JOSEPH BECK. R. KEMP.

AN ILLUSTRATED CATALOGUE

OF

MICROSCOPES AND APPARATUS

SPECIALLY ADAPTED FOR

PHYSIOLOGICAL AND PATHOLOGICAL RESEARCH.

MANUFACTURED BY

R. & J. BECK,

FOR THE

"EXCELLENCE OF THEIR MICROSCOPES, AND CHEAPNESS OF THEIR MANUFACTURES."

68 CORNHILL, E.C.;

FACTORY—LISTER WORKS, HOLLOWAY.

LONDON, 1885.

[Price Sixpence.]

PREFACE.

THE Microscopes, apparatus, and mounting-materials enumerated in the following pages have been especially planned to meet the requirements of Students of Physiology and Pathology. High excellence of the optical parts is combined with thoroughly good but inexpensive stands. These instruments are acknowledged by all who have used them to be superior in workmanship and efficiency to any others of either English or Foreign make.

R. & J. B.

DIRECTIONS FOR USE OF THE FOLLOWING FOUR MICROSCOPES.

To adjust the focus of the Object-glass—

In Fig. 1, for the quick adjustment, slide the tube D up or down in the fitting G. If a slight *spiral movement* is given to the tube by the finger and thumb, the motion may be made very gradual.

In Figs. 2, 3, and 4 the same adjustment is made by turning the milled head R backward or forward.

In both, turning the milled head I gives the slow or fine adjustment.

The *light* (which for transparent objects is reflected from the mirror M, and for opaque objects is condensed by means of the lens S) should, in general, be upon the left of the observer if the microscope-body is inclined, but in front if the Instrument is used in a vertical position. The best is that from a white cloud on a bright day; but a very satisfactory effect can be produced by means of a belmontine-, oil-, or gas-lamp, provided it is placed not more than 10 or 12 inches from the Instrument.

For the examination of minute striæ, *side-light* is necessary. For this purpose the mirror M must be used obliquely, the diaphragm P removed, and the side-openings in the fitting for the diaphragm will then allow the light to impinge on the object at a sufficiently *oblique* angle; or the tube into which the diaphragm-fitting slides may be removed altogether by turning it round in the bayonet-catch by which it is attached to the stage.

With the 1-inch Object-glass the light is generally in excess, and with the $\frac{1}{2}$- or $\frac{1}{3}$-inch the definition is frequently improved by the use of the diaphragm P fitting under the stage; this can be slid up and down, thereby increasing or decreasing the cone of admitted rays of light.

To illuminate *opaque objects* the light is thrown upon them from above. A small condensing-lens, S, fitting into the stage K, is used for this purpose; its focus for a lamp or candle 4 inches from it is about 3 inches, for daylight 2 inches. A large object can be placed upon the stage, but small ones are generally either laid on a slip of glass or held in the forceps T. When viewing opaque objects, the diaphragm P should be placed in position and the small stop inserted, so as to exclude all light from below the stage.

A glass plate, with a ledge and some pieces of thin glass, are applicable for many purposes, but are specially intended for *objects in fluid*. Thus a drop is placed upon the plate and covered by a piece of thin glass; or, the object being put upon the plate and the thin glass over it, the fluid is applied near one side and runs under by capillary attraction.

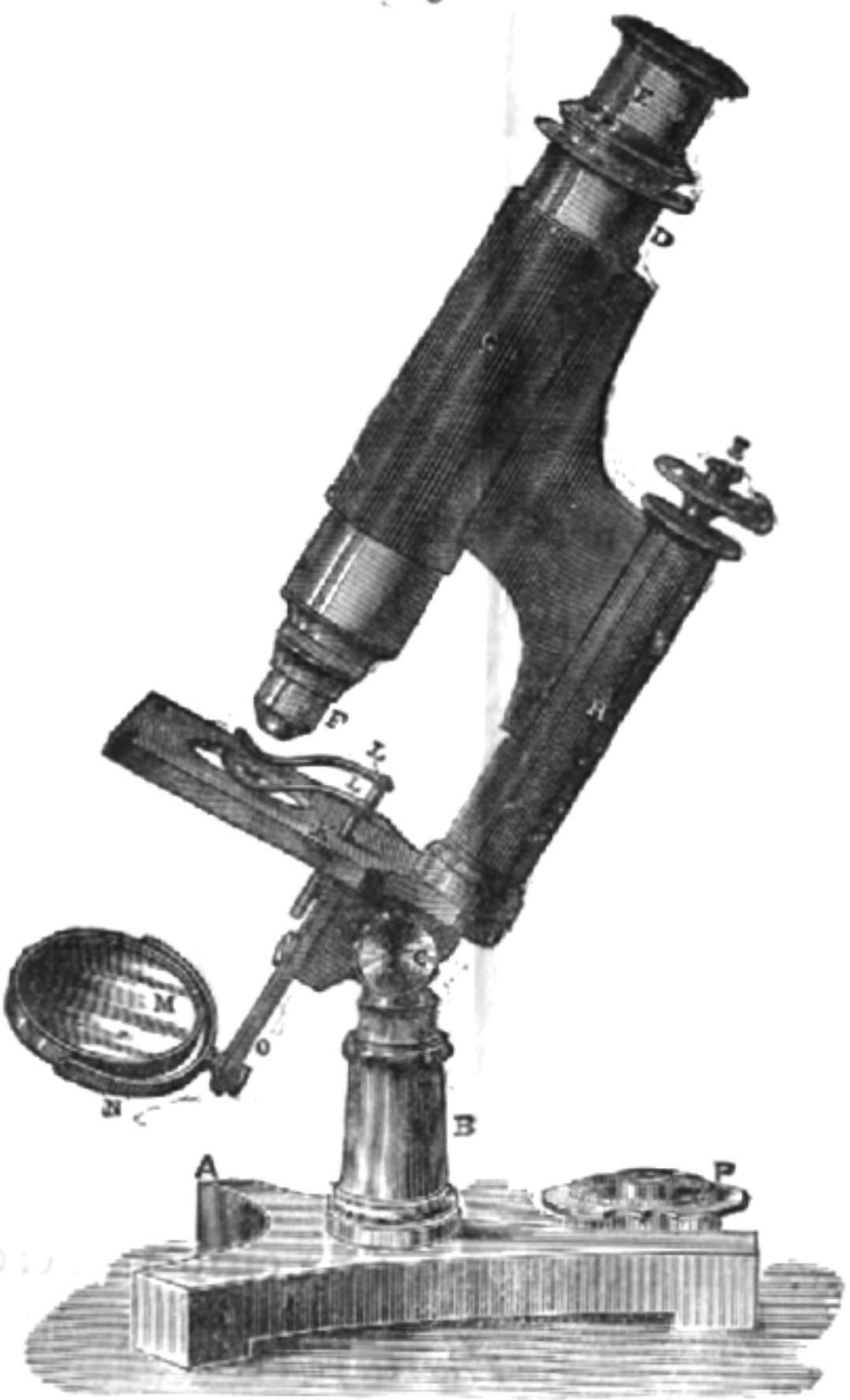
Glass of any kind requires occasional *cleaning*; a piece of soft wash-leather is the best for the purpose.

The fronts of the *Object-glasses* may be carefully wiped; but if they require anything more, it must be done by the makers.

When cleaning the *Eye-pieces*, which should be done *frequently*, the cells containing the glasses must be unscrewed and replaced one at a time, so that they may not be mixed.

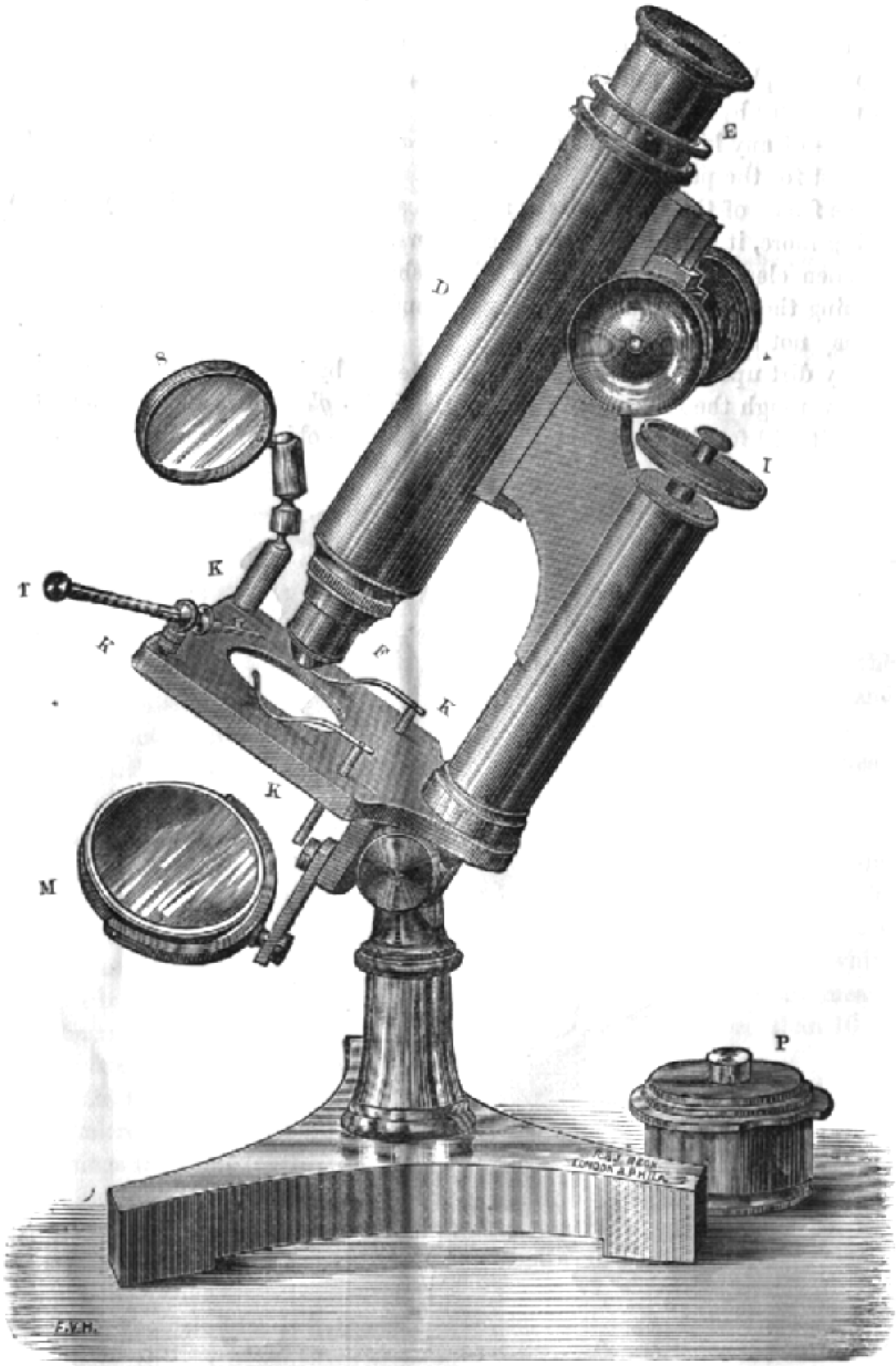
Any dirt upon the *Eye-pieces* may be detected by turning them round whilst looking through the Instrument; but if the *Object-glasses* are not clean, or are injured, it will for the most part only be seen by the object appearing misty.

Fig. 1.



No. 24.—THE MONOCULAR ECONOMIC MICROSCOPE
(ONE THIRD SIZE.)

For Prices see page 8.

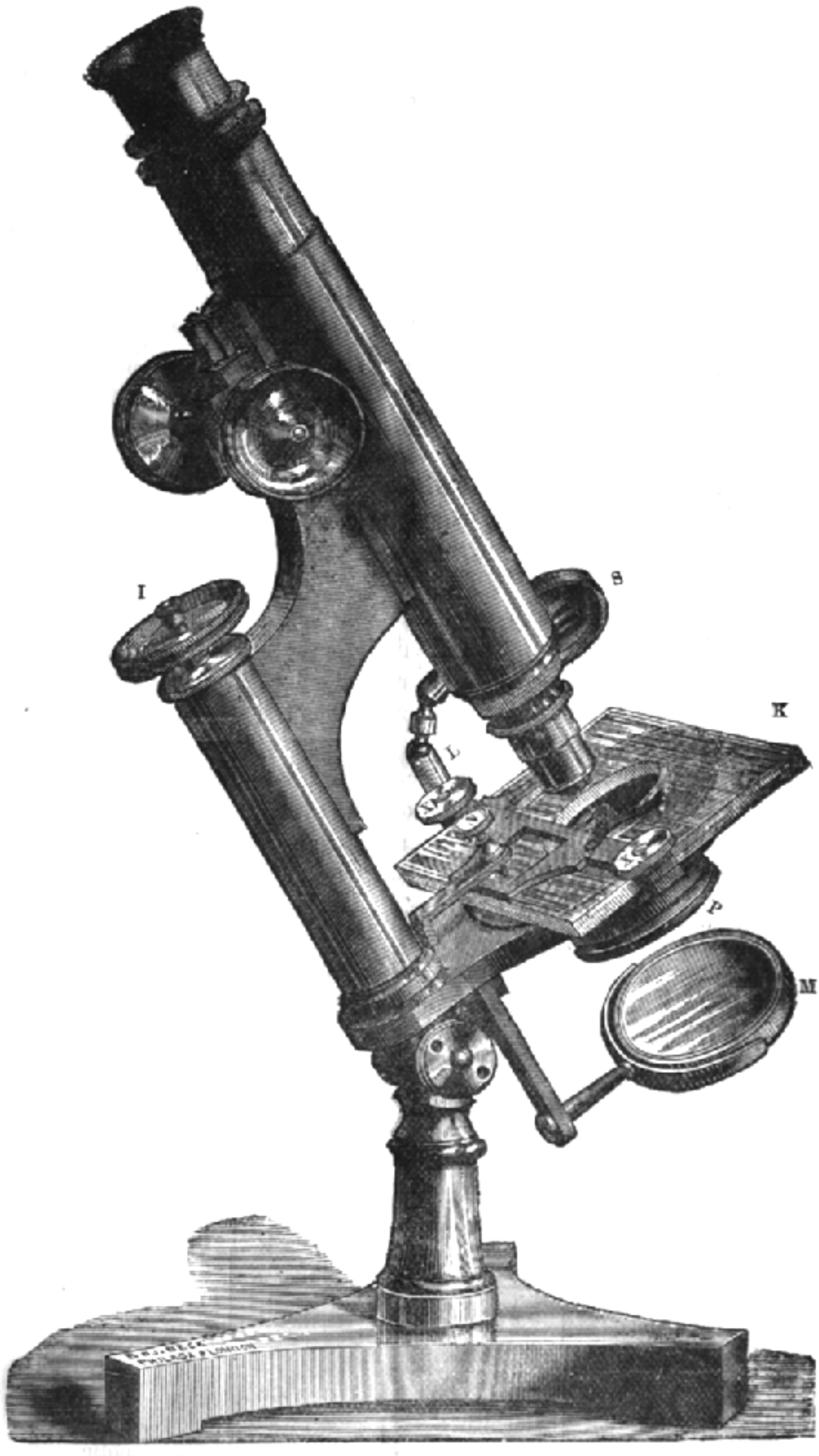


No. 26.—THE MONOCULAR ECONOMIC MICROSCOPE.

(ONE HALF SIZE.)

For Prices see page 8.

26. In this form (Fig. 2) the base is a heavier tripod, and the coarse adjustment is given by means of a Rack-and-Pinion movement. In all other respects it is similar to that described as Fig. 1.



No. 28.—THE MONOCULAR ECONOMIC MICROSCOPE with Glass Stage. (TWO FIFTHS SIZE.)

For Prices see page 8.

28. In this form the stage is of glass, sliding easily under an adjustable ivory point. In all other respects it is similar to that described as Fig. 2.

DESCRIPTION
OF
THE PATHOLOGICAL MICROSCOPE.
(FIG. 4.)

WE have designed this Microscope with a special view to delicate Pathological Research. The Instrument is on the same model as our Economic Stand, but to it has been added a delicate lever fine adjustment and a Rack-and-pinion substage with centering-screws, which carries a wide-angle Achromatic Condenser (No. 182). This has been made on a new formula. It is quite achromatic, accurately corrected for spherical aberration, and possesses an angle of 175°. It is supplied with two Rotating Diaphragm-plates, the upper containing a series of blue glasses for moderating the light, the lower a series of openings of different sizes, by which the aperture can be varied to any extent, which are also placed at a distance below the lenses sufficient for accurate centering of the Condenser. This centering is accomplished by bringing the smallest hole in the lower diaphragm into focus, and moving the side-screws of the substage so as to bring the image of the same into the centre of the field of view.

This convenient method for rapidly varying the intensity and angle of the cone of light by means of the two Diaphragm-plates will, we feel sure, be appreciated by all practical workers on minute Pathology. We have made the lenses of large diameter, so that a great flood of light can be used when necessary, and the top lens may be taken off when a less convergent cone of light is required for low-power work.

A similar Achromatic Condenser to the above (No. 180), but with the addition of an iris diaphragm in place of the lower diaphragm-plate, is supplied at an extra cost of £2. With this an aperture of any size can be obtained by merely moving the lever backward and forward, and thus giving a much more delicate mode of reducing the aperture.

A Condenser (No. 181), with a numerical aperture of about 1·4, which may be used either dry or immersion, can be substituted if required.

The Glass Stage forms a movement almost as delicate as a Rack-and-pinion Stage.

TYPICAL COLLECTION OF 36 PATHOLOGICAL OBJECTS,
IN CABINET,
CONSISTING OF THE FOLLOWING PREPARATIONS.

Price, £3 10s. Single specimens, 2s. 6d. each.

LUNG.—
- Tubercle.
- Catarrhal Pneumonia.
- Croupous Pneumonia.
- Emphysema.

LIVER.—
- Amyloid.
- Fatty.
- Cirrhosis.
- Passive Congestion.
- Phosphorous poisoning.

KIDNEY.—
- Amyloid.
- Glomerulo-Nephritis.
- Acute Nephritis.
- Chronic Bright's Disease.
- Large White.

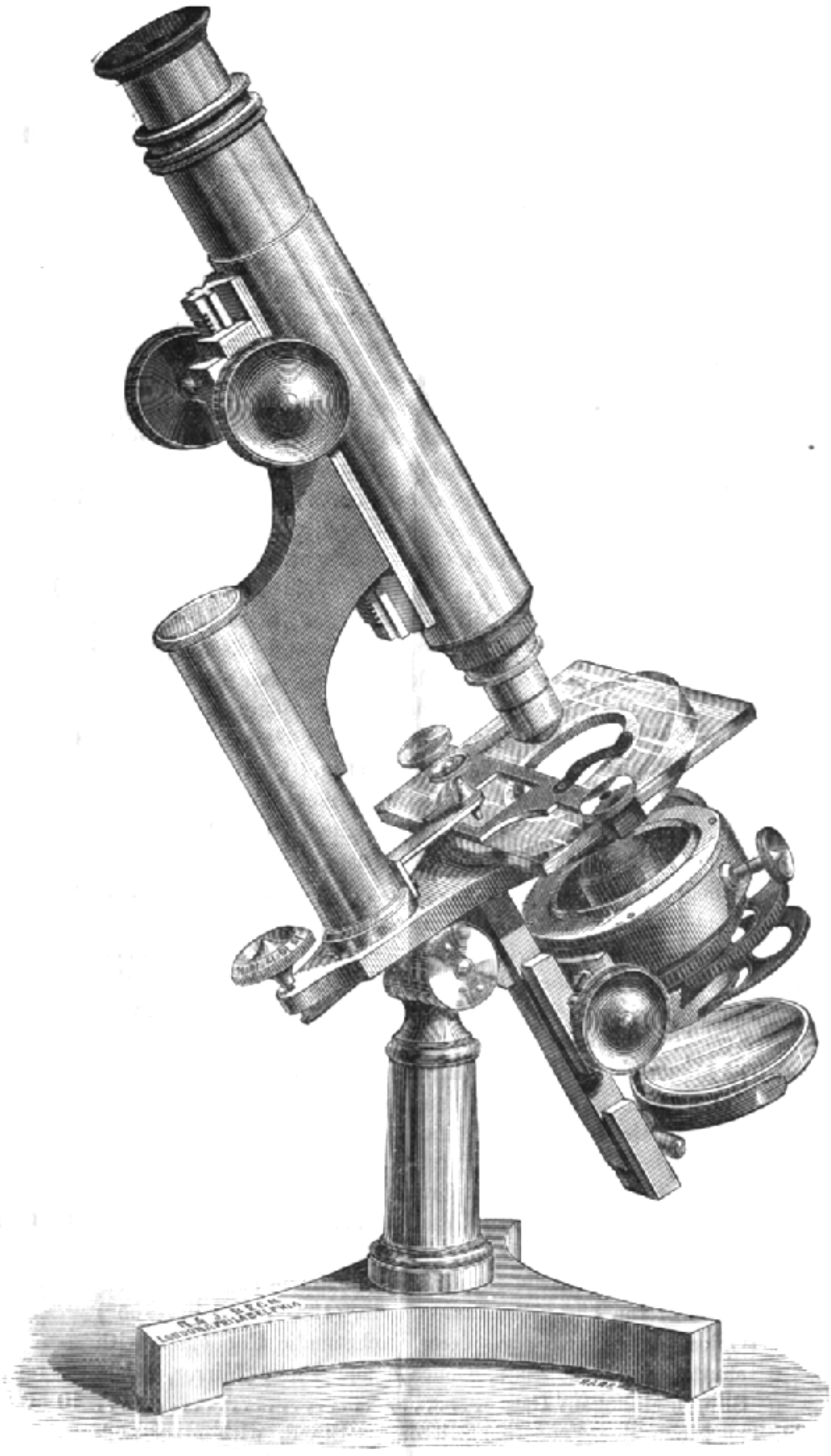
SPLEEN.—
- Amyloid.

Rachitis.
Syphilitic growth, Penis.
Polypus of Uterus.
Epulis.
Glioma.
Atheroma.
Enchondroma.
Myxoma.
Fibroma.
Myxosarcoma.
Fibrosarcoma.

SARCOMA.—
- Spindle-celled.
- Round-celled.
- Mixed-celled.
- Myeloid.
- Melanotic.

CARCINOMA.—
- Colloid.
- Encephaloid.
- Scirrhus.
- Epithelioma.
- Columnar Epithelioma.

Fig. 4.



No. 20.—THE PATHOLOGICAL MICROSCOPE.

(TWO FIFTHS SIZE.)

For Prices see page 9.

PRICES OF ECONOMIC MICROSCOPES.

(Fig. 1, Fig. 2, and Fig. 3.)

No.		£	s.	d.
24 A.	The **Monocular** Economic Microscope (Fig. 1), with sliding coarse Adjustment, fine Adjustment by Screw, with 1-in. (152) and ¼-in. (154) Object-glasses, one Eye-piece, Concave Mirror, and Diaphragm, in Mahogany Case	5	5	0
24 B.	The Monocular Economic Microscope (Fig. 1), with sliding coarse Adjustment, fine Adjustment by Screw, with 1-in. (152) and ⅛-in. (156) Object-glasses, one Eye-piece, Concave Mirror, and Diaphragm, in Mahogany Case	7	15	0
24.	The Monocular Economic Microscope-Stand, with sliding coarse Adjustment, two Eye-pieces, Concave Mirror, and Diaphragm, in Mahogany Case	3	10	0
26 A.	The Monocular Economic Microscope (Fig. 2), with Rack-and-pinion coarse Adjustment, fine Adjustment by Screw, with 1-in. (152) and ¼-in. (154) Object-glasses, two Eye-pieces, Concave Mirror, side Condensing-Lens, Diaphragm, Forceps, Pliers, Glass Slip with Ledge, in Mahogany Case	6	12	6
26 B.	The Monocular Economic Microscope (Fig. 2), with Rack-and-pinion coarse Adjustment, fine Adjustment by Screw, with 1-in. (152) and ⅛-in. (155*) Object-glasses, two Eye-pieces, Concave Mirror, Achromatic Condenser, and Diaphragm, in Mahogany Case	8	8	0
26 C.	The above, with ⅛-in. (156) instead of ⅛-in. (155*) Object-glass	9	10	0
26.	The Monocular Economic Microscope-Stand (Fig. 2), with Rack-and-pinion coarse Adjustment, fine Adjustment by Screw, two Eye-pieces, Concave Mirror, and Diaphragm, in Mahogany Case	4	10	0
28 A.	The Monocular Economic Microscope (Fig. 3), with Rack-and-pinion coarse Adjustment, fine Adjustment by Screw, Glass Stage of the best construction, 1-in. (152) and ¼-in. (154) Object-glasses, two Eye-pieces, Concave and Plane Mirror, Side Condensing-Lens, Diaphragm, Forceps, Pliers, Glass Slip with Ledge, in Mahogany Case	8	0	0
28 B.	The Monocular Economic Microscope-Stand (Fig. 3), with Rack-and-pinion coarse Adjustment, fine Adjustment by Screw, Glass Stage of the best construction, ½-in. (153) and ⅛-in. (155*) Object-glasses, two Eye-pieces, Achromatic Condenser with shutter and blue glass, Concave and Plane Mirror, Glass Slip, in Mahogany Case	10	0	0
28.	The Monocular Economic Microscope-Stand, with Rack-and-pinion coarse Adjustment, fine Adjustment by Screw, Glass Stage of the best construction, two Eye-pieces, Concave and Plane Mirror, Side Condensing-Lens, and Diaphragm	6	0	0

PRICES OF THE PATHOLOGICAL MICROSCOPES.

No.		£	s.	d.
20 A.	The Pathological Microscope (Fig. 4), with Rack-and-pinion coarse Adjustment, Lever fine Adjustment, Glass Stage of the best construction, and a Substage with rack-and-pinion movement and centering arrangement, with new wide-angle Achromatic Condenser (175°), fitted with two Diaphragm-plates (one containing a series of blue glasses for modifying the light, the other a series of openings to vary the aperture) (182), with 1-in. (152) and $\frac{1}{6}$-in. (155*) Object-glasses, two Eye-pieces, Concave and Flat Mirror, in Mahogany Case	15	10	0
20 B.	The Pathological Microscope (Fig. 4), with Rack-and-pinion coarse Adjustment, Lever fine Adjustment, Glass Stage of the best construction, and a Substage with rack-and-pinion movement and centering arrangement, with new wide-angle Achromatic Condenser (175°), fitted with Iris Diaphragm for varying the aperture, and Diaphragm-plate containing a series of blue glasses for modifying the light (180), with two Eye-pieces, 1-in. (152), $\frac{1}{2}$-in. (153), $\frac{1}{4}$-in. (154), and $\frac{1}{10}$-in. (114) Object-glasses, double Nose-piece, Concave and Flat Mirror, in Mahogany Case	23	5	0
20.	The Pathological Microscope (Fig. 4), with Rack-and-pinion coarse Adjustment, Lever fine Adjustment, Glass Stage of the best construction, and a Substage with rack-and-pinion movement and centering arrangement, with new wide-angle Achromatic Condenser (175°), fitted with two Diaphragm-plates (one containing a series of blue glasses for modifying the light, the other a series of openings to vary the aperture) (182), with two Eye-pieces, Concave and Plane Mirror, in Mahogany Case.....	12	10	0
	The above Instruments, if Binocular instead of Monocular, extra	2	10	0
182.	Achromatic Condenser, with two Diaphragm-plates and Aperture of 175° (as described, page 6)	3	5	0
180.	Achromatic Condenser like 180 A, but with Iris Diaphragm in place of one Diaphragm-plate.....	5	5	0
181.	Wide-Angle Condenser, numerical aperture of about 1·4 (as described, page 6)	5	5	0

ADDITIONAL APPARATUS.

381.	Achromatic Condenser	1	2	0
382.	Wenham Parabola	1	2	0
392.	Double Nose-piece	0	16	6
384.	Polarizing Apparatus, Prism, Plate of Selenite, and Adapter ..	1	15	0
385.	Camera Lucida	0	16	6
386.	Glass Micrometer, ruled to $\frac{1}{100}$ and $\frac{1}{500}$ of an inch	0	5	0
387.	Small Live-box.....	0	4	6
388.	Glass Trough	0	5	6
388*.	Mahogany Case with packing, for above	0	7	6
	The above apparatus, from Nos. 381 to 388*, if ordered at once	5	10	0

EXTRA APPARATUS.

No.		£	s.	d.
399.	Extra Eye-pieces ..... each	0	10	6
402.	Side Condenser	0	5	0
401.	Side Condenser, on Stand	0	8	0
403.	Stage-Forceps	0	5	6
404.	Pliers	0	1	0
383.	Flat Mirror (in which case a double one is substituted for a concave, which has to be returned)	0	3	6
393.	Triple Nose-piece	2	0	0
394.	Becks' Vertical Camera Lucida	0	18	0
386*.	Glass Micrometer ruled to divisions of metre	0	5	0
386**A.	Glass Micrometer ruled to divisions of metre and $\frac{1}{100}$ and $\frac{1}{1000}$ of an inch	0	10	0
347.	Micrometer to fit Eye-piece, for measuring objects	0	5	6

DISSECTING MICROSCOPES ..... *from* £1 14 0

For full particulars see complete Catalogue.

Best Belmontine Lamp	0	18	0
Beck's Squat Lamp	0	15	0
Beck's Complete Lamp	2	10	0

PRICES OF OBJECT-GLASSES.

No.	Focal Length.	Linear magnifying-power, nearly.	Eye-pieces. No. 1.	No. 2.	No. 3.	Aperture.	Price. £	s.	d.
151.	2 inches	Draw-tube closed.....	18	23	41	10°	1	0	0
		Draw-tube pulled out ...	29	37	65				
152.	1 inch	Draw-tube closed.....	46	61	106	20°	1	5	0
		Draw-tube pulled out ...	70	88	157				
153.	$\frac{1}{2}$ inch	Draw-tube closed.....	90	116	205	35°	1	5	0
		Draw-tube pulled out ...	130	160	290				
154.	$\frac{1}{4}$ inch	Draw-tube closed.....	170	220	415	90°	1	5	0
		Draw-tube pulled out ...	225	300	570				
155.	$\frac{1}{6}$ inch	Draw-tube closed.....	250	330	630	110°	2	5	0
		Draw-tube pulled out ...	340	450	840				
156.	$\frac{1}{8}$ inch	Draw-tube closed.....	350	450	800	110°	3	10	0
		Draw-tube pulled out ...	500	625	1100				
†114.	$\frac{1}{10}$ imm.	Draw-tube closed.....	400	510	1000	180°	5	5	0
		Draw-tube pulled out ...	550	700	1375				
157.	$\frac{1}{15}$ imm.	Draw-tube closed.....	600	760	1500	180°	6	0	0
		Draw-tube pulled out ...	830	1060	2050				

HIGH-POWER OBJECT-GLASSES, MOUNTED SHORT FOR THE BINOCULAR.

These Object-glasses are constructed with very short fittings, so that the back lens comes close to the binocular prism, and by this means the fields of both eye-pieces are illuminated.

140.	$\frac{1}{4}$ inch	Draw-tube closed.....	130	160	300	90°	2	10	0
		Draw-tube pulled out ...	210	260	470				
141.	$\frac{1}{6}$ inch	Draw-tube closed.....	200	240	450	110°	3	0	0
		Draw-tube pulled out ...	300	400	720				
142.	$\frac{1}{8}$ inch	Draw-tube closed.....	260	325	590	110°	4	0	0
		Draw-tube pulled out ...	400	525	950				
143.	$\frac{1}{10}$ imm.	Draw-tube closed.....	320	400	730	180°	5	0	0
		Draw-tube pulled out ...	500	660	1200				
144.	$\frac{1}{15}$ imm.	Draw-tube closed.....	520	640	1140	180°	6	6	0
		Draw-tube pulled out ...	780	1030	1800				

† This object-glass has a graduated adjustment collar for correction for the thickness of the thin covering-glass.

For full particulars of Object-glasses see complete Catalogue.

MOUNTING MATERIALS.

	£	s.	d.		£	s.	d.
Brass Table	0	5	6	and	0	9	0
Spirit Lamp	0	1	6	and	0	2	6
Williams's Ice and Salt-freezing Microtome with Razor on Carrier, complete					2	10	0
Beck's New Ether-freezing Microtome with Razor and Carrier, complete					2	15	0
Carrier and Razor, with Handle for above, two Microtomes					1	5	0
Imbedding Microtomes				from	0	10	6
Turntable					0	6	0
Walmsley's Centering Turntable					0	10	6
Syringes for Injecting, with Stopcock and 4 Nozzles, in case, from					0	18	6
Hyperdermic Syringe as used by Koch and others, specially convenient for the ready mode in which it can be disinfected					0	5	0
Quekett's Forceps for taking objects out of deep bottles					0	8	0
Steel Forceps	0	1	0	and	0	3	6
Steel Forceps, curved					0	2	6
Steel Forceps with Aluminium Points, for work in Acid					0	5	6
German Silver Forceps, with broad points for cover-glasses					0	3	6
Frazer's Section-Washer					0	5	6
Section lifters, Copper					0	0	2
Section lifters, Aluminium, for work with Acids					0	2	6
Scissors	0	2	6	and	0	3	6
Scalpels and Knives of all shapes					0	2	0
Needles in Handles	from 0	0	2	to	0	3	0
Mounting Card					0	0	2
Writing Diamond				from	0	8	0
Instrument for cutting Circles of Thin Glass					1	13	0
Imbedding-Boxes for cutting Sections					0	0	2
Razor	0	1	0	and	0	2	0
Watch-glasses, stout, with flat bottom, per gross 10*s.*, per dozen					0	1	0
Glass Capsules				each, from	0	0	3

Stoppered Bottles:—	1 oz.	2 oz.	4 oz.	6 oz.
Wide and narrow-necked, per doz.	2*s.* 6*d.*	3*s.*	3*s.* 6*d.*	4*s.* 6*d.*
" " " per gross	28*s.*	33*s.*	39*s.*	48*s.*

Collecting-Bottles	per doz. 1*s.* to	0	2	0
Flat Collecting-Bottles, for examining objects in water, per doz.		0	3	0
Morocco Case for holding 12 Collecting-Bottles		0	3	6
6 Collecting-Bottles in Tin Case, for pocket		0	4	6
6 Collecting-Bottles (1 oz.) in Tin Case, for pocket		0	6	6
Slips 3×1, ground edges	per gross 6*s.*, per doz.	0	0	8
Cover Glasses, squares and circles, mixed	per oz.	0	5	6
Cover Glasses, squares or circles guaranteed under ·006 in thickness, per oz.		0	7	6
Glass Cells	per doz.	0	3	0
Ebonite Cells	per hundred	0	1	6
Pipettes		0	0	2
Glass Stirring-Rods		0	0	1
Labels for Slides	per sheet (370)	0	0	6
Cabinet, in millboard, for 2 gross objects		0	8	9

Student's case of Instruments, containing Imbedding-box, two Needles in handles, pair of Forceps, Razor, ½ gross slips and ½ oz. thin Glass, ½ doz. Watch-glasses, Section-lifter	0	12	0

STAINING SOLUTIONS AND MOUNTING FLUIDS.

		£	s.	d.
Solution of Aniline Blue. For sections of stomach and alimentary canal	2 oz. in stoppered bottle	0	1	0
Solution of Safranine. For demonstrating amyloid degeneration in sections of any organ	2 oz. in stoppered bottle	0	1	0
Solution of Logwood	do. do.	0	1	0
Dr. Gibbes's double Stain for Tubercle Bacillus	do. do.	0	1	6
New Purple Stain. For fluid containing Bacteria, such as Urine, Pus, Sputum, &c.	2 oz. in stoppered bottle	0	1	0
Solution of Gentian Violet. For ditto.	do. do.	0	1	0
Solution of Magenta. For the Tubercle Bacillus	do. do.	0	1	0
Solution of Methyl Blue. For Tubercle Bacillus, ground stain,	2 oz. in stoppered bottle	0	1	0
Solution of Methyl Green. For double Staining	do.	0	1	0
Solution of Eosine	do.	0	1	0
Picrocarmine	do.	0	1	0
The above are the most useful Staining Solutions, and are all that are necessary for ordinary work; but all others are supplied if required.				
Chloride of Gold, in 15 grain tubes		0	2	0
Nitrate of Silver, 5 per cent.	2 oz. in stoppered bottle	0	1	0
Osmic acid, 1-per-cent. solution	¼ oz. in stoppered bottle	0	1	3
Acetic acid, glacial	2 oz. in stoppered bottle	0	0	6
Dammar Solution	1 oz. in bottles, with dropper	0	2	0
Balsam solution. For mounting..	1 oz. in bottles, with dropper	0	1	0
do. do.	2 oz. in capped bottle, with dropper	0	3	9
Canada Balsam, pure		0	1	0
Pure Glycerine	2 oz. bottle	0	1	0
Oil of Cloves	2 oz. in stoppered bottle	0	2	0
Farrant's Medium	½ oz.	0	1	0
Deane's Medium	„	0	1	0
Glycerine Jelly	„	0	1	0
Hollis' Glue	per bottle	0	0	6
Marine Glue.....	„	0	1	0
Gold Size	„	0	1	0
Asphalt.....	„	0	1	0
White Zinc Cement		0	2	0
Mahogany Case, with the necessary Staining Fluids and Mounting-Materials for the staining and mounting Bacteria, Physiological and Pathological specimens, containing Dr. Gibbes's double Stain, new Purple Stain, Logwood, Picrocarmine, Safranine, Absolute Alcohol, Balsam solution, Watch-glasses, Glass dish, Filtering paper, Glass slips, thin Cover-glasses, Steel Forceps, Needle in handle		1	5	0
Sputum Test-Case, containing all requisites for rapid demonstration of the Tubercle Bacillus, including Dr. Gibbes's Double Stain, Methylated Spirit, Balsam Solution, Thin Cover-glasses, Glass Slips, Glass Capsules, Watch-glasses, Sputum Spreader, Cover-glass, Forceps, Needles, &c., and full directions for use, in French polished Mahogany Case		2	2	0