

Telephone Nos. :
LONDON : 2767 HOLBORN.

Twenty-Fifth Edition.

Telegraphic Address :
OPTICS, HOLB. LONDON (2 words)

1918.

CODE A, B, C, 4th and 5th Editions.



EMERGENCY CATALOGUE OF

MICROSCOPES

. . . and Accessories.

MANUFACTURED AND SUPPLIED BY

W. WATSON & SONS, LTD.

OPTICIANS

To H. M. Government, The Admiralty,
India Office, War Office, Colonial and
many Foreign Governments.

**Head Offices and Show Rooms: 313 High Holborn, LONDON, W.C.1,
ENGLAND.**

*Two doors from Chancery Lane and exactly opposite the Chancery Lane Station
of the Central London Railway (Tube).*

Works : HIGH BARNET, HERTS., ENGLAND.

Hours of Business - - 9 a.m. to 6 p.m. Saturdays - - 9 a.m. to 1 p.m.

·[COPYRIGHT.]

Additional Catalogues and Booklets are issued by the Microscope Department (No. 2) as follows:—

- 2A** The Choice of a Microscope.
- 2B** The Book of the Watson Microscope.
- 2C** Descriptive and Illustrated Catalogue of Metallographic Microscopes and Accessories.

A re-issue of the following is in preparation :—

2D in 2 Sections. Section 1—Photo-Micrographic Cameras and all Accessories.

Section 2—Projection Apparatus of every description, including Micro-Projection Instruments, Optical Benches, etc.

Any of the above sent post-free on application to

W. Watson & Sons, Ltd.,
313 High Holborn, London, W.C.1.

DEPOTS—BIRMINGHAM: 2 Easy Row (W. Watson & Glover).

AUSTRALIA: Melbourne—(W. Watson & Sons Proprietary Ltd.):

78 Swanston Street, and

Sydney—Ocean House, Moore Street.

AGENCIES:

CAMBRIDGE: Charles Hymans, 7 St. Andrew's Street.

EDINBURGH: A. H. Baird, 33-39, Lothian Street.

GLASGOW: W. W. Scott & Co., Ltd., 180 Sauchiehall Street.

LIVERPOOL: J. Lizars, 71 Bold Street.

MANCHESTER: J. Woolley, Sons, & Co., Ltd., Victoria Bridge.

SHEFFIELD: Redfern's Ltd., 91-93 Barker's Pool.

INDIA. Bombay: Kemp & Co.

Calcutta: Smith Stanistreet & Co.

DENMARK: P. Brock & Co., Frederiksberggade, 38. Copenhagen.

NEW ZEALAND: Sharland & Co., Lorne Street, Auckland.

S. AFRICA: T. Cooke & Sons, Ltd., 18 Strand Street, Cape Town.

W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

SPECIAL NOTICE.

In consequence of National War demands, the depletion of our staff, the greatly enhanced cost of material and wages, we are compelled to restrict our manufacture to a smaller number of Microscope Models. Objectives and Accessories, as well as to considerably increase pre-war prices.

The instruments described in the present Catalogue represent the types that are most in demand by Government, Naval and Military Hospitals, Munition Works and kindred institutions.

When instruments ordered are not in stock an approximate date for delivery will be stated, but it will be readily understood that orders for private use must of necessity give precedence to National demands.



TERMS.

All goods are marked at **Nett Prices** for **Cash**. There is no discount. Please quote **Twenty-fifth** Edition.

Orders must be accompanied by a remittance in full, or two London **Trade** References.

Remittances may be made by Cheques, crossed London County Westminster and Parrs Bank, or by Postal Orders or Post Office Orders, also crossed, payable at the General Post Office, London.

Customers Residing Abroad will find a Banker's Draft, drawn on a London agent at sight (which may be obtained at any Bank), or Post Office Orders, the most advantageous method of sending cash.

On Foreign Orders, to suit the convenience of customers, we accept a payment of 25 per cent. of the value with the order, and draw the balance through a Banker against delivery of the Bills of Lading, or instruct the Carriers to collect against delivery of the Goods, whichever may be preferred.

Illustrations in this list are intended only as a general guide to the appearance and construction. Alterations and improvements are introduced from time to time and may necessitate corresponding changes in the models. In every case the Instruments supplied will be of the latest and best design.

Names and Addresses of Customers should be distinctly written.

Forwarding.—In the absence of specific instructions, goods are despatched by the route that seems to us the most expeditious, secure and economical. We employ skilled packers, and use every precaution to ensure safe transit. All goods are sent at the risk of the consignee.

Carriage and Packing.

Owing to the new Railway Regulations which require senders to prepay cost of carriage, the amount of latter will be payable by customer. On receipt of enquiry the approximate cost will be stated.

Packing Cases are now charged for, but an allowance of two-thirds of the amount charged will be made when empties are returned in good order, carriage paid.

For Export Orders special packing will be quoted for on receipt of enquiry.



SECOND-HAND MICROSCOPES.

From time to time we have Second-hand Microscopes, Objectives, and Accessories of our own, and by makers of repute. We shall be pleased at all times to send particulars of them. As the stock is constantly changing, it is desirable that full details of the kind of instrument or apparatus required should be given.

TO ENQUIRERS ABROAD.

The ready sale for modern Instruments, second-hand, prevents the offer of such being open after the interval necessary for a reply from the Colonies, etc. If customers will send a description of their wants with remittance we will send the first Instrument coming into our hands that will suit the requirements. As wide a discretion as possible should be given.

DEPARTMENT No. 3.

Microscopic Objects of the highest class illustrating every branch of Microscopical Research.

\ A classified and detailed list of above, 68 pages, sent free on application.



THE "PRAXIS" MICROSCOPE.

70 of these Microscopes have been supplied to the New Museums, Cambridge.

The "Praxis" is eminently suited for those medical practitioners who, everyday work, need a simple stand without costly mechanical refinements.

SPECIFICATION.

The Body when closed is 145 mm. ($5\frac{1}{8}$ inch) long; and when the draw-tube is extended, 225 mm. long. With a revolving nosepiece in position, the total length would be approximately the full English length. It carries Eyepieces of the Standard Continental, or Student's size.

Coarse and Fine Adjustments of our Standard patterns.

The Fittings for Condenser, etc., turn aside from the optical axis.

The Mirrors are plane and concave.

The Stage, Ebonite covered, is $3\frac{1}{2}$ inches square, and gives ample room for Petri's dishes, etc., the distance from the front of the limb to the centre of the stage being $2\frac{1}{4}$ inches.

The Instrument is inclinable to the horizontal.

PRICES.

Microscope, as described, Stand only	£5 12
Mahogany Case	0 17

COMPLETE SETS.

P 220. "Praxis" Stand and Mahogany Case	£6 10 0
2 Objectives, $\frac{3}{8}$ in., £1 8 0; $\frac{1}{8}$ in., £2 0 0.....	3 8 0
Parachromatic series.	
1 Eyepiece (No. 1, 2, 3 or 4)	0 7 0
	£10 5
P 221. "Praxis" Stand and Case	£6 10 0
Spiral Focussing Screw Underfitting	0 18 6
Abbe Model Illuminator, with Iris Diaphragm,	
No. 1958.....	2 0 0
2 Objectives, $\frac{3}{8}$ in., £1 8 0; $\frac{1}{8}$ in., 74 NA., £2 0 0..	3 8 0
2 Eyepieces (Nos. 1, 2, 3 or 4)	0 14 0
Double Nosepiece	0 17 6
	£14 8
P 222. "Praxis" Stand and Case	£6 10 0
Compound Rack Focussing Substage, with Centring	
Screws	2 5 0
Abbe Model Illuminator, with Iris Diaphragm,	
No. 1958	2 0 0
3 Objectives, Parachromatic series:—	
$\frac{3}{8}$ in., £1 8 0; $\frac{1}{8}$ in., 74 NA., £2 0 0	3 8 0
$\frac{1}{2}$ in. "Versalic" Oil Immersion	6 5 0
2 Eyepieces (Nos. 1, 2, 3 or 4)	0 14 0
Triple Nosepiece, dust-proof pattern	1 5 0
	£22 7

EXTRAS.

Attachable Mechanical Stage, designed especially for the "Praxis"	
Microscope, page 23, No. 1850, £3 10 0, or No. 1851	£3 3
Division to above Stage movements, giving readings to $\frac{1}{10}$ m/m.....extra	0 7

W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

THE "PRAXIS" MICROSCOPE.

Height,
11 inches.



W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

The "STANDARD."

The solid proportions of this Microscope will be evident on reference to the illustration on page 9. The foot is substantial and rigid. The stage measures 4 x 4 inches and is covered with ebonite.

The fine adjustment is of our vertical lever pattern. The coarse adjustment gives a working distance between the nosepiece and stage of $3\frac{3}{4}$ in., permitting its use for Entomology, and large sections with low powers.

PRICES.

"Standard" Microscope, Stand only	£8 10
Mahogany Case	1 7

COMPLETE SETS.

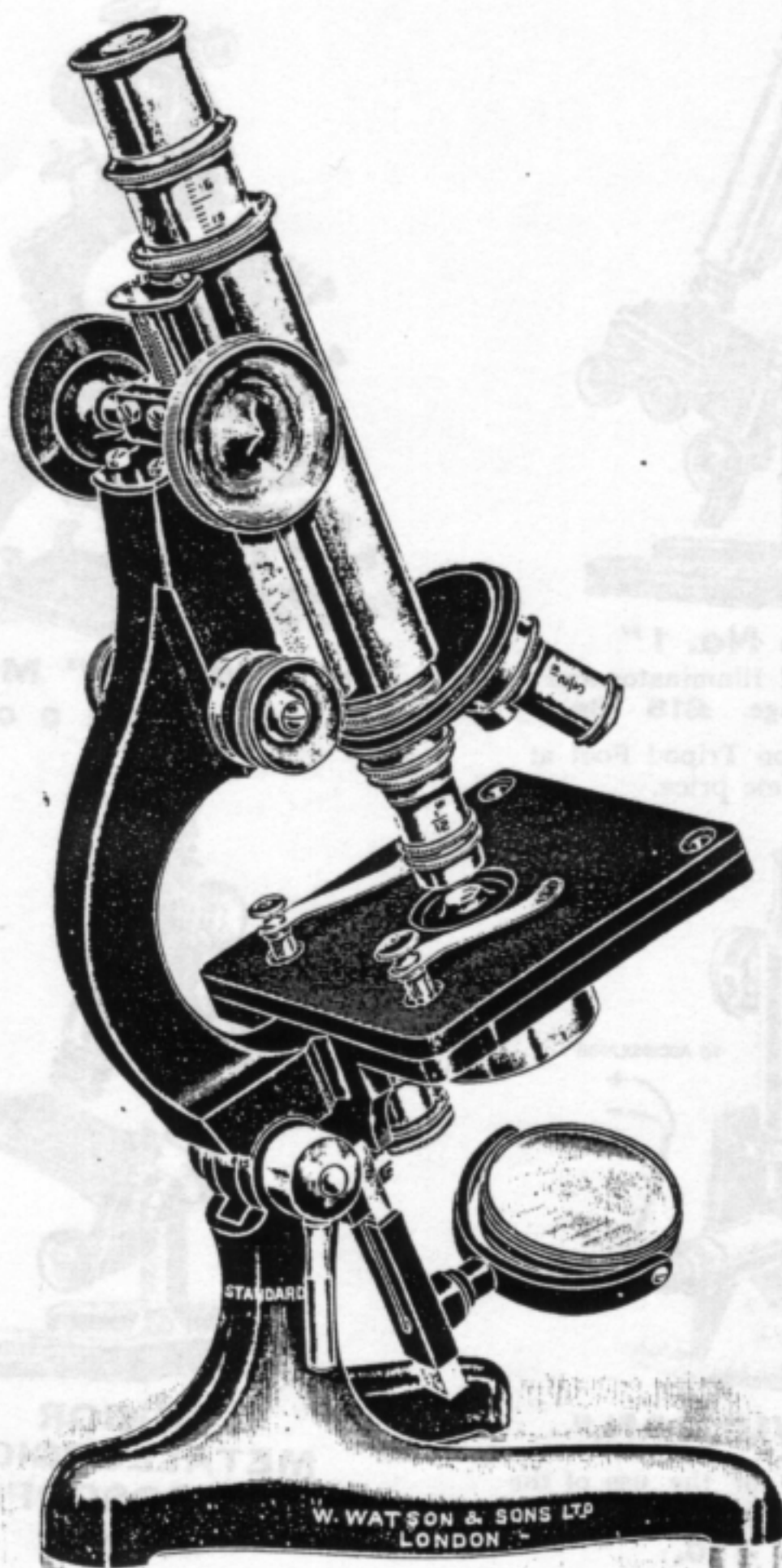
Sd. 271. "Standard" Stand and Mahogany Case	£9 17 6
2 Objectives. Parachromatic series. $\frac{3}{8}$ in., £1 8 0;	
$\frac{1}{8}$ in., '74 NA, £2 0 0	3 8 0
1 Eyepiece (No. 1, 2, 3 or 4)	0 7 0
	£13 12
Sd. 272. "Standard" Stand and Mahogany Case	£9 17 6
2 Objectives. Parachromatic series. $\frac{3}{8}$ in., £1 8 0;	
$\frac{1}{8}$ in., '74 NA, £2 0 0	3 8 0
2 Eyepieces (Nos. 1, 2, 3 or 4)	0 14 0
Double Nosepiece	0 17 6
Spiral Focussing Screw Underfitting	0 18 6
Abbe Model Illuminator, with Iris Diaphragm, No. 1958	2 0 0
	£17 15
Sd. 273. "Standard" Stand and Mahogany Case	£9 17 6
Compound Rack Focussing Substage, with Centring Screws	2 5 0
Abbe Model Illuminator, with Iris Diaphragm, No. 1958	2 0 0
3 Objectives. Parachromatic series. $\frac{3}{8}$ in., £1 8 0;	
$\frac{1}{8}$ in., '74 NA, £2 0 0	3 8 0
$\frac{1}{12}$ in. "Versalic" Oil Immersion	6 5 0
2 Eyepieces (Nos. 1, 2, 3 or 4)	0 14 0
Triple Nosepiece, dust-proof pattern	1 5 0
	£25 14

EXTRAS.

Attachable Mechanical Stage with divisions to movements	£4 0
---	------



The "STANDARD."



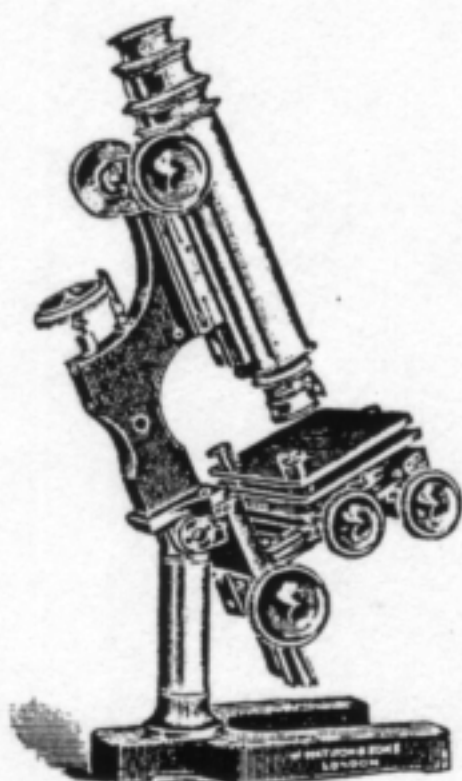
W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

Microscopes for Metallurgy.

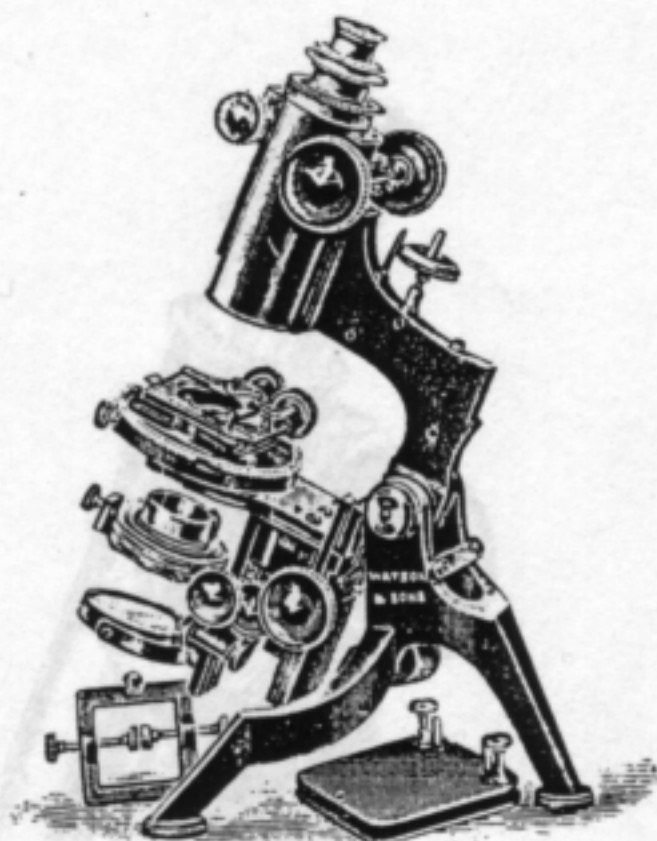
(Selected from List 2C.)



"The No. 1"

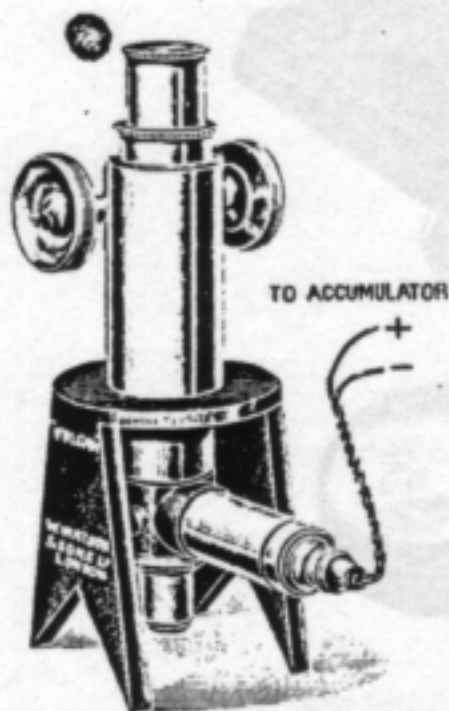
With Vertical Illuminator and Levelling Stage. **£18 18s.**

Also supplied on Tripod Foot at the same price.



The "WORKS" MODEL.

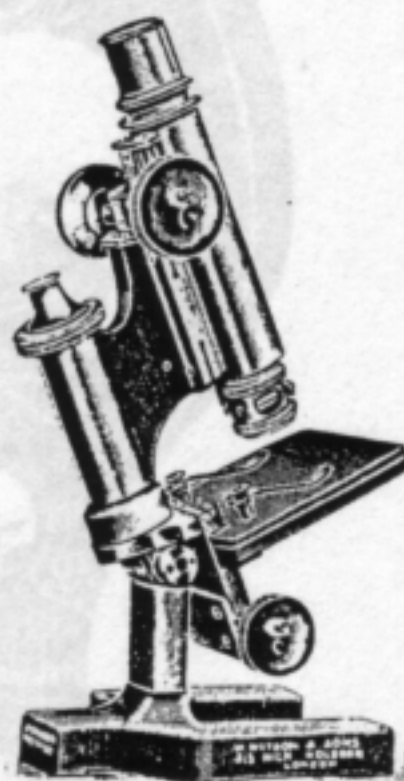
Price **£42 0 0.**



The "VULCAN."

An instrument for the use of the unskilled microscopist in the shops,

£4 4 0.



JUNIOR METALLURGICAL MICROSCOPE.

£7 15 0.

For full particulars of all the above and other Models, and everything for Micro-Metallurgy, see our Special List 2C, post-free on application.

W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

THE EDINBURGH STUDENT'S SERIES OF MICROSCOPES.

GENERAL SPECIFICATION.

The **body** is of large diameter, $1\frac{1}{2}$ in., and the draw-tube usually supplied carries Eyepieces of the Student's size. If desired, the draw-tube can be provided to carry the large capped Eyepieces 1.27 in. diameter without extra charge, but the Eyepieces are then more costly. The body, with draw-tube closed, is 145 m/m ($5\frac{1}{8}$ in.) long, and with draw-tube extended is 10 inches long when a revolving Nosepiece is in position. All tubes are blackened inside to minimise reflection.

The **foot** of tripod form, is rigid and efficient. We always advocate the tripod pattern, where extreme portability has not to be considered. Its spread is 7 inches.

The **stage** is of large size, being $3\frac{1}{2}$ in. square, and is conveniently arranged for Petri's dishes, etc.

The **substage** fitting, whether simple or compound, may be swung out of the optical axis when desired.

The **fine adjustment** is of our standard pattern. One revolution of the milled head moves the body one three-hundredth of an inch. The action is sensitive to one-hundredth of a turn of the milled head, thus giving a motion of one thirty-thousandth of an inch to the objective.

Each instrument has **plane and concave mirrors**.

All **fittings** are of R.M.S Standard gauge, and all bearings sprung with compensating screws.



PRICES OF THE EDINBURGH STUDENT'S MICROSCOPE, STAND "F."

This Microscope is mounted on a rigid Tripod foot, and is one of the most serviceable high-class Stands for the purpose of the Amateur or Professional. The general description is given on page 11.

The ease of manipulation, the proportioning of parts, and the excellence of the working, combine to make it a great favourite with all those who desire comfort and accuracy. We always recommend it as the best Instrument obtainable at a moderate price, and worthy to receive additions as occasion may necessitate, a mechanical stage or compound substage being easily fitted. The stage is covered with ebonite.

PRICES

Microscope, as described, Stand only	£7 15 0
Mahogany Case.....	1 5 0

COMPLETE SETS

F. 281. Edinburgh Student's Stand "F" in Mahogany Case..	£9 0 0
2 Objectives—Parachromatic Series:	
$\frac{3}{8}$ in. £1 8 0 and $\frac{1}{4}$ in. '74 N.A. £2 0 0	3 8 0
1 Eyepiece (Nos. 1, 2, 3 or 4).....	0 7 0
	<hr/> £12 15 0
F. 282. Edinburgh Student's Stand "F" in Mahogany Case..	£9 0 0
Spiral Screw Focussing Underfitting	0 18 6
Abbe Model Illuminator, with Iris Diaphragm, No. 1958	2 0 0
2 Objectives—Parachromatic Series:	
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0....	3 8 0
2 Eyepieces Nos. 1, 2, 3, or 4.....	0 14 0
Double Nosepiece.....	0 17 6
	<hr/> £16 18 0
F. 283. Edinburgh Student's Stand "F" in Mahogany Case..	£9 0 0
Compound Rack-focussing Substage with Centring Screws	2 5 0
Abbe Model Illuminator with Iris Diaphragm No. 1958	2 0 0
3 Objectives—Parachromatic Series:	
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0....	3 8 0
$\frac{1}{2}$ "Versalic" Oil Immersion	6 5 0
2 Eyepieces Nos. 1, 2, 3 or 4	0 14 0
Triple Nosepiece, dust-proof pattern	1 5 0
	<hr/> £24 17 0

EXTRAS

Attachable Mechanical Stage No. 1860	£4 0 0
Divisions to movements of above extra	0 7 6

If Large Capped Eyepieces, 1.27 in. diameter, are required instead of the Student's pattern included with the above sets, add 8/- per Eyepiece up to No. 3, and 14/- per Eyepiece for Nos. 4, 5 and 6.

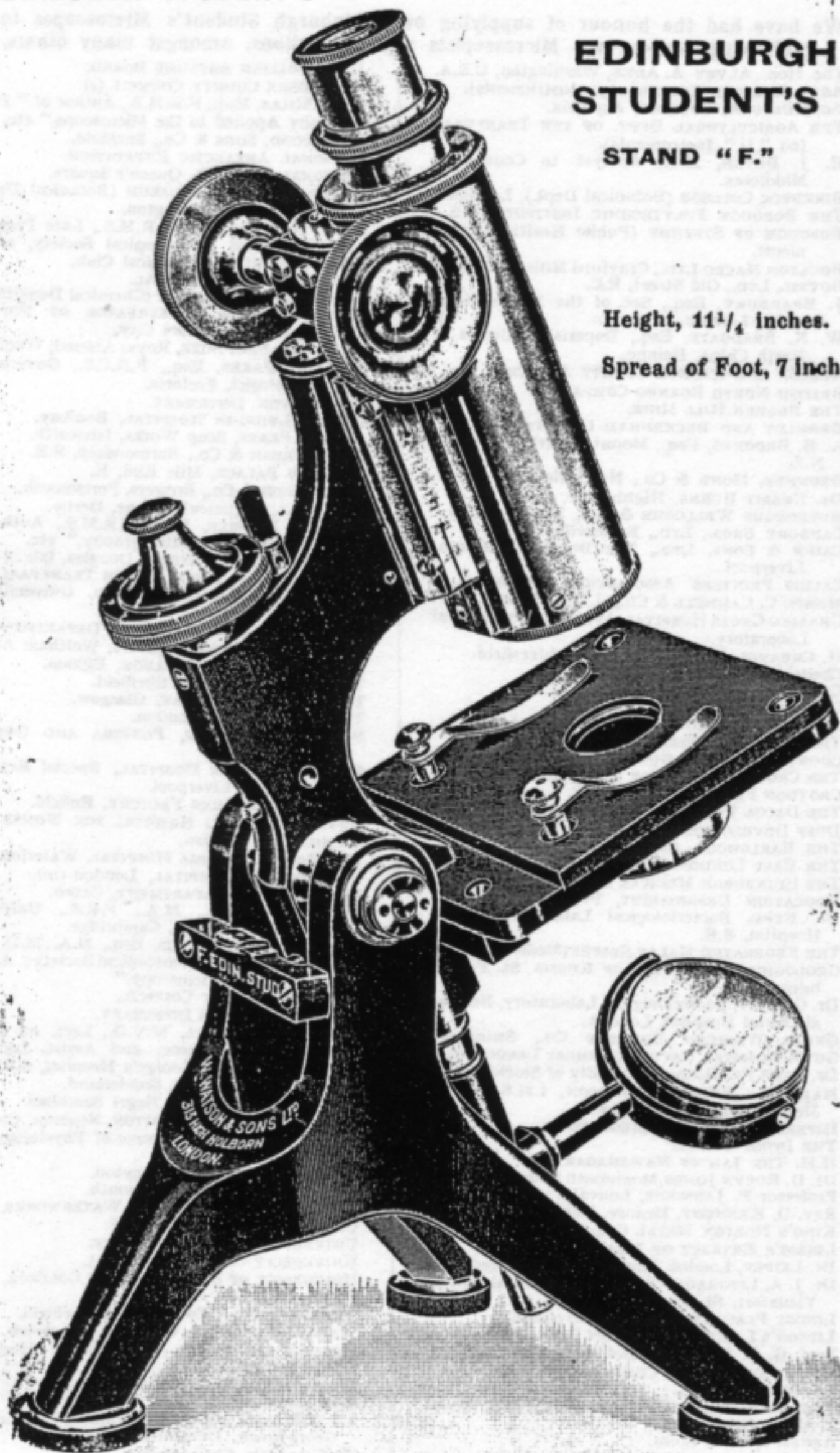


EDINBURGH STUDENT'S

STAND "F."

Height, $11\frac{1}{4}$ inches.

Spread of Foot, 7 inches.



We have had the honour of supplying our Edinburgh Student's Microscopes to the following well-known Microscopists and Institutions, amongst many others.

THE HON. ALVEY A. ADEE, Washington, U.S.A.
 AGRA MEDICAL COLLEGE (30 Instruments).
 AGRICULTURAL COLLEGE, Aspatia.
 THE AGRICULTURAL DEPT. OF THE TRANSVAAL
 (20 "D" Instruments).
 E. J. BEVAN, Esq., Analyst to County of
 Middlesex.
 BIRKBECK COLLEGE (Botanical Dept.), London.
 THE BOROUGH POLYTECHNIC INSTITUTE, S.E.
 BOROUGH OF STEPNEY (Public Health Depart-
 ment).
 BOULTON MACRO LTD., Crayford Mills, Stratford,
 BOVRIL, LTD., Old Street, E.C.
 J. BRADBURY, Esq., Sec. of the Photo-Micro.
 Society, London.
 W. K. BRADGATE, Esq., Imperial Railways of
 North China, Hsinho.
 BRECON AND RADNOR COUNTY ASYLUM.
 BRITISH NORTH BORNEO COMPANY.
 THE BROKEN HILL MINE.
 BROMLEY AND BECKENHAM HOSPITAL.
 A. E. BROOKES, Esq., Mount Albert, Auckland,
 N.Z.
 BRUNNER, MOND & CO., Northwich.
 DR. NESBIT BURNS, Highbridge.
 BURROUGHS WELLCOME & CO., LTD., London.
 CADBURY BROS., LTD., Bourneville.
 CAIRN & SONS, LTD., The Brewery, Toxteth,
 Liverpool.
 CALICO PRINTERS' ASSOCIATION, Manchester.
 MESSRS. C. CAMMELL & CO., LTD., Sheffield.
 CHARING CROSS HOSPITAL, W.C., Bacteriological
 Laboratory.
 H. CHEAVIN, Esq., F.M.R.S., Huddersfield.
 CHELTENHAM GENERAL HOSPITAL.
 CHESHIRE COUNTY COUNCIL.
 CHESTERFIELD HOSPITAL.
 E. C. CHURCH, Durban Museum, Natal.
 THE CLINICAL RESEARCH ASSOCIATION.
 COUNTY BORO' OF BURTON-ON-TRENT.
 THE CROWN AGENTS FOR THE COLONIES.
 CROYDON FEVER HOSPITAL, S.E.
 THE DACCA TWIST CO., Manchester.
 DUFF DEVELOPMENT CO., 9, New Broad St., E.C.
 THE EARLSWOOD ASYLUM, Redhill.
 THE EAST LONDON HOSPITAL FOR CHILDREN.
 THE EDINBURGH MEDICAL MISSIONARY SOCIETY.
 EDUCATION DEPARTMENT, Preston.
 DR. EYRE, Bacteriological Laboratory, Guys'
 Hospital, S.E.
 THE FEDERATED MALAY STATES (Medical Officer).
 GEOLOGICAL COMMITTEE OF RUSSIA, St. Peters-
 burg.
 DR. GOADBY, Bacteriological Laboratory, Nation-
 al Dental Hospital, London.
 GREAT WESTERN RAILWAY CO., Swindon.
 GUY'S HOSPITAL BACTERIOLOGICAL LABORATORY.
 DR. JOHN FR. HOLM, University of Stockholm.
 MAJOR L. ROSE HUTCHINSON, I.M.S., Grant
 Medical College, Bombay.
 IMPERIAL INSTITUTE LABORATORY.
 THE INDIA OFFICE.
 H.H. THE JAM OF NAWANAGAR.
 DR. D. ROCYN JONES, Monmouth County Council.
 PROFESSOR F. JANSSENS, Louvain.
 REV. D. KENNEDY, Meance, Napier, N.Z.
 KING'S NORTON METAL CO., near Birmingham.
 LEIBIG'S EXTRACT OF MEAT CO., London.
 DR. LEIPER, London School of Tropical Medicine.
 DR. J. A. LESTRADE, Government Medical Officer,
 Vieuxfort, St. Lucia, W. Indies.
 LINGGI PLANTATIONS LTD., Seremban.
 LIPTON'S LABORATORY, Rouel Road, S.E.
 PROF. G. D. LIVEING, Cambridge.
 LIVERPOOL HEALTH COMMITTEE.
 LONDON HOSPITAL.
 LONDON SCHOOL OF TROPICAL MEDICINE, Royal
 Albert Dock (40).
 ABRAM LYLE & SONS.
 DR. MACALISTER, Liverpool.
 MEDICAL OFFICER OF HEALTH, Sunderland.
 THE MERCERS' SCHOOL, London.

METROPOLITAN ASYLUMS BOARD.
 MIDDLESEX COUNTY COUNCIL (4).
 F. W. MILLS, Esq., F.R.M.S., Author of "Photo-
 graphy Applied to the Microscope," etc.
 MOORWOOD, SONS & CO., Sheffield.
 NATIONAL ANTARCTIC EXPEDITION.
 NATIONAL HOSPITAL, Queen's Square.
 NATURAL HISTORY MUSEUM (Botanical Depart-
 ment), South Kensington.
 E. M. NELSON, Esq., F.R.M.S., Late President
 of the Royal Microscopical Society, and of
 the Quekett Microscopical Club.
 NEWPORT (MON.) HOSPITAL.
 NORTHERN POLYTECHNIC (Chemical Department)
 THE OFFICE OF CONSERVATOR OF FORESTS,
 E. Mysore, Bangalore City.
 ORDNANCE FACTORIES, Royal Arsenal, Woolwich.
 W. C. C. PAKES, Esq., F.R.C.S., Government
 Bacteriologist, Pretoria.
 PADDINGTON INFIRMARY.
 PARSEE LYING-IN HOSPITAL, Bombay.
 A. & F. PEARS, Soap Works, Isleworth.
 PEEK, FREAN & CO., Bermondsey, S.E.
 PEOPLE'S PALACE, Mile End, E.
 PIKE, SPICER & CO., Brewers, Portsmouth.
 PRINCIPAL, Technical College, Derby.
 ANDREW PRINGLE, Esq., F.R.M.S., Author of
 "Practical Photo-Micrography," etc.
 PUBLIC ANALYST'S OFFICE, Douglas, Isle of Man.
 PUBLIC HEALTH DEPT. OF THE TRANSVAAL.
 ROUSS PHYSICAL LABORATORY, University of
 Virginia, U.S.A.
 THE ROYAL ARMY CLOTHING DEPARTMENT.
 ROYAL GUNPOWDER FACTORY, Waltham Abbey.
 ROYAL HOLLOWAY COLLEGE, Egham.
 THE ROYAL HOSPITAL, Sheffield.
 THE ROYAL INFIRMARY, Glasgow.
 THE ROYAL MINT, London.
 ROYAL PORTSMOUTH, PORTSEA AND GOSPORT
 HOSPITAL.
 ROYAL SOUTHERN HOSPITAL, Special Research
 Department, Liverpool.
 ROYAL SMALL ARMS FACTORY, Enfield.
 ROYAL WATERLOO HOSPITAL FOR WOMEN AND
 CHILDREN, London.
 THE ROYAL VICTORIA HOSPITAL, Waterloo, S.E.
 ST. THOMAS'S HOSPITAL, London (10).
 THE SANITARY DEPARTMENT, CAIRO.
 D. SHARPE, Esq., M.A., F.R.S., University
 Museum of Zoology, Cambridge.
 F. SHILLINGTON SCALES, Esq., M.A., M.D., Sec-
 retary of Royal Microscopical Society; Author
 of "Practical Microscopy."
 SOMERSET COUNTY COUNCIL.
 SOUTHWARK UNION INFIRMARY.
 DR. H. R. D. SPITTA, M.V.O., Lect. on Public
 Health and Hygiene, and Assist. Lect. on
 Bacteriology, St. George's Hospital, S.W.
 DR. T. COKE SQUANCE, Sunderland.
 THE STATE SURGEON, Negri Sembilan.
 DR. MARGARET D. SYMINGTON, Nepanee, Ontario.
 DR. J. H. TEACHER, Professor of Physiology, The
 University, Glasgow.
 TECHNICAL INSTITUTE, Leyton.
 TECHNICAL SCHOOLS, Plymouth.
 TYNEMOUTH CORPORATION WATERWORKS.
 UNIVERSITY COLLEGE, Cardiff.
 UNIVERSITY COLLEGE, Dundee.
 UNIVERSITY OF HONG KONG, 5.
 UNIVERSITY OF MOUNT ALLISON COLLEGE, Sack-
 ville, N.B.
 VICKERS, SONS & CO., Limited, Sheffield.
 WAR DEPARTMENT Chemist, Woolwich.
 MONSIEUR J. WARRY, Directeur de Hospital,
 Struvenberg.
 WESTMINSTER CITY SCHOOL.
 WESTMORELAND COUNTY COUNCIL.
 J. WILLIAMS, Esq., Government Laboratory,
 Georgetown, Demerara.
 T. WILLIAMS, Christchurch, N.Z.
 W. D. & H. O. WILLS, Bristol.
 WINCHESTER COLLEGE (Science Schools).

THE EDINBURGH STUDENT'S MICROSCOPE. STAND "H."

REMODELLED 1914 WITH FOLLOWING IMPROVEMENTS.

*New Method of fixing Stage by means of which wonderful firmness is secured.
Increased range of horizontal mechanical movement to $1\frac{1}{2}$ inches.*

This instrument is illustrated and priced on pages 16 and 17 of this list, but as the most popular model made by us it merits a few words of special description and commendation.

In its general design, this microscope leaves nothing to be desired. It is massive, without being cumbersome; and the arrangements and proportions of its various parts will be found in practice exceedingly convenient. Constructed, as it is, with a perfect-working mechanical stage and substage, and furnished with a graduated draw-tube, and the most sensitive of fine and coarse adjustments, this microscope is capable of any class of work. Thus, with one-twelfth inch oil immersion objective and other apparatus, as detailed in Set H342, it is extensively used in bacteriological work and is unsurpassed for the purpose. Arranged with a projection eyepiece and objectives of high aperture, it will stand the severest test of high-power photo-micrographic work. The range of rackwork to the Coarse Adjustment is sufficient for the use of very low power Objectives, giving a distance between the Stage surface and nosepiece end of body of $3\frac{1}{2}$ inches. It is thus a Microscope that meets the demands of the worker, no matter what they may be, in the most satisfactory manner and while its many conveniences make it always advantageous and appreciated in the Laboratory, it is no less a favourite with the amateur worker, who will always find it unequalled for ease and satisfaction in working. Further, it offers for its price fuller combined advantages—mechanically, in design and perfection of workmanship, than any other Microscope.

The late Rev. W. H. Dallinger, LL.D., F.R.S., etc., in his edition of Carpenter's "The Microscope and its Revelations" (Eight Edition, page 218) says: "One of the finest examples of this class of microscopes at present brought within reach of the average student's means, is that known as the Edinburgh Student's Microscope 'H' by Watson & Sons. It will be seen that it has the prime requisite, a rigid foundation combined with lightness, and it is also possessed of a well-constructed mechanical stage which is built with the instrument, an advantage over the best 'attachable' stage."

"It is essentially a Student's microscope, and although of so low a price, is not only a specimen of the best workmanship, but is also extremely complete, and represents an advanced type of construction, capable of doing all ordinary and much experimental work."

We have also supplied one of these instruments to Mr. Andrew Pringle for his photo-micrographic work, and in his book entitled "Practical Photo-Micrography," he refers to it as "one of the two microscopes with which we can work comfortably, using a one-eighth in. objective and the coarse movement only."

The "H" Model is in regular use for bacteriological research and general laboratory work.

SPECIFICATION.

The height when placed vertically and racked down is $11\frac{1}{2}$ inches.

The tripod spreads 7 inches and is quite firm in any position.

The body is $1\frac{1}{2}$ in. diameter, and can be supplied with a drawtube to take either student's or large capped eyepieces at the same cost.

The mechanical stage is our standard pattern with compensating screws. The range of horizontal movement has been increased to $1\frac{1}{2}$ in. The milled head controlling the horizontal motion is stationary, and the plates so arranged that the condenser is not fouled at any point of the travel. The surface of the stage has a thin covering of ebonite attached by vulcanizing.

The substage has rackwork focussing and centring screws, as described on page 24.

The fittings throughout are of R.M.S. standard gauge. We can unhesitatingly recommend this microscope as the ideal for all classes of general microscopical work.



PRICES OF THE EDINBURGH STUDENT'S MICROSCOPE.

STAND "H."

A special detailed description of the "H" Model of the Edinburgh Student's Series appears on page 15.

PRICES

"H" Microscope, Stand only, as figured on page 17.....	£14 0 0
Mahogany Case	1 5 0

COMPLETE SETS

H 340 "H" Microscope Stand and Mahogany Case.....	£15 5 0
2 Objectives Parachromatic Series:	
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0	3 8 0
1 Eyepiece, No. 1, 2, 3 or 4	0 7 0
	<hr/>
	19 0 0

H 341 "H" Microscope Stand and Mahogany Case	£15 5 0
2 Objectives Parachromatic Series:	
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0	3 8 0
2 Eyepieces Nos. 1, 2, 3 or 4	0 14 0
Abbe Model Illuminator with Iris Diaphragm No. 1957..	2 12 6
Double Nosepiece	0 17 6
	<hr/>
	22 17 0

H 342 "H" Microscope Stand and Mahogany Case	£15 5 0
3 Objectives Parachromatic Series:	
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0	3 8 0
$\frac{1}{2}$ in. "Versalic" Oil Immersion.....	6 5 0
2 Eyepieces Nos. 1, 2, 3 or 4	0 14 0
Abbe Model Illuminator with Iris Diaphragm No. 1957..	2 12 6
Triple Nosepiece, dust-proof pattern	1 5 0
	<hr/>
	29 9 6

EXTRAS

Sliding Bar to Mechanical Stage	0 17 6
Division to Stage Movements, reading by verniers to $\frac{1}{10}$ m/m.....	0 17 6
Holos Universal Condenser in Substage Iris Mount No. 1928	4 0 0

If Large Capped Eyepieces 1.27 in. diameter are required instead of the Student's pattern included with the above sets, and 8/- per Eyepiece up to No. 3, and 14/0 per Eyepiece for Nos. 4, 5 and 6.

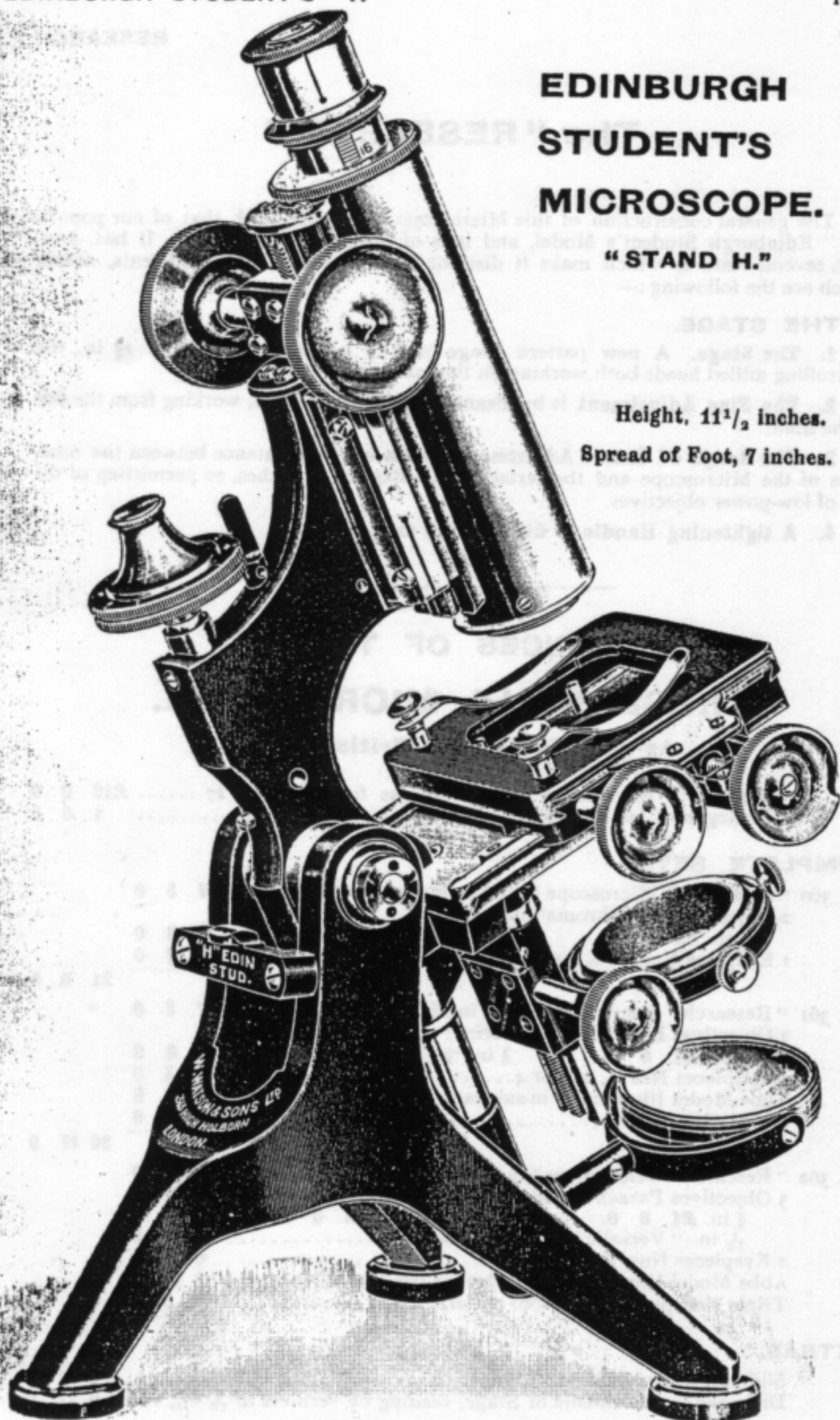


EDINBURGH STUDENT'S MICROSCOPE.

"STAND H."

Height, $11\frac{1}{2}$ inches.

Spread of Foot, 7 inches.



The "RESEARCH."

The general construction of this Microscope is identical with that of our popular "H" Edinburgh Student's Model, and it is of the same proportions. It has, however, several features which make it distinct from all our other instruments, among which are the following:—

1. THE STAGE.

1. **The Stage.** A new pattern Stage with a horizontal travel of $1\frac{3}{4}$ in., the controlling milled heads both working on the same axis.

2. **The Fine Adjustment** is by means of our vertical lever, working from the side of the limb.

3. **The Range of Coarse Adjustment** gives a working distance between the nose-piece of the Microscope and the surface of the stage of $3\frac{1}{2}$ inches, so permitting of the use of low-power objectives.

4. **A tightening Handle** is fitted to the axis joint.

PRICES OF THE "RESEARCH" MICROSCOPE.

As supplied to the British Navy.

"Research" Microscope Stand only, as figured page 17	£16	0	0
Mahogany Case for same	1	5	0

COMPLETE SETS.

Rh. 360 "Research" Microscope Stand in Mahogany Case	£17	5	0	
2 Objectives Parachromatic Series:				
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0....	3	8	0	
1 Eyepiece Nos. 1, 2, 3 or 4	0	7	0	
				21 0 0
Rh. 361 "Research" Microscope Stand in Mahogany Case	£17	5	0	
2 Objectives Parachromatic Series:				
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0....	3	8	0	
2 Eyepieces Nos. 1, 2, 3 or 4	0	14	0	
Abbe Model Illuminator in substage, Iris Mount No. 1957	2	12	6	
Double Nosepiece	0	17	6	
				24 17 0
Rh. 362 "Research" Microscope Stand in Mahogany Case	£17	5	0	
3 Objectives Parachromatic Series:				
$\frac{3}{8}$ in. £1 8 0. $\frac{1}{4}$ in. '74 N.A. £2 0 0....	3	8	0	
$\frac{1}{2}$ in. "Versalic" Oil Immersion	6	5	0	
2 Eyepieces Nos. 1, 2, 3 or 4	0	14	0	
Abbe Model Illuminator in Substage Iris Mount No. 1957	2	12	6	
Triple Nosepiece, dust-proof pattern	1	5	0	
				31 9 6

EXTRAS.

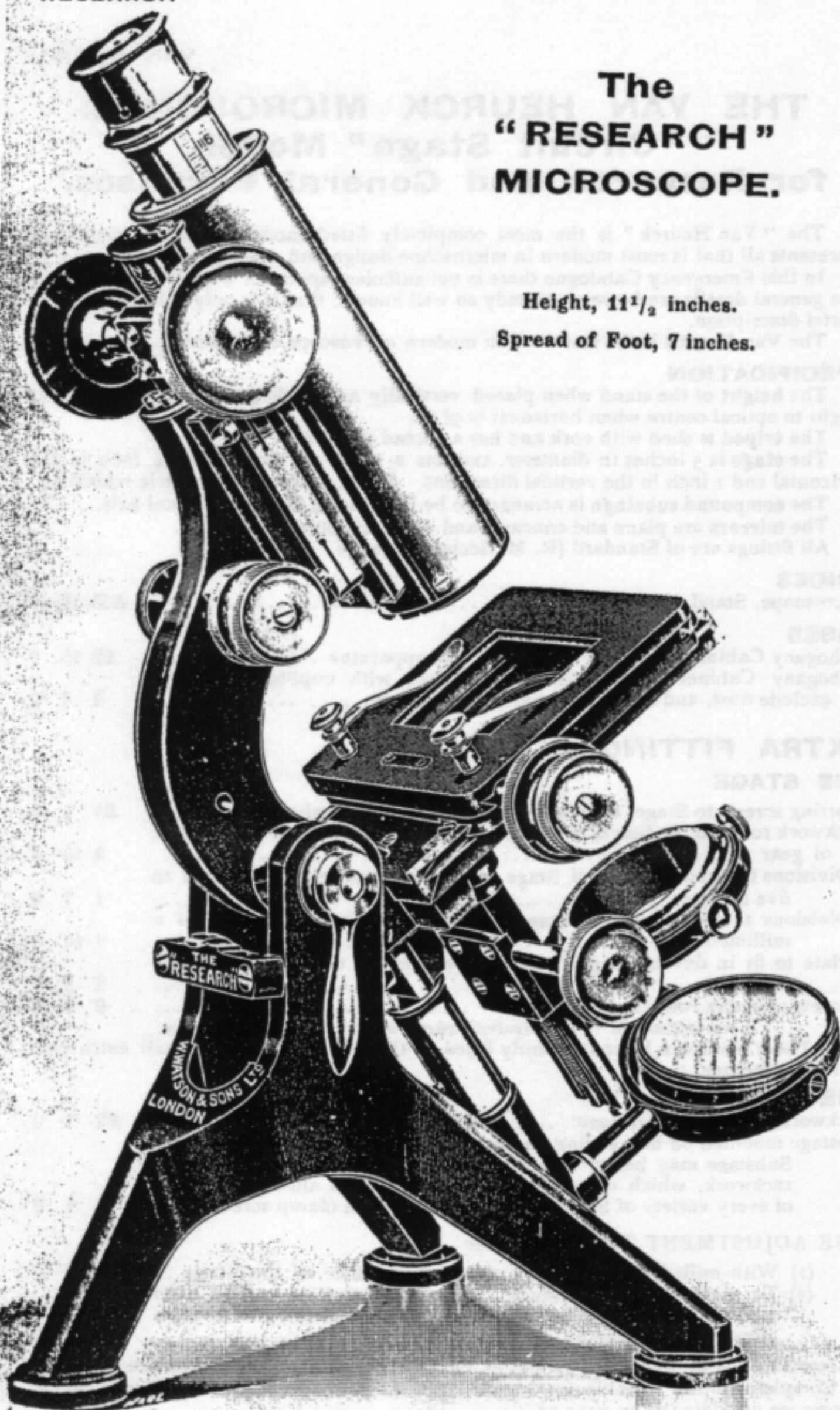
Sliding Bar to Mechanical Stage	0	17	6
Divisions to movements of Stage, reading by verniers to $\frac{1}{10}$ m/m	0	17	6



The "RESEARCH" MICROSCOPE.

Height, $11\frac{1}{2}$ inches.

Spread of Foot, 7 inches.



W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

THE VAN HEURCK MICROSCOPE.

"Circuit Stage" Model

for Research and General Purposes.

The "Van Heurck" is the most completely fitted model which we make, and represents all that is most modern in microscope design and manufacture.

In this Emergency Catalogue there is not sufficient space for a lengthy description. The general details are however already so well known, that it is only necessary to add a brief description.

The Van Heurck is the last word in modern microscope construction.

SPECIFICATION

The height of the stand when placed vertically and racked down is $12\frac{1}{2}$ in. The height to optical centre when horizontal is $9\frac{3}{4}$ in.

The tripod is shod with cork and has a spread of $7\frac{3}{4}$ in.

The stage is 5 inches in diameter, and has a range of movement $1\frac{1}{2}$ inch in the horizontal and 1 inch in the vertical directions. It has complete concentric rotation.

The compound substage is arranged to be lifted aside from the optical axis.

The mirrors are plane and concave, and $2\frac{3}{4}$ in. diameter.

All fittings are of Standard (R. M. Society's) gauge.

PRICES

Microscope, Stand only £32 10 0

CASES

Mahogany Cabinet to contain instrument and apparatus £2 10 0

Mahogany Cabinet of superior construction, with cupboard door to exclude dust, and drawers to contain apparatus 4 4 0

EXTRA FITTINGS.

THE STAGE

Centring screws to Stage, and clamp screws to fix Stage when centred £4 4 0

Rackwork rotation to Stage, with means of throwing pinion in and out of gear 2 10 0

* Divisions to circumference of Stage to degrees, reading by verniers to five minutes 1 7 6

* Divisions to movements of Stage, reading by verniers to $\frac{1}{10}$ th of a millimetre 1 10 0

* Plate to fit in dovetailed grooves to cover surface of Stage, for rough work 1 5 0

* Screw to clamp rotation of Stage 0 6 6

This last-named is not required when rackwork rotation is taken.

* These items can be conveniently fitted to the Microscope at a small extra cost after manufacture.

THE SUBSTAGE

Rackwork rotation to Substage £2 2 0

Substage mounted on bar, sliding in extra dovetailed fittings, so that the Substage may be set in any desired position, irrespective of the rackwork, which operates independently, thus allowing the use of every variety of Substage apparatus. With clamp screw 2 2 0

FINE ADJUSTMENT TO SUBSTAGE

(1) With milled head to work above the surface of the Stage .. 2 10 0

(2) To work in same manner, but with controlling milled head placed as shown at "F" on the Circuit Stage Microscope, illustrated on page 21 1 15 0

For complete list of objectives, eyepieces, condensers, etc., see page 20 onwards.

Complete outfits suitable for high-class work and including the Circuit Stage Microscope are detailed on page 22.

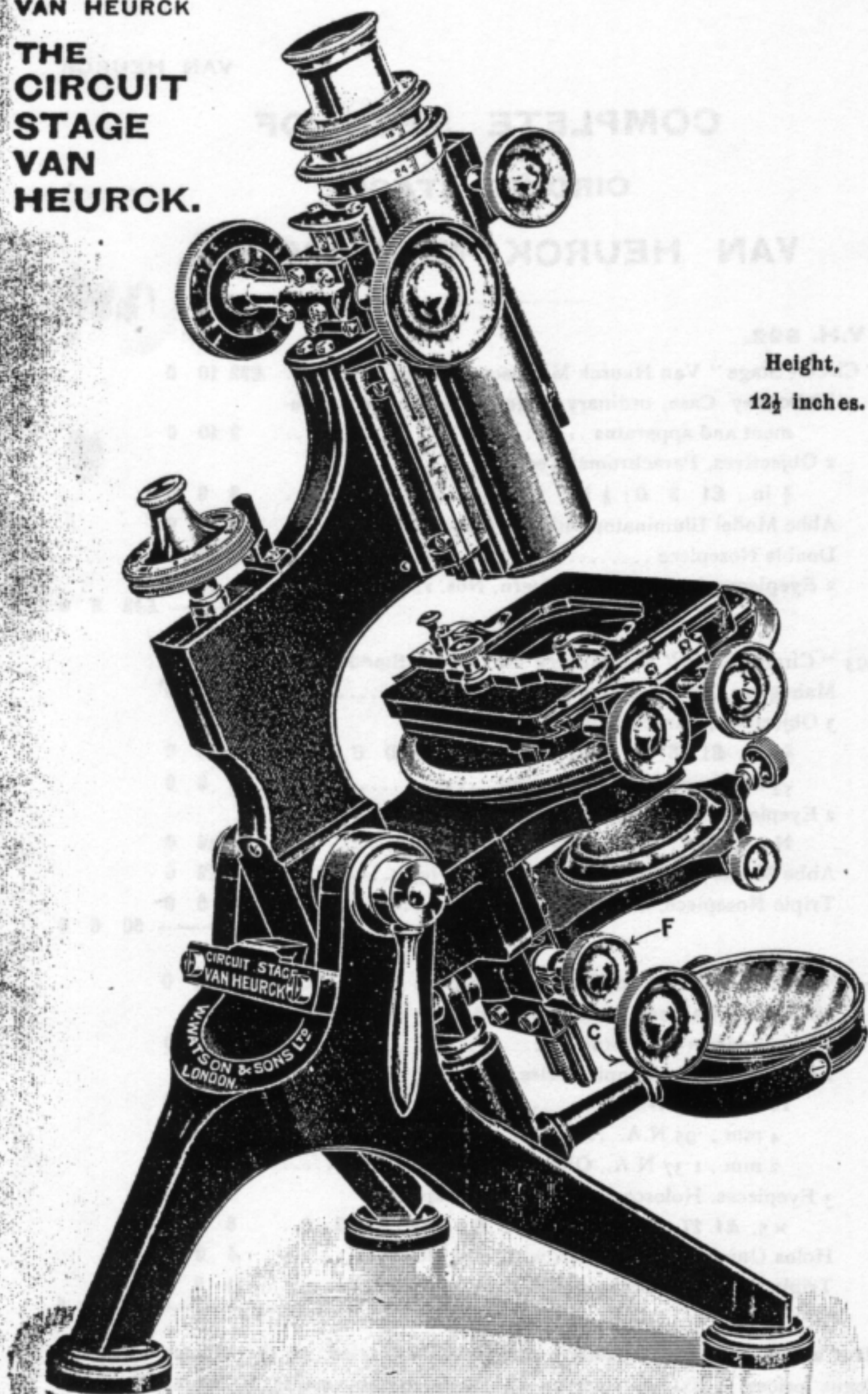


VAN HEURCK

21

**THE
CIRCUIT
STAGE
VAN
HEURCK.**

Height,
12½ inches.



W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

COMPLETE SETS OF CIRCUIT STAGE VAN HEURCK MICROSCOPE.

Set V.H. 392.

" Circuit Stage " Van Heurck Microscope Stand.....	£32 10 0	
Mahogany Case, ordinary pattern, to contain instru- ment and apparatus	2 10 0	
2 Objectives, Parachromatic series :		
$\frac{3}{4}$ in., £1 8 0 ; $\frac{1}{4}$ in., '74 N.A., £2 0 0	3 8 0	
Abbe Model Illuminator with Iris diaphragm No. 1957.	2 12 6	
Double Nosepiece	0 17 6	
2 Eyepieces, large capped pattern, Nos. 1, 2 or 3	1 10 0	
		£43 8 0

VH 393 " Circuit Stage " Van Heurck Microscope Stand.....	£32 10 0	
Mahogany Case, ordinary pattern.....	2 10 0	
3 Objectives, Parachromatic Series :		
$\frac{3}{4}$ in., £1 8 0 ; $\frac{1}{4}$ in., '74 N.A., £2 0 0	3 8 0	
$\frac{1}{2}$ in. Versalic Oil Immersion.....	6 5 0	
2 Eyepieces, large capped pattern :		
No. 2, 15/0 ; No. 4, 21/0	1 16 0	
Abbe Model Illuminator with Iris, No. 1957	2 12 6	
Triple Nosepiece, dust-proof pattern	1 5 0	
		50 6 6

VH 394 " Circuit Stage " Van Heurck Microscope Stand.....	£32 10 0	
Mahogany Cabinet, with cupboard door and drawers to contain apparatus	4 4 0	
2 Objectives, Holoscopic Series :		
16 mm , '45 N.A.	3 5 0	
4 mm , '95 N.A.	4 15 0	
2 mm , 1'37 N.A., Oil Immersion	8 10 0	
3 Eyepieces, Holoscopic Series, large capped :		
× 5, £1 17 6 ; × 10, £1 12 6 ; × 14, £1 12 6 ..	5 2 6	
Holos Universal Condenser, with Iris, No. 1928	4 0 0	
Triple Nosepiece, dust-proof	1 5 0	
		63 11 6

The above sets are suggestive and may be varied at the differences in the Catalogue prices. Extras, such as Divisions to movements of Stage, additional Mechanical Screws, etc., etc., can be added at the respective prices given on previous page.



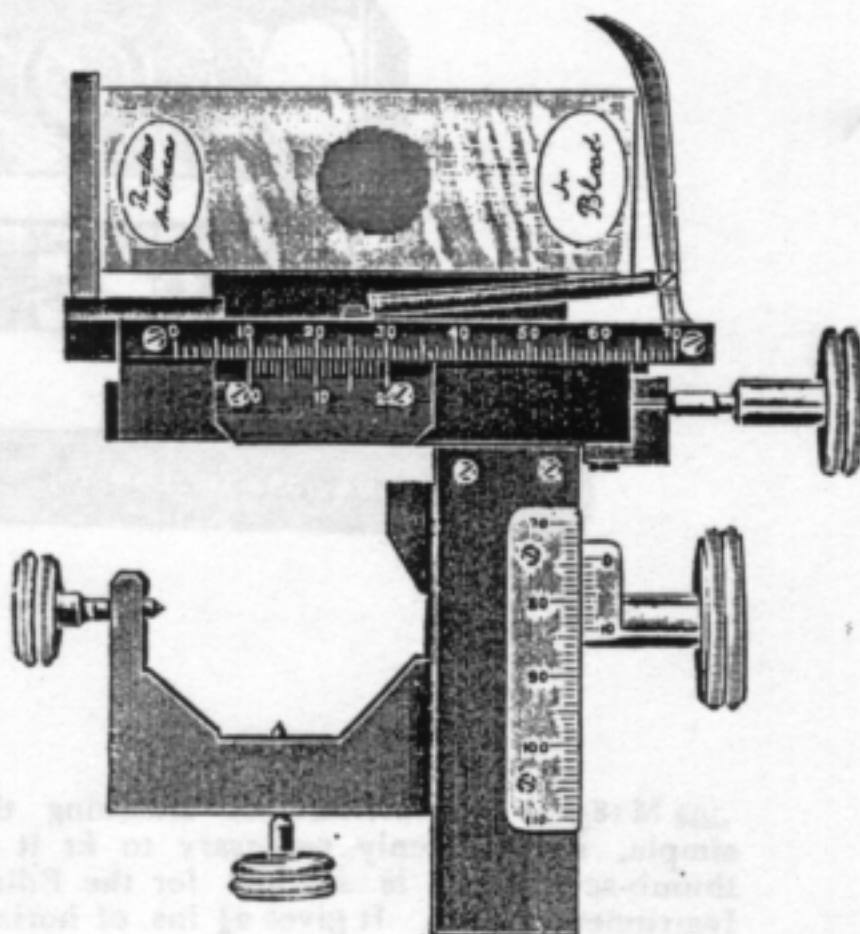
ATTACHABLE MECHANICAL STAGES.

THE "SENIOR."

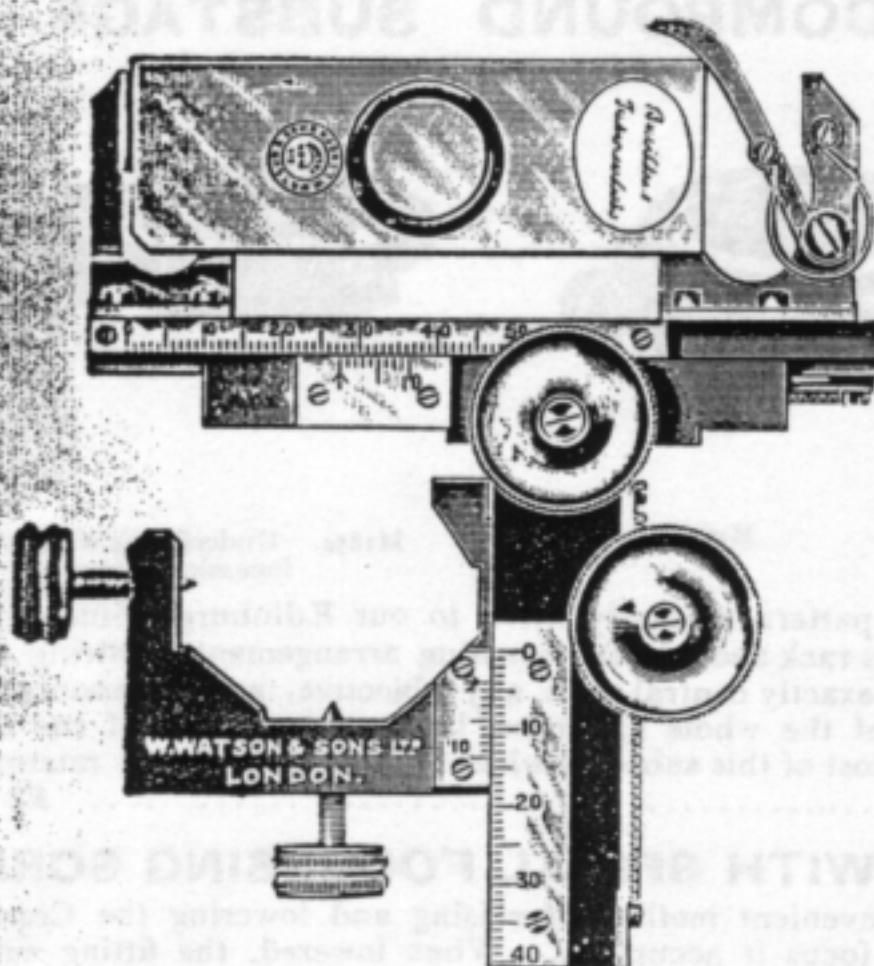
M1850.—The attachable stage figured is suited to a limited number of microscopes only. It is intended primarily for our *Praxis*, but it also fits certain microscopes of continental make and is substantially lower in price. It has a range of movement horizontally of $2\frac{1}{2}$ inches, and vertically of $1\frac{1}{2}$ inches. It can be quickly fixed or removed.

PRICE £3 10 0

Divisions to movements, as in figure,
extra..... 0 7 6



No. M1850.



No. M1851.

THE "JUNIOR."

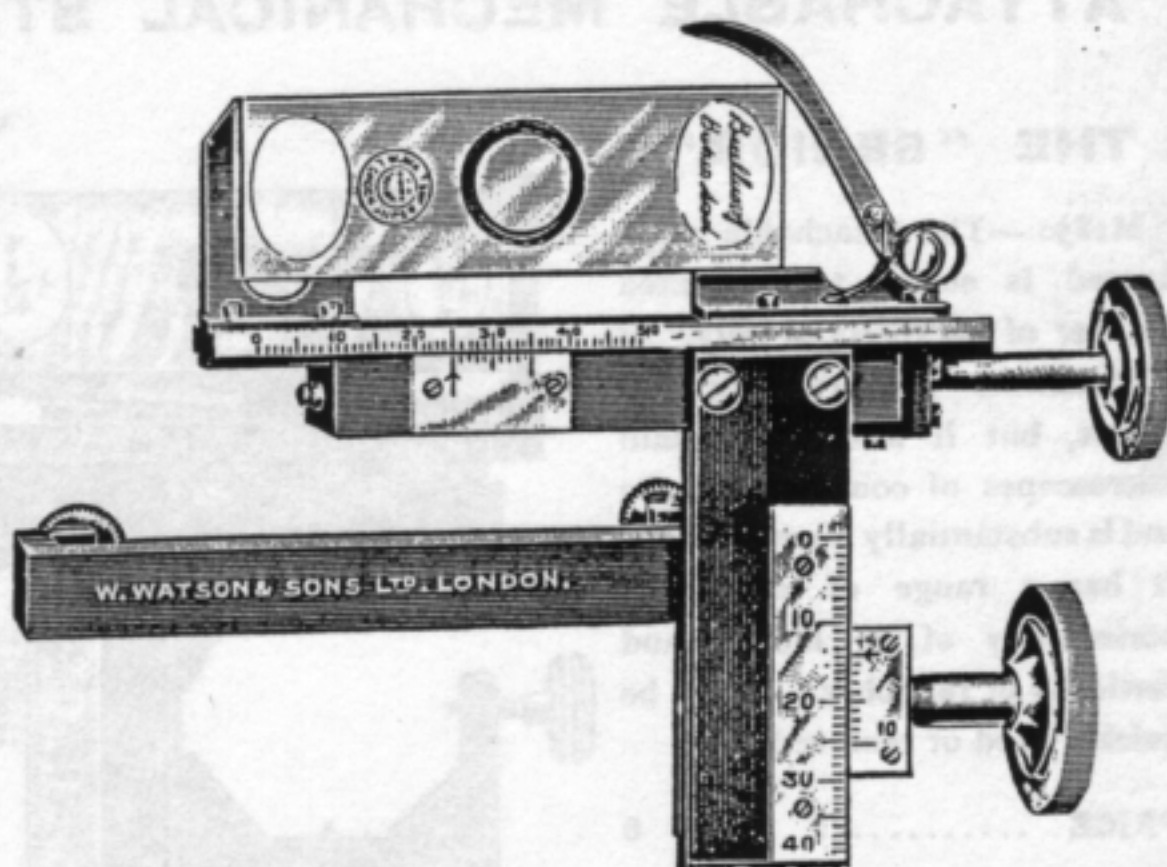
1851.—This Stage answers the same purposes as No. M1850 above, but is of simpler construction. It is thoroughly efficient and can be well recommended. Length of horizontal movement, $2\frac{1}{2}$ inches.

PRICE £3 3 0

Divisions to movements, as in figure,
extra..... 0 7 6



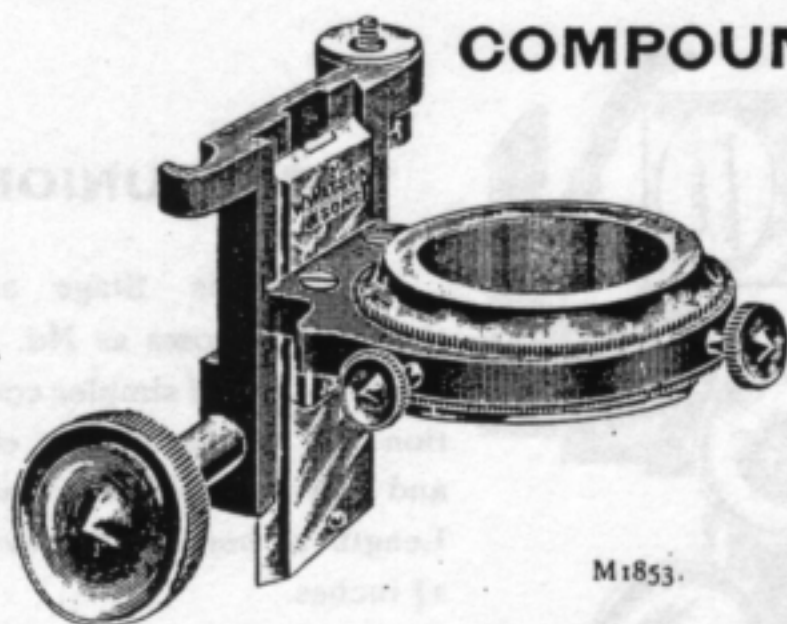
ATTACHABLE MECHANICAL STAGE.



M1852.—The method of attaching this Stage to the Microscope is quite simple, it being only necessary to fit it on like a sliding bar and tighten two thumb-screws. It is stocked for the Edinburgh Student's, Praxis, and Standard Instrument Stages. It gives $2\frac{1}{4}$ ins. of horizontal traverse, and one inch of vertical.

PRICE £3 12 6
Ditto, with divisions to movement, as in figure 4 0 0

COMPOUND SUBSTAGE.



M1853.



M1854. Underfitting with spiral focussing screw.

M1853. Illustrates the pattern regularly fitted to our Edinburgh Student's and higher-priced stands. It has rack and pinion focussing arrangement, centring screws to enable the light to be set exactly central with any objective, and is mounted on a swing fitting, which allows of the whole apparatus being swung clear of the optical axis if desired. The extra cost of this substage when fitted to any of our microscopes at time of ordering is £2 5 0

UNDERFITTING WITH SPIRAL FOCUSSING SCREW.

This device affords a convenient method of raising and lowering the Condenser which it carries, so as to focus it accurately. When lowered, the fitting with the Condenser turns aside from the optic axis, and is out of the way. It is made in a superior manner, is of the universal size, so will carry any understage Condenser.

M1854. Supplying and fitting to our own Instruments..... 18/6



OBJECTIVES.

SPECIAL NOTE.

Our last pre-war Catalogue contained in detail full particulars of the *three* series of Objectives which we regularly constructed, viz. :—

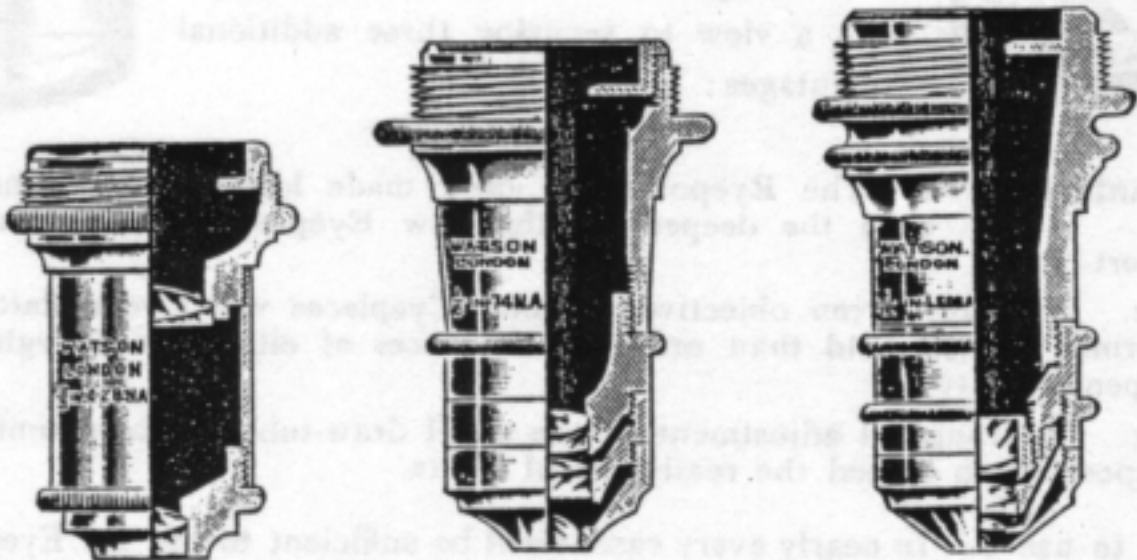
- 1—Parachromatic
- 2—Holoscopic
- 3—Apochromatic

and comprising over thirty different Objectives, covering the whole range of modern Microscopic requirements.

Under the present war conditions, however, we find it necessary to concentrate our energies upon a limited number only—these being the powers mostly in demand by the various Government, Medical and Munitions establishments.

As soon as conditions become normal, we shall hope to resume the manufacture of the full series of our well-known Objectives.

WATSON & SONS' PARACHROMATIC OBJECTIVES.



Low-power Objective. High-power Objective. Oil Immersion Objective.

Approximate Focal Length.		Initial Power calculated for an image distance of 10 inches (about 250 m/m.).		Numerical Aperture.		Price.			
Inches	m/m.	Diameters				£	s.	d.	
$\frac{3}{8}$	16	Semi-Apochromatic	15	0.28	..	1	8	0	
$\frac{1}{8}$	4		65	0.74	..	2	0	0	
Oil Immersion									
"Versalic"									
$\frac{1}{12}$	1.8		125	1.28	..	6	5	0	

HOLOSCOPIC OBJECTIVES.

3/8	16	15	.45	Dry	..	3	5	0
1/8	4	40	.93	"	..	4	15	0
Oil Immersion								
1 1/2	2	120	1.37	Oil Immersion		8	10	0



"HOLOSCOPIC" EYEPIECES.

NEW FORMULÆ, 1912.



Not a compromise, but the best possible Eyepiece for either Ordinary, Holoscopic or Apochromatic Objectives

These Eyepieces, already widely known to, and greatly appreciated by, microscopists, have recently been greatly improved by the use of compound lenses of an unusual type, with a view to securing three additional advantages:



Advantages.

1. The Eyepoint has been made longer than formerly, so that even the deepest of the new Eyepieces can be used in perfect comfort.

2. With any given objective the new Eyepieces will give a flatter and more uniformly defined field than ordinary Eyepieces of either the Huyghenian or the Compensating type.

3. The range of adjustment by the small draw-tube has been limited, so that it is impossible to exceed the really useful limits.

How to use them.

In nearly every case it will be sufficient to use the Eyepiece (1) with the draw-tube **pushed in** as far as it will go with **ordinary** low-power objectives up to and including the $\frac{1}{2}$ inch.

(2) With the draw-tube **pulled out** as far as it will go with all **Holoscopic** and **Apochromatic** objectives, and with most ordinary $\frac{1}{2}$ inch Oil Immersions.

(3) With the draw-tube at a half-way setting with ordinary $\frac{1}{4}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " objectives, and some $\frac{1}{2}$ " Oil Immersions.

Very painstaking observers will find the absolutely best positions of the Eyepiece draw-tube close to those just indicated in those rare cases, where an unusually sensitive object still shows traces of coloured margins (orange and blue) in the outer part of the field of the Eyepiece.

How they act. The reason why microscopical eyepieces should be adjustable is that only the lowest objectives can be made strictly achromatic. All modern objectives of less than $\frac{1}{2}$ -inch focus have unachromatic front lenses, and owing to that, have a higher magnifying power in blue light than in red, with the result that an ordinary Eyepiece, when used with them, shows spurious coloured edges on strongly marked lines in the outer part of the field. Compensating Eyepieces correct a certain **definite quantity** of this difference of magnification in different colours, but as the amount really present in different lenses varies considerably, our adjustable Holoscopic Eyepiece provides the only true and complete solution of the difficulty.

Magnifying Powers.

The Holoscopic Eyepieces are made in two patterns: (1) the ordinary Student's pattern, and (2) the best capped form. Either kind can be used with **any tube length**.

The magnifying powers are calculated for the 10-inch tube length, and are as follows:—

Student's patterns, 7, 10, 14 and 20 diameters.

Best capped pattern only, 1.27 in. diameter, 5, 7, 10, 14 and 20 diameters.

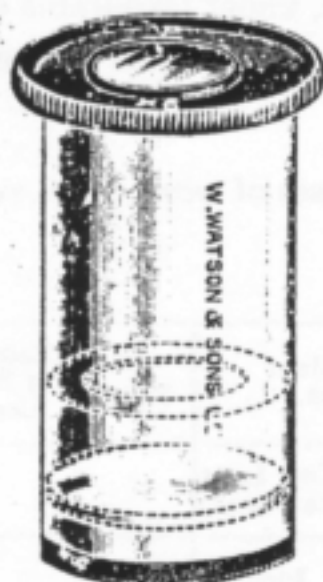


"HOLOSCOPIC" EYEPIECES—Continued.**PRICES.**

Student's Pattern , either power, for the Standard Continental diameter of tube, as figured, new formula, $\times 7$, 10, 14 or 20 diameters	£1 5 0
Best Capped Pattern , as figured, of the Standard large diameter, 1.27 inches, new formula $\times 5$	1 17 6
Ditto, ditto, $\times 7$, $\times 10$, $\times 14$ and $\times 20$	1 12 6 each

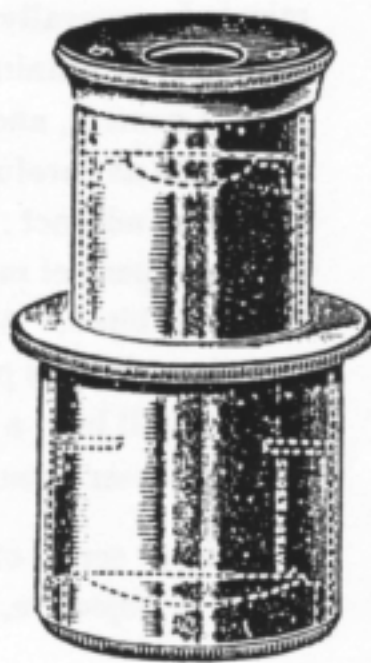
The Huyghenian or ordinary type of Eyepiece.

THE EYEPIECES WORK APPROXIMATELY IN THE SAME FOCAL PLANE, so that on interchanging Eyepieces of different powers, the object remains practically in focus and the working distance of an Objective is not shortened when a high-power Eyepiece is used with it, as is usually the case. Also, there is no disturbance to the corrections of the Objective on interchanging Eyepieces.



Student's Eyepiece.

These Eyepieces are made in two patterns: (1) the capped form, 1.27 in. (32.258m/m.) diameter, and (2) the Student's pattern .9173 in. (23.30m/m.) diameter. The latter are the regular Eyepieces supplied with the great majority of our Instruments and those of other makers, all of which are interchangeable.



Best Capped Eyepiece.

EACH IS ENGRAVED WITH ITS INITIAL MAGNIFYING POWER.

The Eyepieces are numbered 1 to 5, No. 1 being the weakest. They were formerly described as A, B, C, D, etc., but this lettering is no longer used.

PRICES.	No. formerly	1 A	2 B	3 C	4 D	5 E	6 F
Initial magnifying power		5	6	8	10	12	15 diams.
Best Capped Pattern ..		15/0	15/0	15/0	21/0	21/0	21/0
Student's Pattern		7/0	7/0	7/0	7/0	15/0	15/0

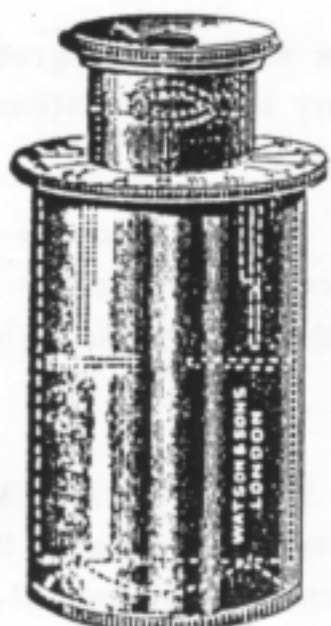
The Projection Eyepiece, for Photo-Micrography, Micro-Projection, etc.

These Eyepieces may be used advantageously with Objectives of either the Apochromatic or ordinary series, for photographic purposes, projecting an exquisitely sharp image of the object on the plate. A divided circle is provided, the figures of which represent in inches the camera extension. For visual focussing the pointer should be set to the division marked ∞ . When photographing, the eyepiece is correct when the pointer is set to the engraved number which accords with the camera extension in inches. Made in two sizes—1.27 in. and the Student's (.9173 in.)

Initial magnifying power, $\times 6$.

Price, £2 12 6 each.

Adapters between Continental Eyepieces and any English size, each, 6/6.



Condensers—Substage.

A high degree of excellence in the illuminating apparatus of a microscope cannot be too strongly insisted upon. With low powers the light reflected directly from a mirror is generally sufficient, but not so with the high powers. Here it is not only necessary to obtain more light, but it is imperative that such light should be under perfect control, and that the quality of the system producing the illuminating cone should be as carefully considered as the objective itself. In short, the condenser is a necessary adjunct; not a mere refinement. The better the quality of objective used, the more perfect must be the substage condenser, if the full virtues of the former are to be exhibited. A well-corrected objective demands a condenser having an aplanatic aperture which is proportionate to its own. A good objective, under favourable conditions, will bear a solid cone of illumination of three-fourths its numerical aperture; the condenser should be selected accordingly.

In our series of substage condensers, we provide for all classes of work, with every power of objective, as follows:—

Condenser.	Full Aperture.	Aplanatic Aperture.		Equivalent Focus.		Page.	Diameter of Back Lens.
		Complete.	Top Lens Removed.	Complete.	Top Lens Removed.		
				Inch.	Inch.		
Macro Illuminator	—	—	—	·2	—	31	1·25
The Universal	1·0	·95	·40	·4	1·0	29	·77
The Parachromatic	1·0	·90	·40	·29	·4	30	·62
Oil Immersion (Holoscopic Series)	1·30 to 1·40	Full	·55	·22	·55	30	·6

The freedom of the lens-system from spherical aberration shows the degree of aplanatism attained. In the above the aplanatic aperture is very large in relation to the full aperture; a sufficient indication of high efficiency.

The Holoscopic Series and the Parachromatic Condenser referred to above are pre-eminently suitable for photo-micrography, the chromatic correction, as well as the corrections for spherical aberration (as their aplanatism proves), being of the highest order.

WARNING.—Several Condensers are offered in competition with our Series, professing to have similar large aplanatic apertures. On testing, we have found many quite inferior to their representations. We guarantee that all our Condensers have the aperture—both numerical and aplanatic—claimed for them.

Condensers—Substage.

Holoscopic System.

The Universal Condenser.



M1927.

For rapid work, a condenser having large lenses is an immense advantage, and in the Universal Condenser a diameter of back lens is given, which in practice affords all the convenience of the larger sizes. With it work can be done as rapidly, and more accurately, than with any other Condenser, while the beautiful aplanatic corrections render it the finest all-round Condenser procurable.

It is constructed on our Holoscopic System, a triple back lens producing the correcting effect. It is this system which has enabled us to produce in our Holoscopic Objectives and Oil Immersion Condensers, corrections for spherical aberration, which have made them famous as the best examples of optical skill and perfection in aplanatism of the present day.

The power is very suitable for general purposes, with objectives of low, medium and high magnifications, whilst without the top lens it can be used advantageously with the lowest powers.

We would emphasise the enormous aplanatic aperture it yields. Its **total aperture** is aplanatic, if the exact thickness of slip be used for which it is corrected. Its optical perfection suits it for work with the highest powers. It is a "Universal" Condenser in every way.

It will work through any reasonably thick slip, but is slightly under-corrected for thin ones. This can, however, be corrected by partly unscrewing the front lens so as to cause it to touch the slip when in focus.

The Mounting is the same as used for the Abbe Illuminator, with which the Holoscopic Condenser will interchange. It has iris diaphragm and rotating cell for stops, etc.

Power.		Total Aperture.	Aplanatic Aperture.		Diam. of Back Lens.
Complete.	Front lens removed.		Complete.	Front lens removed.	
4 in.	1.0 in.	1.0	.95	.40	.77

PRICES.

M1927.—Optical part only	£3 0 0
M1928.—Completely-mounted with iris diaphragm	4 0 0
M1929.—Set of stops for dark-ground illumination, etc.	0 10 0
M1930.—Coloured glasses—blue, yellow, signal green, ground, etc., Dr. Spitta's "pot green"	0 2 0



Condensers—Substage.

The Holoscopic Oil Immersion Condenser.

This condenser has the fullest resolving and defining power for the highest power objectives.

It possesses the same perfection of correction as the objectives of our "Holoscopic" series, the same principles being adopted in its construction. The elimination of spherical aberration is indicated by the large aplanatic aperture yielded by it. The full aperture is actually as great as that of any condenser at present made, while its aplanatic cone, on which the working quality depends, is greatly in excess of any similar construction. It may therefore be considered the **most perfect Oil Immersion Condenser** obtainable; a fact widely recognised, as it is used by many of the most distinguished microscopists. It is indeed indispensable to all microscopists who would realize the extreme resolving and defining powers of their objectives. The power is a most convenient one for high-power work; it can be used dry if desired, when an aplanatic aperture of .92 is secured; or with the front lens removed, it forms a most useful and efficient dry condenser for medium and low powers. It may therefore be considered as a generally useful condenser for all objectives.

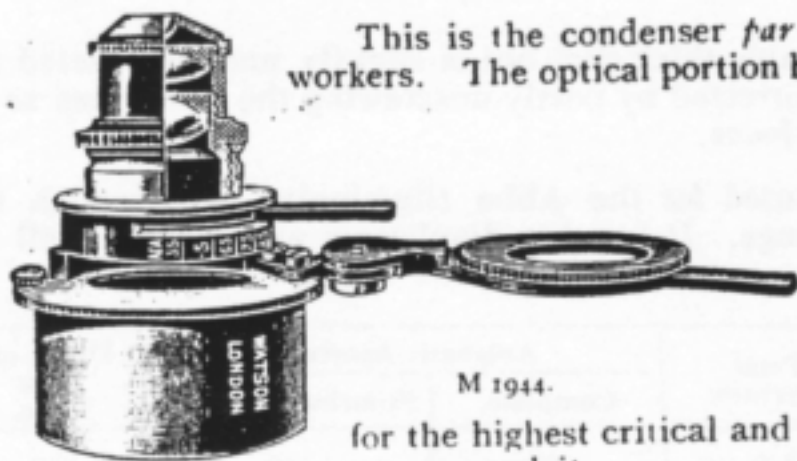
The numerical aperture of this condenser varies according to the thickness of slip through which it has to work. It is normally made to work through slips up to 1.6 mm thick, and has then an N.A. of about 1.34. If made—to order—to work through slips not exceeding 1.3 mm, its N.A. can be brought up to 1.40. On the other hand, if greater working distance is demanded, the N.A. falls proportionately to 1.30.



	Oil immersed complete.	Dry complete.	Dry top lens removed.
Power .....	.22 in.	.22 in.	.55 in.
Full aperture	1.30-1.40	1.0	.60
Aplanatic aperture.....	do	.92	.55

- PRICES.** Clear diameter of Back Lens, .6 in.
- M1941.—Optical part only, having standard R.M.S. thread £6 0 0
- M1942.—Completely mounted with iris diaphragm, similarly to Parachromatic Condenser shown below, with divisions to indicate aperture employed. With set of stops complete 7 15 0
- For coloured glasses see M1945.

The Parachromatic.



This is the condenser *par excellence* for medium and high-power workers. The optical portion has the Universal Objective Thread, and is mounted over an Iris Diaphragm, beneath which is a revolving carrier for Stops for dark ground and oblique illumination. The Iris Diaphragm is divided so as to indicate the N.A. at which the Condenser is being employed. The diameter of the back lens is specially large for such a Condenser.

This condenser is eminently suited for the highest critical and photographic work, and we confidently recommend it.

Power.		Aperture.	Aplanatic Aperture	Diameter of Back Lens.
Complete.	With top lens removed.			
.29 in.	.4	1.0	.90	.62 in.

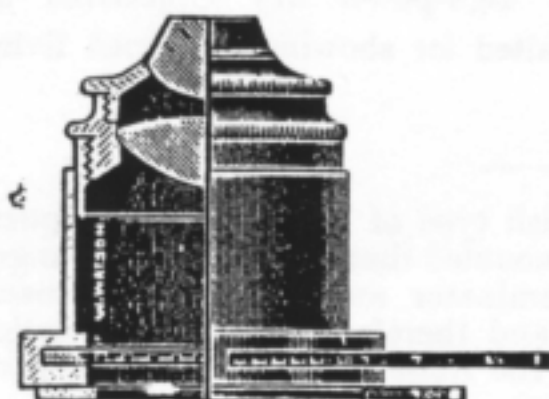
- PRICES.**
- M1943.—Optical part only, having standard R.M.S. thread £2 15 0
- M1944.—Completely mounted, as figured, with set of stops 4 10 0
- M1945.—Disks of blue, yellow, signal green, ground-glass or Dr. Spitta's "pot green," for either of the above Condensers, each 0 1 6



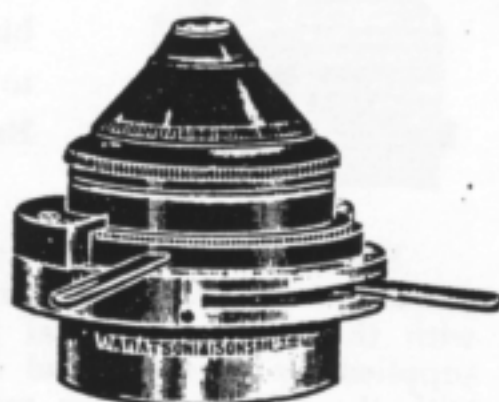
Condensers—Substage.

WATSON'S ABBE ILLUMINATOR.

Numerical Aperture 1.20.



Mounted for Understage. No. M1958.



Mounted for Substage.
No. M1957.

The continued popularity of this Condenser is due to the ease and rapidity with which it can be employed and for its brilliancy of image.

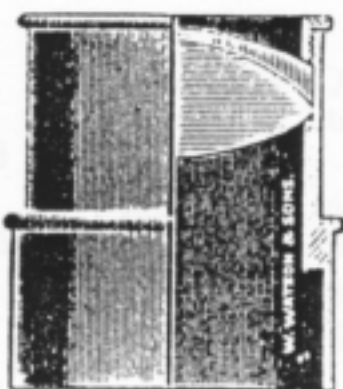
The aplanatism of this Condenser does not compare with that yielded by the Achromatic Condenser Nos. 1927 to 1943. For original research and critical work with Oil Immersion objectives, we strongly advise one of the latter.

The Abbe Illuminator is universally used for both high and low-power work; for the latter purpose the top lens is removed. A beautiful dark-ground effect may be obtained with it.

PRICES.

M1956.—Optical part only, N.A. 1.20	£1 1 0
M1957.—Completely mounted for substage , with iris diaphragm and carrier for stops, N.A. 1.20	2 12 6
M1958.—Completely mounted for understage with iris diaphragm and carrier for stops, N.A. 1.20	2 0 0
M1959.—Set of stops for dark-ground, etc., illumination in brass box.....	0 10 0
M1960.—Discs of glass, tinted, blue, signal green, yellow, ground glass, Dr. Spitta's "Pot Green," etc. ....each	0 2 0

THE MACRO ILLUMINATOR.



M1915.—This is a single Achromatic Combination of $1\frac{1}{4}$ in. clear aperture and 2 in. focus. It excels for its brilliant and uniform illumination of large objects under low powers. The lens is mounted to fit into the Substage, close to the object, so as to focus the image of the source of light in the **Objective**. Objects up to fully 1 in. diameter may be thus illuminated with uniformity. It is extremely valuable for photography, with Holostigmat lenses and low-power objectives.

Mounted for Substage Price £2 5 0



W. WATSON & SONS'

HOLOS IMMERSION PARABOLOID.

(for the detection of Spirochaetes and other Motile Bacteria).



Gives a brilliantly illuminated object with an intensely black background with high-power dry Objectives up to '95 N.A. Specially suited for showing unstained living Bacteria.

For the convenience of those who use the English type of Microscope, the optical portion of the Holo Immersion Paraboloïd is so mounted that it can be interchanged with the ordinary optical part of the Abbe Illuminator and similar Condensers supplied by ourselves and other English houses, and therefore used in conjunction with the Iris diaphragm mounting which carries the Abbe Illuminator optical part, No. 1957 and 1958.

Essentials of Successful Working.

1. The Holo Immersion Paraboloïd must in every case have oil between it and the object slip, and the contact must be maintained, and all air bubbles avoided.
2. The Condenser must be accurately centred.
3. The object slip must be within 20 per cent. of the thickness engraved on each of the Paraboloïd mountings. A supply of suitable slips is included with each instrument.
4. The specimen should be in as thin a layer of fluid as possible.
5. The source of light must be a very brilliant one, and a Bull's-eye condenser should be used. (For High-power Electric Lamps see page 40).

The annular illumination provided by the Paraboloïd extends from about N.A. 1.0 to N.A. 1.45, and it is noteworthy that the use of the iris diaphragm cuts out the rays of low numerical aperture first, so that the illumination becomes more and more oblique. This is a very favourable circumstance, as it secures the greatest resolving power attainable under the circumstances of dark-ground illumination for all objectives exceeding .48 numerical aperture.

The smaller the source of light the more care is required in making the adjustments, and in using slips of the proper thickness. The latter is, therefore, engraved on the mount of each instrument.

Oil immersion objectives can only be used with the Paraboloïd if a special stop is used which reduces their numerical aperture below 1.0. Price of Stop only, 3s.

Annular Illumination.

This Paraboloïd is excellent for the resolution of striated objects such as Diatomaceæ. The objective is then used at its fullest aperture, the illumination from the paraboloïd being annular and oblique in all azimuths.

PRICE LIST.

M1988. Optical part only, mounted to fit Abbe Illuminator Carrier such as is supplied with English Microscopes, with immersion oil and supply of suitable slips	£2 5 0
M1989. Complete Paraboloïd with mounting for Sub-stage or Under-stage to fit any Microscope, with oil and supply of suitable slips	3 5 0
M1990. This Paraboloïd must be accurately centred, and if the Microscope has no centring screws to the Sub-stage, a Centring Nosepiece should be used, which is supplied with the complete Paraboloïd at the special extra charge of	1 0 0



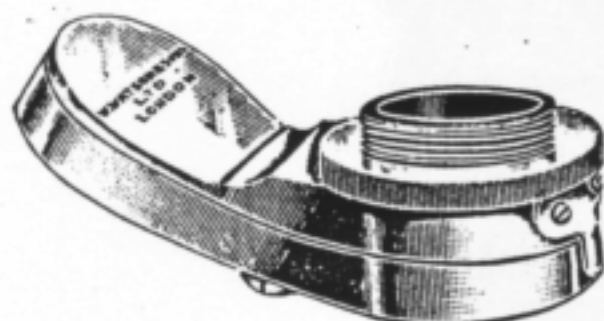
NOSEPIECES OR OBJECTIVE CHANGERS.

These Nosepieces will fit any Microscope, and work with Objectives by all makers. They have the Standard screw thread of the Royal Microscopical Society, which is universal throughout the world.

These Nosepieces have gained wide appreciation for their working qualities, and being made by machinery specially designed for the purpose, their accuracy of centring is unsurpassed; special attention has been bestowed to afford strength for a long life of working usefulness.

It should be noted that when fitted to the microscope, nosepieces should be set centrally with the body, projecting outwards towards the centre of the stage, and to ensure the correct centring of objectives, should always be revolved in **one direction only**.

DOUBLE—FOR TWO OBJECTIVES.



No. M2847.

M2847. New pattern Nosepiece of extra strong construction, designed for continuous use, completely rotating. Finished either bronzed or nickel-plated, as may be preferred £0 17 6

TRIPLE—FOR THREE OBJECTIVES.



No. M2849.

M2849. Dust-proof pattern, as figured. A really efficient form, invaluable for laboratory work. In lacquered bronze 1 5 0

CENTERING NOSEPIECE.

M2868. To fit any Microscope. Centres an objective with a concentric rotating stage, which has no centering arrangement. Effective and convenient 1 0 0



BLOOD TESTING APPARATUS.

M2018.	Dynamometer, Dr. Haig's Capillary	£0 14 0
M2019.	EHRlich's EYEPIECE with square diaphragm, for estimating the relative proportion of red and white blood corpuscles in dry preparations. With instructions	2 2 0
M2022.	Hæmacytometer (Dr. Gower's).....	3 3 0
M2023.	Hæmacytometer and Hæmaglobinometer (Dr. Gower's), both instruments in one case.....	4 10 0

THE THOMA HÆMACYTOMETER.



No. M2024.

This apparatus consists of a counting chamber in combination with two accurately calibrated mixing pipettes for diluting the blood in a certain ratio (1 : 100 for red, 1 : 10 for white corpuscles), with directions, in case.

M2024.	Thoma Hæmacytometer, complete, with 2 Pipettes and covers ..	£2 2 0
	Ditto, ditto, Counting Chamber only	1 0 0
	Ditto, ditto, Counting Chamber with covers in case..	1 5 0
	Ditto, ditto, Pipettes, each.....	0 7 6
	Ditto, ditto, Covers, thick or thin, per pair.....	0 3 0
M2025.	Glynn-Helber with 02 Counting Chamber, complete	2 5 0
	Ditto, ditto, Counting Chamber only	1 2 6
	Ditto, ditto, Counting Chamber with covers in case..	1 7 6
	Ditto, ditto, Pipettes and covers, as above.	
M2026.	Hæmoglobinometer, Dr. Haldane's	2 7 6



WORKS ON THE MICROSCOPE, Etc.

CROSS & MARTIN J. COLE. "Modern Microscopy," a handbook for beginners and students. Fourth edition. Entirely revised and greatly extended. 325 pages, numerous illustrations, 8vo. ....net	£0 6 0
DALLINGER. "The Microscope and its Revelations" (Carpenter). The standard text-book on the microscope and its manipulation. Eighth edition, revised and partly rewritten. Edited by the Rev. W. H. Dallinger, LL.D., F.R.S., etc. 1136 pages, 817 illustrations, 23 plates, 8vo, cloth .....net	1 8 0
Ditto, in two volumes:—	
Vol. I.—"The Microscope and its Accessories"	0 14 0
„ II.—"The Revelations of the Microscope"	0 14 0
HALL. "How to use the Microscope." A guide for the novice	0 2 6
SCALES. "Practical Microscopy." A handbook for beginners. Crown 8vo. Second Edition	0 5 0
SPITTA, Dr. E. J. "Microscopy." Second edition, 1909. 502 pp., freely illustrated. Most explicit treatise.....	0 12 6

MICROSCOPY, Etc.

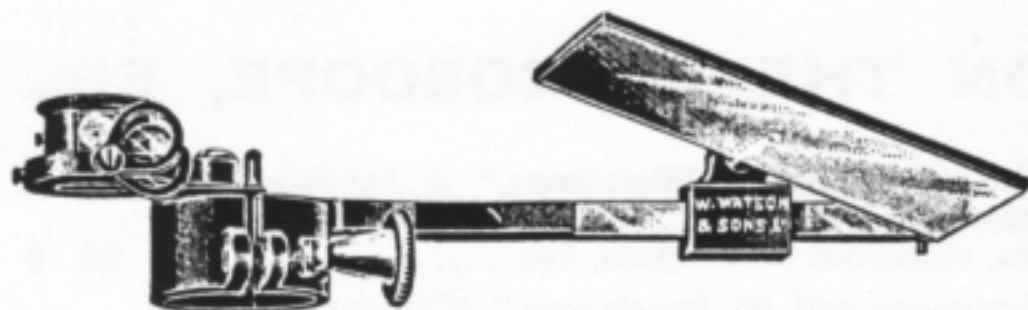
ASH, E. C. "Pond Life"	0 0 9
BUTLER. "Pond Life Insects"	0 1 0
COLE. "Diseases of the Blood"	0 10 6
DANIEL. Laboratory Studies in Tropical Medicine.....	0 16 0
HATCH. Text-book of Petrology. Sixth edition, 1910	0 7 6
HOWE. "Iron, Steel and other Alloys"	1 1 0
LEE. "The Microtometist's Vade Mecum." New Edition	0 15 0
MUIR & RITCHIE. "Manual of Bacteriology"	0 10 6
OSMOND & STEAD. "Microscopic Analysis of Metals"	0 8 6
PRIMROSE. "Practical Metallography of Iron and Steel"	0 4 0
RHODES. Micro-Petrology for beginners. 1912	0 2 6
SAUVEUR. "The Metallography of Iron and Steel"	1 5 0
SCHÄFER. "Elements of Histology"	0 10 6
SQUIRE. "Methods and Formulæ for the preparation of Tissues for Microscopical Examination"	0 3 6

PHOTO-MICROGRAPHY.

BAGSHAW. Elementary "Photo-Micrography." Third Edition	0 2 6
BARNARD, J. E. "Practical Photo-Micrography," 1913. 310 pages, numerous illustrations and plates	0 15 0
HIND & RANDLES. "Handbook of Photo-Micrography." 292 pages, 44 plates comprising 8 three-colour and 85 half-tone reproductions of photo-micrographs and 71 illustrations. 1914	0 7 6
WEST. "The Practical Principles of Plain Photo-Micrography," by George West. Lecturer in Botany, University College, Dundee. Sm. 4to. 145 pages. Illustrated. 1916	0 4 6



CAMERA LUCIDAS.



The Abbe. No. M2055



Beale's. No. M2058.

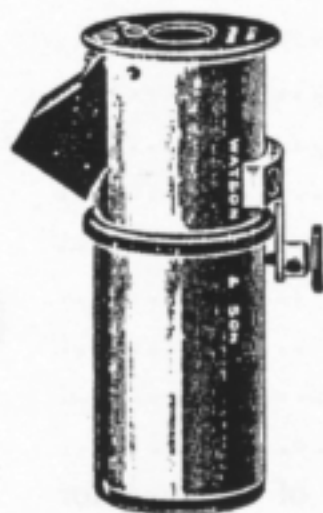
The Abbe Pattern.

M2055. This is considered to be one of the best and most easily used camera lucidas. Instead of the image being traced by its projection on paper, the reverse is the case, the paper and pencil being projected into the field of view. The mirror reflects the paper on to the silvered surface of a prism placed over the Eye Lens of the Eyepiece of the Microscope, and it is thereby conveyed to the eye when desired. The apparatus may be turned aside from the optical axis, as shown in the drawing. It can be used with the Microscope at any angle, the only necessity being that the paper on which the sketch is made should be in the same plane as the stage. Two neutral-tint shades are provided. Price in case £2 16 0

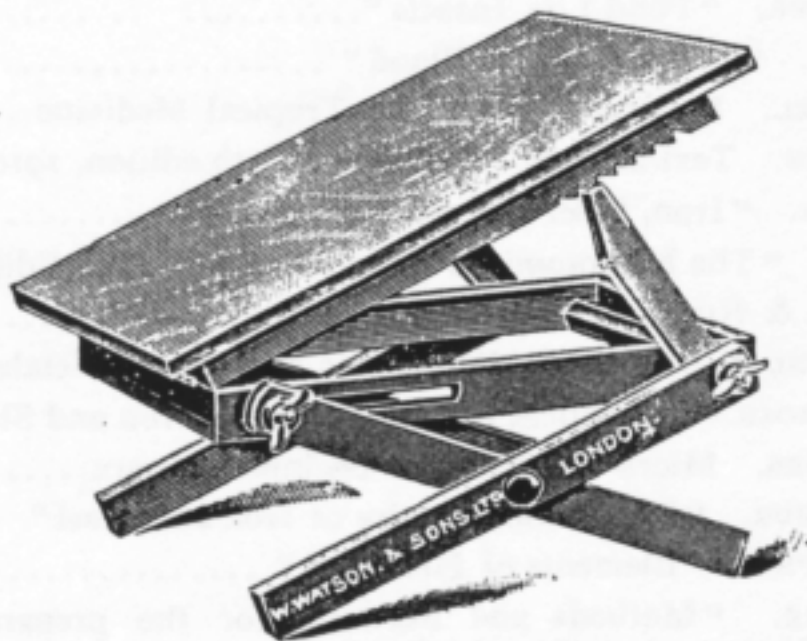
NOTE.—That this may fit perfectly, the Eyepiece (if a capped one) and draw-tube should be sent to us to fit it. It works best with low-power eyepieces.

Beale's.

M2058. Beale's neutral-tint Reflector, as figured 0 8 6



No. M2059.



No. M2060.

Drawing Eyepiece. (As figured.)

M2059 This is a combined Eyepiece and Camera Lucida, for use when the Microscope is inclined at an angle of 45° . The drawing paper and pencil point are reflected into the field by the prism attached to the Eye Lens, and tracings can be made with great precision, comfort and rapidity.

With tinted glasses to regulate light, complete £1 15 0

The Eyepiece with the above Camera Lucida fits the Student's size. If required of larger size, an adapter is supplied at an extra cost of 6s. 6d.

Drawing Table.

M2060. Inclines to any angle, thus obviating distortion of image. Size of table, 12 x 9 inches, as figured, and of best make. Price £0 14 0

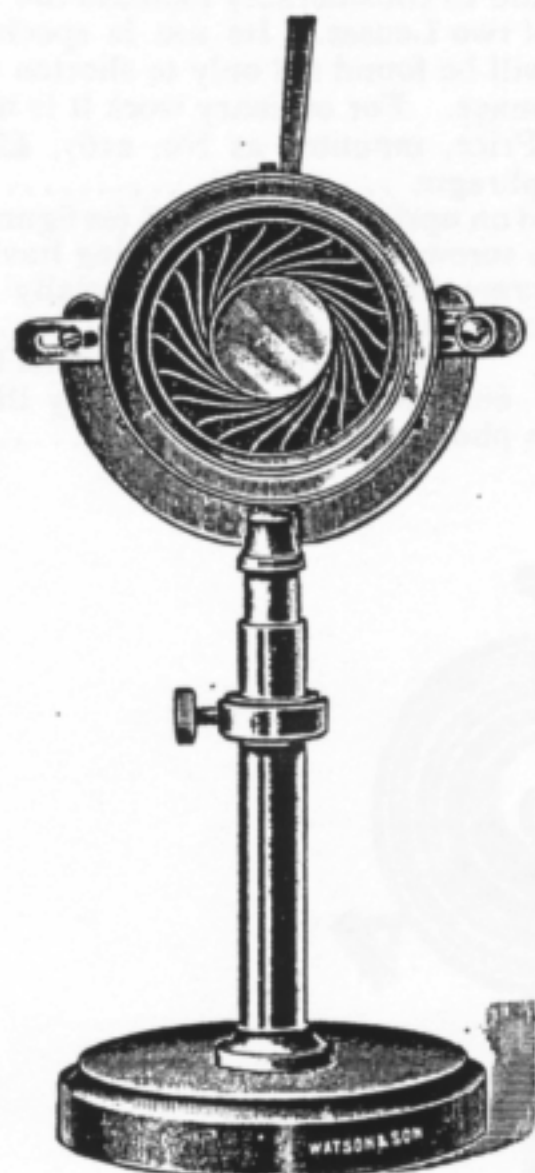
W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

Condensers.

STAND OR BULL'S EYE.



M2154.

The Scōp.

M2154.—This is a cheap form of condenser, on a lengthening pillar. The lens is $2\frac{1}{8}$ in. diam., and fitted with an iris diaphragm, horizontal adjustment being also afforded. It is particularly intended for use with the vertical illuminator, or for photo-micrography. With it a small point of light of intense brilliancy may be obtained. The iris diaphragm gives complete control of the beam of light. Price, as figured £2 2 0



Condensers.

STAND OR BULL'S EYE.

M2167.	With upright lengthening-bar, and ball and socket motions, large size, as figured	£1 1 0
M2168.	Ditto, medium size.....	0 15 0
M2169.	Ditto, small size	0 10 6

Aplanatic—Mr. E. M. Nelson's Formula.

M2170. Is designed to minimize the spherical aberration of the ordinary Stand Condensers, and to considerably increase the brilliancy of illumination. It is composed of two Lenses. Its use is specially indicated in photographic work, and it will be found not only to shorten the exposure, but to materially improve the image. For ordinary work it is much superior to the old form.

Price, mounted as No. 2167, £2 2 0.

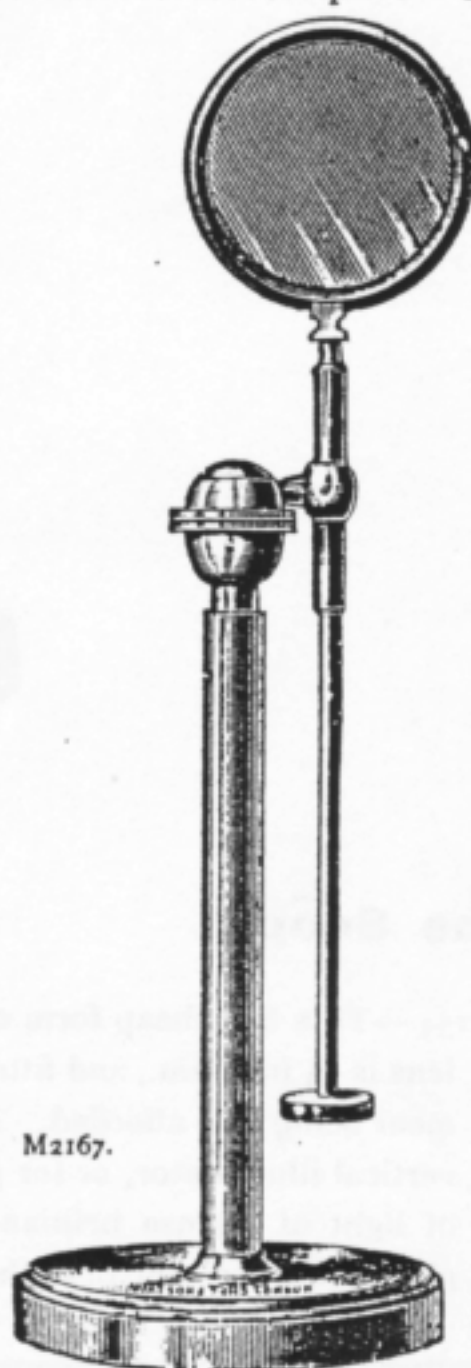
M2171. With Iris Diaphragmextra £1 15 0

M2172. Ditto, mounted on upright heavy stand (as figured) with lengthening bar and clamp screw, lenses fitting in ring having centring screws, and clamp screw to fix centring, specially arranged for photography, projection, etc. 4 4 0

M2173. Ditto, ditto, with Iris Diaphragm. This is a most important addition, and enables a clear and evenly illuminated disc to be obtained when photographing, etc.complete 5 19 0



M2172.



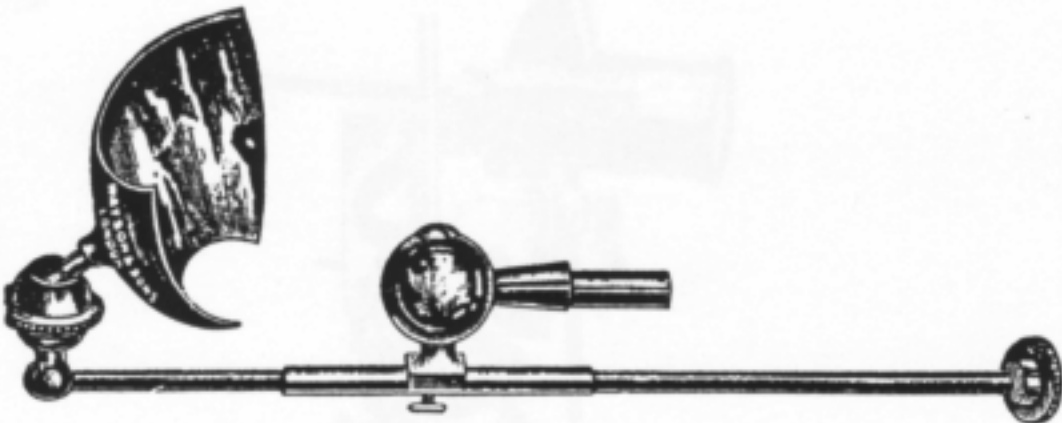
M2167.



STAGE CONDENSERS, ETC.

SILVER PARABOLIC SIDE REFLECTOR.

M2197. This gives beautiful illumination for opaque objects, the light being thrown by the Bull's-Eye Condenser and then reflected on the object. Price, to attach to limb or stage of Microscope, with ball and socket joints, as figured £1 12 0



M2198. Ditto, ditto, to attach to Nosepiece of Microscope..... 1 15 0

NOSEPIECE IRIS DIAPHRAGM OR DAVIS'S SHUTTER.

M2200. The Iris Diaphragm gives a clear aperture equal in diameter to that of the back lens of any Objective, while the collar in which the leaves work is exceedingly compact. It is specially useful for moderating the Aperture of Objectives, for producing dark ground illumination, and for increasing penetration. So that the handle of the Iris Diaphragm may be readily set at the most convenient position, the collar to which it is attached is made to revolve very stiffly. Price..... 1 1 0



M2201. Ditto, ditto, with fitting to go into Substage, so that Objectives may be used as Condensers 1 4 6

SUNDRY ILLUMINATING APPARATUS.

M2203. Spot Lens for dark ground illumination..... 0 10 6
M2204. Ditto, in Sliding Mount 0 14 6
M2206. Screw Fitting to take Objective as Condenser 0 5 0
M2207. Erecting Glass, to fit draw-tube to erect the image for dissecting, etc. 0 19 6

Vertical Illuminators—various types (see Catalogue No. 2C.)



Lamps.

Argus Hand-Feed Arc Lamp.

M2380. Specially designed for Micro work. Arranged on the right-angle principle, maximum light is obtained from the Carbons. It is compact and small, consumes only about 4 ampères of current, so can be connected to ordinary domestic supply. Price, with hood and condensing lens on stand.. £2 16 0



M2380.

A Resistance is required for the above—For 100 Volts 1 0 0
 For 200 Volts 1 11 6
 25 pairs Carbons for ditto 0 7 0

Electric Incandescent Lamp Outfit

of high power, suitable for use with Paraboloid Condensers, consisting of Japanned Metal Shade on Stand, with adjustable clamp for height and angle, Special Half Watt type Incandescent Bulb of 100 Watts, 2 yards Flexible cord, Lamp-Holder and Plug Adapter. Price..... 1 17 6

When ordering please state voltage required.

The Lamp Bulb can be supplied separately. Price..... 0 13 0

The "Pointolite" Electric Incandescent Arc Lamp

for direct current only. The light-giving part of the Lamp is a small ball of Tungsten which gives a point of light far exceeding (in its intensity) anything hitherto obtained. An ideal lamp for Photomicrography and Optical Projection.

PRICES—

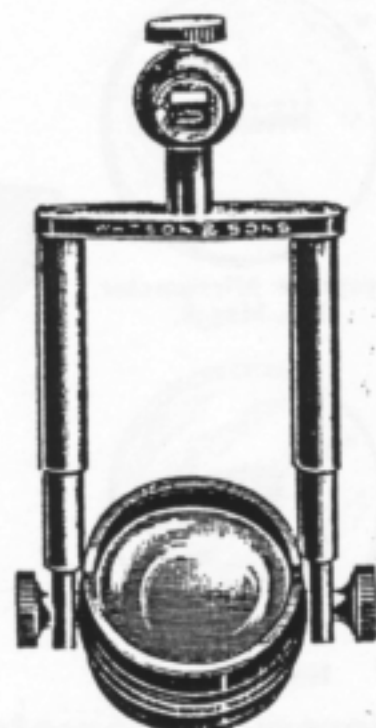
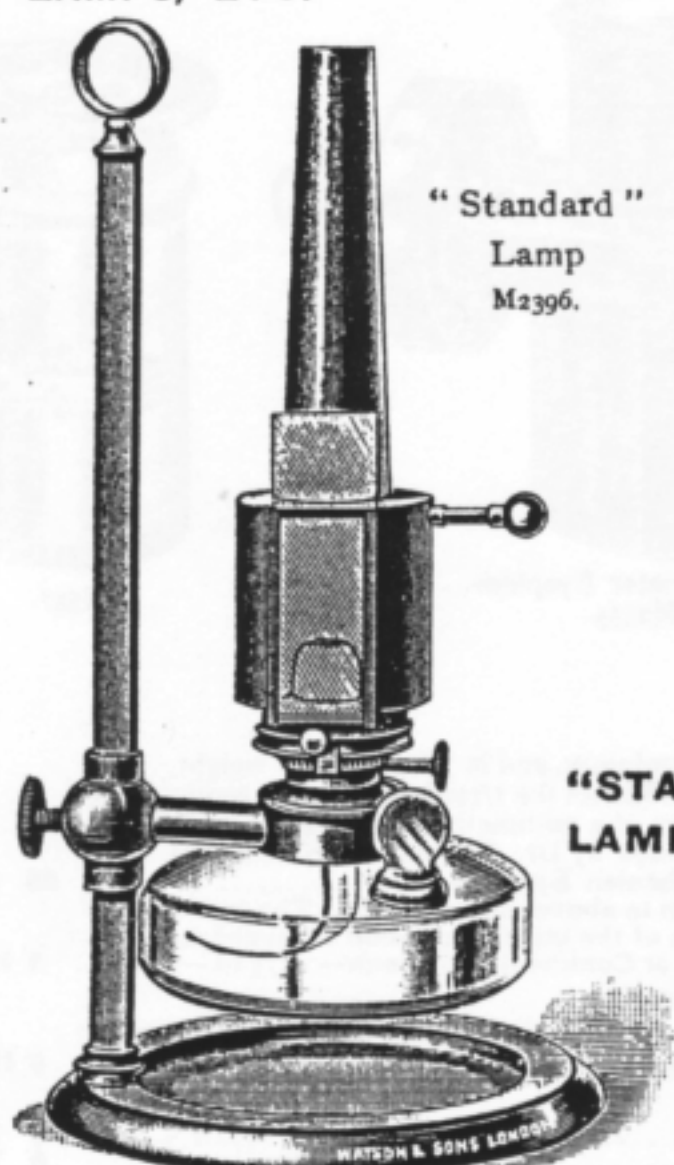
"Pointolite" Lamp, 100 candle power..... £1 5 0

N.B.—The "Pointolite" Lamp can only be used in conjunction with the special resistance set consisting of:—

Standard Universal Resistance, adaptable to all circuits, with Plug, Starting Switch, Lamp-Holder, Adapter and Flexible Cord..... 3 15 0

Metal Reflector, with Tray and Adjustable Lamp-Holder, suitable for Projection Lanterns..... 1 8 0





"STANDARD" "Nelson" Aplanatic Bull's-Eye
LAMP.
M2397.

M2396. The type most frequently used by workers. It has a flat glass reservoir which allows of the light being brought close to the table. The lamp itself may be securely fixed at any height on the upright bar, which latter being square, prevents it from swinging round. A metal chimney, taking $3 \times 1\frac{1}{2}$ slips, is provided. This lamp will burn for 10 hours and is especially suitable

for photo-micrography. With supply of blue and white slips..... £1 15 0

This Lamp will be found a most perfect illuminant for Photo-Micrography.

M2397. Ditto, ditto, fitted with Nelson's Aplanatic Bull's-Eye Condenser, as described page 38 3 17 0

This is mounted in the manner illustrated, fig. 2397, and fits the bar of the lamp stand; means of focussing are provided.

M2398. Mahogany Case for No. 2396 0 10 6

NOTE.—After use remove the metal chimney, or it may smell when re-lighted.

LIVE BOXES.

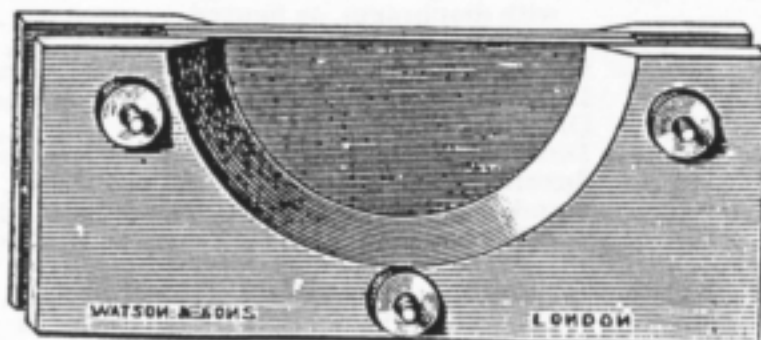
No. M2444.



M2444.	Live Box, large size, best quality.....	0 15 0
M2445.	Ditto medium size	0 8 0
M2446.	Ditto small size.....	0 4 0

BOTTERILL'S TROUGH.

M2467. This has two plates of vulcanite, held together by three screws, between which are placed two slips of glass separated by an ordinary india-rubber ring. The glass can be readily taken apart and cleaned, and in the event of being broken can at once be replaced.



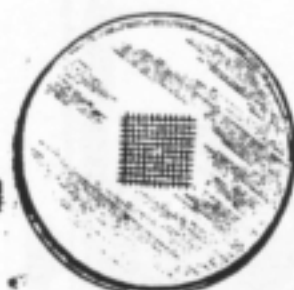
Price..... 4s. 6d. each.

No. M2467.

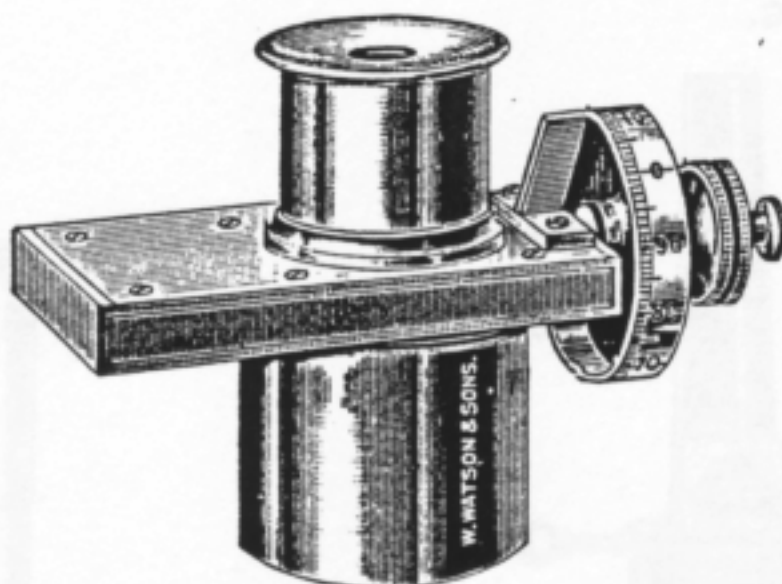




Eyepiece Micrometer.
No. M2538.



No. M2539.



Screw-Micrometer Eyepiece.
No. M2535.



M2537.

Screw-Micrometer Eyepiece.

M2535. This is constructed almost entirely of aluminium, and is very light in weight. The teeth are cut to 1 m/m, and the drum indicates the 1/100 part of each tooth. The reading can therefore be taken to 1/100 part of a millimetre. The fixed web is set a little to the side of the field, as recommended by Dr. Dallinger. Of best and most accurate construction. Price, with Huyghenian Eyepiece.....

£5 5 0

M2536. Screw Micrometer Eyepiece, similar design to above, but in brass. The eye lens has sliding focussing adjustments and it is of the utmost precision throughout. It is made for Eyepiece fittings of Student's or Continental diameter—9/173 in.—only ..

3 10 0

Students' Micrometer Eyepiece.

M2537. Micrometer Eyepiece, for use with Micrometer No. M2538 or M2539 Eye-lens mounted on telescopic sliding tubes, for focussing micrometer. Without micrometer

0 11 6

Eyepiece Micrometers.

M2538. Ruled with scale, as figured

0 7 0

M2539. Ditto, ditto, in Squares

0 7 0

M2540. Ditto, ditto, the same as No. M2538 or M2539, but mounted to fit large-sized capped Eyepiece

0 10 6

Stage Micrometers.

M2541. On 3 x 1 slips, Ruled to 1/100 and 1/1000 in.

0 10 6

M2542. Ditto, 1/10 and 1/100 m/m.

0 7 0



No. M2497.



No. M2506.



No. M2505.



No. M2507.

M2497. Pocket Magnifier, in folding tortoise-shell mount, of the very best quality, 3 lenses with diaphragm, as figured

£0 7 9

M2498. Ditto ditto, 2 lenses, 7s. 0d. Ditto, 1 lens

0 4 9

M2499. Ditto ditto, in horn or vulcanite, 1 lens

0 1 9

M2500. Ditto ditto, " 2 lenses

0 3 6

M2501. Ditto ditto, " 3 "

0 4 9

M2502. Ditto ditto, in vulcanite, 2 extra large lenses

0 10 6

*M2503. Special Magnifier for Botanical Work, 2 Plano-Convex lenses

0 3 6

M2504. Stand to hold either of the preceding, for dissecting

0 3 6

M2505. Coddington Lens, in German silver mount, in 4 sizes, as figured, 6s. 6d., 7s. 9d., 9s. 0d., and

0 11 9

M2506. Watchmakers' Eye Glass, as figured

0 1 4

M2507. Pocket Magnifiers, with horn cases, in 3 sizes, as figured, 1s. 4d., 3s. 6d. and

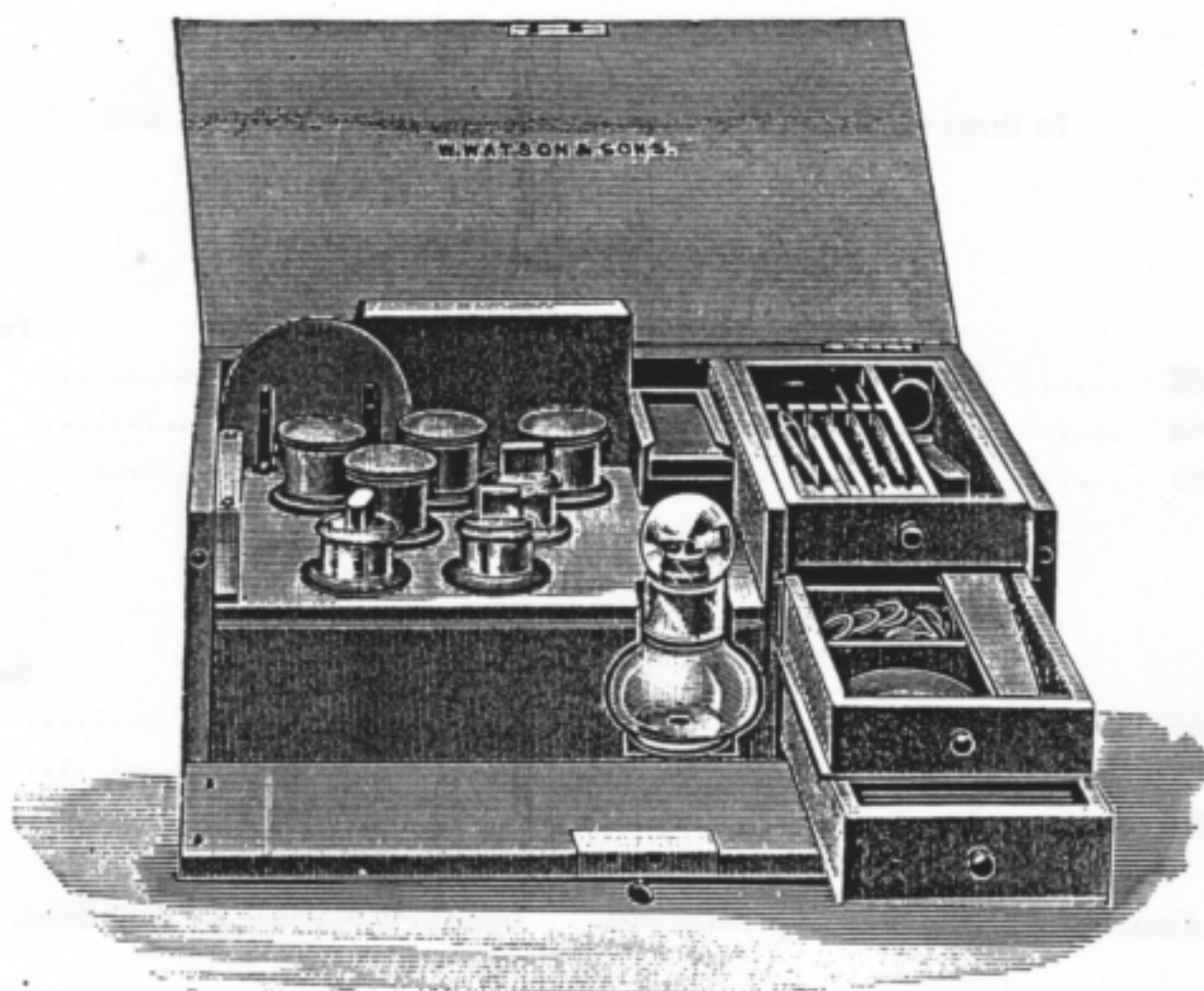
0 6 6

* Nos. M2501, M2503 are adopted by many Technical Schools, Botanical classes, etc., and are eminently suitable for the purpose.

Special quotations for quantities.



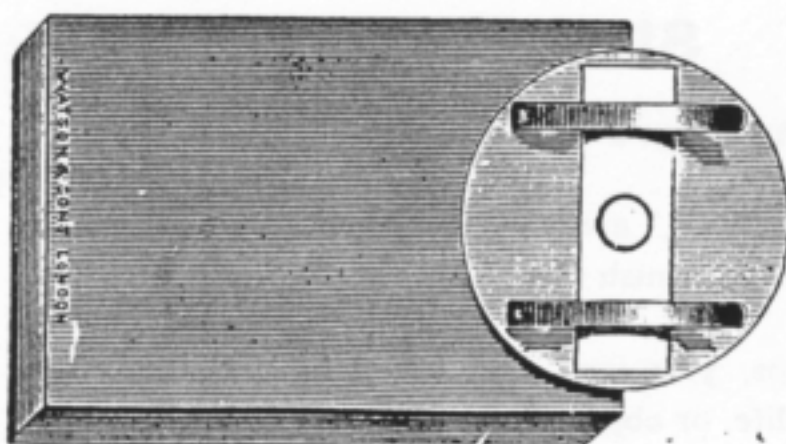
COMPLETE CABINETS FOR MOUNTING.



Containing Asphalt, 3 Bottles for Solutions, Brass Table, Canada Balsam, Cells, Cover Glasses, 2 Dissecting Knives, Dissecting Needles, Forceps and Scissors, Glass Slips, Gold Size, Labels, Marine Glue, Spirit Lamp, Spring Clips, Turntable, etc.

M2757. In Mahogany case..... £3 17 6

M2759. **STUDENT'S MOUNTING CABINET**, contains Balsam in Benzole, Brushes for ringing, Cover Glasses, Fine Scissors, Glass Rod and Pipette, Glass Slips, Labels, Section Lifter, Watch Glasses, polished pine case with 12 trays to hold 6 doz. objects, all contained in fitted and polished pine cabinet, very compact 1 10 0



No. M2821.

M2821. Turntable, ordinary pattern, as Fig. M2821; very efficient 0 9 6

W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

COVER GLASSES.

(Best quality only).

In three thicknesses—No. 1, very thin; No. 2, medium; and No. 3, ordinary thickness used.

Circles, $\frac{5}{8}$ in., $\frac{3}{4}$ in., $\frac{7}{8}$ in. diameter.

			Per 1 oz.		Per $\frac{1}{2}$ oz.		Per $\frac{1}{4}$ oz.
M2768	.....	No. 1	8/0	.....	4/0	.....	2/0
M2769	.....	No. 2	6/8	.....	3/4	.....	1/8
M2770	.....	No. 3	5/0	.....	2/6	.....	1/3

Squares, $\frac{5}{8}$ in., $\frac{3}{4}$ in., $\frac{7}{8}$ in. square.

			Per 1 oz.		Per $\frac{1}{2}$ oz.		Per $\frac{1}{4}$ oz.
M2768A	.....	No. 1	6/8	.....	3/4	.....	1/8
M2769A	.....	No. 2	5/4	.....	2/8	.....	1/4
M2770A	.....	No. 3	4/0	.....	2/0	.....	1/0

Assortment of above sizes at same rate. Special quotations for quantities.

Only the above sizes regularly kept in stock.

Smaller, intermediate or larger sizes of, and not less than $\frac{1}{2}$ oz., can be cut to order at 1/3 per oz. extra.

M2771. **Special Thin No. 1 Covers.** Circles, $\frac{3}{4}$ in. diameter only. These are excessively thin—.005 inch—for high-power work. 12/0 per oz. Not less than $\frac{1}{2}$ oz. supplied.

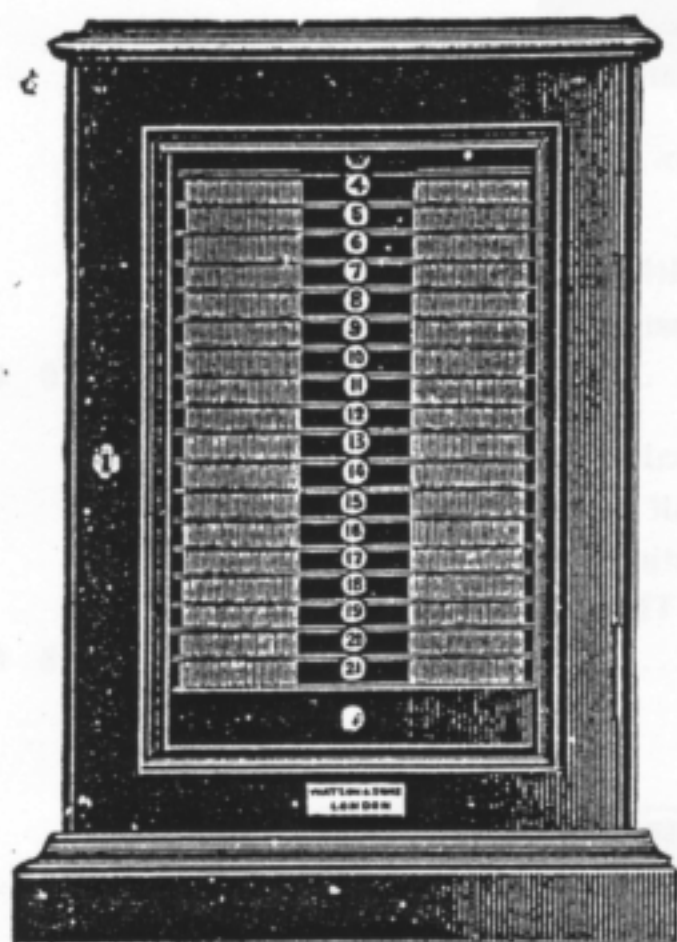
SLIDES OR SLIPS.

3 × 1 inches, ground-edges.

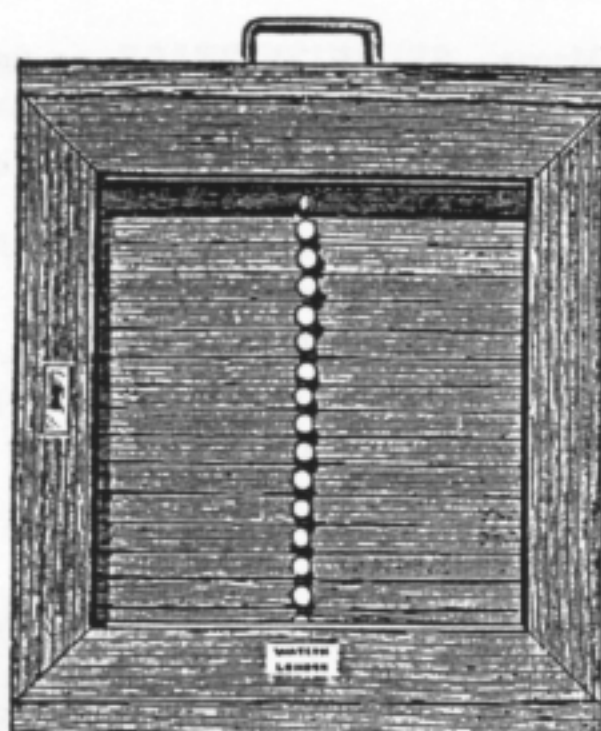
		per doz.	per $\frac{1}{2}$ gross.	per gross
M2776.	"The Student's," greenish tint, thin	8d.	3/4	6/8
M2777.	Extra thin, greenish tint	10d.	4/6	9/0
M2778.	Glass Slips, 3 × 1 ins., with round or oval excavation in centre, suitable for pond life, or objects to be mounted without pressure.	.....per doz.		3/6
M2781.	Blue Slips for use with metal lamp chimneys.	.....per doz.		3/0



MICROSCOPIC OBJECT CABINETS AND BOXES.



No. M2882.



No. M2878.

M2878.	Neatly-made Cabinet of polished pine, with glass door, lock and key, to hold 200 objects, as figure.....	£2	2	0
M2879.	Ditto ditto, 500 objects.....	4	0	0
M2880.	Ditto ditto, 1,000 objects	6	0	0
M2881.	Mahogany Cabinet of superior workmanship with mouldings top and bottom, to hold 280 objects, each drawer numbered, with an extra deep drawer for materials, etc.	4	17	6
M2882.	Large handsome Mahogany Cabinet to hold 500 objects, each drawer numbered and furnished with porcelain plates, as figure	8	5	0
M2883.	Ditto ditto, to hold 1,000.....	14	5	0



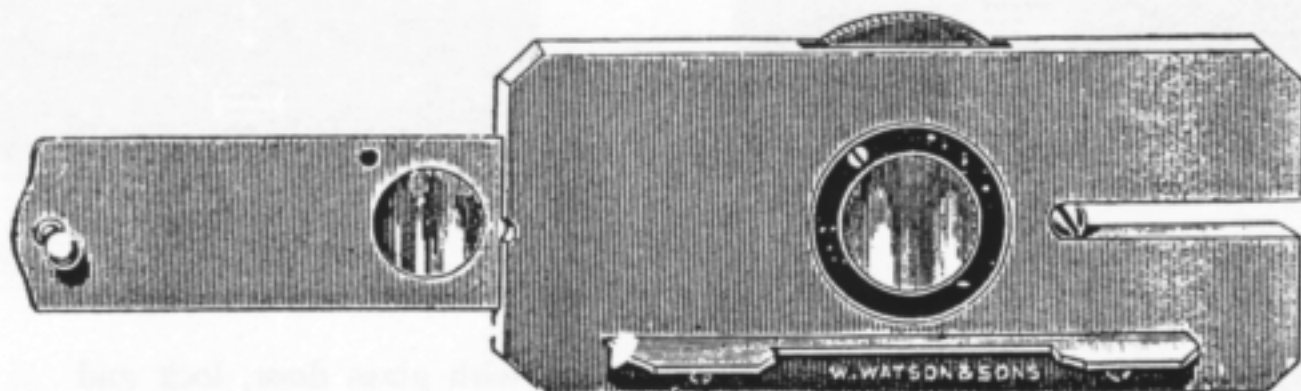
POLARISCOPE SELENITES.



M2937.

M2937. **SELENITE STAGE**, as figured, with pinion to rotate the central well carrying the Selenites. With a set of 3 Darker's Best Selenites having P/A marked on each, complete £3 0 0

M2938. Set of Darker's best Rotating Selenites for Substage, each fitting into a separate revolving ring so that all three can be rotated over one another independently or in combination; each ring can be turned out of the axis when not required. This may be fitted either to the Substage or to the Polarizer 4 15 0



Mica-Selenite Stage. M2939.

MICA-SELENITE STAGE.

M2939. A film of Mica is mounted in a revolving disc fitted in a brass plate, on which the object is placed. Beneath the Mica there is a sliding carrier, containing three different Selenites, so that each one may be brought under the Mica, and the latter rotated. Thus the entire series of colours obtainable with any number of Selenite films, either separately or in combination, may be produced. It can be used on any Microscope. The effects are very fine £1 17 6

M2940. Selenites mounted on 3 by 1 slips, 3 varieties..... each 0 2 0

Polariscopes—Prices on application.

W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.

MOUNTING MEDIA, ETC.

Asphalt or Black Cement.....	Per Bottle	£0	1	6
Bell's Cement.....	" "	0	1	9
Canada Balsam, Natural.....	" "	0	2	0
" " in Benzole	" "	0	2	0
" " in Xylol.....	" "	0	2	0
Caoutchouc and Shellac Cement	" "	0	1	6
Cedar Oil, thick, for Immersion	" "	0	1	0
Gold Size.....	" "	0	1	6
Varnish, Blue, Green or Red	" "	0	1	6
Zinc White Cement	" "	0	1	6

Packing and Postage for single Bottles, 5d. extra.

Burroughs Wellcome & Co.

M₃₀₅₃. 'SOLOID' BRAND MICROSCOPIC STAINS. (Trade Mark)

'Soloid' Microscopic Stains will be found exceedingly useful for the rapid preparation of small quantities of solution.

A descriptive list, in each packet, give full directions for making up and staining.

The following 'Soloid' stains are obtainable :—

Bismarck Brown, pure	0.1 gm.	8d.
Borax Methylene Blue		8d.
Eosin, pure	0.1 gm.	8d.
Eosin-Azur (for Giemsa Staining)	0.038 gm.	8d.
Eosin-Methylene Blue (Louis Jenner's Stain)	0.05 gm.	8d.
Fuchsin (Basic), pure	0.1 gm.	8d.
Gentian Violet, pure	0.1 gm.	8d.
Gram's Iodine Solution	15 c.c.	8d.
Hæmalum		8d.
Hæmatoxylin, pure	0.1 gm.	8d.
Methyl Violet, pure	0.1 gm.	8d.
Methylene Blue	0.1 gm.	8d.
Romanowsky Stain (Leishman's Powder)	0.015 gm.	8d.
Toison Blood Fluid Fluid		8d.

Each tube contains 6 'Soloid' products.



INDEX.

	PAGE		PAGE
Abbe Camera Lucida	36	Magnifiers	42
Abbe Illuminators	31	Mechanical Stages, Attachable ..	23, 24
Aplanatic Stand Condenser	38, 41	Metallurgical Microscopes	10
Arc Lamp	40	Mica Selenite Stage	46
Beale's Neutral Tint.....	36	Micrometers	42
Blood Testing Apparatus.....	34	Microscopes	6-22
Books	35	Mounting Cabinets	43
Botterill's Trough.....	41	" Media	47
Cabinets for Objects.....	45	Nosepieces	33
Camera Lucidas.....	36	" Centring	33
Coddington Lens	42	Object Cabinets	45
Coloured Glass Discs	29, 30	Objectives ..	25
Condensers, Stage.....	39	Objects.....	5
" Stand or Bull's-Eye ..	37, 38	Paraboloid Condenser ..	32
" Substage	28-32	Parachromatic Condenser	30
Counting Chambers	34	Parachromatic Objectives	25
Cover Glasses.....	44	Pipettes, for Hæmacytometer.....	34
" " for Counting Chambers	34	Pocket Magnifiers	42
Dark Ground Illuminator	32	Polarizing Apparatus	46
Davis's Shutter	39	Praxis Microscope.....	6-7
Drawing Apparatus	36	Projection Eyepiece	27
" Eyepiece	36	Pointolite Electric Lamp.....	40
" Table	36	" "Research " Microscope	18-19
Dynamometer	34	Reflector, Side Silver	39
Edinburgh Students' Microscopes..	11	Scöp Stand Condenser.....	37
Do. List of Users	14	Screw Micrometer Eyepiece	42
Do. Stand "F"	12-13	Second-hand Microscopes	5
Do. Stand "H"	15-17	Selenite Stages	46
Erecting Glass	39	Selenites, Various	46
Excavated Glass Slips	44	Side Silver Reflector.....	39
Eyepieces, Holoscopic ..	26-27	Slides or Slips, 3 x 1 in.	44
Eyepiece Micrometers ..	42	Slides, Blue, 3 x 1½ in.	44
Eyepieces.....	26-27	Spot Lens	39
Hæmacytometers	34	Stage Micrometers ..	42
Hæmoglobinometers.....	34	Stains, Soloid.....	47
Holoscopic Eyepieces	26-27	Standard Microscope	8-9
" Objectives.....	25	Stops, for Dark Ground	30, 31
" Oil Immersion Condenser	30	Stops for ½ in. Oil Immersion	32
Huyghenian Eyepieces	27	Student's Micrometer Eyepiece....	42
Iris Diaphragm, Nosepiece	39	Substage, Rack Focussing	24
Illuminator, Abbe	31	" Spiral Focussing	24
" Macro	31	Terms	4
Lamps, Electric.....	40	Turntable	43
" Oil	41	Van Heurck Microscope, Circuit	
Live Boxes	41	Stage.....	20-22
" Troughs	41	Vertical Illuminators	39
Macro Illuminator.....	31	Watchmakers' Eye Glass.....	42

W. WATSON & SONS, LTD.



313, HIGH HOLBORN, W.C.