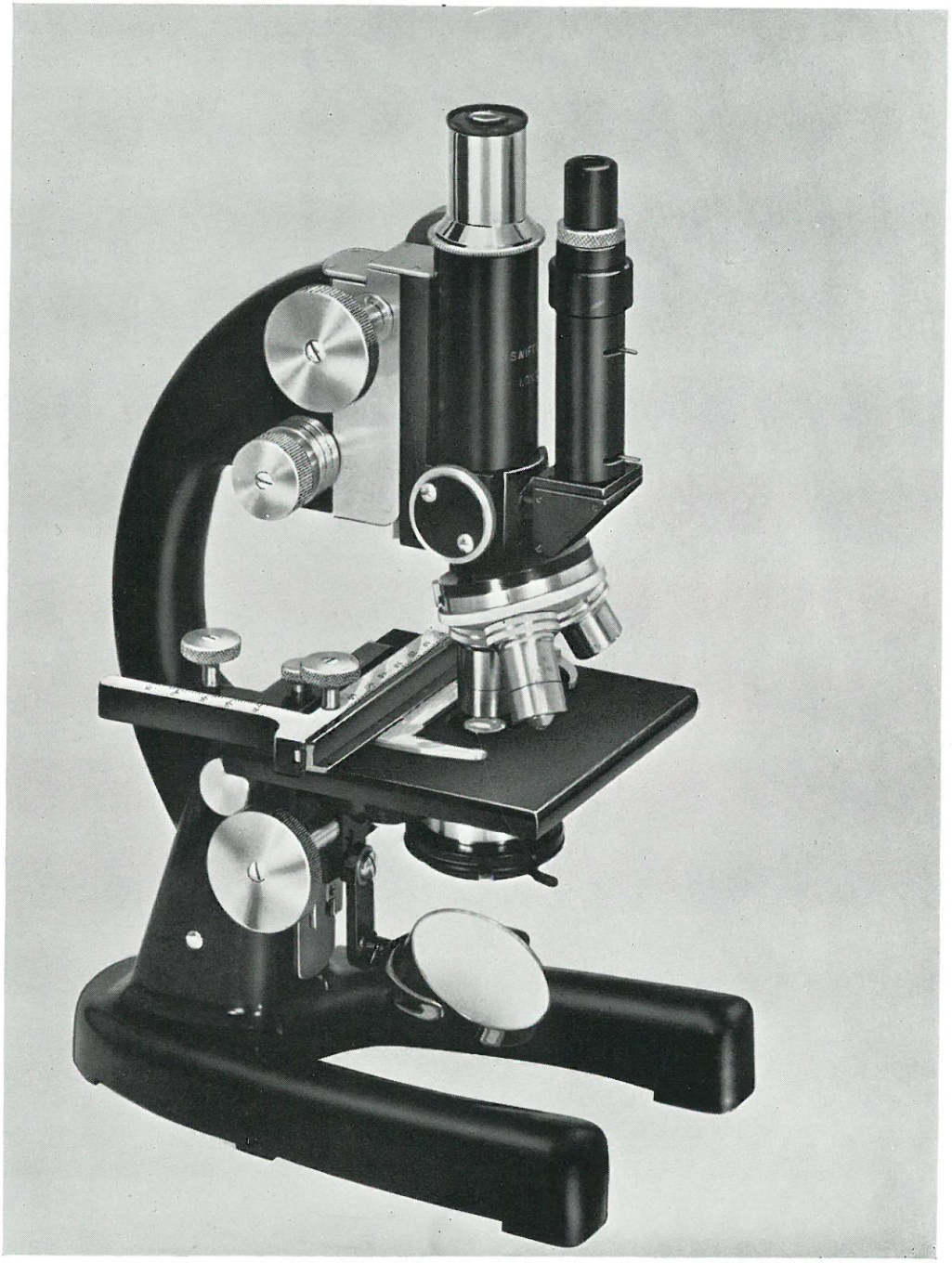
SWIFT MICROSCOPES

METALLURGICAL MODELS

(MODEL M)



METALLURGICAL MODEL M

THE MODEL M Metallurgical microscope is built upon the basic stand, as described in Section C, with solid limb with adjustable inclination joint, and coarse and fine (graduated) adjustments to the body tube. The limb and foot are fitted with stops so that the instrument can be used in correct vertical and horizontal alignment.

The stage bracket of the Models P (Polarising) and S (Biological) are replaced on the Model M by a stage which can be moved up and down by means of a helically-cut rack and pinion mechanism. This feature enables large specimens to be accommodated on the stage, and should an illuminator which requires an external illuminant be fitted to the body tube, the specimen can be focused without disturbing the critical setting of the reflecting illuminator system in relation to the external light source. The maximum clearance between the stage and a rotating nosepiece or similar device is 4 inches, so that objectives of very low power and long working distance can be used.

THE VERTICAL ILLUMINATOR is mounted parallel to, and as an integral part of, the body tube, thus minimising the risk of damage from being struck or thrust against the cabinet of the instrument. The illuminator consists of a low voltage bulb with M.E.S. fitting, with diffuser and pre-focused condenser. Two iris diaphragms give control over field and objective apertures, so that the illuminated area of the specimen can be controlled and the aperture of any objective correctly filled for maximum image contrast and reduction of glare. Unlike systems which are added to the lower part of conventional body tubes the position of the vertical illuminator cannot be deranged, the only adjustments being those of the two iris diaphragms. The lamp may be fed from accumulators or from a mains transformer.

The lamp gives 8 watts at 6 volts and the transformer, MA 20, has a controlled output up to 8 volts, permitting the lamp to be over-run for short periods.

THE REFLECTOR rotates in a mount immediately above the objective, and an index indicates the two correct settings, one for reflecting work and the other for the position normal to the optical axis when the substage illumination of transparent specimens is employed. The reflector is specially coated to give maximum reflectivity without glare.

The design of the body and illuminator system permits the attachment of a rotating nosepiece or any other objective changing device. If no changing devices are requested, the instrument is supplied with an adaptor which maintains the correct overall tube length of 160 mm.

The instrument can be fitted at any time with the G.K.N. Micro-hardness Tester, details of which will gladly be sent on request.

OBJECTIVES. Full information regarding the choice and range of SWIFT objectives is given in Section D. It is important to note that the objectives of high power are available in short mounts which enable their back lens components to be brought close to the reflecting system in order to achieve an even illumination, and that all objectives for reflecting work, of magnifications greater than ×14, are computed for use with uncovered objects. For the most meticulous work, it is recommended that the objectives of high power should be bloomed with an anti-reflection coating, to minimise glare and increase the image contrast.

THE EYETUBE is of standard R.M.S. diameter, 23 mm. and is fitted with a spring retention clip for the protection of the eyepiece. It will accept any of the SWIFT range of eyepieces in this size. For crispness of image and flatness of field, the SWIFT 'Telaugic' eyepieces are especially recommended. (See Section D). Cross-lined, protractor, and linear measuring graticules are available for insertion in the eyepiece. (See Section J).

A GRADUATED DRAWTUBE can be supplied with the instrument in lieu of the standard fixed tube.

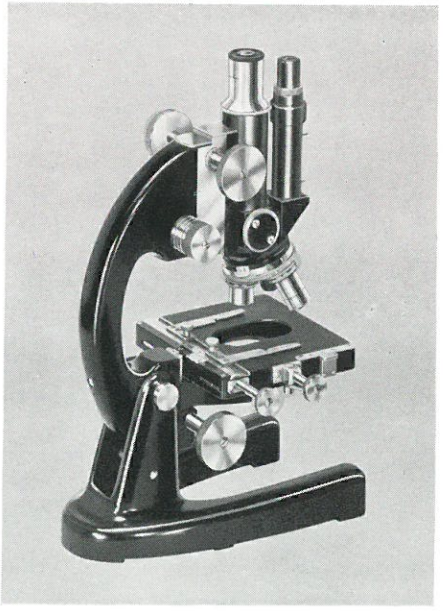
AN INCLINED, SWIVELLING EYEPIECE can be screwed into the upper part of the eyetube, replacing either the fixed or the graduated eyetubes. The eyepiece is inclined at 30 degrees and greatly adds to the comfort of viewing, particularly when the nature of the specimen demands that the stage of the microscope be horizontal. A correcting lens maintains the overall tube length at 160 mm. and gives a magnification factor of $\times 1.5$.

A GONIOMETER EYEPIECE can be inserted in place of the standard eyepiece for angular measurements to an accuracy of 5 mins. or 0.1 degrees of arc. The instrument is described fully in Section D.

THE STAGE has a central aperture so that transparent objects may be examined in transmitted light. For this purpose a plane and concave mirror can be attached to the lower part of the limb, and a simple sleeve (MK 80, Section E) can be attached to the underside of the stage, to accommodate condensers of standard R.M.S. diameter.

AN ATTACHABLE MECHANICAL STAGE, MK 2, can be fitted to the plain square stage.

A SQUARE COMPOUND STAGE can be supplied with the instrument in place of the plain square stage as shown in the illustration. This stage is equipped with scales and verniers on both co-ordinate movements. The full movement is 65 mm. in the lateral direction and 36 mm. in the transverse direction. When the stage is racked below the level of the throat of the limb the movement in the transverse direction is reduced to 17 mm. The compound stage is described in section E.



THE SWIFT AUTOMATIC POINT COUNTER can be attached to either the plain or the compound stage. Full details are given in Leaflet PC 1.

A CABINET of selected hardwood is supplied with each instrument unless otherwise requested, an allowance being made if it is not required. The cabinet is fitted with lock and key and has racks for holding eyepieces and objectives. It measures $15\frac{1}{2} \times 10\frac{1}{2} \times 8\frac{1}{2}$ inches.

THE WEIGHT of the instrument in cabinet, is approximately 20 lbs.

CATALOGUE NUMBERS

MODEL M, METALLURGICAL MICROSCOPE, in cabinet, as described and illustrated, with vertical illuminator and *plain* racking stage **Cat. No. MM 2**

MODEL M, METALLURGICAL MICROSCOPE, in cabinet, as described, with vertical illuminator and racking, *compound* stage .. **Cat. No. MM 3**

The above catalogue numbers do not embrace eyepieces, objectives, or objective changing devices. See Section D. Eyepieces chosen must be of standard 23 mm. diam.

TRANSFORMER, for Model M, for 200–230 volt A.C. supply .. .. **Cat. No. MA 20**

TRANSFORMER, for Model M, for 110 volt A.C. supply .. .. **Cat. No. MA 21**

The following accessories, full details of which are given in the appropriate section of the catalogue, are listed below for convenience.

DUSTPROOF ROTATING NOSEPIECE for two objectives .. .. **Cat. No. MK 52**

DUSTPROOF ROTATING NOSEPIECE for three objectives .. .. **Cat. No. MK 53**

DUSTPROOF ROTATING NOSEPIECE for four objectives .. .. **Cat. No. MK 54**

ATTACHABLE MECHANICAL STAGE, with scales and verniers .. **Cat. No. MK 2**

GRADUATED DRAWTUBE .. .. **Cat. No. MK 20**

INCLINED, SWIVELLING EYETUBE (without eyepiece) .. .. **Cat. No. MS 301**

PLAIN R.M.S. SLEEVE to screw on underside of plain or compound stage **Cat. No. MK 80**

ABBÉ CONDENSER, n.a. 1.20 with iris and filter tray, to fit above .. **Cat. No. MS 201**

PLAIN AND CONCAVE MIRROR, with gimbal, for mounting on lower part of limb .. .. **Cat. No. MS 330**

GONIOMETER EYEPIECE .. .. **Cat. No. ME 70**

METALLURGICAL SPECIMEN MOUNTER .. .. .. **Cat. No. MA 38**

ATTACHABLE CONE CAMERA .. .. **Cat. No. MC 51**

Lamps, Filters, Micrometers, Drawing Apparatus, etc., will be found in Section J, General Accessories.

SPECIMEN OUTFIT

MODEL M METALLURGICAL MICROSCOPE in cabinet .. .. **Cat. No. MM 2**

Transformer for A.C. mains 200–250 volt, 6–8 volts with control .. **Cat. No. MA 20**

Dustproof rotating nosepiece for 2 objectives .. .. .. **Cat. No. MK 53**

Achromatic Objective 16 mm. ($\frac{2}{3}$ in.) n.a. 0.17 (× 10) .. .. **Cat. No. MS 108**

„ „ 4 mm. ($\frac{1}{6}$ in.) n.a. 0.72 (× 40) .. .. **Cat. No. MS 114M**

Huyghenian Eyepiece × 6 .. .. **Cat. No. MS 51**

„ „ × 10 .. .. **Cat. No. MS 54**

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