ± 5 diopters and may be rotated to any convenient angle.

CODE AY-14



VERTICAL MONOCULAR ATTACHMENT VA-1

For use in conjunction with photomicrographic attachments and projection and drawing apparatus.

CODE VA-1



Microscope Accessories & Attachments

SUBSTAGE LAMP SL-4

This unit may be fitted to the microscope in place of the mirror and gymbal. The substage lamp uses a 15 watt mains voltage bulb and is suitable for use with the Biolam series of microscopes. Complete with bulb and six feet of 3 core cable.

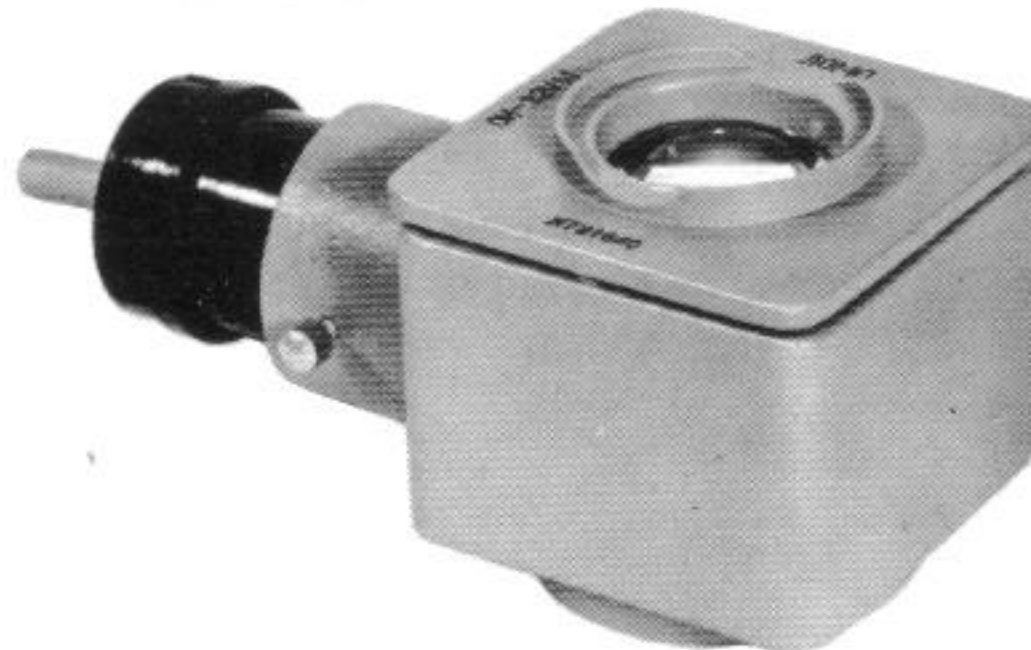
CODE SL-4.



SUBSTAGE LAMP OI-32E

Designed for use with the Biolam series of microscopes. The unit is fitted to the microscope, after withdrawing the substage mirror and gymbal, by inserting the flange on the base of the lamphouse into the aperture in the microscope base. The lamp has a condenser lens and filter tray. Supplied with six feet 3 core cable and 15 watt mains voltage bulb.

CODE OI-32E



HIGH-INTENSITY LAMP OI-19

An independent lamp unit suitable for use with ALL microscopes, giving sufficiently high illumination for phase contrast and dark field techniques.

The lamphouse has a two-element lens, iris diaphragm and filter-carrier. Daylight-blue and ground glass filters are provided.

The lamphouse is adjustable for height and tilt and is mounted on a 8½" upright.

The light source is a 20 watt, 8 volt lamp fed from a separate step-down mains-voltage transformer, rheostat controlled and incorporating an on-off switch.

Supplied complete with filters, transformer and mains cable.

CODE OI-19



Microscope Accessories & Attachments

PHASE CONTRAST APPARATUS KF-4

This apparatus consists of a set of four special achromatic objectives each with an annular diaphragm applied onto the internal surface of a cemented lens combination. The phase contrast objectives are corrected for a mechanical tube length of 160 mm. and a cover glass thickness of 0.17 mm.

The phase contrast condenser has an aperture of 0.9. Situated beneath the condenser is an indexed, rotating, centring disc provided with four annular diaphragm apertures and one clear aperture which permits a quick and easy interchange from the phase method to normal bright field illumination.

The condenser unit is also fitted with an iris diaphragm and filter carrier.

Phase contrast apparatus comprising substage condenser unit. Objectives x10 (N.A. 0.30), x20 (N.A. 0.40), x40 (N.A. 0.65) and x90 (N.A. 1.25) oil immersion, Auxiliary telescope. Green filter. Complete in case.

CODE KF-4

£78.45



zenith

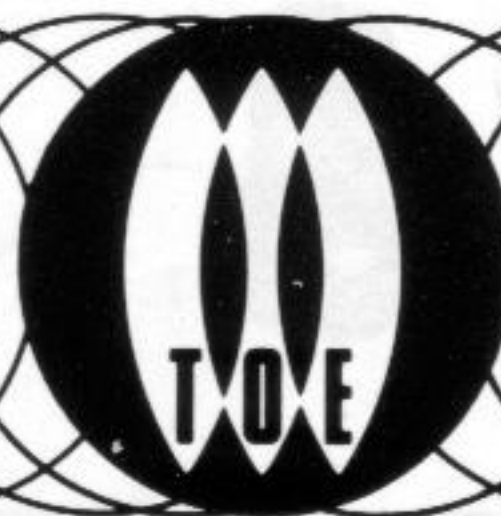
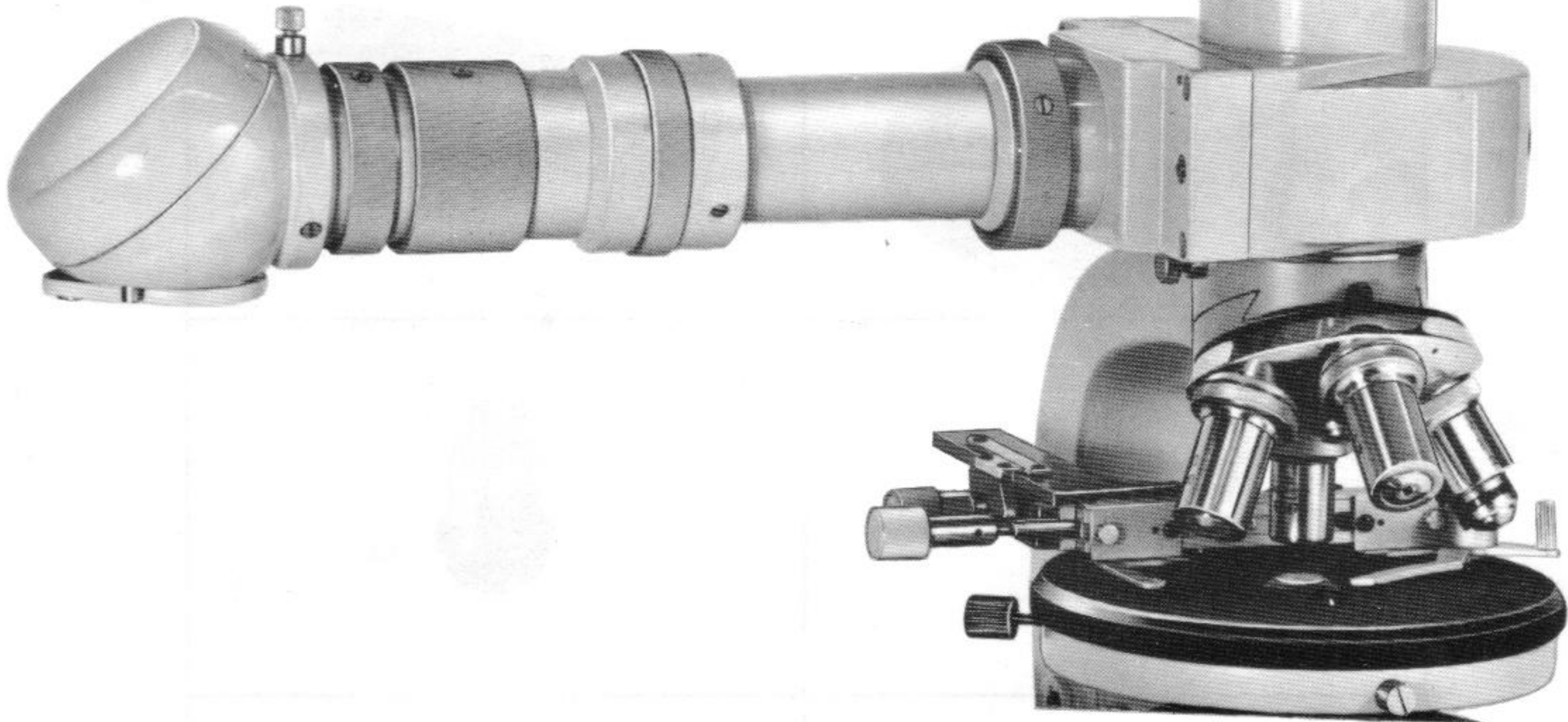
Projection & Camera Lucida Attachment RA-6

This attachment is designed for use with models MBR-1E, MBR-1, MBD-1, MBI-3 and MBB-1A microscopes and may be used with either monocular or binocular heads. With the projection prism in position the image is projected downwards on to a sheet of paper or by rotating the projection mirror through 90 degrees onto a vertical screen. When used as a camera lucida the projection prism is replaced by the cube prism and the observer is able to see simultaneously the specimen superimposed upon the paper, and the pencil.

It is necessary to balance the amount of light being reflected onto the paper with that being transmitted through the microscope.

The RA 6 projection and camera lucida attachment is complete with screening disc, green, neutral, orange and blue filters, and is supplied in a wooden case.

PRICE £33.75.



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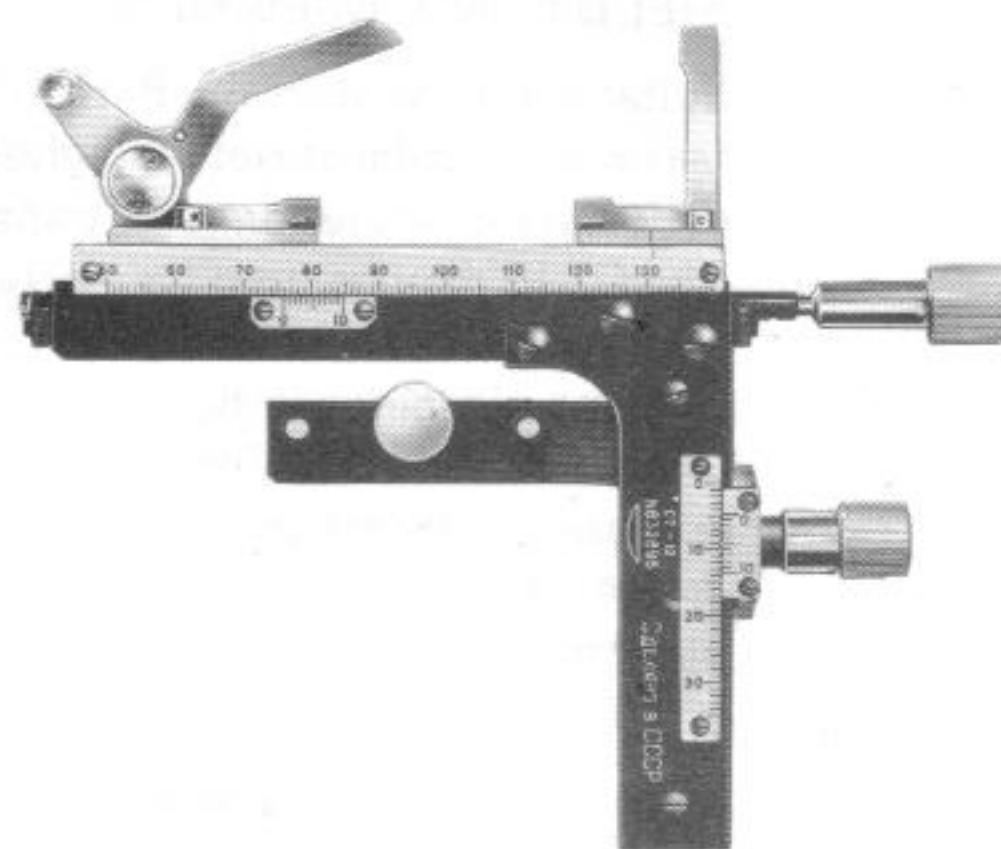
zenith

Microscope Accessories and Attachments

MECHANICAL STAGE CT-12

A convenient attachment to effect the movement of a specimen on a microscope stage, both vertically and horizontally, and to measure the co-ordinates of objects being investigated. The CT-12 has scales and verniers reading to 0.1 mm with movements of 30 mm in the vertical and 80 mm in the horizontal directions.

CODE CT-12



MICRO-CAMERA ADAPTOR CA-3

A simple micro-camera adaptor designed for use with the Biolam series of microscopes. It is fitted to the microscope in place of either the monocular or binocular head. The adaptor is provided with Zenith/Pentax thread for use with S.L.R. cameras.

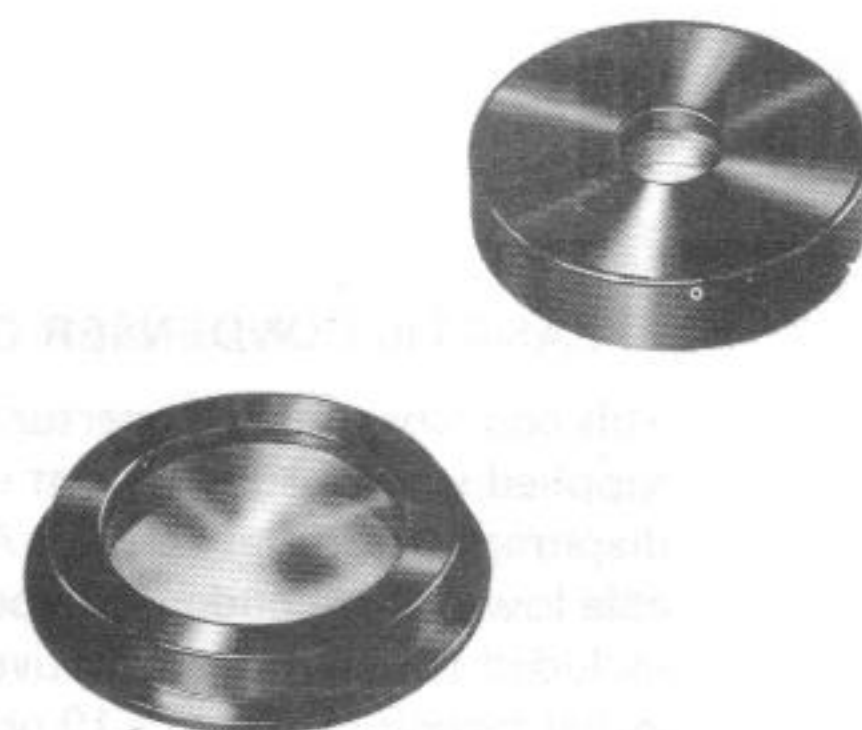
CODE CA-3



POLARISER AND ANALYSER PA-3

Provides a rapid and efficient method of viewing specimens by polarised light. The equipment comprises two polaroid discs mounted between glass. The observer merely slips the Polariser into the filter carrier of the substage diaphragm and fits the Analyser over the eyepiece.

CODE PA-3



Microscope Accessories & Attachments

LIGHT AND DARK FIELD CONDENSER OI-10

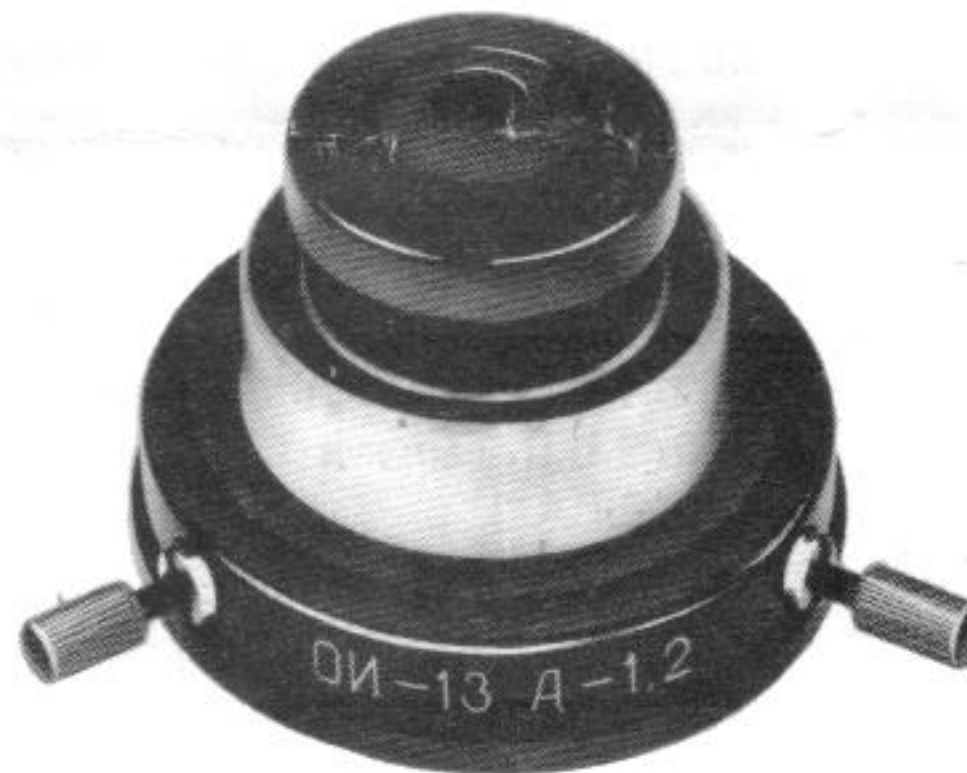
Suitable for use with the Biolam Microscopes Series R (circular stage); and gives bright and dark field illumination with transmitted light. The OI-10 may be used for routine investigations of specimens as well as for the preparation of living organisms in humid chambers. When using dark field illumination the numerical aperture of the condenser, 0.7, should be greater than that of the objective. The numerical aperture of the light field condenser is 0.6.

Supplied in individual polished wood case.
CODE OI-10.



DARK FIELD OIL-IMMERSION CONDENSER OI-13

The Dark Field Condenser N.A.1.2 may be used with both dry and oil immersion objectives. In the latter case the aperture must be reduced. A funnel stop is included for use with the x90 oil immersion objective N.A. 1.25. The Condenser is supplied in a centring substage mount. The OI-13 is supplied packed in a polished wood case.
CODE OI-13.



APLANATIC CONDENSER OI-14

This condenser has an aperture of 1.4 and is supplied in a substage mount with iris diaphragm and filter carrier. An interchangeable low-power condenser (aperture 0.3) is also included for use with objectives having an initial magnification of x10 or less.

To use the full aperture of the condenser when using oil immersion objectives, the condenser should also be immersed.

Oblique illumination is obtainable by means of the diaphragm's rack and pinion movement which can be displaced by ± 10 mm in the plane perpendicular to the condenser axis and by rotating it through an angle of 150 degrees.

Supplied complete with low-power condenser, in fitted wooden case. CODE OI-14.



REFLECTED LIGHT ILLUMINATOR



OI-21 ATTACHMENT

The reflected light illuminator is designed for use with the Biolam series of biological microscopes for the examination of opaque and semi-transparent specimens in bright and dark field illumination and bright and dark field polarised light.

The illuminator is fitted onto the microscope body after removing the inclined monocular tube and withdrawing the quadruple nosepiece from its dovetail slide. With the illuminator clamped into position the monocular tube is remounted onto the body of the illuminator.

The lamphouse has a single element lens and illumination is provided by an 8 volt 20 watt bulb in centring mount, operating from a separate mains voltage transformer, rheostat controlled and incorporating a neon indicator lamp and on-off switch. The lamphouse is removable to permit the use of an external light source — if required. A field diaphragm is mounted in front of the lamphouse together with two slots to accommodate the polariser and colour filters. Next to the polariser slot and mounted on a slide carrier is a dark field diaphragm and clear aperture stop. The semi-transparent cover glass reflector situated in the body of the attachment and mounted on a sliding tube, is positioned within the optical system for bright field and bright field polarised light, and withdrawn from the system for dark field and dark field polarised light. The analyser is fitted into the recess in the body of the illuminator beneath the inclined monocular tube.

Specimens of up to 60mm in height can be accommodated and for thinner sections a circular platform is provided.

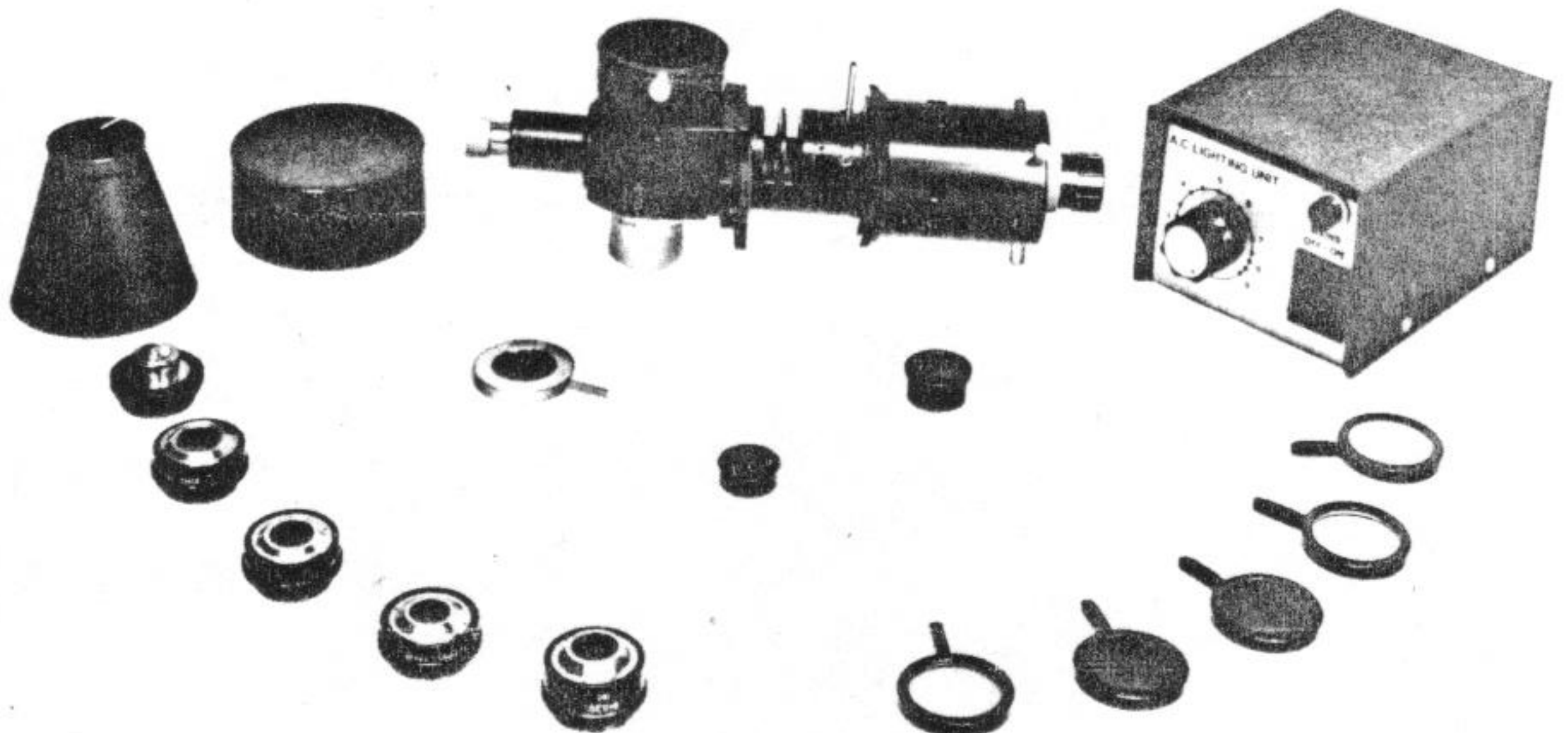
SPECIFICATION

OBJECTIVES

Magnification	Type	Focal Length mm.	Numerical Aperture	Working Distance mm.	Field of View with x7 Eyepieces mm.
x9	Epiobjective	18.40	0.20	5.40	1.8
x21	Epiobjective	8.40	0.40	1.80	0.8
x40	Epiobjective	4.60	0.65	0.61	0.4
x95	Epiobjective*	2.00	1.00	0.41	0.17
x95	Achromatic*†	2.00	1.25	0.06	0.17

*Oil Immersion †Bright Field and Bright Field Polarised Light Only.

Reflected light illuminator, complete with epiobjectives x9, x21, x40 and x95 oil immersion, Achromatic objective x95 oil immersion, polariser and analyser, pinhole mount, daylight blue, green and yellow, colour filters, neutral and ground glass. Specimen platform. Coned light screen. Two spare 8 volt 20 watt bulbs. Transformer with rheostat. Code OI-21.





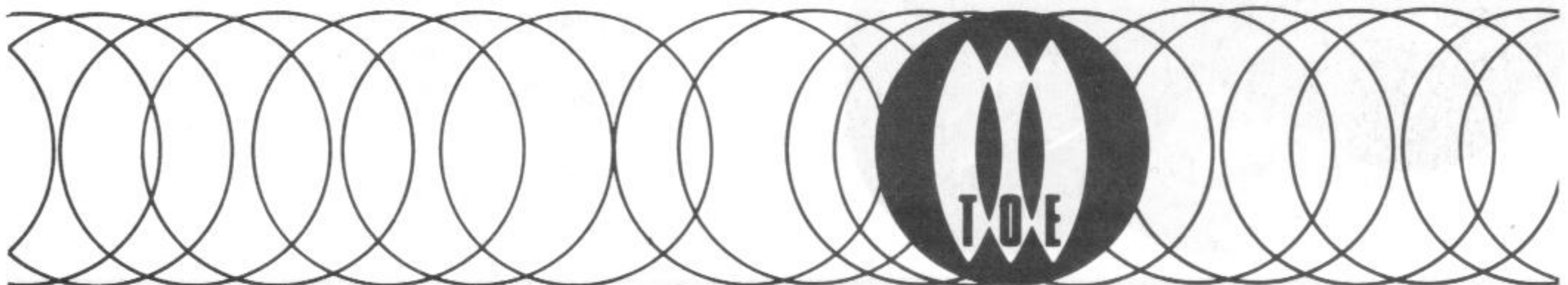
MAGNIFIERS AND MEASURING INSTRUMENTS



X4.5 STAND MAGNIFIER
With 29mm diameter glass lens
Working Distance 50mm
Base Aperture 60mm
Complete in case with screw-on lid
Product Code SM-4

X1.25 HEADBAND MAGNIFIER

Band adjustable for size
Working Distance 150-180mm
Field of view 120mm
Product Code HB-1





X2 MAGNIFIER

With 78mm diameter glass lens
Folding handle
Complete in felt lined case with screw-on lid
Product Code FM-2

X4 FOLDING POCKET MAGNIFIER

With 29mm diameter glass lens
Product Code FM-4



X6 POCKET APLANATIC MAGNIFIER

Lens diameter 22mm
In folding mount
Field of view 35mm
Product Code A-6

X10 POCKET APLANATIC MAGNIFIER

Lens Diameter 13mm
In folding mount
Field of View 20mm
Product Code A-10

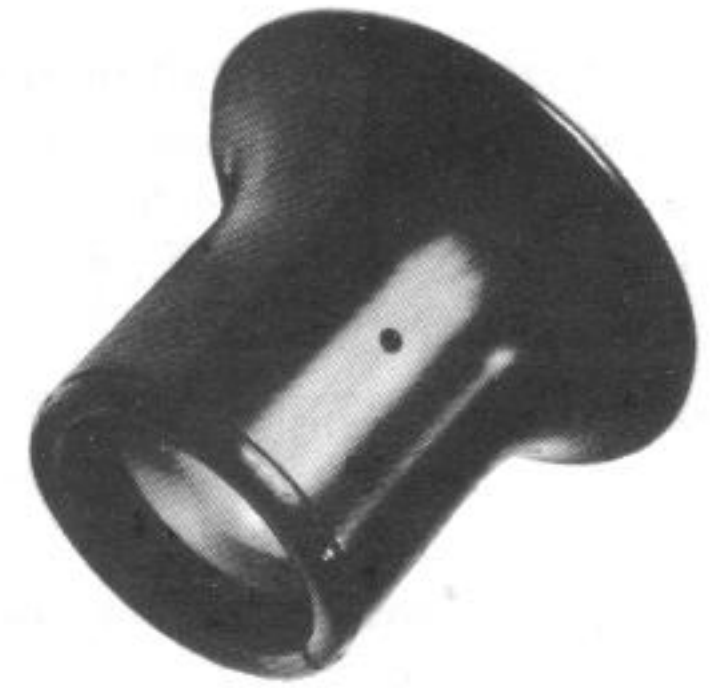


X20 POCKET APLANATIC MAGNIFIER

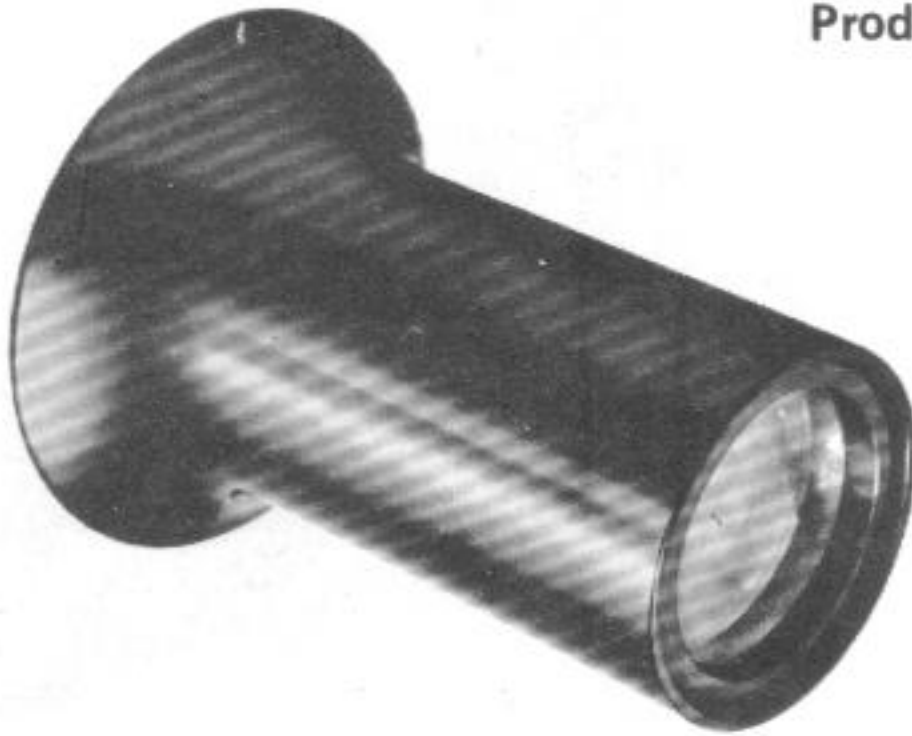
Lens Diameter 6mm
In folding mount
Field of view 8mm
Product Code A-20



X3.5 WATCHMAKERS EYEGLASS
Lens Diameter 26mm
Product Code WE-3



X10 WATCHMAKERS EYEGLASS
Lens Diameter 18mm
Product Code WE-10



X5 WATCHMAKERS EYEGLASS
Lens Diameter 18mm
Product Code WE-5



X4 LINEN PROVER
In folding metal/plastic mount
Base aperture 1cm square
Product Code LP-4



X7 LINEN PROVER
In folding metal/plastic mount
Base aperture 1cm square
Product Code LP-7

X10 SCALEOMETER

With focusing aplanatic lens. Zero centered
15mm scale engraved on glass reading to 0.1mm
Divisions numbered every 1mm
Complete in case with screw-on lid

Product Code SC-10



BRINELL MICROSCOPE

The MPB-2 microscope is designed for measuring the diameters of indentations made by the Brinell hardness tester and may also be used for measuring the surface features of objects within an area of 6.5 mm diameter.

The measuring scale in the eyepiece is divided into 130 divisions, each equivalent to 0.05 mm and half of a division can be estimated. The eyepiece has an adjustable eyelens for focusing the scale. A knurled focusing ring controls the vertical movement of the microscope body.

SPECIFICATION

Microscope magnification	x24
Field of view	9 mm
Length of scale	6.5 mm
Scale graduated in divisions equivalent to	0.05 mm
Eyepiece adjustment range	± 4 diopters

Brinell microscope complete in polished wooden case.

Product Code MPB-2

MEASURING MICROSCOPE

Designed for the measurement of small component parts and is basically a microscope body tube with standard objective thread. The drawtube is divided into sectors of 1mm between 130mm and 190mm. It is equipped with Achromatic objective x3.7 (NA. 0.11) and a x7 micrometer eyepiece with focusing eye lens and graticule. The graticule has a combined crossline and scale divided into 100 divisions (indicated in tens). The microscope body is fitted with an adjustable clamp ring with mounting lug. The overall dimensions of the microscope are 155mm (closed), 212mm (open) and an overall diameter of 30mm. Measuring range: 0.015mm to 6mm in length or separation. The total magnification is varied by adjustment of the mechanical tube length between 130mm and 190mm and the value of the divisions of the eyepiece will change accordingly.

As a result of repeated measurements with test objects the following table of APPROXIMATE values has been compiled. These relate to the divisions of the eyepiece at given tube lengths.

Tube Length (mm)	Value per divn. (mm)
130	0.058
140	0.053
150	0.049
160	0.045
170	0.041
180	0.038
190	0.036

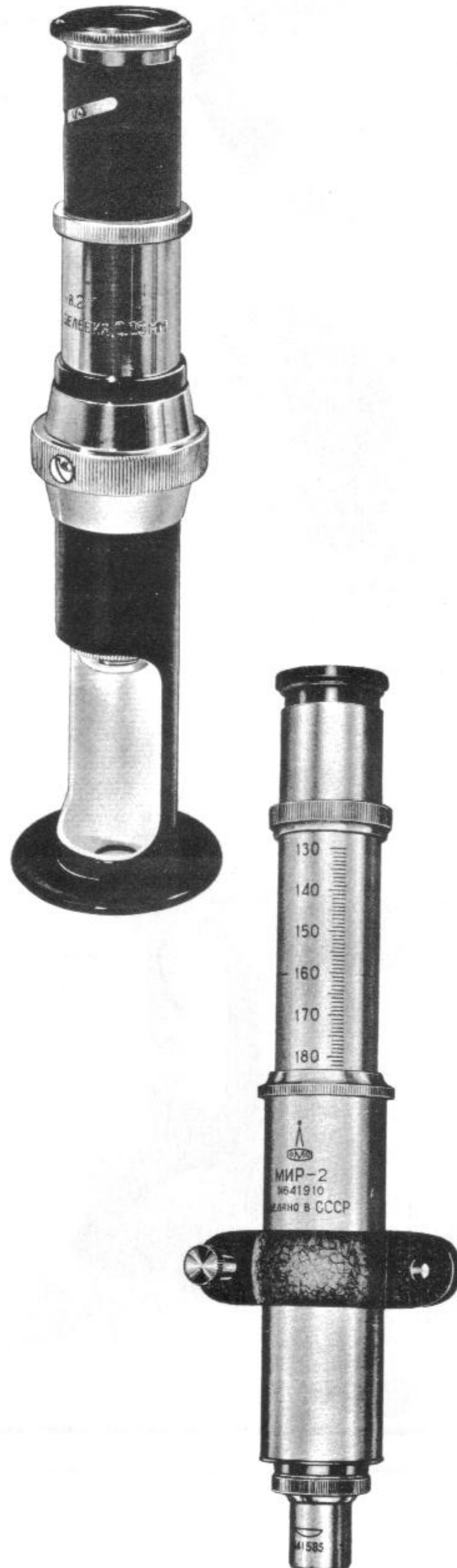
The value of each division of the eyepiece scale should be determined each time when called upon to take accurate measurements, as the actual value for each microscope may vary slightly from the table specified. This may be determined by means of a stage micrometer or any other precision scale available.

Simple measuring microscope, complete in case.

Product Code MIR-2

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