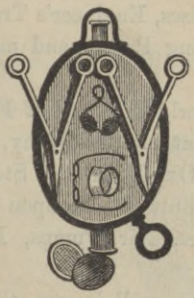
PRICED AND ILLUSTRATED CATALOGUE

(Catalogs of optical instruments)

OF

OPTICAL INSTRUMENTS,



MADE, IMPORTED AND SOLD, WHOLESALE AND RETAIL,

BY

JAMES W. QUEEN & CO.

No. 924 Chestnut Street, Philadelphia,

AND

No. 535 Broadway, New York.

PHILADELPHIA, *April* 11, 1870.

On retiring from the business which I established in 1853, and have been conducting at No. 924 Chestnut Street since that year, it gives me pleasure to recommend to my friends and former patrons, my successors, and solicit for them a continuance of the favors so freely bestowed upon myself.

The present firm propose dividing their business into three departments, each partner giving one of those departments his special care and attention.

SAMUEL L. FOX, my former partner, will devote himself to the Mathematical Department, which will comprise Drawing Instruments, of every description, Surveying Compasses, Engineer's Transits and Levels, Surveying Chains, Tape Measures, Drawing Papers, and materials of all kinds used by engineers and draughtsmen.

JESSE S. CHEYNEY, formerly Principal of Friends' Select School, in this city, will take the Department of Philosophy, which will comprise Magic Lanterns, Oxy-Calcium and Oxy-Hydrogen Stereoscopticons, with Pictures and Illustrations from all countries and upon all scientific subjects; Thermometers, Barometers, Globes, Air Pumps, Electric Machines, Magnetic Apparatus, &c., &c.

WILLIAM H. WALMSLEY, well known throughout the country as a Microscopist, and also a preparer of Microscopic Specimens, will take the Department of Optics, which will comprise Spectacles, Microscopes, Microscopic Objects and Accessories, Opera Glasses, Spy Glasses, Telescopes, Ophthalmoscopes, &c., &c.

The new firm will continue to issue Priced and Illustrated Catalogues as follows:—Part 1st. MATHEMATICS; Part 2d. OPTICS; Part 3d. MAGIC LANTERNS AND STEREOPTICONS; Part 4th. PHILOSOPHICAL INSTRUMENTS.

Care will be taken in each department of the business that the instruments manufactured by the firm shall be well made, and accurate for the purposes intended; and that all new instruments and improvements, of both European and American manufacture, shall be introduced with as little delay as possible.

JAMES W. QUEEN

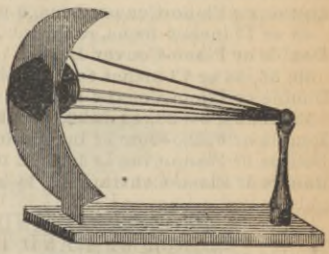
CATALOGUE

OF

OPTICAL INSTRUMENTS.

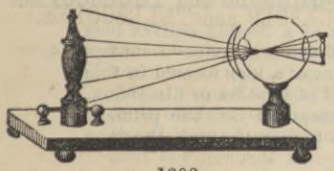
MODEL OF THE EYE, FOR SCHOOLS AND COLLEGES.

1200.



1201.

No.		Price.
1200.	Represents the globe of the eye, containing the various coats and parts, which can be successively removed, showing the arrangement of the eye as it appears on dissection. The globe is about four inches in diameter, and supported on a stand, ...	$7 50
1201.	Displays the attachment of the muscles, and the manner in which the eye is moved in the socket, ...	4 50



1202.

1202.	Is the apparatus for illustrating the position of the image with regard to the retina in perfect, long and short sight. The inversion of the image by the crossing of the rays (shown by silk cords) is seen much more perfectly than in any other construction, . .	6 00
1203.	Model of the Eye, complete, of large dimensions, made of papier maché, with the muscles, blood-vessels, nerves, membranes, vitreous humor, &c., all colored to nature,	25 00
1204.	The same, cut vertically, ...	45 00

These are the most complete models ever offered for instructing classes, being large enough to be seen at the end of the lecture-room; many of the parts can be detached to facilitate the illustration.

1205.	Map or Diagram of the Eye, (22x15 inches), handsomely colored, .	1 00

LENSES.

No. | PRICE.

1206. Demonstration Lenses. A set of six. 1¾ inches diameter, showing the formation of the various kinds of lenses, per set, ... $2 50

1206.

1207. Oculist's Set of Test Lenses, containing one pair each of the following double convex lenses: 1¾, 2, 2¼, 2½, 2¾, 3, 3¼, 3½, 3¾, 4, 4¼, 4½, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 24, 27, 30, 36, 48, 60 inches focus; one pair each double concave lenses of the same foci; one pair each plain prisms, having the acute angle 2, 4, 6, 8, 10, 12, 13, 14, 16, 18, 20, 22 and 24 degrees; one pair each plain colored lenses, green, blue and smoke; one pair silver-plated trial spectacles with spring, to which all the lenses have been carefully fitted, and into which each lens can be inserted and used as occasion may require. The whole packed in a mahogany box, with lock and key, 80 00

1208. Instrument for demonstrating the principle by which spectacles assist vision, both of old or impaired sight and near or short sights, . . 7 00

COSMORAMA LENSES.

1209. Double or Plano-Convex Lens, 8 inches diameter, and either 30, 36, 48 or 72 inches focus, each, ... 5 00

1210. Double or Plano-Convex Lens, 7 inches diameter, same foci as 1209, each, 4 00

1211. Double or Plano-Convex Lens, 6 inches diameter, of either 24, 30, 36, 48 or 72 inches focus, each, ... 3 00

1212. Double or Plano-Convex Lens, 5 inches diameter, of either 18, 20, 24, 30, 36, 48 or 72 inches focus, each, ... 2 50

1213. Double or Plano-Convex Lens, 4 inches diameter, of either 12, 14, 16, 18, 20, 24, 30, 36, 48 or 72 inches focus, each, ... 1 50

1214. Double or Plano-Convex Lens, 3 in. diam., any focus 6 to 36 in., each, 1 00

1215. Double or Plano-Convex Lens, 2 in. diam., any focus 6 to 36 in., each, 75

1216. Double or Plano-Convex Lens, 1¼ in. diam., any focus 5 to 48 in., each, 50

MICROSCOPE AND TELESCOPE LENSES.

1217. Double or Plano-Convex Lens, 1 inch diameter, 2 inches focus, . . 75

1218. Do. do. ¾ do. 1½ do. . . 75

1219. Do. do. ⅝ do. 1¼ do. . . 75

1220. Do. do. ½ do. 1 do. . . 75

1221. Do. do. ⅜ do. ¾ do. . . 75

1222. Do. do. ¼ do. ½ do. . . 75

1223. Do. do. $\frac{3}{16}$ do. ⅜ do. . . 75

1224. Do. do. ⅛ do. ¼ do. . . 75

ACHROMATIC OBJECT-GLASSES for SPY-GLASSES and TELESCOPES.

1225.

Achromatic lenses are formed by a combination of a double convex lens of crown glass and a plano-concave or a concavo-convex lens of flint glass. The advantages of a lens formed in this manner are freedom from spherical aberration or distortion, and the rays of light are not decomposed into the primary colors; in other words, the light passes through the lens and suffers no change thereby.

1225. Achromatic Object-Glass, 1½ inches diameter, 18 to 30 inches focus, 2 00

1226. Do. do. 1¾ do. 18 to 30 do. 3 50

1227. Do. do. 2 do. 18 to 30 do. 4 50

1228. Do. do. extra fine finish, 2 in. diam., 36 inches focus, 7 00

1229. Do. do. do. 2½ do. 44 do. 13 00

1230. Do. do. do. 3 do. 48 do. 37 00

1231. Do. do. do. 3½ do. 54 do. 50 00

1232. Do. do. do. 4 do. 60 do. 90 00

PRISMS.

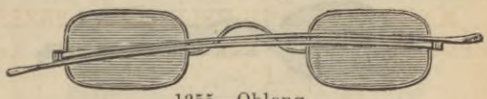
No.		Price.
1235.	Solid Flint Glass Prisms, 2 inches long, each,	$0 65
1236.	Do. do. 3 do.	75
1237.	Do. do. 4 do.	1 15
1238.	Do. do. 5 do.	2 00
1239.	Do. do. 6 do.	3 50
1240.	Solid Glass Prism, 5 inches long, $\frac{1}{3}$ its length composed of flint glass, $\frac{1}{3}$ of crown, and $\frac{1}{3}$ plate glass,	3 00
1241.	Metal Stands for Prism, each,	1 50
1242.	Prisms for Stereoscopes, $1\frac{5}{8}$ inches square, per pair,	75
1243.	Polyprism, making many heads out of one,	25
1244.	A Set of two Prisms, to illustrate the principle of the Achromatic Object-glass,	3 00
1245.	Hollow Glass Prisms, for showing the different refracting powers of fluids,	
1246.	Color Blender, or Prismatic Top, for the recomposition of light; formed in the shape of a top, which, by means of a string and handle, may be rapidly spun round,	2 50
1247.	Wooden Disk, 13 inches in diameter, having the primary colors properly arranged to produce white, when the disk is revolved very rapidly upon the handle which accompanies it,	5 25
1248.	Kaleidoscope Color Top. A very beautiful piece of apparatus for exhibiting the retention of color on the retina of the eye.	75

GOLD SPECTACLES.

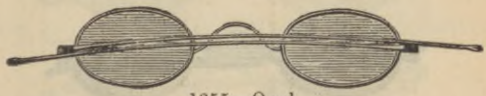
Of either Octagon, Oblong, or Oval Shaped Eyes, and fitted with either Double or Periscopic Convex or Concave Lenses.

Ladies' Pattern.

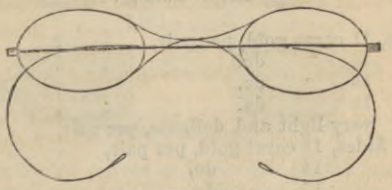
1255—Octagon.



1255—Oblong.



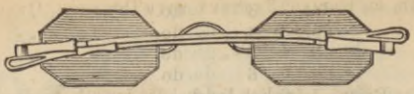
1255—Oval.



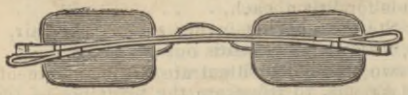
1259—Very Light.

1255.	Ladies' Pattern, sides in one piece,	11	carat gold, per pair,		8 00
1256.	Do.	do.	13	do.	10 50
1257.	Do.	do.	16	do.	11 50
1258.	Do.	do.	18	do.	14 00
1259.	Do.	do.	extra light and delicate, per pair,		12 00

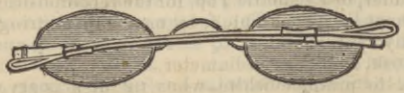
Narrow Sliding Sides.



1260—Octagon.



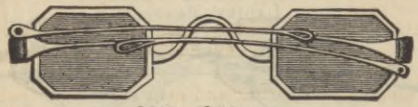
1260—Oblong.



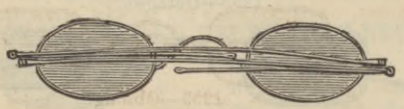
1260—Oval.

No.					Price.
1260.	Narrow Sliding Sides,	11 carat	gold, per pair,	. . . . .	$12 00
1261.	Do.	do. 14	do.	. . . . .	14 00
1262.	Do.	do. 16	do.	. . . . .	16 00
1263.	Do.	do. 18	do.	. . . . .	18 00

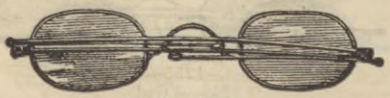
Turn-Pin Sides.



1264—Octagon.



1264—Oval.



1264—Oblong.

1264.	Turn-pin Sides,	11 carat	gold, per pair,	. . . . .	12 00
1265.	Do.	14	do.	. . . . .	14 00
1266.	Do.	16	do.	. . . . .	18 00
1267.	Do.	18	do.	. . . . .	23 50
1268.	Do.	very light and delicate,		per pair, ...	13 00
1269.	Broad Sliding Sides,	11 carat	gold, per pair,	. . . . .	17 00
1270.	Do.	14	do.	. . . . .	21 00
1271.	Do.	16	do.	. . . . .	25 00
1272.	Do.	18	do.	. . . . .	30 00

Convex or concave pebbles fitted in any of the above frames at an additional cost, per pair, ... 3 50

The gold in all the above spectacles is warranted to be the U. S. Mint standard of each quality.

☞ *Any other desired pattern made to order.*

PURE SILVER SPECTACLES.

SINGLE SIDES, OR LADIES' PATTERN WITH OCTAGON, OVAL OR OBLONG-SHAPED EYES.

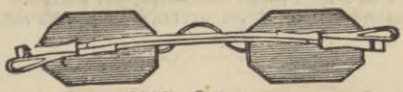
1275—Octagon.

1275—Oval.

1275—Oblong.

No.		PRICE.
1275.	Fitted with double convex or Periscopic convex lenses, per pair,	$2 50
1276.	Fitted with double concave or Periscopic concave lenses, from 6 to 36 inch focus, per pair,	3 00
1277.	Fitted with double concave or Periscopic concave lenses, from 1 to 6 inch focus, per pair,	3 50
1278.	Fitted with double convex or double concave pebble lenses, per pair,	6 00
1279.	Fitted with double Periscopic convex or Periscopic concave pebbles, per pair,	7 00
1280.	Fitted with divided glasses for far and near sights, per pair,	4 00

LIGHT DOUBLE SIDES, OR GENTLEMEN'S PATTERN, WITH OCTAGON, OVAL OR OBLONG-SHAPED EYES.



1281—Octagon.

1281—Oval.

1281—Oblong.

1281.	Fitted with either double convex or Periscopic convex lenses, per pair,	3 00
1282.	Fitted with either double concave or Periscopic concave lenses, from 6 to 36 inch focus, per pair,	3 25
1283.	Fitted with either double concave or Periscopic concave lenses, from 1 to 6 inch focus, per pair,	3 75
1284.	Fitted with either double convex or concave pebbles, per pair,	6 25
1285.	Fitted with either double Periscopic convex or concave pebbles, per pair,	7 25
1286.	Fitted with divided glasses for far and near sights, per pair,	4 25

TEMPERED ELASTIC STEEL SPECTACLES.

SINGLE SIDES, OR LADIES' PATTERN, WITH EITHER OCTAGON, OVAL OR OBLONG-SHAPED EYES.

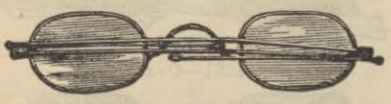
1290—Octagon.

1290—Oval.

1290—Oblong.

No.		PRICE.
1290.	Finest finished frames, with double convex or Periscopic convex glasses, per pair,	$2 00
1291.	Finest finished frames, with double concave or Periscopic concave glasses, from 6 to 36 inch focus, inclusive, per pair,	2 50
1292.	Finest finished frames, with double concave or Periscopic concave glasses, from 1 to 5 inch focus, inclusive, per pair,	3 00
1293.	Finest finished frames, with green, blue or smoke colored glasses, per pair,	2 00
1294.	Finest finished frames, with convex or concave pebbles, per pair,	6 00
1295.	Medium finished frames, with double convex or Periscopic convex glasses, per pair,	1 25
1296.	Medium finished frames, with double concave or Periscopic concave glasses, from 6 to 36 inch focus, inclusive, per pair,	1 75
1297.	Medium finished frames, with double concave or Periscopic concave glasses, from 1 to 5 inch focus, inclusive, per pair,	2 25
1298.	Medium finished frames, with green, blue or smoke colored glasses, per pair,	1 75

TURN-PIN OR DOUBLE SIDES, FOR GENTLEMEN, WITH EITHER OBLONG OR OVAL-SHAPED EYES.



1299—Oblong.

1299—Oval.

1299.	Finest finished frames, with double convex or Periscopic convex glasses, per pair,	2 00
1300.	Finest finished frames, with double concave or Periscopic concave glasses, from 6 to 36 inch focus, inclusive, per pair,	2 50
1301.	Finest finished frames, with double concave or Periscopic concave glasses, from 1 to 5 inch focus, inclusive, per pair,	3 00

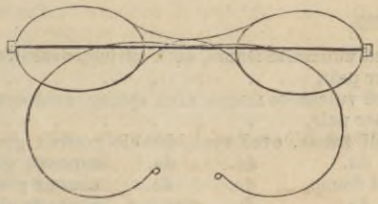
No.		Price.
1302.	Finest finished frames, with green, blue or smoke colored glasses, per pair,	$2 50
1303.	Finest finished frames, with double convex or concave pebbles, per pair,	6 00
1304.	Medium finished frames, with double convex or Periscopic convex glasses, per pair,	$1 50 to 1 75
1305.	Medium finished frames, with double concave or Periscopic concave glasses, from 6 to 36 inch focus, per pair,	2 00
1306.	Medium finished frames, with double concave or Periscopic concave glasses, from 1 to 6 inch focus, per pair,	2 50
1307.	Medium finished frames, with green, blue or smoke colored glasses, per pair,	2 00
1308.	Medium finished frames, with D shaped and side eyes, with green, blue or smoke colored glasses, per pair,	2 50

PULPIT SPECTACLES, ELASTIC STEEL FRAMES, STRAIGHT OR DOUBLE SIDES.

1309.

1309.	Finest finished frames, with double convex or Periscopic convex glasses, per pair,	2 00

The Pulpit Spectacles are very convenient for public speakers who require spectacles to read their notes; the tops of the glasses being made straight, or nearly so, allow the wearer to look over them when the eyes are directed to the audience.



1310.

1310.	Invisible Spectacles, with the frames set in the glasses, that they may not be seen. These Spectacles are particularly adapted to the comfort of near-sighted persons when riding on horseback, as the sides are made with hooks passing behind the ears, thus preventing the Spectacles being jolted off the face. They are the lightest article ever made, per pair,	$3 00 to 4 00
1311.	German Silver Plated Spectacles, per pair,	75
1312.	German Silver Plated Spectacles, with Cataract Glasses, per pair,	2 50
1313.	Millers' or Turners' Spectacles—common frames, with large eyes and plain white glasses, to guard the eyes from chips, per pair,	75

☞ *A great variety of Steel and other Spectacles, in assorted dozens, at low prices to the trade.*

No. PRICE.

HAND AND NOSE SPECTACLES, &c.

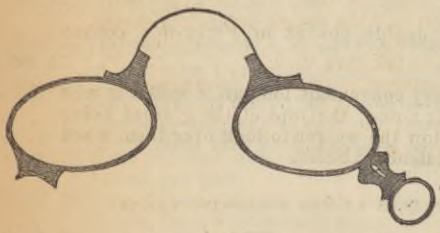
1316.

1319.

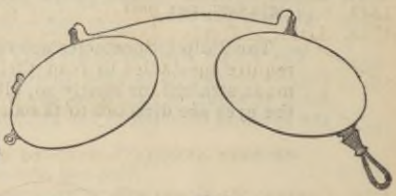
1320.

1321.

1315. Eye-glasses, solid gold, to fold, in gold covers, per pair, . $30 00 to 50 00
1316. Do. do. spring in joint, per pair, . . 10 00 to 15 00
1317. Do. gold plated spring in joint, per pair, . . . 5 00 to 10 00
1318. Do. solid gold, oblong, oval or octagon shaped eyes without spring, per pair, ... 9 00 to 20 00
1319. Eye-glasses, solid gold, round eyes, without spring, . . 7 00 to 15 00
1320. Do. do. do. with spring to clasp the nose, 5 00 to 15 00
1321. Do. do. oval eyes, with spring to clasp the nose, 5 00 to 15 00
1322. Eye-glasses, hard vulcanite frame, round eyes, double convex glasses, per pair, ... 1 00
1323. Eye-glasses, hard vulcanite frame, round eyes, double concave glasses, per pair, ... 1 00
1324. Eye-glasses, hard vulcanite frame, round eyes, arch spring, double convex glasses, per pair, ... 1 00
1325. Eye-glasses, hard vulcanite frame, round eyes, arch spring, double concave glasses, per pair, ... 1 00

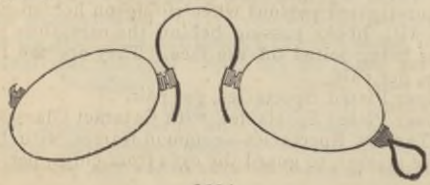


1326.



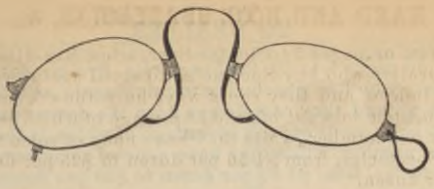
1332.

1326. Eye-glasses, hard vulcanite frame, arch spring, oval eyes, double convex glasses, per pair, ... 1 00
1327. Eye-glasses, hard vulcanite frame, arch spring, oval eyes, double concave glasses, per pair, ... 1 00
1328. Eye-glasses, shell frame, oval eyes, double convex glasses, per pair, 2 00
1329. Do. do. do. concave glasses, do. 2 00
1330. Do. steel frame, do. convex glasses, do. 1 25
1331. Do. do. do. concave glasses, do. 1 25
1332. Do. shell frame, do. three springs, double convex glasses, per pair, ... 2 50
1333. Eye-glasses, shell frame, oval eyes, three springs, double concave glasses, per pair, ... 2 50



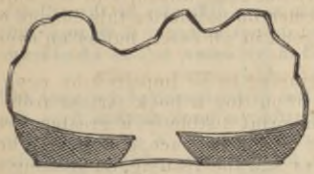
1334.

1334. Eye-glasses, very light steel frame, oval eyes, three springs, double convex or double concave glasses, per pair, ... 2 00



1335.

No.		Price.
1335.	Eye-glasses, extra light steel frame, oval eyes, three springs, double concave glasses, per pair,	$2 50



1340.

1341.

1340.	Wire Gauze Eye Protectors, with green, blue, smoke or white glasses, and elastic band; an excellent article for railroad travelling, per pair,	50
1341.	Wire Gauze Eye Protectors, with green, blue, smoke or white glasses, and steel sides, as spectacles, per pair,	1 50
1342.	Silk Shades, with elastic bands, for weak eyes, each,	1 00
1343.	Artificial Human Eyes, a large assortment of sizes and colors, each,	15 00

SPECTACLE GLASSES.

OF BEST QUALITY, FITTED TO FRAMES AT THE FOLLOWING PRICES:

1350.	Convex, White per pair,	75
1351.	Do. Cataract, per pair,	1 25
1352.	Do. Periscopic, per pair,	75
1353.	Do. Green, Blue, or Smoke, per pair,	1 50
1354.	Do. Divided glasses, per pair,	1 50
1355.	Concave, White, from 6 to 36 inch focus, per pair,	75
1356.	Do. do. 1 to 6 do. add 10 cents per number,	
1357.	Do. Periscopic, per pair,	1 00
1358.	Do. Green, Blue, or Smoke, per pair,	1 50
1359.	Plain, Green, Blue, or Smoke, per pair,	1 00
1360.	Pebbles, Convex, per pair,	4 00
1361.	Do. Concave, per pair,	4 00

SPECTACLE CASES.

1362.	Morocco, each,	25
1363.	Planished Tin, each,	25
1364.	German Silver Plated, each,	$1 25 to 1 75
1365.	Papier Maché, each,	50 to 1 50
1366.	Silver, each,	$8 00 to 15 00

☞ The Prices attached to the Spectacles in the foregoing list are what they will cost with the usual Convex Glasses, unless where otherwise specified. They will cost more with high numbers of Convex or Concave, Cataract, Green or Blue Convex or Concave, and Periscopic Glasses, or with Pebbles.

TO DEALERS.

The prices given on pages 5 to 10, for Spectacles, Eye-glasses, &c., are our lowest retail prices. Dealers who buy Spectacles to retail again, will find our prices by the dozen very low indeed, and they can always have the dozens made up of any Sights they may happen to be in want of; the advantage of which is that they will never get too many of any one number, while they have none of some very important numbers. We have Steel Spectacles, from $1 50 per dozen to $25 per dozen. Eye-glasses, from $3 50 to $20 per dozen.

To select Spectacles for improving the Sight when age is the cause of the failure.

At the age of forty, most ladies begin to experience some difficulty in threading a fine needle and reading very fine print, but gentlemen do not notice this change until about the age of fifty. These ages do not hold good in all cases, but as an average they can be relied upon.

Among the indications that the eyes are beginning to be impaired by age, and that spectacles are required, are, the necessity of putting a book farther from the eyes than a natural distance in order to read fine print distinctly, a greater care to have a strong light upon the reading or sewing; as, for instance, going close under the window or holding the light between the eyes and the reading, on looking at a near object, in a short time it becomes confused and appears to have a kind of a mist before it, and the letters of a book run one into another or appear double, and after a little use the eyes have an over-taxed wearied feeling.

In *selecting Spectacles to remedy these* defects of vision, it is desirable to consult an experienced Optician, and with his advice and assistance to procure those best suited to the condition of the eye. But in case an Optician is not readily accessible, persons wanting Spectacles, instead of picking up and using any kind that may happen to be at hand, regardless of the power and quality of the glasses, would do well to send to us for a pair; and if the following data is carefully given us, we will have no difficulty in sending Spectacles to suit the sight:—The age of the person; and state, if lady or gentleman, whether spectacles have been worn; if not, give the number of inches—very small printing must be held from the eyes in order to read it distinctly in a good light—and send a sample of the printing; but if Spectacles have been worn, send a glass or piece of a glass from the Spectacles last worn; state the age and sex of the person; how long the last pair of Spectacles had been used, and at what number of inches from the eyes with these Spectacles on very small printing must be held in order to see it distinctly, and send sample of the printing.

Persons after having used Spectacles for ten or twelve years to assist them in reading, begin to notice a change in their sight with regard to distant objects, a little want of clearness. When Spectacles are wanted to remedy this defect, if a glass from a pair of Spectacles which suits for reading small printing is sent us, we can send a pair of Spectacles that will correct the defect, and give clear vision for distant seeing.

To select Spectacles for Near or Short-Sighted Persons.

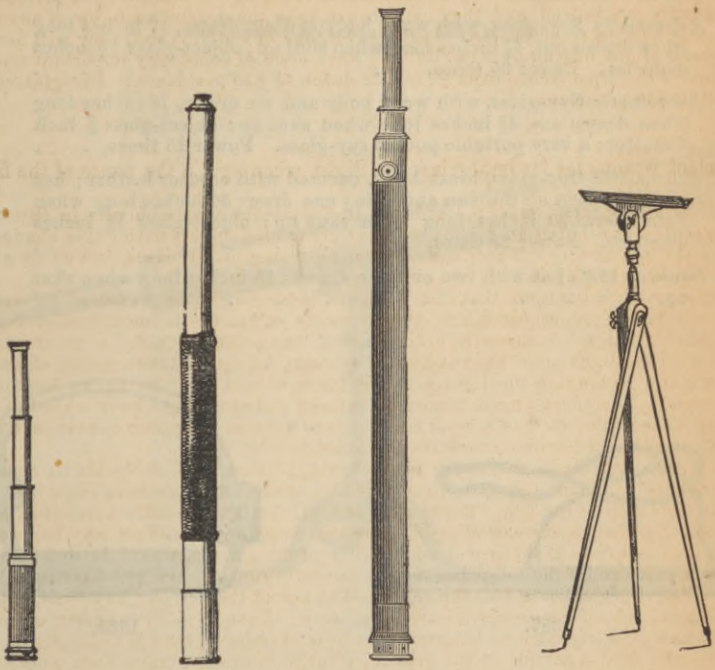
Near-sighted persons or those who do not wear glasses to assist them in reading, yet are unable to see distant objects clearly, in order to have the proper glasses sent them, should give us the number of inches they are obliged to hold very small printing from their eyes, and send sample of the printing.

Colored glasses—blue, green and smoke, may be worn to protect the eyes from intensely bright light, such as sunshine, or blazing fire—but it is not advisable to use them for reading or working; the habitual using of them, where there is only a moderate light, is found to have an injurious effect in rendering the eyes too sensitive.

Spectacles can be transmitted through the mail with safety to and from us. The postage on a single pair is nine cents.

All orders for Spectacles will receive our prompt and careful attention. And if those sent are not found to be quite right, they will be exchanged for others without additional cost. In ordering Spectacles, it will only be necessary to give the catalogue number of the kind wanted and the information about the sight before alluded to.

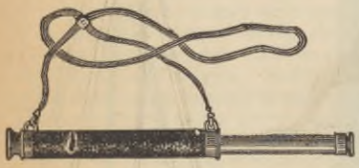
ACHROMATIC SPY-GLASSES AND TELESCOPES.



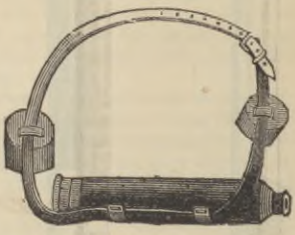
1375. 1385. 1388. 1393.

No.		Price.
1375.	Achromatic Spy-glass, with wood body, and three draws, 15 inches long when drawn out, 6 inches long when shut up; object-glass 1 inch in diameter. Power 15 times, ...	$3 00
1376.	Achromatic Spy-glass, with wood body, and three draws, 16 inches long when drawn out, 6 inches long when shut up; object-glass 1½ inches diameter. Power 20 times, ...	4 00
1377.	Achromatic Spy-glass, with wood body, and three draws, 23 inches long when drawn out, 8 inches long when shut up; object-glass 1⅝ inches in diameter. Power 25 times, ...	6 00
1378.	Achromatic Spy-glass, with wood body and three draws, 30 inches long when drawn out, 10 inches long when shut up; object-glass 1⅝ inches diameter. Power 30 times, ...	8 00
1379.	Achromatic Spy-glass, with wood body and four draws, 37 inches long when drawn out, 11 inches long when shut up; object-glass 1⅞ inches diameter; a very superior glass. Power 35 times, ...	14 00
1380.	Achromatic Spy-glass, with wood body, and four draws, 42 inches long when drawn out, 11½ inches long when shut up; object-glass 2⅛ inches in diameter, with sun-glass. Power 40 times, . . .	25 00
1381.	Achromatic Spy-glass, with wood body, and four draws, 48 inches long when drawn out, 13½ inches long when shut up; object-glass 2⅜ inches diameter, with sun-glass. Power 50 times, ...	36 50

No.		Price.
1382.	Achromatic Spy-glass, with wood-body, and five draws, 28 inches long when drawn out, 7⅞ inches long when shut up; object-glass 1⅝ inches diameter; about the same power as No. 1378, but more portable. Power 35 times,	$12 00
1383.	Achromatic Spy-glass, with wood body and six draws, 17 inches long when drawn out, 4¾ inches long when shut up; object-glass 1⅛ inches diameter. Power 20 times,	6 50
1384.	Achromatic Spy-glass, with wood body and six draws, 16 inches long when drawn out, 4¼ inches long when shut up; object-glass ⅞ inch diameter; a very portable pocket spy-glass. Power 15 times,	6 00
1385.	Achromatic Spy-glass, brass body, covered with cord or leather; has shade to keep off the sun and rain; one draw, 36 inches long when drawn out, 20 inches long when shut up; object-glass 1⅝ inches diameter. Power 25 times,	13 00
1386.	Same as 1385, but with two or three draws; 15 inches long when shut up,	13 00



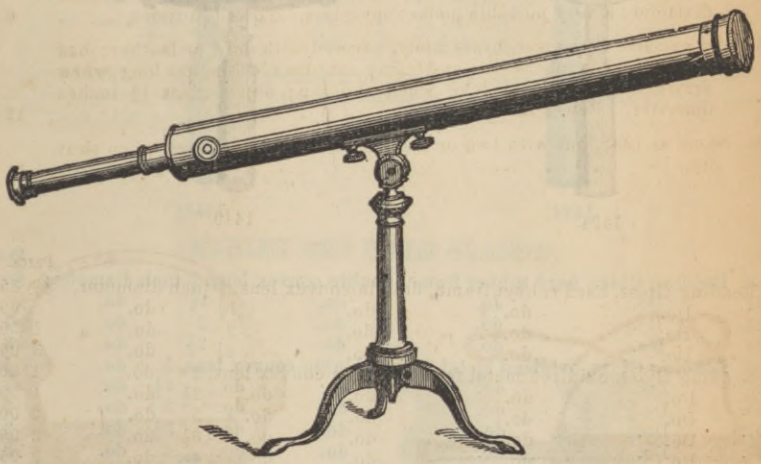
1387.



1389.

1387.	Rifle Spy-glasses, 10¾ inches long; object-glass ½ inch diameter,	3 00
1388.	Naval Achromatic Spy-glass, tapering wood body and one draw, 55 inches long when drawn out, 45 inches long when shut up; rack and pinion for adjusting the focus. Power 50 times,	45 00
1389.	Tourist's Achromatic Spy-glass, with brass body, covered with black Turkey morocco; three draws, 17 inches long when drawn out, 6 inches long when shut up; object-glass 1¼ inches diameter; sun shade to slip beyond the object-glass; heavy leather caps to cover both the eye-glass and object-glass; strong leather strap to sling over the shoulder. Power 20 times,	12 00
1390.	Same as No. 1389, but is 21 inches long when drawn out, 7 inches long when shut up; object-glass 1⅝ inches diameter. Power 25 times,	15 50
1391.	Same as No. 1389, but is 24 inches long when drawn out, 9 inches long when shut up; object-glass 1⅝ inches diameter. Power 30 times,	21 00
1392.	Same as 1389, but has four draws, and is 36 inches long when drawn out, 10 inches long when shut up; object-glass 1⅞ inches diameter. Power 35 times,	30 00
1393.	Wooden Tripod Stand, with vertical and horizontal motion, upon which to place a spy-glass; an exceedingly useful article, as a glass of much power cannot be held in the hand with sufficient steadiness to produce the best effect,	7 00
1394.	Brass Clamp with Gimlet Screw, to fasten a spy-glass to a post or tree,	3 50

ASTRONOMICAL TELESCOPES.



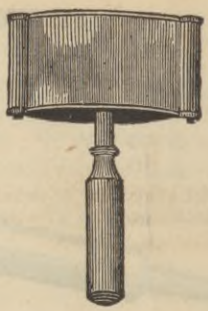
1395.

No.		Price.
1395.	Achromatic Telescope, 44 inches long when shut up, and when at focus 58 inches long; object-glass scant three inches diameter; 2 terrestrial and 1 celestial eye-piece and sun-glass, rack-work adjustment for focus, tripod stand; stand and body made entirely of brass, with strong wood case, ...	$150 00
1396.	Achromatic Telescope, 33 inches long when shut up, and when at focus 45 inches long; object-glass 2⅜ inches diameter; 1 terrestrial and 1 celestial eye-piece and sun-glass, mounted, &c. as 1395, . . .	75 00
1397.	Terrestrial Eye-piece for Telescope, ...	18 00
1398.	Celestial Eye-piece for Telescope, ...	12 00
1399.	Sun-glass for Eye-piece, ...	2 00
1400.	Model for illustrating the principle of the construction of Telescopes, and showing the course of the rays of light after passing through each lens until they enter the eye.	

We are about completing arrangements to greatly augment our stock and assortment of Astronomical Telescopes. They will be fully illustrated in the next edition of our Catalogue.

READING AND PICTURE LENSES.

1424.



1440.

No.							Price.
1420.	Reading Glass, hard rubber frame, double convex lens,				$\frac{1}{2}$	inch diameter,	$0 35
1421.	Do.	do.	do.		$1\frac{1}{2}$	do.	85
1422.	Do.	do.	do.		2	do.	1 50
1423.	Do.	do.	do.		$2\frac{1}{2}$	do.	3 00
1424.	Reading Glass, oxidized metal frame, double convex lens,				2	do.	1 00
1425.	Do.	do.	do.	do.	$2\frac{1}{2}$	do.	1 50
1426.	Do.	do.	do.	do.	3	do.	2 00
1427.	Do.	do.	do.	do.	$3\frac{1}{2}$	do.	2 50
1428.	Do.	do.	do.	do.	4	do.	3 25
1429.	Do.	do.	do.	do.	$4\frac{1}{2}$	do.	4 50
1430.	Do.	do.	two plano-convex lenses,		$2\frac{1}{2}$	in. diam.,	2 25
1431.	Do.	do.	do.	do.	3	do.	3 00
1432.	Do.	do.	do.	do.	$3\frac{1}{2}$	do.	4 25
1433.	Do.	do.	do.	do.	4	do.	5 00
1434.	Reading Glass, gilt metal frame, ivory handle, one double convex lens, 2 inches diameter,						2 25
1435.	Reading Glass, gilt metal frame, ivory handle, one double convex lens, $2\frac{1}{2}$ inches diameter,						2 75
1436.	Reading Glass, gilt metal frame, ivory handle, one double convex lens, 3 inches diameter,						3 75
1437.	Reading Glass, gilt metal frame, ivory handle, double convex lens, 4 inches diameter,						5 50
1438.	Reading Glass, gilt metal frame, ivory handle, double convex lens, $4\frac{1}{2}$ inches diameter,						7 00
1439.	Reading Glass, gilt metal frame, ivory handle, double convex lens, 5 inches diameter,						8 50
1440.	Reading Glass, black metal frame, wood handle, double convex lens, 3 inches long by $1\frac{1}{2}$ inches wide,						1 50
1441.	Reading Glass, black metal frame, wood handle, double convex lens, $3\frac{1}{2}$ inches long by $1\frac{3}{4}$ inches wide,						2 00
1442.	Reading Glass, black metal frame, wood handle, double convex lens, 4 inches long by 2 inches wide,						2 50
1443.	Picture Glasses, wood frames and handle, double convex lens 5 inches diameter,						5 00
1444.	Picture Glasses, wood frame and handle, double convex lens, 6 inches diameter,						7 00

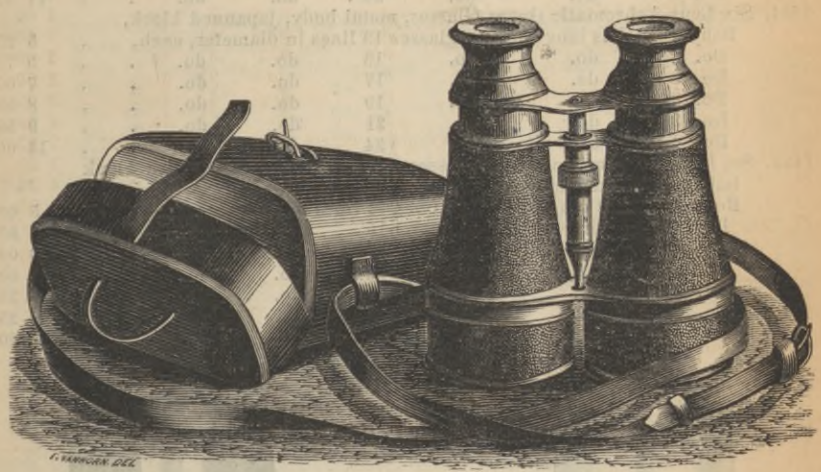
ACHROMATIC MARINE, FIELD AND OPERA GLASSES.

Opera Glasses are designated and priced according to the diameter of the object-glasses in French lines, as follows:

11	Lines, which is equal to	1	inch.
13	Do.	do.	$1\frac{3}{16}$ inches.
15	Do.	do.	$1\frac{5}{16}$ inches.
17	Do.	do.	$1\frac{1}{2}$ inches.
19	Do.	do.	$1\frac{11}{16}$ inches.
21	Do.	do.	$1\frac{7}{8}$ inches.
24	Do.	do	$2\frac{1}{8}$ inches.
26	Do.	do.	$2\frac{5}{16}$ inches.

The power and sharpness of definition of an Opera Glass depends upon the diameter of the object-glass, the greater the diameter the higher the power, and more clearly distant objects are seen.

MARINE AND FIELD GLASSES.

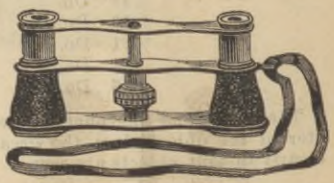


1448.

No. PRICE.

1448. U. S. Army Signal Service Six Lens Achromatic Field Glass, metal body, covered with Turkey morocco, sun shade to extend over the object-glasses, and heavy leather case, with strap; very superior.

Body $5\frac{3}{4}$	inches long;	object-glasses	21	lines	in diameter, . . .	$17 00
Do. $5\frac{7}{8}$	do.	do.	24	do.	. . .	20 00
Do. $6\frac{1}{4}$	do.	do.	26	do.	. . .	22 00



1448.

No.							Price.
1450.	Six Lens Achromatic Opera Glasses, metal body, japanned black,						
	Body 2 inches long;	object-glasses	11	lines in diameter,	each,	.	$4 00
	Do. 2¼	do.	do.	13	do.	do. . .	4 50
	Do. 3	do.	do.	15	do.	do. . .	5 25
	Do. 3½	do.	do.	17	do.	do. . .	5 75
	Do. 4	do.	do.	19	do.	do. . .	6 50
	Do. 4¼	do.	do.	21	do.	do. . .	8 00
	Do. 4½	do.	do.	24	do.	do. . .	9 50
	Do. 5	do.	do.	26	do.	do. . .	11 50
1451.	Six Lens Achromatic Opera Glasses, metal body, japanned black,						
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	.	5 25
	Do. 2½	do.	do.	15	do.	do. . .	5 75
	Do. 3	do.	do.	17	do.	do. . .	7 00
	Do. 3¼	do.	do.	19	do.	do. . .	8 50
	Do. 3½	do.	do.	21	do.	do. . .	9 50
	Do. 4	do.	do.	24	do.	do. . .	12 00
1452.	Six Lens Achromatic Opera Glasses, metal body, covered with black imitation Turkey morocco.						
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,		5 00
	Do. 3	do.	do.	15	do.	do. . .	5 50
	Do. 3½	do.	do.	17	do.	do. . .	6 00
	Do. 4	do.	do.	19	do.	do. . .	7 00
	Do. 4¼	do.	do.	21	do.	do. . .	8 25
	Do. 4½	do.	do.	24	do.	do. . .	10 25
	Do. 5	do.	do	26	do.	do. . .	12 00

1453.

1454.

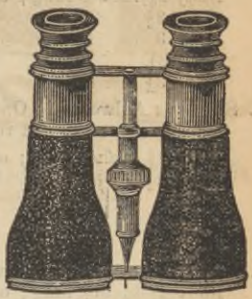
1453.	Six Lens Achromatic Opera Glasses, metal body, covered with black imitation Turkey morocco.						
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	.	5 50
	Do. 2½	do.	do.	16	do.	do. .	6 00
	Do. 3	do.	do.	17	do.	do. .	7 00
	Do. 3¼	do.	do.	19	do.	do. . .	8 75
	Do. 3½	do.	do.	21	do.	do. . .	10 25
	Do. 4	do.	do.	24	do.	do. . .	12 50

No. PRICE.

1454. Six Lens Achromatic Opera Glasses, metal body, covered with black imitation Turkey morocco, the bars connecting the two bodies curved, and every part very substantially made.

Body 2¼ inches long;	object-glasses	13	lines	in	diameter, each,	$ 8 25
Do. 2½	do.	do.	15	do.	do.	10 50
Do. 3	do.	do.	17	do.	do.	11 00
Do. 3¼	do.	do.	19	do.	do.	12 75
Do. 3½	do.	do.	21	do	do.	14 75

1455.



1457.

1455. Twelve Lens Achromatic Opera Glasses, metal body, covered with black imitation Turkey morocco; very superior.

Body 2¼ inches long;	object-glasses	13	lines	in	diameter, each,	13 00
Do. 2½	do.	do.	15	do.	do.	14 00
Do. 3	do.	do.	17	do.	do.	16 50
Do. 3¼	do.	do.	19	do.	do.	18 00
Do. 3½	do.	do.	21	do.	do.	19 50

1456. Six Lens Achromatic Opera Glasses, metal body, covered with fancy colored imitation Turkey morocco; tubes and cross pieces gilt.

Body 2¼ inches long;	object-glasses	13	lines	in	diameter, each,	5 25
Do. 2½	do.	do.	15	do.	do.	5 75
Do. 3	do.	do.	17	do.	do.	6 50
Do. 3¼	do.	do.	19	do.	do.	7 50
Do 3½	do.	do.	21	do.	do.	9 00

1457. Same as No. 1456, but more substantially and carefully finished.

Body 2¼ inches long;	object-glasses	13	lines	in	diameter, each,	8 75
Do. 2½	do.	do	15	do.	do.	9 00
Do. 3	do.	do.	17	do.	do.	10 50
Do. 3¼	do.	do.	19	do.	do.	12 00
Do. 3½	do.	do.	21	do.	do.	13 00

1458. Same as No. 1457, but has the tubes and cross pieces japanned black.

Body 2¼ inches long;	object-glasses	13	lines	in	diameter, each,	7 75
Do. 2½	do.	do.	15	do	do.	8 25
Do. 3	do.	do.	17	do.	do	9 50
Do. 3¼	do.	do.	19	do.	do.	11 25
Do. 3½	do.	do.	21	do.	do.	12 50

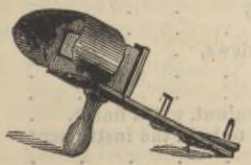
1459. Six Lens Achromatic Opera Glasses, metal body, covered with fancy colored imitation Turkey morocco, gilt tubes, and curved gilt cross pieces; very fine.

Body 2¼ inches long;	object-glasses	13	lines	in	diameter, each,	11 50
Do. 2½	do.	do.	15	do.	do.	13 00
Do. 3	do.	do.	17	do.	do.	15 00
Do. 3¼	do.	do.	19	do.	do.	17 00
Do. 3½	do.	do.	21	do.	do.	20 00

No.						Price.
1460.	Six Lens Achromatic Opera Glasses, metal body, covered with fancy colored imitation Turkey morocco, with gilt Grecian border, gilt tubes, curved cross pieces; very superior.					
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	$15 00
	Do. 2½	do.	15	do.	do.	16 25
	Do. 3	do.	17	do.	do.	17 00
	Do. 3¼	do.	19	do.	do.	18 50
	Do. 3½	do.	21	do.	do.	21 00
1461.	Same as No. 1460, but with black japanned tubes.					
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	12 25
	Do. 2½	do.	15	do.	do.	13 50
	Do. 3	do.	17	do.	do.	15 00
	Do. 3¼	do.	19	do.	do.	16 25
	Do. 3½	do.	21	do.	do.	19 50
1462.	Six Lens Achromatic Opera Glasses, metal body, covered with black Turkey morocco, gilt tubes, curved cross pieces; very superior.					
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	11 50
	Do. 2½	do.	15	do.	do.	12 25
	Do. 3	do.	17	do.	do.	13 50
	Do. 3¼	do.	19	do.	do.	15 00
	Do. 3½	do.	21	do.	do.	18 00
1463.	Same as No. 1462, but has twelve Lenses.					
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	15 00
	Do. 2½	do.	15	do.	do.	16 50
	Do. 3	do.	17	do.	do.	18 50
	Do. 3¼	do.	19	do.	do.	21 00
	Do. 3½	do.	21	do.	do.	24 00
1464.	Six Lens Achromatic Opera Glasses, metal body, oxidized gray, gilt tubes, curved cross pieces; very superior.					
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	16 25
	Do. 2½	do.	15	do.	do.	17 00
	Do. 3	do.	17	do.	do.	18 50
	Do. 3¼	do.	19	do.	do.	20 00
	Do. 3½	do.	21	do.	do.	22 50
1465.	Six Lens Achromatic Opera Glasses, metal body, covered with blue Turkey morocco, white pearl tops, gilt tubes, cross pieces curved and gilt.					
	Body 2¼ inches long;	object-glasses	13	lines in diameter,	each,	21 00
	Do. 2½	do.	15	do.	do.	23 00
	Do. 3	do.	17	do.	do.	27 00
	Do. 3¼	do.	19	do.	do.	28 00
	Do. 3½	do.	21	do.	do.	31 00
1466.	Six Lens Achromatic Opera Glasses, white pearl body, gilt tubes and cross pieces, low eye-pieces.					
	Body 1⅞ inches long;	object-glasses	13	lines in diameter,	each,	13 50
	Do. 2⅛	do.	15	do.	do.	14 75
	Do. 2⅜	do.	17	do.	do.	17 00
	Do. 2⅝	do.	19	do.	do.	21 00
	Do. 2⅞	do.	21	do.	do.	25 00
	Do. 3⅜	do.	24	do.	do.	31 00
1467.	Six Lens Achromatic Opera Glasses, white pearl body, gilt tubes and cross pieces, raised eye-pieces.					
	Body 2⅝ inches long;	object-glasses	13	lines in diameter,	each,	19 00
	Do. 3	do.	15	do.	do.	20 00
	Do. 3¼	do.	17	do.	do.	23 00
	Do. 3½	do.	19	do.	do.	27 00
	Do. 3¾	do.	21	do.	do.	31 00
	Do. 4¼	do.	24	do.	do.	38 00

No.		Price.
1468.	Six Lens Achromatic Opera Glasses, black pearl body and tubes, flat eye-pieces.	
	Body 2 inches long: object-glasses 13 lines in diameter, each,	$21 00
	Do. 2⅜ do. do. 15 do. do.	23 00
	Do. 2⅝ do. do. 17 do. do.	27 00
1469.	Six Lens Achromatic Opera Glasses, black pearl body and tubes, raised eye-pieces.	
	Body 2⅜ inches long; object-glasses 13 lines in diameter, each,	32 00
	Do. 3 do. do. 15 do. do.	35 00
	Do. 3¼ do. do. 17 do. do.	38 00
1470.	Six Lens Achromatic Opera Glasses, white pearl body, heavily gilt and engraved cross pieces and bands, silk velvet case; very beautiful.	
	Body 2 inches long; object-glasses 13 lines in diameter, each,	29 00
	Do. 2⅜ do. do. 15 do. do.	34 00
	Do. 2⅝ do. do. 17 do. do.	38 00
1471.	Six Lens Achromatic Opera Glasses, magnificently enameled body, pearl tops, gilt tubes, engraved and gilt cross pieces, silk velvet case.	
	Body 2 inches long; object-glasses 13 lines in diameter, each,	30 00
	Do. 2⅜ do. do. 15 do. do.	35 00
	Do. 2⅝ do. do. 17 do. do.	42 00

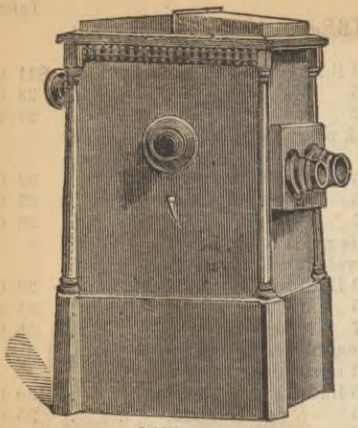
STEREOSCOPES.



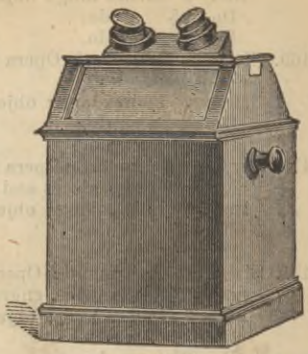
1479 to 1484.

1488.

1479.	Holmes' Stereoscope, walnut frame, square lenses, each,	1 50
1480.	Do. do. mahogany frame, do. do.	3 00
1481.	Do. do. rosewood frame, do. do.	$3 50 and 4 00
1482.	Do. do. walnut, round, do. do.	1 75
1483.	Do. do. do. carton, do. do.	1 00 and 1 25
1484.	Do. do. tulip, round, do. do.	4 00
1485.	Mahogany stand, each,	1 75
1486.	Rosewood do. do.	2 00
1487.	Mahogany Stereoscope, No. 1480, on mahogany stand,	4 75
1488.	Rosewood Stereoscope, No. 1481, on rosewood stand,	5 50 to 6 00
1489.	Boudoir Stereoscope, four feet high, in select rosewood, on castors, with two sets of lenses, so that two persons can see at the same time; revolving chain to hold 300 glass or 600 paper pictures,	140 00
1490.	Boudoir Stereoscope, four feet high, in select rosewood; same as No. 1489, but to hold 150 glass or 300 paper pictures,	105 00
1491.	Table Stereoscope, four feet high, rosewood, with two sets of lenses, so that two persons can see at the same time, with revolving chain to hold 150 glass pictures, or 300 paper pictures,	100 00
1492.	Parlor Stereoscope, 18 inches high, in highly finished rosewood, with two sets of lenses, so that two persons can see at the same time; revolving chain to hold 72 glass or 144 paper pictures,	45 00
1493.	Parlor Stereoscope, 18 inches high, same finish as No. 1492, but has only one pair of lenses, and revolving chain to hold 72 glass or paper pictures,	35 00



1494.



1496.

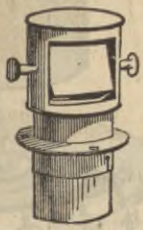
No.		Price.
1494.	Library Stereoscope, 18 inches high, in highly finished curled black walnut, with two sets of lenses, and revolving chain to hold 72 glass or 144 paper pictures,	$30 00
1495.	Library Stereoscope, same as No. 1494, but with one set of lenses, and revolving chain to hold 72 glass or paper pictures,	25 00
1496.	Cottage Stereoscope, in plain black walnut, with one set of lenses on top, that swing so as to view the pictures on either side of the axle; revolving chain to hold 48 paper pictures, but no glass pictures,	15 00
1497.	Patent Achromatic Mirror Stereoscope, mahogany,	15 00
1498.	Do. do. do. do. walnut,	17 50
1499.	Brass Stand for either of the above,	10 00
1500.	Leather Case to hold 1497 or 1498, and a few views,	5 00
1501.	Achromatic Table Stereoscope, mahogany,	25 00
1502.	Do. do. do. walnut,	30 00
1503.	Do. do. do. mahogany or walnut, extra finish,	50 00
1504.	Cabinet Stand for Table Stereoscope, fitted up to hold the instrument and slides, in mahogany or walnut,	35 00
1505.	The Same, of very finest finish,	70 00

STEREOSCOPIC PICTURES.

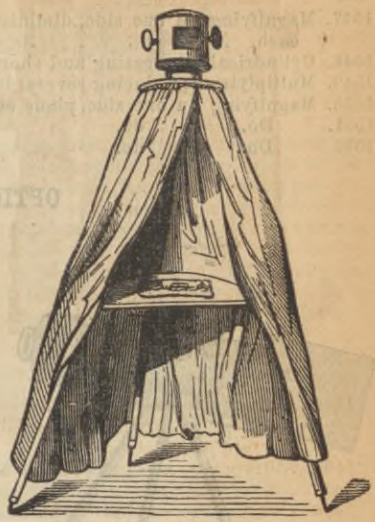
We have constantly on hand, and are receiving daily, an endless variety of views of all the most important cities and public buildings in the world, with every variety of landscape views in all regions. Statuary, monuments, colored groups from life, and celebrities, male and female. These range in price from $1 50 to $6 00 per dozen for paper pictures, and from $1 00 to $4 00 each for glass. The former can be sent safely by mail. A detailed and priced list will be sent to any address on receipt of stamp.

CAMERA OBSCURAS, CAMERA LUCIDAS, &c., &c.

1530.



1533.



1534.

No.		Price.
1530.	Diagonal Mirror, with convex lens; for viewing perspective prints, each,	$3 00
1531.	Pictures for the above; views in Switzerland, France, America, &c., per dozen, ...	1 50
1532.	Plain Camera Obscura. In this the object is beautifully represented on a piece of ground glass about six inches square, affording a pleasing amusement to young persons, as representing a moving panorama of animated nature; neat walnut box, ...	8 00
1533.	Camera Obscura Head or Lens, without box; a prismatic lens, mounted with brass. This is the best kind of lens for a Camera Obscura, as it forms both lens and mirror, each, . . . $6 50, $9 00, and	10 50
1534.	Improved Camera Obscura. This is recommended as the best drawing apparatus yet introduced: it is light and portable, and can be used to satisfaction by persons entirely unacquainted with drawing, each,	20 00
1535.	Camera Lucida, with one draw, ...	6 50
1536.	Camera Lucida, with two draws, lenses for defective sight, and printed instructions, ...	16 00

CLAUDE LORRAINE, or LANDSCAPE MIRROR.

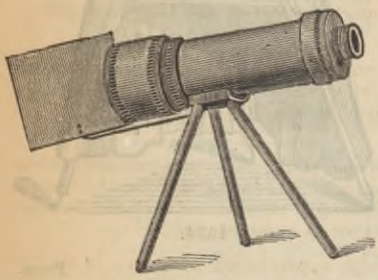
Claude Lorraine, or Landscape Mirror. A pleasing and beautiful instrument, for viewing clouds, landscapes, &c.; particularly adapted for use in the country and at the sea-shore. As the mirror condenses or diminishes the view into a true perspective effect, the instrument is invaluable to the artist, and a very desirable companion for tourists. The mirror produces, instantaneously, the most charming reflection of scenery, buildings, &c., 6 sizes, as follows:

1540.	Mirror, 6¼	inches long by	5¼	inches wide,	in strong	morocco case, each,	6 25
1541.	Do. 7½	do.	5¼	do.	do.	do.	7 50
1542.	Do. 7½	do.	6¼	do.	do.	do.	8 75
1543.	Do. 8½	do.	6¼	do.	do.	do.	10 00
1544.	Do. 8½	do.	7½	do.	do.	do.	11 25
1545.	Do. 9½	do.	7½	do.	do.	do.	12 50

MIRRORS, IN BLACK WOOD FRAMES.

No.							Price.
1547.	Magnifying on one side, diminishing on the other, 6 inches diameter, each,						$3 00
1548.	Cylindrical (elongating and shortening), 6 inches diameter, each,						2 50
1549.	Multiplying (producing several images), 6 inches diameter, each,						2 50
1550.	Magnifying on one side, plane on the other, 3½ inches diameter, each,						75
1551.	Do.	do.	do.	5	do.	do.	1 25
1552	Do.	do.	do.	6	do.	do	2 00

OPTICAL TOYS.



1553.

1558.

1553. Kaleidoscopes, large size, on stand, ... $4 00, $4 50 and 5 00

1554. Kaleidoscopes, small size, each, ... 75

1555. Pillar, and twelve distorted pictures, which regain their appearance when the reflection is looked at in the mirror. 2 50

1556. Periphanoscope and 12 diagrams—a revolving card which produces the effect of horses running, boys jumping, &c., ... 1 50

1557. Polemoscope, or instrument to look through a brick; consists of a tube bent twice at right angles, in which mirrors are placed, and opaque objects may be put in the aparent line of vision without interfering with the view.

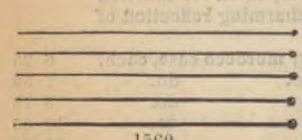
1558. Zoetrope, or Wheel of Life, ... 3 50

A mechanical and optical toy, affording amusement to old and young. It is an exemplification of the science of optics, and is a valuable aid in illustrating that department of natural philosophy. The turning of the drum or cylinder brings into view the varying form or position of a figure in rapid succession, until they blend into a perfect image full of motion, and producing natural action. By placing the apparatus in a suitable light, a number of persons can examine it at the same time.

Extra views for Zoetrope, per set of six, ... 1 00

1559. Zoetrope, small size, ... 1 50

ENTOMOLOGICAL PINS.



1560.

1560. Entomological Pins, German make, 1½ inches long, five sizes of wire, per 100 15

Do. do. do. per 1000, 1 25

1561. Entomological Pins, English, ½ to 1 inch long, various sizes, per 100, . 10 to 40

1562. Entomological Cabinet, bound in book form, ... 1 50

Orders for Pins must be accompanied by a sufficient remittance to cover the Postage.

THE MICROSCOPE.

Within the last few years, the microscope has become so firmly rooted among us, that little need be said in its praise. The time has long passed away when it was held in no higher estimation than an ingenious toy; but it is now acknowledged that no one can attain even a moderate knowledge of any physical science without a considerable acquaintance with the microscope and the marvellous phenomena which it reveals. The geologist, the chemist, the mineralogist, the anatomist, or the botanist, all find the microscope a useful companion and indispensable aid in their interesting and all-absorbing researches, and, with every improvement in its construction, have discovered a corresponding enlargement and enlightenment of the field displayed by the particular science which they cultivate.

But even to those who aspire to no scientific eminence, the microscope is more than an amusing companion, revealing many of the hidden secrets of nature, and unveiling endless beauties which were heretofore enveloped in the impenetrable obscurity of their own minuteness.

No one who possesses even a pocket-microscope of the most limited powers can fail to find amusement and instruction even though he was in the midst of the Sahara itself. There is this great advantage in the microscope, that no one need feel in want of objects as long as he possesses his instrument and a sufficiency of light.

Many persons who are gifted with a thorough appreciation of nature in all her vivid forms are debarred by the peculiarity of their position from following out the impulses of their beings, and are equally unable to range the sea-shore in search of marine creatures or to traverse the fields and woods in the course of their investigations into the manifold forms of life and beauty which teem in every nook and corner of the country. Some are confined to their chambers by bodily ailments, some are forced to reside within the very heart of some great city, without opportunities of breathing the fresh country air more than a few times in the course of the year; and yet there is not one who may not find an endless series of Common Objects for his microscope within the limits of the tiniest city chamber. So richly does nature teem with beauty and living marvels, that even within the closest dungeon-walls a never failing treasury of science may be found by any one who knows how and where to seek for it.

There is little doubt but that if any one with an observant mind were to set himself to work determinedly merely at the study of the commonest weed or the most familiar insect, he would, in the course of some years' patient labor, produce a work that would be most valuable to science and enrol the name of the investigator among the most honored sons of knowledge. There is not a mote that dances in the sunbeam, not a particle of dust that we tread heedlessly under our feet, that does not contain within its form mines of knowledge as yet unworked. For if we could only read them rightly, all the records of the animated past are written in the rocks and dust of the present.

Microscopes may be divided into two classes, simple and compound. The former class may contain several lenses or glasses, but generally consists of a single lense; but the Compound Microscope must consist of at least two glasses, the one near the object to be examined, and commonly called the objective, the other near the eye, and called the eye piece. This class is subdivided into Monocular and Binocular instruments, in which the object is viewed with one or both eyes, as their names imply. The instruments enumerated in the following Catalogue are arranged under these several heads, beginning in each with the simple and inexpensive forms, and leading up to the most perfect yet devised by skill and science. We have of each kind always in stock so that we can fill orders without any vexatious delays, and our customers may depend upon having all mail orders attended to with as much care as though they made a personal selection for themselves.

SIMPLE MICROSCOPES TO FOLD IN CASES.

1600. 1610. 1615. 1619. 1623.

No.								Price.
1600.	Hard rubber case and frame	round form,	1	double convex lens,	¾	in diam.		$0 50
1601.	Do.	do.	do.	1	do.	1	do.	75
1602.	Do.	do.	do.	1	do.	1¼	do.	1 00
1603.	Do.	do.	do.	1	do.	1½	do.	1 25
1604.	Do.	do.	do.	1	do.	1¾	do.	1 50
1605.	Do.	do.	do.	1	do.	2	do.	2 25
1606.	Do.	do.	do.	2	do.	¾	do.	75
1607.	Do.	do.	do.	2	do.	1	do.	1 25
1608.	Do.	do.	do.	2	do.	1¼	do.	2 00
1609.	Do.	do.	do.	2	do.	1½	do.	2 50
1610.	Do.	do.	bellows form	1	do.	¾	do.	75
1611.	Do.	do.	do.	1	do.	1	do.	1 00
1612.	Horn case, brass frame,		do.	1	do.	¾	do.	85
1613.	do.	do.	do.	1	do.	1½	do.	1 25
1614.	do.	German silver frame,	do.	1	do.	¾	do.	1 00
1615.	Hard rubber case and frame,		do.	2	do.	¾	do.	1 00
1616.	do.	do.	do.	2	do.	1	do.	1 25
1617.	Horn case, brass frame,		do.	2	do.	¾	do.	1 25
1618.	do.	German silver frame,	do.	2	do.	¾	do.	1 50
1619.	Hard rubber case and frame,		do.	3	do.	¾	do.	1 50
1620.	do.	do.	do.	3	do.	1	do.	1 75
1621.	Horn case, brass frame,		do.	3	do.	¾	do.	1 75
1622.	do.	German silver frame,	do.	3	do.	¾	do.	2 00

1623. Horn case and frame, 1 double convex lens, ½ inch diameter, of high power at one end, and 1 double convex lens ⅜ inch diameter of medium power at the other end, ... 1 50

1624. Simple Microscope, brass frame and handle, spring clips for holding object, micrometer screw for adjustment of focus, one prepared object, in polished wood box, very high power 2 25

WATCHMAKER'S AND ENGRAVER'S GLASSES.

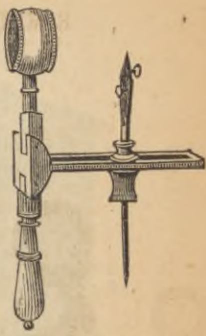

1630.


1631.


1632.


1634.


1636.

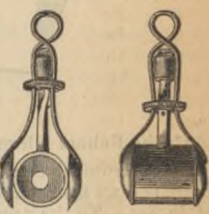

1638.

No.		Price.
1630.	Watchmaker's Glass, horn frame, 1 double convex lens, ¾ inch diameter,	$0 40
1631.	Watchmaker's Glass, horn frame, 2 double convex lens, ¾ inch diameter, very high power, ...	1 00
1632.	Engraver's Glass, horn frame, 1 double convex lens, 1 inch diameter,	50
1633.	Do. wood frame, 1 do. do. 1¼ do.	50
1634.	Do. horn frame, 2 plano-convex lenses, 1¼ do.	1 00
1635.	Do. do. do. do. 2 do.	1 50
1636.	Microscope, with glass cage for seeds or live bugs, small size, . .	1 00
1637.	Do. do. do. do. large size, . .	1 50
1638.	Jointed Microscope, for flowers and insects; folds to carry in the pocket,	2 25


1639.


1640.


1643.


1644.

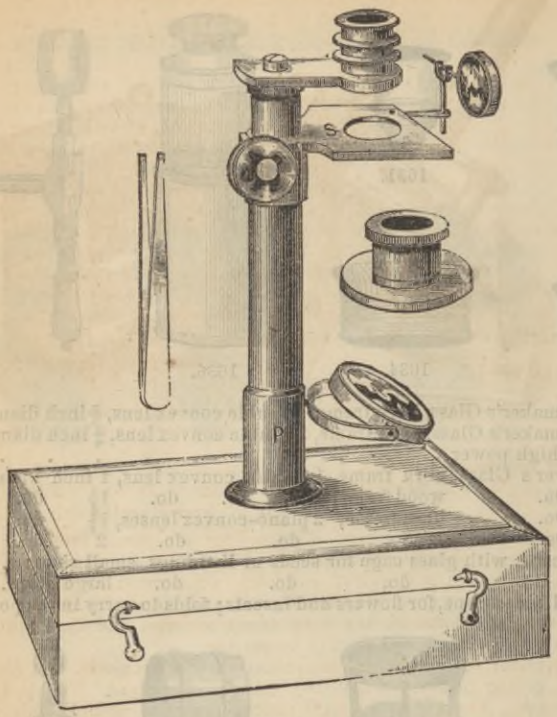

1641.


1642.


1647.

1639.	Microscope on Three Legs, all brass, with screw adjustment for focus,	1 00
1640.	Microscope on Three Legs, hard rubber frame, ...	1 00
1641.	Linen Provers, or Microscope for counting the threads in linen fabrics,	75
1642.	Stanhope Lens, in German silver frame, ...	1 50
1643.	Coddington Lens, brass frame, ...	2 00
1644.	Do. silver frame, ½ inch focus, very fine, ...	9 00
1645.	Do. do. with cover, ...	3 50
1646.	Do. plated, large size, with cover, ... $4 00 to	5 50
1647.	Do. gilt, do. do.	6 50

THE SCHOOL MICROSCOPE.

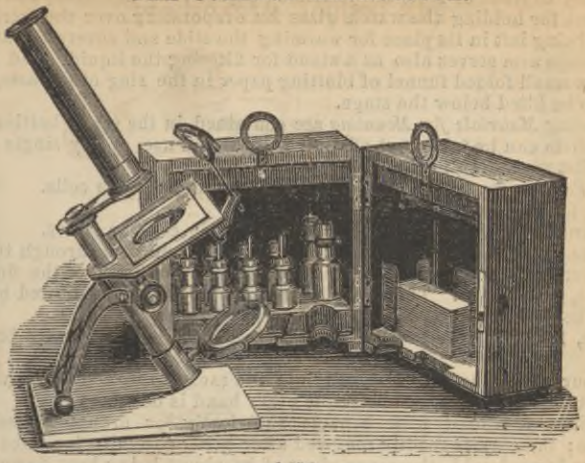


1650.

No.		Price.
1650.	The School Microscope, ...	$6 00

This instrument consists of a tubular stem about five inches high, the lower end of which screws firmly into the lid of the box wherein the instrument is packed when not in use. To the upper end of this stem the stage is firmly fixed; while the lower end carries a concave mirror. Within the tubular stem is a round pillar having a rack cut into it, against which a pinion works that is turned by a milled head: and the upper part of this pillar carries a horizontal arm which bears the lenses, so that by turning the milled head, the arm may be raised or lowered, and the requisite focal adjustment obtained. Three magnifiers are supplied, and by using them either separately or in combination, a considerable range of powers from about five to forty diameters is obtained. A condensing lense for opaque objects, a pair of stage forceps, brass pliers, and an aquatic box for the examination of objects in water, are also supplied. This instrument is peculiarly adapted for educational purposes, being fitted in every particular for the examination of botanical specimens, small insects or parts of insects, water-fleas, the larger animalcules, and other such objects as young people may readily collect and examine for themselves: and those who have trained themselves in the application of it to the study of nature are well prepared for the advantageous use of the Compound Microscope. But it also affords to the scientific inquirer all that is essential to the pursuit of such investigations as are best followed out by the concurrent employment of a Simple and a Compound Microscope, the former being most fitted for the preparation, and the latter for the examination of many kinds of objects; and it may be easily adapted to the purposes of dissection by placing it between arm rests or blocks of wood, or books piled one on another so as to give a support for the hand on either side, at or near the level of the stage.

THE COLLEGE MICROSCOPE.



1652.

No.		Price.
1651.	College Microscope, simple, ...	$25 00
1652.	Do. do. with compound body, ...	30 00
1653.	Do. do. do. do. and objectives, . . .	35 00

The College Microscope has been designed for the use of students, likewise as a seaside, travelling, or working microscope. It is both compound and simple, and has a joint for inclining the instrument, and rack adjustment for focusing. It is fitted in a polished mahogany case, six inches cube, and so arranged that on opening the case the instrument stands on the table ready for use, and the appliances, though numerous, exposed to view and readily accessible.

The objectives of the compound microscope are achromatic, and useable separate or combined, giving powers of 200, 100, and 50 diameters. The body elongates to give extra power. For use as a simple microscope three simple objectives are sent, useable separately or combined, giving powers with No. 1, 5; No. 2, 7; No. 3, 11; No. 1, 2, and 13; No. 1 and 3, 16; No. 1, 2, and 3, 20 diameters.

The case contains a complete set of apparatus and materials required in mounting objects, including turn-table, hot-plate with spirit lamp, dissecting trough, a complete set of materials and implements ordinarily required, with a stock of glass sides, cover glasses, cells, and labels. The portability and compactness of this apparatus allows of its being conveniently taken into the country or sea-side for use on the spot, thus affording the valuable advantage of not only being able to examine but also readily to mount, whilst in fresh and perfect condition, objects that are liable to become useless or seriously injured in microscopic value if the mounting has to be deferred until returning home.

The *Dissecting Trough* is placed in the recess of the stage in place of the stage plate, for the purpose of examining or dissecting an object under water, pinned down upon the loaded cork or not, as required.

The *Turn-table* is carried upon a long spindle passed through a hole in the stage, giving a very steady and free motion, and the right hand is steadily supported by the microscope arm close over the turn-table whilst making varnish rings. The top of the turn-table is made only the size of a glass slide and the slide is held in its place by slipping it under an india rubber band, which holds it so firmly as to prevent any risk of shifting.

The *Hot-plate* is placed in the recess of the stage, the microscope arm being then reversed in position to be clear of the stage, and the stand placed in the opposite position to the one in which it is used as a microscope, the spirit lamp being placed in the position of the mirror. The heated slide, with ring of marine glue upon it, is readily and quickly shifted from the hot-plate into the recess in the bottom board, and centred there at once by pushing it home in the recess, for centering the cell whilst still hot enough to keep the marine glue melted.

In *Preparing Crystals* of salts as polarizing objects, the microscope arm is used as a retort stand for holding the watch glass for evaporating over the spirit lamp: the stage plate being left in its place for warming the slide and coverglass at same time. The microscope arm serves also as a stand for filtering the liquids used in mounting by placing a small folded funnel of blotting paper in the ring of the arm, and setting the bottle to be filled below the stage.

The following *Materials for Mounting* are contained in the set of bottles. The rack containing them can be taken out of the case when in use, or any single bottle is accessible whilst remaining in the case.

Asphalte Varnish, for finishing off slides, and making varnish cells.

Gold Size, for fixing cover-glasses, &c.

Liquid Marine Glue, for making cells and cementing cells on slides.

[These are in bottles having a small camel hair brush fixed through the cork, and always immersed in the liquid and ready for use without risk of the fingers getting touched with the varnish. The asphalte and goldsize are kept diluted by occasional addition of benzole, so as to drop freely from the brush.]

Turpentine, for cleaning off waste, slides, &c., in similar bottle, with brush fixed in the cork.

[These four bottles are fitted tightly into the rack, so that the brush and cork is readily taken out by one hand whilst the other hand is occupied.]

Canada Balsam diluted with benzole sufficiently for dropping freely from the lipped bottle; the cork is readily removed after being carefully loosened, and the diluted balsam is used cold, the cover-glass of an object being kept down by a spring clip; the slide being then left in a slightly warm situation, as upon a chimney piece, all the air bubbles become removed in a few hours beyond the edge of the cover-glass, in the course of the evaporation of the benzole, and the superfluous balsam can be scraped off after a few days.

Alcohol, in lipped bottle, for cleaning off cells fixed by marine glue, and cleaning objects for mounting, &c. In cleaning off marine glue, after removing it with the scraper to nearly the edge of the cell, working under the microscope with light from below, the cleaning is carefully finished at the edge with alcohol and the scraper.

Chloroform, for cleaning cover-glasses and slides, diluting varnish, &c., and for killing and cleaning insects, &c.

Liquor Potassæ, for softening and bleaching the hard coverings and antennæ, &c. of insects.

Goadby's Fluid, for mounting animal objects.

Glycerin and Carbolic Acid Water, for mounting vegetable objects consisting of glycerin mixed with thirty times the quantity of distilled water in which carbolic acid has been soaked, the whole being filtered.

Distilled Water, in larger bottle, for washing objects for mounting The contents of these bottles are filtered with advantage after remaining in use for some time, to remove particles of dust, &c.

Needles, Forceps, large and small, dissecting knife, scraper, stage forceps, and spring clips, are contained in one drawer.

Dipping Tubes and Brushes in the opposite drawer; kept separate to prevent any risk of rusting the needles, &c.

Cover-glasses, Cells, and Labels in the smaller drawer; and two dozen glass slides in the bottom of case, with watch glasses and a small wiper for finishing the cleaning of cover-glasses and slides, to be kept quite clean and free from dust and grease.

The double ring handle at top of case prevents any risk of the case opening when carried by the handle if not locked.

LIST OF MATERIALS AND IMPLEMENTS.

BOTTLES.

Asphalte.
Gold Size.
Turpentine.
Canada Balsam.
Glycerin and Carbolic Acid Water.
Goadby's Fluid.
Alcohol.
Chloroform.
Liquor Potassæ.
Distilled Water.

LEFT DRAWER.

Dipping Tube, straight.
Do. curved pointed.
Do. curved parallel.
Brush, very small.
Do. small.
Do. large for dusting.
Marine Glue.

RIGHT DRAWER.

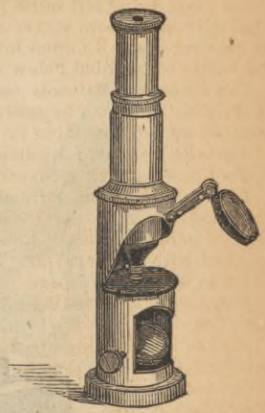
Needle, straight.
Do. hooked.
Do. curved.
Forceps, large.
Do. small.
Dissecting Knife.
Scraper.
Stage Forceps.
Four Spring Clips.

LOWER DRAWER.—Cover Glasses, Tin Cells, Ebonite Cells, Labels.
BOTTOM.—Two dozen Glass Slides, Three Watch Glasses, Wiper.

NON-ACHROMATIC MICROSCOPES.

1655.

1656.



1657

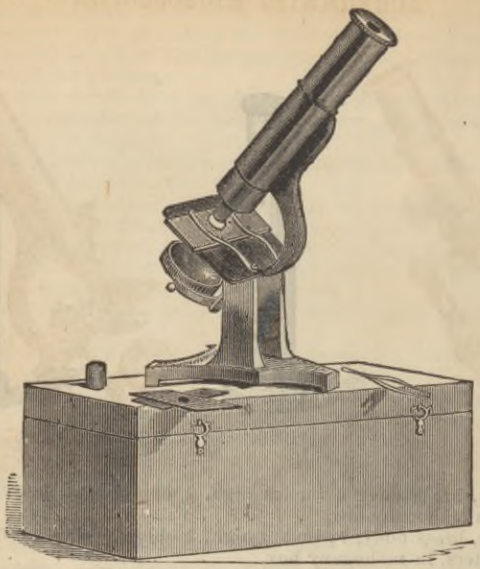
No.		Price.
1655.	Microscope, brass body 6 inches high, 1 object lens, power 40 diameters, in mahogany box,	$3 00
1656.	Microscope, brass body, 7½ inches high, 2 object lenses, power 40 and 60 diameters, in mahogany box,	5 00
1657.	Microscope, brass body, 7½ inches high, 3 object lenses, power 40, 60, and 100 diameters, and condensing lens for illuminating opaque objects, in mahogany box,	8 00

1658.

1659.

1658.	Microscope, brass body, 9½ inches high, broad stage, large circular base, 3 object lenses, power 50, 100, and 125 diameters, and condensing lens, in mahogany box,	11 00
1659.	Microscope, same as No. 1657, but with rack and pinion for adjusting the focus, in mahogany box,	14 00

THE UNIVERSAL HOUSEHOLD MICROSCOPE.



1660.

No.		Price.
1660.	The Universal Household Microscope, ...	$5 50

This is the most convenient, complete and powerful Microscope ever offered for the low price of $5 50. It has the important parts of a first-class instrument, is readily adjusted, and well calculated not only to amuse but instruct young persons, and thereby foster a taste for the study of Natural History. It has a firm tripod base of cast iron, and the facility for inclining to any angle for convenience of observation; a concave mirror for concentrating the rays of light upon the object; an adjustable eye-piece or draw-tube, and two object-glasses of different powers; all packed in a neat wooden box with hinges and hooks. No microscope of equal power and neatness of finish has ever been offered for the same low price; and no more instructive or entertaining gift can be made to young persons. It has a magnifying power of from 20 to 100 diameters, or 400 to 10,000 times the area.

MAGNIFYING POWERS.

Objective No. 1 is the lowest power, and, with the tube closed, gives a power of 20 diameters or 400 times the area; with the extention tube drawn out to three inches, the power is 40 diameters or 1600 times the area.

Objective No. 2, with the tube closed, gives a power of 50 diameters or 2500 times the area; with the extension tube drawn out to three inches, the power is 100 diameters or 10,000 times the area.

The magnifying powers, as understood by microscopists, is in diameters. A popular way is to give the area or superfices; and, as the object is magnified equally in all directions, this power is obtained by squaring the diameter.

We have a great variety of objects, neatly prepared and mounted on glass papered slides, with name on each, well calculated for the Household Microscope. We sell them at the low price of $1 50 per dozen, or 15 cents for any single slide.

A suitable and interesting Book on the Microscope, with over 400 illustrations, and directions for collecting and preparing the objects, can be had with it. Price, 50 cts.

ACHROMATIC MICROSCOPES.

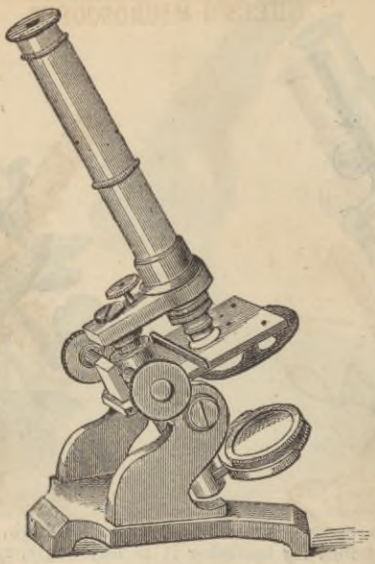
1661.

1665.

No.		Price.
1661.	Achromatic Microscope, brass body, 9 inches high, with ball and socket joint at foot for inclining it to any angle, rack adjustment for focus, condensing lens for illuminating opaque objects, spring clips for holding the object slide, power 50, 100, and 125 diameters, in mahogany box, ...	$22 50
1662.	Achromatic Microscope, brass body, 9½ inches high, with joint to incline it to any angle, rack and pinion for adjusting the focus, draw tube, spring clips for holding the object slide, diaphragm under the stage with different sized openings, iron base, power 50 and 150 diameters, in mahogany box, ...	25 00
1663.	Achromatic Microscope, same as No. 1662, with the addition of a movable stage with lever for adjusting any portion of the object in the field of view, in mahogany box, ...	30 00
1664.	Achromatic Microscope, brass body, brass stand 12 inches high, with joints to incline to any angle, draw tube, two eye-pieces, two sets of achromatic object-glasses, diaphragm, condenser on separate stand, micrometer adjustment for focus, power 50 to 650 diameters, in mahogany box, ...	45 00
1665.	Queen's Student's Microscope, brass body, 14 inches high, on highly finished japanned iron stand, with broad tripod base, single column, and joint for inclination to any angle; quick motion to body, and micrometer screw for fine adjustment, movable glass stage; under the stage a tube is fitted for carrying the diaphragm, and accessory illuminating apparatus, concave and plane mirrors arranged for direct or oblique illumination. One eyepiece, one dividing objective ¼th of an inch focus, magnifying from 100 to 300 diameters, stage micrometer $\frac{1}{100}$ and $\frac{1}{1000}$ths of an inch, condensing lens on separate stands, 2 dissecting needles and 1 pair brass forceps, 6 prepared objects; the whole packed in a neat oiled walnut case, with a good lock and brass handle. Price, ...	60 00
1666.	The same as 1665, with addition of a second eyepiece, and ½ inch objective, giving powers from 50 to 500 diameters, ...	70 00
1667.	The same as 1666, with the addition of ⅛ inch objective, giving powers from 50 to 750 diameters, ...	75 00

The above are all fitted with the "Society Screw."

THE EDUCATIONAL MICROSCOPE.



1669.

No.		Price.
1669.	The Educational Microscope, ...	$35 00

This is believed to be the best low priced Microscope ever offered to the public, and it may safely be relied upon as capable of performing all the work required by the young student in any department of Microscopical science. It is not of course expected that it will bear comparison with Microscopes of many times its cost, but it is infinitely superior to the best Microscope ever constructed on the old (non-achromatic) plan. The simplicity of its construction, and the facility with which all those adjustments may be made that are required for the purposes it is intended to fulfill, constitute with its low price, a great recommendation to those who value a Microscope rather as a means of interesting recreation for themselves, or of cultivating a taste for the study of nature, and a habit of correct observation in the young, than as an instrument of scientific research.

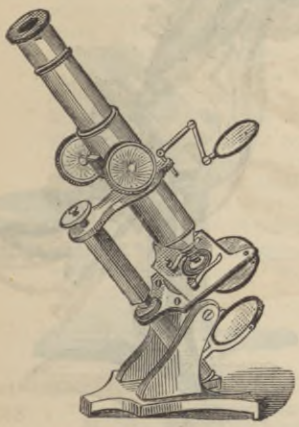
The stand is entirely of brass, of handsome proportions, and well finished; the compound body is mounted upon a double axis joint, allowing the instrument to be inclined at any angle convenient to the observer, with quick rack adjustment and fine screw adjustment for focus, sliding object-holder, plane and concave mirrors, wheel of diaphragms, and the following accessories:

2 Eye Pieces.
1 Achromatic Objective, 1 inch focus, power 40 to 100°.
1 Do. do. ¼ do. do. 120 to 180°.
1 Condensing Lens, on separate stand, tweezers, forceps, animalcule cage, live box, knife and needles, thin glass and slides for mounting objects.

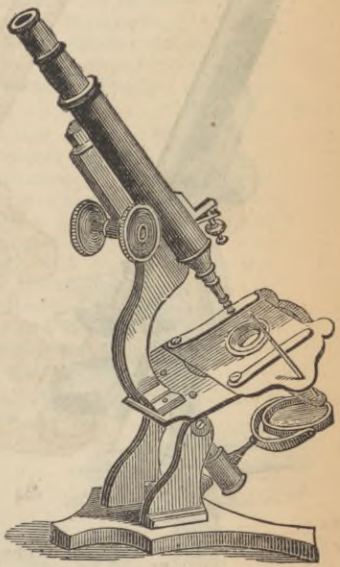
The whole packed in polished upright mahogany case with drawer.

1670.	The same, with lever motion to stage, ...	$37 50
1671.	The same as 1669, with addition of Polariscope, ...	45 00
1672.	The same as 1669, with addition of Mechanical Stage, ...	45 00

QUEEN'S MICROSCOPES.



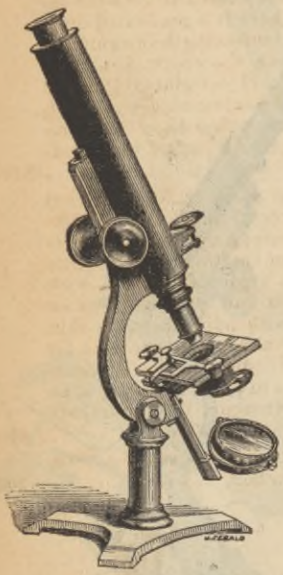
1675.



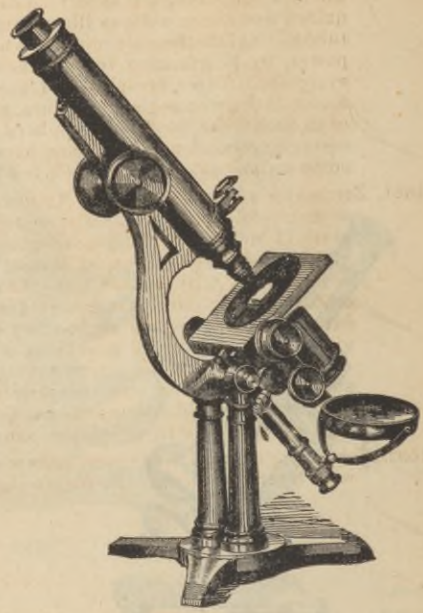
1677.

No.		Price.
1675.	Queen's Family Microscope, brass body, 12 inches high, on brass stand, to incline to any angle, draw tube, two eye-pieces, two sets of achromatic object-glasses, condensing lens, diaphragm, double milled head, rack and pinion for coarse adjustment and micrometer screw for fine adjustment, lever stage, so that the object may be brought directly in the field of view with the greatest facility; polarizing apparatus and selenite plate, dissecting needles, six objects; power 50, 150, 250, 400, and 500 diameters; in a mahogany box, . . .	$80 00
1676.	Same as 1675, with addition of Camera Lucida, for drawing the object,	85 00
1677.	Queen's Large Family Microscope, brass body, 16 inches high, on brass stand, to incline to any angle, draw tube, two eye-pieces, two sets of achromatic object-glasses, condensing lens on separate stand, double milled head, rack and pinion for coarse adjustment and micrometer screw for fine adjustment, lever stage, so that the object may be brought directly in the field of view with the greatest facility; polarizing apparatus and selenite plate, dissecting needles, six objects; power 80, 150, 250, 650, and 700 diameters; in a mahogany box, .	110 00
1678.	Same as 1677, with addition of Camera Lucida, for drawing the object,	120 00

ZENTMAYER'S MICROSCOPES.



1679.



1680.

No. PRICE.

1679. U. S. Army Hospital Microscope, made by J. Zentmayer; brass body, 16 inches high, on brass stand, with joint to incline it to any angle, double milled head, rack and pinion for coarse adjustment, micrometer screw for fine adjustment, movable glass stage; under the stage a tube is fitted for carrying the accessory illuminating apparatus; concave and plane mirrors, arranged for direct or oblique illumination; draw tube for increasing the power; two eye-pieces; 1 achromatic object-glass, $\frac{4}{10}$ of an inch focus of 32 degrees angular aperture; 1 achromatic object-glass, $\frac{1}{5}$ of an inch focus of 80 degrees angular aperture (not adjustable for glass cover), giving power of 50, 100, 250, and 450 diameters; camera lucida, stage micrometer ruled $\frac{1}{100}$ and $\frac{1}{1000}$ of an inch, and a condensing lens two inches diameter on separate stand. Securely packed in a neat walnut box with lock and key, $135 00

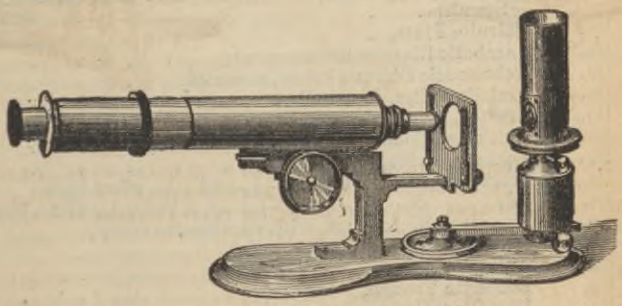
1680. Zentmayer's Grand American Microscope. The most complete and perfect instrument of the kind now made. It is nineteen inches high on tripod base. The two brass pillars upon which the body and stage are swung rests upon a revolving plate with graduated edge, by which the angular aperture of the object-glasses can be ascertained; the body is moved with a double milled head, pinion and rack for the coarse adjustment, and a fine micrometer screw for the delicate adjustment. The mechanical stage has a screw adjustment with milled head for the horizontal motion, and a delicate chain and pinion with milled head for the vertical motion. On the centre of the upper side of the stage a circular plate with graduated edge is attached for measuring angles of crystals; the whole thickness of the stage is but

No. PRICE.

$\frac{1}{5}$ of an inch, but at the same time perfectly solid and steady, and affording unusual facility for great obliquity of illumination when difficult tests are to be resolved. Under the stage a small tube with rack and pinion is attached; in this tube the accessory illuminating apparatus is carried when in use. The mirror has one side plane and the other concave; the bar which carries it is jointed to give the required motion for oblique illumination. There is a graduated draw tube sliding into the main tube of the body for increasing the magnifying power, by lengthening the distance between the object-glass and eye-piece. Three eye-pieces; 1 achromatic object-glass, 1½ inches focus, 22 degrees angle of aperture, and 1 achromatic object-glass, $\frac{1}{10}$ of an inch focus, 80 degrees angle of aperture; power 50 to 500 diameters; large condensing lens on separate stand. All packed in a handsome walnut cabinet, with lock and key, ... $262 00

1681. Zentmayer's Grand American Microscope, the same as No. 1680, but with the following accessories:—3 eye pieces; 1 achromatic object-glass, 1½ inch focus, 22 degrees angle of aperture; 1 achromatic object-glass, $\frac{1}{10}$ of an inch focus, 32 degrees angle of aperture; 1 achromatic object-glass, $\frac{1}{10}$ of an inch focus, 80 degrees angle of aperture, with adjustment for thin glass cover; 1 achromatic object-glass, $\frac{1}{5}$ of an inch focus, 120 degrees angle of aperture, with adjustment for thin glass cover; polarizing apparatus with selenite plate, parabola for dark field illumination, erector, large condensing lens on separate stand, camera lucida, stage micrometer ruled to $\frac{1}{100}$th and $\frac{1}{1000}$ of an inch, stage forceps, animalcule cage, zoophyte trough, blue glass cap. The whole packed in a highly polished mahogany cabinet, . . 400 00

1682. Zentmayer's Grand American Microscope. Stand only, same as 1680, with three eye-pieces. No object-glasses, no box, ... 200 00



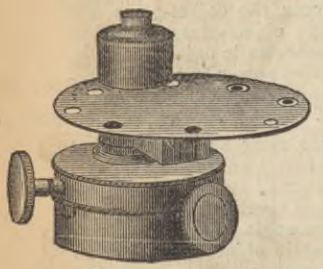
1684.

1683. Zentmayer's Student's Microscope, brass stand and body, bronzed, 16 inches high, with joint to incline to any angle; micrometer screw for fine adjustment; broad stage with clips for holding the object; under the stage a tube is fitted for carrying the accessory illuminating apparatus; concave and plane mirrors, arranged for direct or oblique illumination; two eye-pieces; 1 achromatic object-glass, $\frac{1}{5}$ of an inch focus, 24 degrees angular aperture; 1 achromatic object-glass, $\frac{1}{5}$ of an inch focus, 80 degrees angular aperture (not adjustable for glass cover), giving power of 50, 100, 250 and 450 diameters, and a condensing lens attached to the stand. Securely packed in a neat walnut box with lock and key, ... 75 00

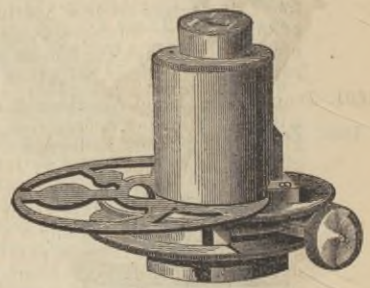
1684. Zentmayer's Clinical Microscope. This instrument is especially arranged for class demonstration, and is an elaboration of, and improvement upon the Class Microscope of Dr. Beale. It consists of full size body with draw tube; coarse and fine adjustments of focus; two eye pieces; one achromatic object-glass $\frac{1}{10}$ of an inch focus

No. PRICE.

24 degrees angular aperture; one ditto, $\frac{1}{8}$ of an inch focus 80 degrees angular aperture (not adjustable for glass cover), giving powers from 50 to 450 diameters; a lamp for direct illumination, arranged upon a sliding bar, and giving every facility for the accurate examination of any object by a large class, by being passed from hand to hand. The whole enclosed in a neat and very portable oiled walnut case, . $60 00



1685.



1686.

1685. Zentmayer's Achromatic Condenser, with centering adjustment, revolving diaphragm plate, achromatic combination of $\frac{1}{2}$ and $\frac{1}{5}$ of an inch, 38 00

1686. The Webster Achromatic Condenser with Iris Diaphragm, adapted to *any* first class instrument, ... 45 00

1687. Zentmayer's Polarizing Apparatus, for the Army and Grand American Stands, ... $25 and 35 00

1688. Do. Selenite Plate, ... 1 00

1689. Do. Parabolic Illuminator, mounted, ... 14 00

1690. Do. Achromatic Oblique Prism, mounted, ... 14 00

1691. Do. Amici's Prism, mounted, ... 10 00

1692. Do. Erector, mounted, ... 6 00

1693. Do. Bull's-eye Condenser, 3 inches diameter on stand, . . 10 00

1694. Do. Camera Lucida, mounted, ... 8 00

1695. Do. Stage Micrometer, divided $\frac{1}{100}$ and $\frac{1}{1000}$ of an inch, . . 2 00

1696. Do. do. do. do. $\frac{1}{100}$, $\frac{1}{1000}$, and $\frac{1}{2000}$ of an inch, 2 50

1697. Do. Eye-piece Micrometer, with micrometer screw, . . . 6 00

1698. Do. Stage Forceps, ... 4 00

1699. Do. Animalcule Cage, ... 3 50

1700. Do. Zoophyte Trough, ... 3 00

1701. Do. Blue Glass Cap, to place under the stage to modify the light, 1 50

1702. Do. Eye Pieces, each, ... 6 00

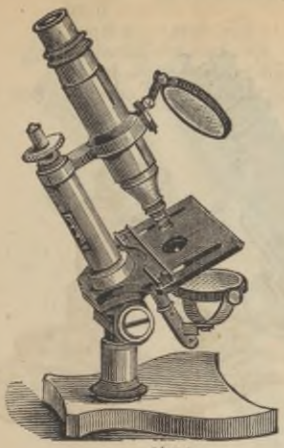
1703. Do. Oiled Walnut Cabinet for microscope, with small box for accessories, ... 12 00

The same of polished mahogany, ... 20 00

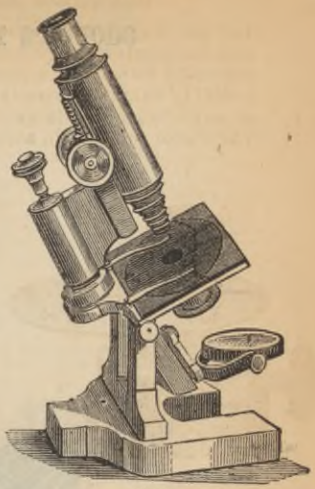
FRENCH MICROSCOPES.

1704. NACHETT'S SMALL MODEL MICROSCOPE, all brass, very firm, steady stand, with inclination of the body to any angle, with quick and slow motions, and draw tube; large firm stage, with sliding object-holder; diaphragm and mirror, arranged for giving the greatest obliquity of illumination; condensing lens, for opaque objects; two eye-pieces, and two objectives, Nos. 1 and 3, giving powers from 30 to 380 diameters. The whole packed in a highly polished mahogany case, 75 00

1705. The same, with addition of a third eye-piece, and No. 5 objective, giving power from 30 to 600 diameters, ... 100 00



1704.



1709.

No. PRICE.

1706. HARTNACK'S SMALL MODEL MICROSCOPE; base of highly finished bronzed iron; stand and body all brass; with quick and slow motions to body, and draw-tube for increasing the power; large firm stage, with delicate spring clips for holding the objects; adjustable diaphragm, and mirror arranged for giving the utmost obliquity of illumination; two eye-pieces, and two objectives, Nos. 4 and 7, giving from 50 to 300 diameters. The whole packed in a very handsome polished mahogany case, ... $75 00

1707. The same, with addition of a third eye-piece, and No. 8 objective, giving powers from 50 to 600 diameters, ... 100 00

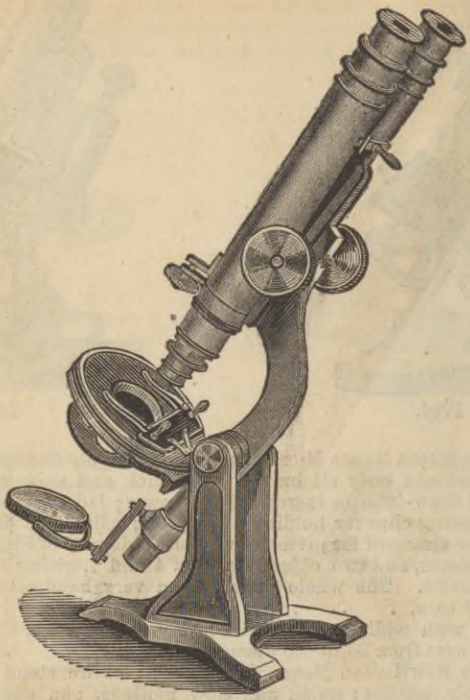
1708. HARTNACK'S NEW SMALL MODEL MICROSCOPE; entire stand of brass, very highly finished; quick and slow motions, and draw-tube to body, with inclination to any angle; large firm stage, with delicate spring clips, for holding the object; plane and concave mirrors, with joint for greatest obliquity of illumination; condensing lens, for opaque illumination; three eye-pieces, with micrometer fitted to one of them, and three objectives, Nos. 4, 7, and 9, the latter an *immersion* system, with adjustment for glass cover, giving powers from 50 to 1000 diameters; removable diaphragm for each objective. The whole packed in a highly finished mahogany case, ... 200 00

1709. HARTNACK'S NEW LARGE MODEL MICROSCOPE; stand all brass; very firm and perfectly balanced, and of the most perfect workmanship and finish; body of full size, with draw-tube, and joint for inclination to any angle; fine rack-work for coarse adjustment of focus, and micrometer screw for fine; large, firm and very thin stage, with very delicate spring clips, for holding the objects, and *perfect concentric* rotation of the same in the optic axis, so delicate that with the highest powers an object is never thrown out of the field of view; concave and plane mirrors, so arranged as to give the utmost obliquity of illumination; large condensing lens, on separate stand; five eye-pieces, and five objectives, Nos. 2, 4, 5, 7, and 9, the latter an *immersion* system, with adjustment for glass covers, and a removable diaphragm for each objective, giving from 25 to 1300 diameters. The whole packed in a beautifully finished and highly polished mahogany cabinet, ... 350 00

Mechanical Stage, with Goniometer fitted to the above, at an additional cost of 75 00

Polariscope for the same, very fine, ... 35 00

CROUCH'S BINOCULAR MICROSCOPE.

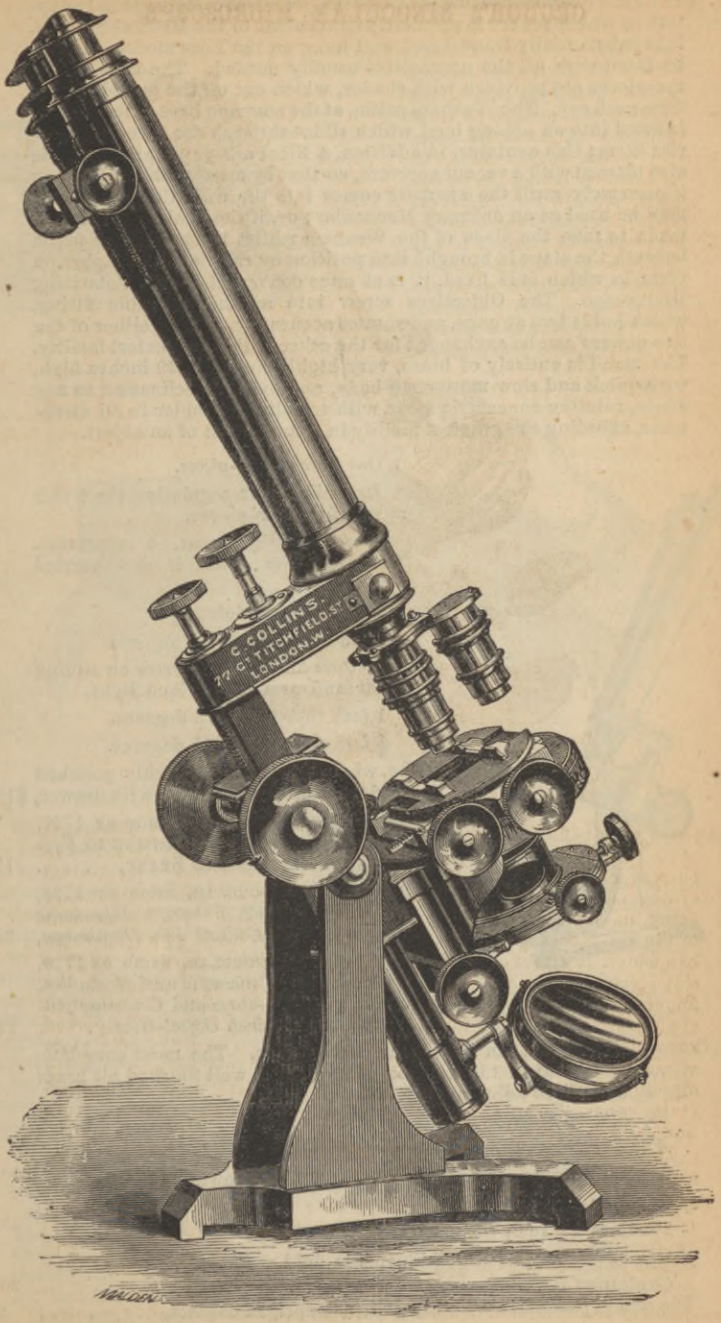


1710.

No.		Price.
1710.	Crouch's Binocular Microscope. This is one of the best instruments of its class in use, and we strongly recommend it to such as desire to possess a Binocular at once cheap, good, and portable. Its general arrangement is shown in the illustration above, the double body being supported on a "limb" on the Lister model. The adjustment of the eye-pieces for the distance of the eyes, is made by a transverse bar which is attached to one of them, and which works through a slot-piece fixed to the other; so that if by the application of the finger and thumb to the projecting pin, the bar with the attached eye-piece be raised or lowered, the other eye-piece also is moved accordingly. The stage is circular in form, and consists of a plate of polished black glass, over which the object-holder slides in every direction with the greatest facility, and is so arranged as to afford entire concentric rotation in the optic axis; an indispensable feature in a good Binocular instrument. The *Stand*, with *two Eye-pieces*, *Condensing Lens*, and *Glass Plate*, packed in a highly polished mahogany cabinet, ...	$100 00
1711.	The Same, with addition of *two pairs of Eye-pieces*, 2 inch, 1 inch, and ½ inch Object-Glasses, and Stage Forceps.	150 00
1712.	The Same, with addition of *Achromatic Condenser, Polariscope with selenite plate, Lieberkuhn to 1 inch Object-Glass, Parabolic Reflector, for dark field illumination, and Stage Micrometer,*	200 00

A mechanical stage, and additional apparatus can be furnished if required.

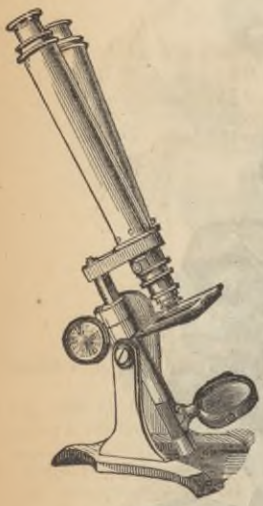
COLLINS' BINOCULAR MICROSCOPES.



1716.

No. Price.

1715. The Harley Binocular, made by Collins, possesses certain special adaptations which render it peculiarly convenient to the Medical Student. It is substantially framed and well hung on the Ross model, and can be fitted with all the accessories usually needed. The caps of the eye-pieces are provided with shades, which cut off the outside lights from each eye. The Wenham prism, at the common base of the bodies, is fitted into an oblong box, which slides through the arm that carries them; this contains, in addition, a Nicol analyzing prism, and is also pierced with a vacant aperture, so that by merely sliding this box transversely until the aperture comes into the axis, the instrument may be used as an ordinary Monocular; or, if the analyzing prism is made to take the place of the Wenham whilst the polarizing prism beneath the stage is brought into position by rotating the diaphragm plate in which it is fixed, it is at once converted into a Polarizing Microscope. The Objectives screw into another movable fitting, which holds two at once, and rotates accurately, so that either of the two powers can be exchanged for the other with the greatest facility. The stand is entirely of brass, very highly finished, 19 inches high, with quick and slow motions to body, and axis for inclination to any angle, rotating concentric stage with top sliding holder in all directions, affording the greatest facility in examination of an object.



1719.

One Pair of Eye-pieces.

Draw Tubes for regulating the width apart of the eye-pieces.

Wheel of Diaphragms, 4 apertures. The *Polarizing Prism* is also carried by it.

Polariscope complete.

Condenser for opaque objects.

Concave and *Plane Mirrors* on sliding pillar and arm for oblique light.

1 *inch Objective* of 18 degrees.

¼ *inch Objective* of 95 degrees.

The whole packed in a highly polished upright mahogany cabinet, with drawer, $150 00

1716. The Harley Binocular, same as 1727, with addition of *Rack adjustment* to *Eye-pieces* and Mechanical Stage, . . 175 00

1717. The Harley Binocular, same as 1728, with addition of *Webster's Achromatic Condenser* and *Collins' Iris Diaphragm*, 225 00

1718. The Harley Binocular, same as 1729, with *Circular, Concentric* and *Mechanical Stage*, with *Sub-stage* and *Centering Adjustments* and 2 *inch Object-Glass*, . . 275 00

1719. Collins' Fifty Dollar Binocular Microscope. The most complete *cheap* instrument in the market, comprising a well finished all brass *Stand*, with *Rack* adjustment for focus.

Top Sliding Stage.

Wheel of Diaphragms.

Concave Mirror with adjustments; and the following accessories:

One Pair Eye-pieces.

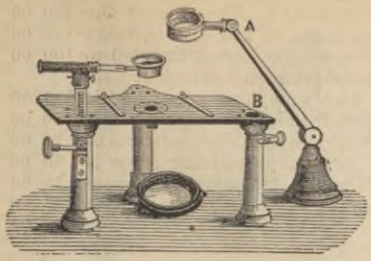
1 inch and ½ inch *Objectives.*

Glass Plate for examining objects in fluid. *Pliers.*

Condensing Lens, on stand.

The whole packed in a highly polished upright cabinet, . . . 50 00

QUEEN'S DISSECTING MICROSCOPE.



1720.

No.		Price.
1720.	Queen's Dissecting Microscope. A convenient portable instrument, with an oblong stage 5¼ by 2¾ inches, rack adjustment for focus, spring clips to hold object slide, diaphragm, movable arm for carrying the lenses, separate jointed stand, on which any of the sets of lenses can be placed at A and used for rough or preliminary examinations; mirror on joint, three sets of doublets, of low, medium and high power, .	$20 00

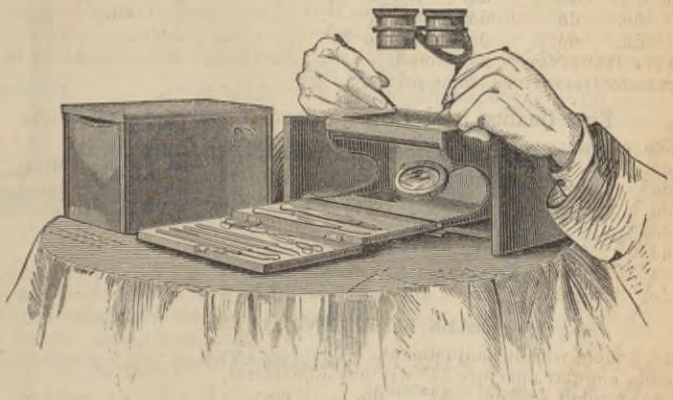


Fig. 1. 1721. Fig. 2.

1721. Dr. Lawson's Binocular Dissecting Microscope.

This Instrument is intended to supply a want often felt in Anatomical and Botanical Investigations, when only a moderate magnifying power is required.

In consequence of using both eyes, it can be worked with for a length of time with great comfort. A large range of field is obtained, and plenty of room for working. It consists of a neat oblong French-polished mahogany box, measuring when closed, 6½ in. by 4 in., fig. 1. The top and front let down by hinges, and on the inside of them are fitted the scissors, needles, and knives necessary for dissecting. The two sides draw out about six inches, and are hollowed so as to serve as rests for the hands. The magnification is obtained by two lenses mounted in the eye-pieces, as represented in the diagram, and may be adjusted to the focus by a sliding bar. These show the object beautifully in relief. Beneath is a Gutta Percha trough or stage, to pin the object down to, which can be filled with water, if required. Under this is the mirror for transparent illumination, and the light from it is passed through a circle of glass in the centre of the trough.

	The Dissecting Microscope complete, including 1 Pair of Eye-Pieces, 1 Gutta Percha Trough, 1 Pair of Straight Scissors, 2 Scalpels in Ebony Handles, 4 Needles in Ebony Handles, Tweezers, Mirror with Adjustments, ...	$25 00
1722.	The same, without Instruments, ...	20 00
	Extra Eye-Pieces, per pair, ...	10 00
	Dovetail Adjustments, for altering the width apart of the eye pieces, extra,	5 00
1723.	Dr. Lawson's Binocular Dissecting Microscope. Extra large size, very handsomely fitted with best ivory mounted instruments, &c., adjustable Eye-Pieces, Flush Handles, ...	45 00

ACHROMATIC OBJECT-GLASSES, with Adjustment for Glass Covers.

MADE BY R. B. TOLLES.

No.					Price.
1725.	$\frac{1}{20}$th inch,	angular aperture,	175°		$180 00
1726.	$\frac{1}{15}$th do.	do.	do.	over 160°	125 00
1727.	$\frac{1}{15}$th do.	do.	do.	160° or less	120 00
1728.	$\frac{1}{12}$th do.	do.	do.	over 165°	115 00
1729.	$\frac{1}{12}$th do.	do.	do.	160° or less	$80 to 100 00
1730.	$\frac{1}{10}$th do.	do.	do.	$5, adv. on list of $\frac{1}{8}$th inch,	
1731.	$\frac{1}{8}$th do.	do.	do.	160° to 175°	85 00
1732.	$\frac{1}{8}$th do.	do.	do.	140° to 160°	80 00
1733.	$\frac{1}{8}$th do.	do.	do.	less than 140°	70 00
1734.	$\frac{1}{4}$th do.	do.	do.	90° to 110°	45 00
1735.	$\frac{1}{4}$th do.	do.	do.	130°	55 00
1736.	$\frac{1}{4}$th do.	do.	do.	150°	65 00
1737.	$\frac{1}{4}$th do.	do.	do.	170°	75 00
1738.	$\frac{1}{5}$th and $\frac{1}{6}$th inch,	same price as $\frac{1}{4}$th,			
1739.	$\frac{4}{10}$th inch,	angular aperture,	under 90°		45 00
1740.	$\frac{4}{10}$th do.	do.	do.	90° to 110°	50 00
1741.	$\frac{4}{10}$th do.	do.	do.	135° to 145°	70 00
1742.	$\frac{1}{2}$ do.	do.	do.	60°	40 00
1743.	$\frac{1}{2}$ do.	do.	do.	60° to 80°	45 00
1744.	Opaque Illuminator, additional,				15 00 to 25 00

Immersion Objectives, same prices.

First Quality, without Adjustment for Glass Cover.

1745.	1 inch,	angular aperture,	17°		22 00
1746.	1 do.	do.	do.	25° to 30°	25 00
1747.	1 do	do.	do.	35°	30 00
1748.	1 do	do.	do.	40°	38 00
1749.	2 do.				25 00
1750.	$\frac{1}{2}$ do.	25° to 40°			25 00
1751.	$\frac{1}{3}$ do.	40° to 70°			30 00
1752.	$\frac{1}{8}$ do.	angular aperture,	about 70° to 80°		40 00

MADE BY J. ZENTMAYER.

1753.	4 and 5 inch,	without adjustment,					16 50
1754.	1½ inch,	angular aperture	22°	without adjustment,			15 00
1755.	$\frac{8}{10}$ do.	do.	do.	32°	do.	do.	18 00
1756.	$\frac{4}{10}$ do.	do.	do.	80°	with	do.	25 00
1757.	$\frac{1}{5}$ do.	do	do.	120°	do.	do.	35 00

QUEEN'S OBJECTIVES.

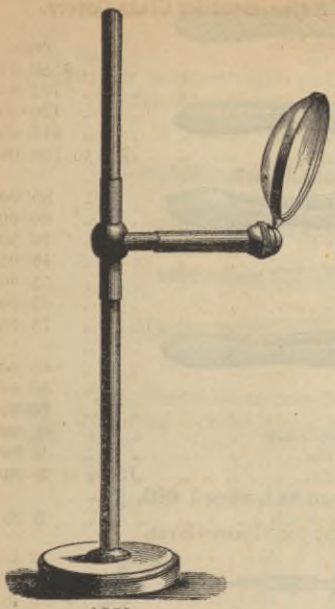
Of moderate angle and price, but excellent performance.

1758.	1 inch,	angular aperture,	18°	without adjustment,			12 00
1759.	$\frac{8}{10}$ do.	do.	do.	20°	do.	do.	12 00
1760.	$\frac{3}{8}$ do.	do.	do.	22°	do.	do.	15 00
1761.	$\frac{1}{5}$ do.	do.	do.	80°	do.	do.	18 00

Immersion Objectives, by Hartnack, and Nachett of Paris, and Gundlach of Berlin, always in stock. They are unsurpassed by any in performance whilst more moderate in prices.

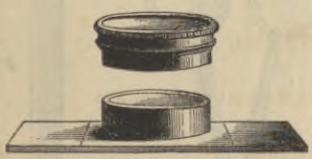
A complete list of R. & J. Beck's Object-Glasses will be found in their special catalogue, in the latter part of this.

These are all made with the Microscopical Society's Screw, unless specially ordered otherwise.

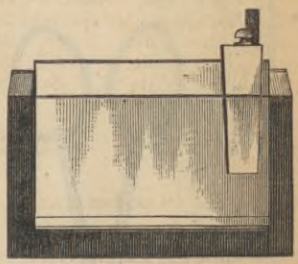


1775.

No.		Price.
1765.	Achromatic Object-Glass, French make, No. 1, ½ inch focus, used on the Student's Microscope, gives a power of 150 diameters,	$5 00
1766.	Achromatic Object-Glass, French make, No. 2, ¼ inch focus, used on the Student's Microscope, gives a power of 250 diameters,	6 00
1767.	Achromatic Object-Glass, French make, No. 3, $\frac{3}{16}$ inch focus, used on the Student's Microscope, gives a power of 400 diameters,	7 00
1768.	Achromatic Object-Glass, French make, No. 4, ⅛ inch focus, used on the Student's Microscope, gives a power of 500 diameters,	8 00
1769.	Achromatic Object-Glass, French make, No. 5, $\frac{1}{16}$ inch focus, used on the Student's Microscope, gives a power of 600 diameters,	9 00
1770.	Achromatic Object-Glass, French make, No. 6, gives a power of 800 diameters,	14 00
1771.	Eye-pieces, from 1 to 2 inches long, each,	$3 50 to 6 00
1772.	Condensing Lens, 1¼ inches diameter, small stand,	2 50
1773.	Condensing Lens, 1⅝ inches diameter, small stand,	3 50
1774.	Condensing Lens, 2 inches in diameter, large stand,	5 00
1775.	Large Bull's Eye Condenser, 3 inches diameter,	10 00
1776.	Animalcule Cage, for use in examining a small animal or a drop of water. Small size, each,	1 00
1777.	Animalcule Cage, medium size,	2 25



1778.



1779.

1778.	Animalcule Cage, Varley's, best quality,	3 50
1779.	Zoophyte Trough, with wedge and spring complete,	3 00
1780.	Maltwood's Finder or Indicator, used on the microscope stage for finding and noting the position of a particular portion of a prepared specimen. In a neat morocco case,	3 50
1783.	Lever Compressorium,	5 00
1784.	Spring Compressor, brass,	1 00
1785.	Do. do. wood, per dozen,	30
1786.	Brass Forceps, 4 inches long,	50
1787.	Steel Forceps, 4 inches long, straight,	75
1788.	Do. do. 4 do. curved,	1 00
1789.	Do. do. 4 do. do. very delicate,	1 50

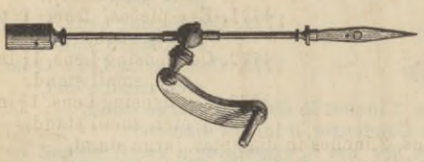
1787.

1788.

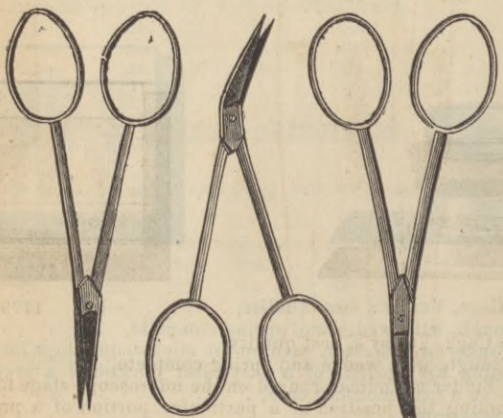
1789.

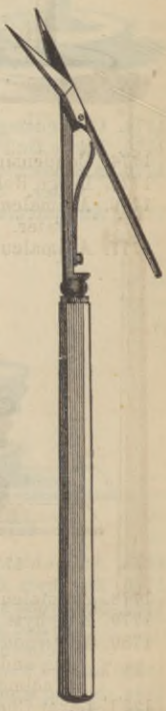
1790.

No		Price.
1790.	Steel Forceps, 4 inches long, straight, very delicate, ...	$1 50
1791.	Do. do. nickel plated, do. do.	1 75
1792.	Do. do. do. curved, do.	1 75
1793.	Double Forceps, German silver, points on one end, tipped with platina, each, ...	2 25



1795.





1794. 1796. 1798. 1797. 1799.

1794.	Queckett's Forceps, for taking objects from the bottom of deep jars, .	2 50
1795.	Stage Forceps, adapted to any microscope, ...	4 00
1796.	Dissecting Scissors, very delicate, straight points, ...	1 75

No.		Price.
1797.	Dissecting Scissors, very delicate, curved points,	$1 75
1798.	Do. do. do. elbow do.	1 75
1799.	Spring do. do. ivory handles,	6 00
1800.	Elbow Scissors, with strong blades for cutting elytra and legs of beetles, &c.,	1 25

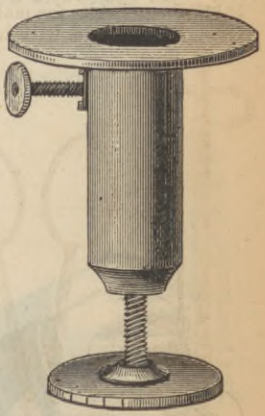
1801.

1802.

1803.

1804.

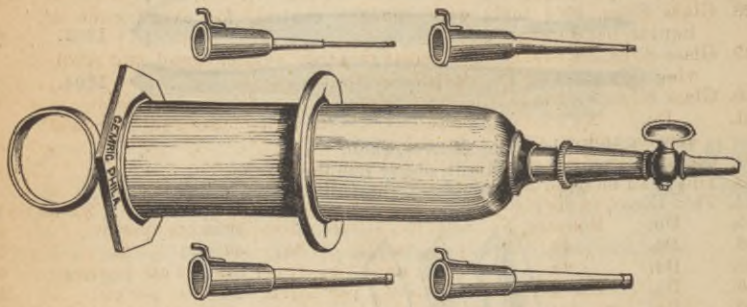
1801 to 1804.	Small Dissecting Knives, each,	75
1805.	Dissecting Needles, straight, ebony handles, each,	15
1806.	Do. do. hook points, do. do.	15



1807. 1808. 1812.

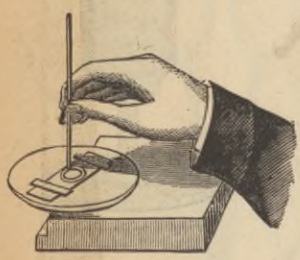
1807.	Dissecting Needle Holders, with binding screw, each,	75
1808.	Valentine Knife, for making thin sections of soft substances,	6 50
1809.	Morocco Leather Case of Dissecting Instruments: containing, 1 Pair Forceps (1788); 1 Pair Scissors (1796); 3 Dissecting Knives (1802–4); and 2 Needle Holders (1807), with needles,	10 00

No.		Price.
1810.	Morocco Leather Case of Dissecting Instruments: containing, 1 Pair Forceps (1792); 1 Pair Scissors (1796); 1 Pair Scissors (1797); 3 Dissecting Knives (1801–3); 2 Needle Holders (1807); 1 Valentine's Knife (1808),	$18 00
1811.	Morocco Leather Case of Dissecting Instruments: containing, 2 Pair Forceps (1791–92); 2 Pair Scissors (1796–97); 1 Pair Spring Scissors (1799); 4 Dissecting Knives (1801–4); 2 Needle Holders (1807); 1 Valentine's Knife (1808),	25 00
1812.	Instrument for making thin sections of wood,	6 00
1812½.	Knife in strong ebony handle, for use with the above,	2 50



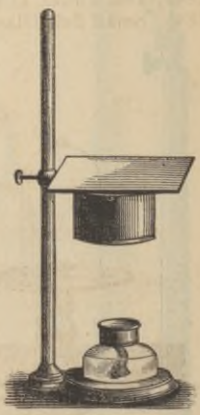
1813.

1813.	Injecting Syringe, with four nozzles and stop-cock,	8 00
1814.	Turn Table, for making cement cells,	4 50
1815.	Brass Table, with lamp for heating slides,	1 50



1814.

1815.



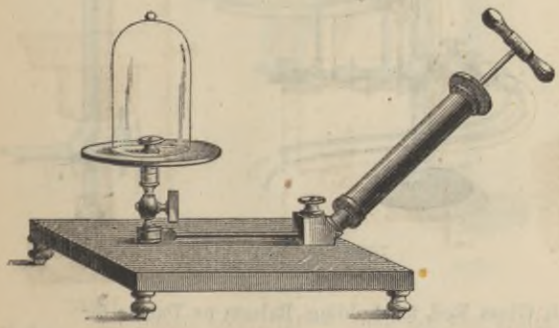
1816.

1816.	Mounting Stand, with lamp and sand bath,	2 00
1817.	Small Glass Spirit Lamp, with cover,	50
1818.	Do. do. do. and side neck for filling,	1 25
1819.	Glass Trough for Dissecting, 3×2 inches,	3 00
1820.	Glass Slips, 3×1 inch, flatted crown, unground edges, per dozen, 25 cents; per gross,	2 50
1821.	Glass Slips, 3×1 inch, flatted crown, ground edges, per dozen, 50 cents; per gross,	5 00

No.		PRICE.
1822.	Glass Slips, 3×1 inch, extra white plate, unground edges, per dozen, 40 cents; per gross,	$4 50
1823.	Glass Slips, 3×1 inch, extra white plate, ground edges, per dozen, 60 cents; per gross,	6 00
1824.	Glass Slips, 3×1 inch, best patent plate, extra thin, ground and polished edges, per dozen, 65 cents; per gross,	6 00
1825.	Glass Slips, $2\frac{3}{8}\times\frac{3}{4}$ inch, best flatted crown, unground edges, per dozen, 20 cents; per gross,	2 25
1826.	Glass Slips, $2\frac{3}{8}\times\frac{3}{4}$ inch, best flatted crown, ground edges, per dozen, 40 cents; per gross,	4 25
1827.	Glass Slips, $2\frac{3}{8}\times\frac{3}{4}$ inch, with concave centres, for examination of liquids, per dozen,	1 50
1828.	Glass Slips, 3×1 inch, with concave centres, for examination of liquids, per dozen,	2 00
1829.	Glass Slips, 3×1 inch, with concave centres, oval or round, and revolving thin glass covers, each,	75
1830.	Glass Slips. 3×1 inch, the same as above, but of opal glass, each,	1 00
1831.	Do. 3×1 inch, ground edges, with cells of different sizes and depths, and covers, per dozen,	3 50
1832.	Glass Rings, for making cells, as above, per dozen,	1 00
1833.	Tin, Lead or Horn Rings, for making cells, as above, per dozen,	50
1834.	Thin Glass, in sheets, per oz., according to thickness,	$1 00 to 2 00
1835.	Do. Squares, No. 3, $\frac{1}{70}$ to $\frac{1}{100}$, per dozen, 30 cents; per oz.,	2 50
1836.	Do. do. No. 2, $\frac{1}{100}$ to $\frac{1}{200}$, do. 40 do. do.	3 50
1837.	Do. do. No. 1, $\frac{1}{200}$, and thinner, per doz., 50 cts.; per oz.,	4 05
1838.	Do. Circles, No. 3, $\frac{1}{70}$ to $\frac{1}{100}$, per dozen, 35 cents; per oz.,	3 00
1839.	Do. do. No. 2, $\frac{1}{100}$ to $\frac{1}{200}$, per dozen, 45 cents; per oz.,	4 00
1840.	Do. do. No. 1, $\frac{1}{200}$, and thinner, per doz., 60 cts.; per oz.,	6 00

All sizes of above from $\frac{3}{8}$ to 1 inch, always in stock.

1841.	Watch Glasses, all sizes, each,	10
1842.	Dropping and Dipping Tubes, each,	10
1843.	Pippets, with bulb, each,	30
1844.	Test Tubes, of various lengths, each,	10
1845.	Small Bell Glass, for preserving objects from dust during preparation,	75

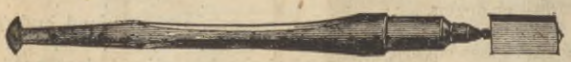


1846.

1847.

1846.	Small Air Pump, for use in mounting,	18 00
1847.	Finest Canada Balsam, pure, in flexible tubes, each,	25
1848.	Do. do. prepared for use without heat, per bottle,	50
1849.	Damar, the new mounting medium, superior to Balsam, do.	50

No.		Price.
1850.	Pure Glycerin, per bottle,	$0 25
1851.	Do. Jelly, per bottle,	50
1852.	Universal Preservative Fluid, for Animal or Vegetable Tissues. Put up in Dropping Bottle (1869), each,	50
1853.	Brunswick Black, per bottle,	35
1854.	Asphalte, do.	50
1855.	Gold Size, do.	25
1856.	Marine Glue, do.	50
1857.	Shellac Cement, do.	50
1858.	Bell's Cement, the best for use with Glycerin,	75
1859.	White Zinc Cement, the best for fluid mounting,	50
1860.	Punches, various sizes,	50 cents to 1 00



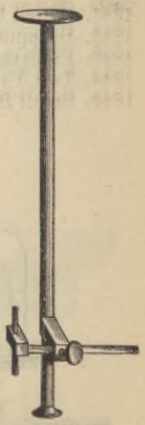
1861.

1862.

1861.	Glazier's Diamonds, ebony handles, each,	$4 00 to 10 00
1862.	Writing do. do. do.	4 00

1863.

1864.



1865.

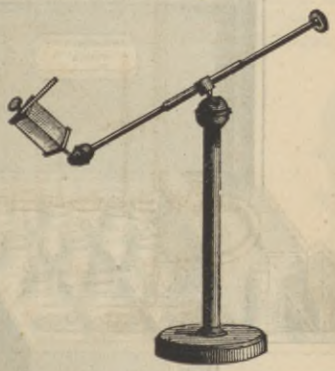
1863.	Capped Bottles, with Glass Rod, for holding Balsam or Damar for mounting, each,	1 00
1864.	Brass Stand, with firm base, for carrying magnifying glasses in dissecting or mounting,	4 00
1865.	Circle Cutter, with diamond for cutting thin glass circles, in morocco case,	12 00
1866.	Gas Lamp, with firm, steady stand arranged to carry the burner at various heights from the table, with shade, blue glass chimney and 6 feet of flexible tubing,	10 00

1869.

1870.

1871.

No.		Price.
1867.	Collecting Boxes, for insects, with glass covers, each, . .	$0 10 to $0 15
1868.	Do. Bottles, flat, for the vest pocket, each, ...	10
1869.	Dropping Bottles, with glass bulbs, each, ...	25
1870.	Dropping Bottles, with rubber top, will supply a large quantity of fluid promptly, ...	50
1871.	Wright's Microscopic Collecting Bottle. Price, complete in box, .	2 50



1879.

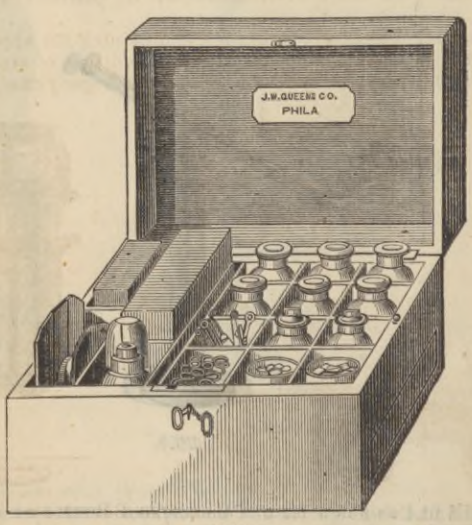
Microscopists will find this new form of COLLECTING BOTTLE an indispensable companion in their Pond-hunting Excursions, for collecting and retaining the various minute objects that may be obtained in water by the dipping bottle. It consists of a bottle with a movable brass cap, in which is fastened two small tubes with screw tops. One of these (A) projects a little higher than the other; in which is fixed the funnel (C) when in use. The other tube (B) has a trumpet-shaped form, across the mouth of which a piece of fine muslin is stretched; the loose funnel shown is placed in the outer tube, and the water containing the various organisms which it is wished

to retain is poured into it. As soon as the bottle is full the water rises through the porous material placed across the lower end of this inner tube, and flows over retaining behind and in the bottle the various *diatoms, volvox, desmids, entomostraca, &c.*, which may have been floating therein. Any quantity of water may be deprived of the minute objects floating in it, without the troublesome, imperfect and destructive process of first filtering through a piece of muslin or flannel, and then reversing the filtering material in the mouth of the bottle, to detach the deposit.

For collecting larger objects, the cap of the bottle can be removed.

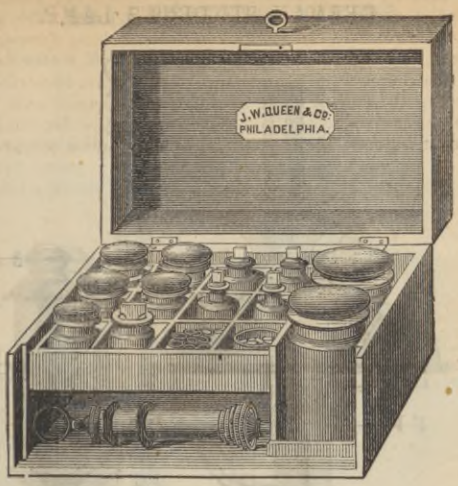
1872.

No.		Price.
1872.	Queen's Collecting Case, with sling strap for the shoulder, containing Bottles, Tubes, Net, &c. Particularly recommended for Microscopical Excursions, ...	$5 00
1873.	Queen's Collecting Satchel, the same as above, in handsome real Morocco Bag, with strap for shoulder, ...	10 00



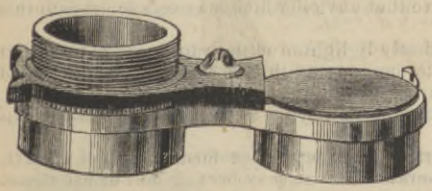
1874.

1874.	Amateur Mounting Cabinet, containing Whirling Table, Glass Slips, Thin Glass, Glass Saucers, Marine Glue, Brass Table, Wood Clips, Tin Cells, Balsam, Gold Size, Spirit Lamp, Spring Clips, Pipettes, Asphalte, and 4 Bottles for Solution; in oiled walnut case, . .	15 00
	The same, in polished mahogany case, ...	17 50

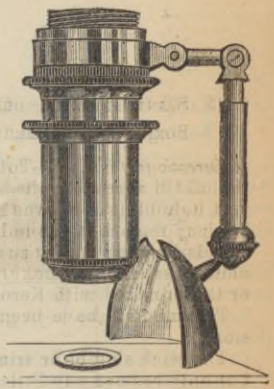


1875.

No.		Price.
1875.	Medical Mounting Cabinet, containing Injection Syringe, Three Pipes, Stop Cock, Razor, Spring Clips, Wood Clips, Glass Slips, Thin Glass, Needle, Red and Blue Injection, Carmine Fluid, Chromic Acid, Acetic Acid, Glycerin, Caustic Potash, Bichromate of Potash, Marine Glue, Gold Size, Glass Saucers; in polished mahogany case,	$25 00
1876.	Medical Mounting Cabinet. Larger size, containing the apparatus as named in the two cabinets above, with the addition of six Reagent bottles, &c., and all fitted up in a handsome mahogany case,	35 00



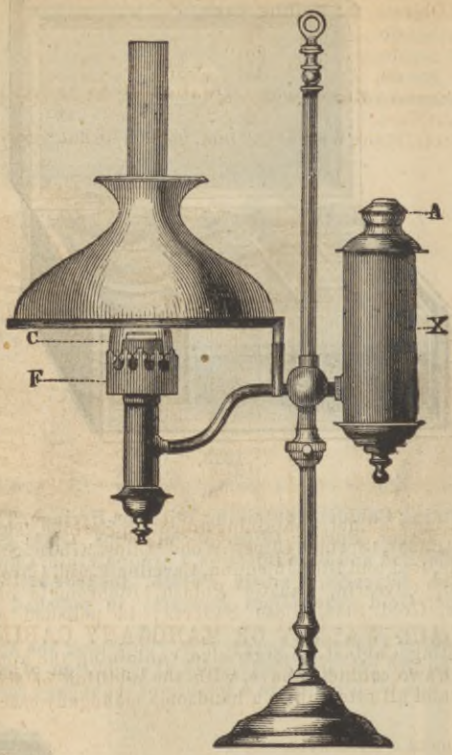
1877.



1878.

1877.	Double Nosepiece. By using which the power is readily changed without removing the objectives,	$10 00 to 15 00
1878.	Beck's Parabolic Illuminator, for opaque objects, with Crouch's Adaptor to fit any objective,	10 00
1879.	Rev. Mr. Reade's Diatom Prism. Mounted on stand, with ball and socket movements.	12 00

GERMAN STUDENT'S LAMP.



1885.

No.		Price.
1885.	Saint Germain; or, German Study or Office Lamp, ...	$7 00
	Boxing for shipment, ...	50

Directions for Use.—To fill the lamp, take out the holder A, invert it and pour in the oil till it reaches the valve; then pull up the valve by means of the wire B; invert it, holding it above the holder X, so that any oil which may escape drops into this holder; replace it in the holder X.

This lamp gives a very superior and steady light, and with ordinary care will emit neither smell nor smoke. One-twelfth or one-eighth of a heavier oil, Sperm, Lard or Olive, mixed with Kerosene, makes the best and safest oil.

Testimonials have been given by highest authority, as to its safety against explosions.

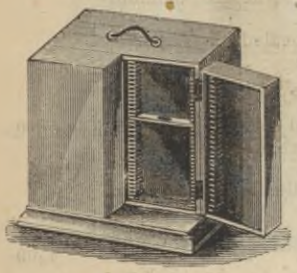
The wick should be trimmed regularly. If a crust has formed, do not disturb it, but only remove any little point or unevenness that may occur; do not use the scissors unless the wick, through uneven draft, should have coaled or charred unevenly. By this method you will have an even flame, and the wick will last much longer than when cut frequently. If your lamp should make a humming noise, which is caused by the shank of the chimney being of the wrong length, raise the chimney slightly, or change it for one with a longer shank.

Use kerosene or spirits in place of water for cleaning chimneys. The brass part of the lamp may be cleaned with Vienna lime and kerosene, and polished with rouge.

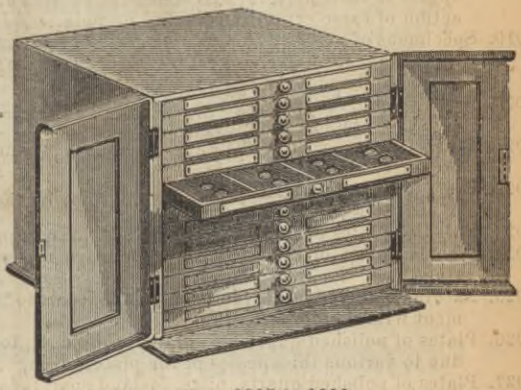
1886. Green Porcelain Shade for the above, ... $1 00

BOXES, CASES AND CABINETS FOR OBJECTS.

No.		Price.
1890.	For 1 or 3 Objects, for Mailing, each,	$0 10
1891.	For 6 do. do.	12
1892.	For 10 do. do.	15
1893.	For 25 do. do.	25
1894.	Neat Cloth-covered Boxes, with walnut racks, for 50 Objects, each,	1 50
1895.	Black Walnut Case, do. do. 72 do.	3 50
1896.	For 200 Objects, Black Walnut Cabinet, objects lie flat, very compact.	4 00 to 6 00



1896.



1897 to 1899.

BLACK WALNUT OR MAHOGANY CABINETS.

Porcelain Knobs, with Number and Silicate Tablets, for Names of Objects.

OBJECTS LIE FLAT.

1897.	For 300 Objects, 10 Drawers,	25 00
1898.	For 520 Objects, 13 Drawers,	35 00
1899.	For 1,200 Objects, 21 Drawers,	50 00 to 75 00

POLARIZING APPARATUS.

1910.

1910. Norremberg's Polariscope. The mirrors should be placed at an angle of 35° to the vertical and the object to be polarized laid on the stage in the middle of the instrument. If, then, the analyzing or upper mirror should be made to revolve on its axis at 0° and 180° the field of vision will appear clear at 90° and 270° dark, . . 60 00

1911. Tourmaline Polariscope. This is a forceps shape apparatus, and consists of two plates of tourmaline arranged so that crystals or objects may be introduced between them. As the plates revolve freely upon their axis, they exhibit beautiful colored rings, ... 6 00

1911.

1912. M. Savant's Black Mirror Polariscope, each, ... 7 00

1913. Double Image Prism, for the illustration of polarized light by double refraction. 3 00

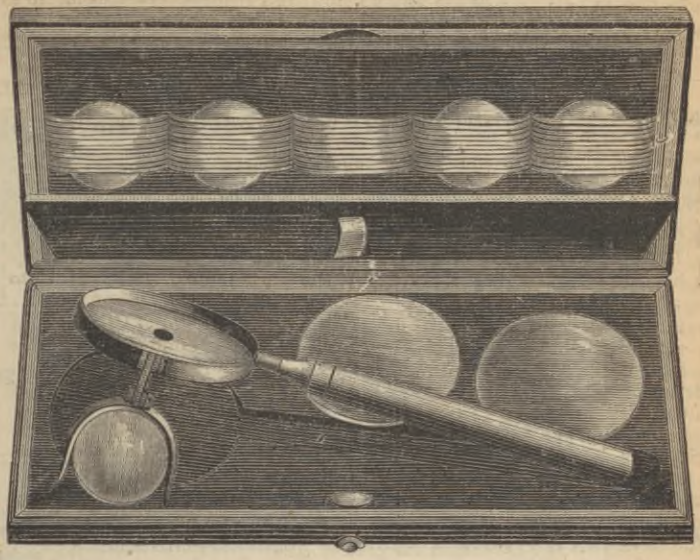
The separation of the two images is exhibited on the screen in colors, always complimentary to each other, and when the two images are blended white light is produced.

No.		Price.
1914.	Thin films of selenite mounted between two pieces of glass, showing a uniform color, each,	$0 75 to 1 50
1915.	Films of selenite of unequal thickness, showing various colors, each,	75 to 1 50
1916.	Cube formed of three pieces of selenite of different thickness,	1 25
1917.	Selenite objects mounted in circular frames 2 inches in diameter, comprising a great variety of designs, stars, flowers, fruits, windows, mottoes, butterflies, birds, &c., each,	$1 25 to 1 50
1918.	Mounted specimens of minerals, &c., for the Polariscope, consisting of polished plates of carbonate of lime, beryl, arragonite, nitre, Brazilian topaz, Rochelle salt, sulphate of barytes, crystallized sugar, borax, amethyst, bichromate of potass, sulphate of iron, &c., &c., cut at right angles to their axis, for exhibiting the colored rings produced by the action of these crystalline bodies on polarized light, each,	2 00
1919.	Specimens of polished unannealed glass of various shades, for showing the permanent polarizing structure of glass that has been uniformly heated and suddenly cooled, each,	$1 25 to 4 00
1920.	Brass Clamp, for showing the transient polarizing structure communicated by pressure to a piece of annealed glass,	
1921.	Brass Clamp, to show the same in a piece of annealed glass bent by pressure,	
1922.	Brass Frame, for showing the same effect by the unequal application of heat to a piece of annealed glass,	
1923.	Polished plates of tourmalines of various sizes and colors, each,	$2 00 to 5 00
1924.	Circular plate of selenite ground concave to develope the colors in rings,	
1925.	Natural rhomboidal crystal of Iceland spar, to illustrate and experiment with double refraction,	
1926.	Plates of polished quartz of different thickness, to exhibit the changes due to various thicknesses of the plates, each,	4 00
1927.	Plates of polished quartz, nitre, Iceland spar, topaz, &c., &c., with two and four axis, each,	$2 00 to 4 00
1928.	Card board model of a ray of ordinary light, showing the two planes of vibration,	
1929.	Model for illustrating the nature and properties of two tourmaline plates in polarizing light,	
1930.	Large hollow glass model of a Nicols' Prism, with cards, to illustrate the separation of the ray of light by double refraction,	
1931.	Bisulphate of carbon prisms, for decomposing and refracting light,	5 00
1932.	Two glass plates set in a brass rim, with clamping screws, to show Newton's rings, each,	$5 00 to 7 00
1933.	Nicols' Prisms of Iceland spar, various sizes, each,	2 75 to 10 00

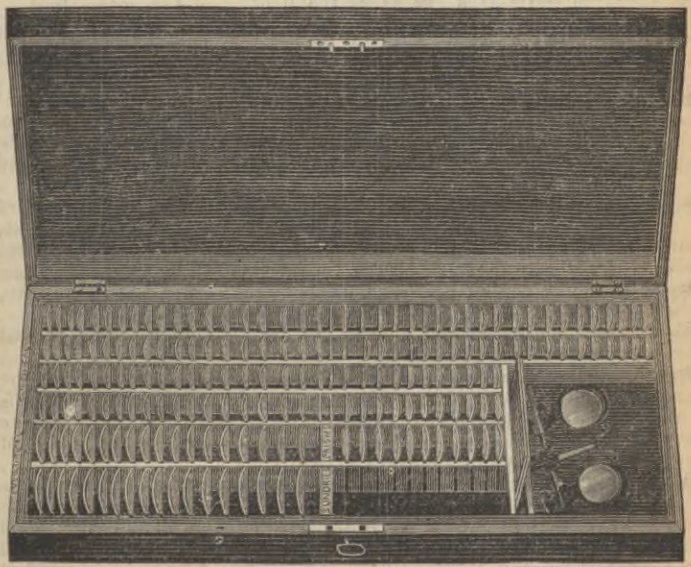
OPHTHALMOSCOPES AND LARYNGOSCOPES.

1934.	Ophthalmoscopes in hard rubber frames, with condensing lens,	3 50
1935.	Liebrich's Ophthalmoscope in hard rubber frame, concave mirror, 1¼ inches diameter, convex condensing lens and attached diaphragm, with three concave and one convex lens to adjust at pleasure,	6 50
1936.	Pocket Ophthalmoscope, with two Bi-convex Lenses, 1¾ and 2 inch focus, and a series of 5 lenses of various foci, fitting on an arm behind the perforated mirror, the whole packed in a morocco case,	8 50
1937.	Improved Adjusting Binocular Ophthalmoscope,	35 00
1938.	Dr. Galezowskie's Ophthalmoscope, consists of a brass tube about 10 inches long, with joints to slide together as a telescope; in this tube the concave mirror and condensing lens are permanently placed, with adaptations for their proper adjustment when in use,	22 00
1939.	Laryngoscope for examining the larynx, consists of a large concave mirror for reflecting the light down the patient's throat, and a series of concave speculums with long handles for making the required examinations,	16 00

OPHTHALMOSCOPES AND TRIAL SIGHTS.



1936.



1940.

No. PRICE.

1940. Complete Series of Trial-Sights, consisting of 36 pairs of Convex and 36 pairs of Concave Spherical Lenses, 18 Convex and 18 Concave Cylindrical Glasses, as per Table below, 12 Prisms, angle mentioned in Table below—

FOCI OF THE VARIOUS LENSES IN INCHES.

SPHERICAL CONVEX (+).						SPHERICAL CONCAVE (—).						CYLINDRICAL+			CYLINDRICAL—			ANGLE OF PRISMS.	
1	4	9	15	26	45	1	4	9	15	26	45	2½	5½	12	2½	5½	12	3°	9°
1½	4½	10	16	28	50	1½	4½	10	16	28	50	3	6	14	3	6	14	4°	10°
2	5	11	18	30	60	2	5	11	18	39	60	3½	7	17	3½	7	17	5°	12°
2½	6	12	20	32	70	2½	6	12	20	32	70	4	8	21	4	8	21	6°	14°
3	7	13	22	36	80	3	7	13	22	36	80	4½	9	25	4½	9	25	7°	16°
3½	8	14	24	40	100	3½	8	14	24	40	100	5	10	30	5	10	30	8°	18°

2 Blank Disks, 4 Disks with small apertures, 3 Colored Glasses, and a Graduated Adjustable Frame (No. 1946) for holding the various Lenses, the whole packed in a Strong Mahogany Case, . . . $65 00

1941. Series of Trial-Sights, consisting of 24 pairs of Convex and 24 pairs of Concave Spherical Lenses, 9 Convex, and 9 Concave Cylindrical Glasses, as per Table below, 6 Prisms, as per Table below—

FOCI OF THE VARIOUS LENSES IN INCHES.

SPHERICAL CONVEX (+).						SPHERICAL CONCAVE (—).						CYLINDRICAL+			CYLINDRICAL—			ANGLE OF PRISMS.	
1	4	7	14	28	40	1	4	7	14	28	40	3	6	14	3	6	14	3°	6°
2	4½	8	16	30	50	2	4½	8	16	30	50	4	8	21	4	8	21	4°	14°
3	5	10	20	32	70	3	5	10	20	32	70	5	10	30	5	10	30	5°	18°
3½	6	12	24	36	100	3½	6	12	24	36	100								

2 Blank Disks, 2 Disks with small aperture, 3 Colored Glasses, and a Graduated Adjustable Frame (No. 1946) for holding the various Lenses, the whole packed in a Strong Mahogany Case, . . . $50 00

1942. Series of Trial-Sights, consisting of the complete set of 36 pairs of Convex and 36 pairs of Concave Spherical Lenses, as per Table to No. 1940, 2 Blank Disks, 3 Colored Glasses, and a Graduated Adjustable Frame (No. 1946) for holding the various Lenses, the whole packed in a Strong Mahogany Case, ... 50 00

1943. Series of Trial-Sights, consisting of 24 pairs of Convex and 24 pairs of Concave Spherical Lenses, as per Table to No. 1941, 2 Blank Disks, 3 Colored Glasses, and a Graduated Adjustable Frame (No. 1946) for holding the various Lenses, packed in a Strong Mahogany Case, 35 00

1944. Series of Cylindrical Glasses, consisting of 18 Convex and 18 Concave, as per Table to No. 1940, packed in a Strong Mahogany Case, . 17 50

1945. Series of 12 Prisms, from 3° to 18°, as per Table to No. 1940, packed in a Strong Mahogany Case, ... 8 50

1946. Graduated Adjustable Spectacle-frame. This Instrument in which the Trial-Sights are held by Springs, is placed on the head like an ordinary pair of Spectacles; the distance between the centres of the Eyes is indicated on the Steel bar, and the height of the bridge of the Nose on the Sliding Upright Centrepiece, ... 13 50

1947. Adjusting Cones for Measuring the Distance between the Eyes. Holding the Instrument in the right hand a *distant* object should be looked at with the right eye through the hole in the right-hand cone; the other cone, fixed to an adjusting arm, should be moved backwards and forwards until the left eye sees the same object through the aperture in the left cone, and the two holes appear as one. The distance between the Eyes is then indicated on the cross bar, one side of which is divided to inches, and tenths, the other to millimeters, 7 50

A CLASSIFIED LIST

OF

FIRST-CLASS MICROSCOPIC OBJECTS,

WITH MANY NEW, RARE, AND INTERESTING SPECIMENS, AFFORDING INSTRUCTIVE ILLUSTRATIONS IN ANATOMY, PHYSIOLOGY, BOTANY, ENTOMOLOGY, GEOLOGY, AND MINERALOGY, INCLUDING THE FINEST PREPARATIONS OF WHEELER, NORMAN, TOPPING MOLLER, BOURGOGNE, VERICK, WALMSLEY, AND OTHER FOREIGN AND AMERICAN ARTISTS.

INTRODUCTORY REMARKS AND EXPLANATIONS.

Although this Catalogue is intended as a guide in the selection and purchase of objects, yet it is obvious that no such list can be strictly correct for any considerable time, since new objects are being added continually, and the vacancies that occur cannot always be filled instantly. It must therefore be understood that these objects can be supplied on demand with *probability* rather than *certainty;* hence, it is advisable when ordering to name a few more than the number actually required. In this Catalogue about 2,000 objects are comprised; of these it may be calculated that more than one-half will be found in stock. Any object not specially named will be procured, *if possible*, when ordered, and orders are solicited for any object desired, even if not named in the Catalogue, as it is our aim to keep and supply the fullest assortment of Microscopic Objects to be found in this country. The alphabetical arrangement has been preserved throughout, as the easiest guide to any particular specimen.

The prices marked on the top of each page have a *general* signification only to the objects on that page, and refer to the majority that follow. Some of the exceptions are marked; but the prices of many are liable to fluctuation from scarcity or abundance, although it is the intention to adhere as closely as possible to the *general* list of prices herein named.

In the selection of these specimens, the aim has not been so much to *reduce the price* as it has to *improve the quality*, by supplying every object as clean and perfect as its nature will admit. The predominant wish has not been to introduce as many objects as possible in each department, but rather to rest satisfied with such as are the most beautiful as natural objects, or of their kind the best illustration of special structure or function, and hence, of the highest interest both to the student in science and the popular observer also.

Any person confidentially known, or giving reference to those who are, if he desires to purchase a reasonable number of objects, can have an assortment sent for examination and approval, the express charge both ways being at his expense, the objects to be returned *within one week*, and the risk of damage or loss in transit borne by the purchaser. Such specimens are sent securely packed in rack boxes, affording facilities for inspection, as well as for packing and returning those not chosen.

In this Catalogue will be found many objects admirably suited to educational and instructional use for the elucidation of general principles, as well as of special application and adaptation. In Entomology, the various parts of Insects; in Botany, the Elementary Tissues of Plants; in Anatomy and Physiology, the organic structure in Man and the lower animals; the Microscope thereby affords the parent and tutor a pleasing aid to the communication of useful and truthful knowledge. It would be a laborious task to specify those objects that have especial interest either from their novelty, beauty or scarcity; but there are many that may repay careful notice among the Whole Insects, the Transparent Injections and Polariscope Objects, and the Miscellaneous Vegetable Preparations.

LABELS.

1948.

1949.

1950.

No.		Price.
1948.	Adhesive Gilt Labels, per hundred,	$0 50
1949.	Backs, per hundred,	50
1950.	Adhesive Labels, with number, per hundred,	25
	Adhesive Name Label, round, per hundred,	10
	Adhesive Name Label, oval, per hundred,	20
	Backs or Fronts, if with holes punched, per hundred, extra,	25

OPAQUE ANATOMICAL INJECTED SPECIMENS. $1.

Fœtal Human Preparations.

Intestine, outer and inner surface.
Kidney, (also transparent).
Stomach, surface and section.
Spinal Cord, trans. sec., transparent.

Adult Human Preparations.

Adipose Tissue.
Bladder.
Buccal Membrane.
Eye, Choroid Membrane,
Eye, Ciliary Processes. $2 00.
Intestine, small and large, surface.
Do. do. section.
Stomach, section and surface.
Kidney, Tubuli, urinifera.
Do. Veins.
Do. Malpighian bodies.
Liver, two colors.
Lung, opaque and transparent.
Muscle, Voluntary and Involuntary.
Mesentery.
Mucous Membrane.
Peyer's Glands.
Placenta.
Solitary Gland.
Synovial Membrane.
Skin, Palm of Hand, surface.
Do. Foot, showing perspiration ducts.
Do. Back of Hand. with hairs.
Tongue, section.
TRANSPARENT INJECTIONS, see p. 62.

Morbid Structures. 75 cents.

Cancer Cells, Encephaloid and others.
Fatty degeneration of Heart.
Do. do. Liver
Fungoid Liver.
Fungus, Achorion Schœnbeni, $1 00.
Do. Its effect on the hair, 1 00.

The following are Injected. $1 00.

Lung, tubercular deposits.
Do. Asthma.
Do. Emphysema.
Do. Pneumonia, 1st stage.
Do. do. 2nd stage.
Bright's Kidney.
Skin, Papilloma.
Eye, Cataract of Crystalline Lens and degeneration of Cortical fibre. $2 50.

Frequent Additions to the above.

From the Lower Animals.

Lung of Boa Constrictor.
Do. Fowl, Rabbit.
Do. Frog, Toad.
Do. Cat, two colors
Kidney of Toad.
Do. Giraffe.
Do. Dolphin.
Do. Sheep.
Do. Lion.
Do. Rhinoceros.
Intestines of Ostrich.
Do. Snake.
Do. Monkey.
Do. Toad.
Do. Cockatoo
Do. Horse.
Do. Dog, Frog.
Muscle of Guinea Pig.
Do. Wing of Pigeon.
Ova of Toad.
Oviduct of Toad.
Bladder of Toad.
Cloacca of Toad.
Palate of Toad.
Poison glands of Toad.
Palate of Frog.
Pad of Cat's Foot.
Do. Lion's Foot.
Do. Panther's Foot.
Stomach of Dog.
Do. Toad.
Do. Guinea Pig.
Do. Lamb.
Do. Monkey.
Do. Sheep.
Do. Tortoise.
Skin of Toad.
Do. Fowl.
Do. Guinea Pig.
Do. Ostrich.
Tongue of Frog and Toad.
Uterus of Guinea Pig.
Web of Frog's Foot.
Craw of Fowl.
Oviduct of Fowl.
Proventriculus of Fowl.
Eye, Choroid Membrane from Ox.
Eye, Ciliary Processes, from Ox.
Eye, Pigment Cells, from Ox.
Gills of Eel.
Lip of Cat, with hair.
Do. Monkey.
Do. Rabbit.
Lung of Monkey, tubercular.
Do. Dog, distemper.

Frequent Additions to the above.

ANATOMICAL SPECIMENS. 75 cents and $1.

The following are not Injected. 75 *cts.*

Trichnia spiralis, Human, in the Cyst, and separated therefrom. $1 00.
Trichina spiralis in Pork. $1 50.
Head of Cysticercus from Hare.
Fluke from Liver of Sheep. $2 00.
Sarcina ventriculi, Human.
Echinococci from Cyst, and Ova.
Pro-glottis of Tœnia solium, with sexual organs.
Anguillula from Toad.
Tœnia from Thrush.
Ascaris from Dog and Fowl.
Filaria from Rabbit and Fish.
Fasciola hepatica.

Intestinal Worms from Horse:
Trichocephalus crenatus.
Spiroptere megastome.
Sclerostoma equinum.
Entozoa from Cuttle-fish
Ova of Tœnia from Dog.
For Morbid Structures, see p. 61.

Urinary Deposits. 75 cts. and $1 00.

Twelve to twenty-four Specimens can be supplied, and, in addition to the more usual crystalline forms, some of the specialités in cases of chronic and acute disease.

Blood Discs (Typical)—
Mammalia, from Man.
Carnivora—Cat.
Ruminantia—Sheep.
Rodentia—Mouse.
Insectivora—Hedgehog.
Birds—Canary, Passenger Pigeon.
Reptilia—Snake, Slow-worm.
Amphibia—Frog, Toad, Triton.
Cartilaginous Fish—Sturgeon.
Osseous Fish—Salmon.

Pigment Cells showing the deposit of coloring matter in
Skin of African Negro, Sole, Triton, Frog, Toad, Snake. Sepia pigment in Cuttle-fish.
Eye of Ox.
Tail of Shrimp.
Hair of Ornithorhynchus paradoxus.
Pigmentum Nigrum of Human Eye.

Spermatozoa from Man, Bird, Boar, Elephant, Fish, Mouse, Dog, Horse, Rat, Rabbit, Hare.

GERMAN ANATOMICAL INJECTIONS.

Transparent Injections. $1.

From the Human Frame.

Brain, Cerebrum and Cerebellum.
Eyelid, Upper.
Kidney, Fœtal and Adult. 2 colours.
Large and Small Intestines. $1 50.
Lung, healthy and diseased.
Liver. 2 colours.
Skin of Cheek and Chin.
Scalp Section with Hair Roots.
Skin of Hand (Section.)
Tongue showing Papillæ.
Voluntary Muscle, Arteries injected.

From the Lower Animals.

Bursa fabricus from Owl.
Eye, choroid from Cat.
Eye, Ciliary processes from Horse.
Eye, Cornea and Iris from Stag.
Optic Nerve, Calf, vert. & trans. $1 50
Retina from Calf, Cat, and Rat. $1 50
Cerebrum and Cerebellum of Cat.
Ear of Mouse.
Medulla Oblongata of Rabbit, Rat.
Gills of Eel.
Large and Small Intestines of Cat, Rat, Pig, Goat, Mouse, and Ourang Outang.
Intestinal Canal of Snake.
Ileum of Hare.
Stomach of Carp, Mouse.
Glandular Stomach of Goose and Stork.
Œsophagus of Goose.
Oviduct of Hen. $1 50.
Kidney of Cat, Marmot, Snake, and Bat.
Lung of Goose and Snake.
Liver of Marmot and Bat
Nose of Mole. $1 50.
Nose of Mouse
Skin of Horse, vert. and trans. section.
Muscle of Pig.
Spleen of Guinea Pig.
Supra-renal Capsule of Cat.
Do. do. Guinea Pig.
Tongue of Cat, $1 00. Large, $1 50.
Do. Antelope.
Do. Goat, Gull, Pig, and Rat.
Urinary Bladder of Cat and Goat.
Embryo of Pig and Sheep. $2 50.

Opaque Injections, see p. 61.

ANIMAL SUBSTANCES AND ORGANS. 75 cents.

Human Cartilage from Sternum.
Do. do. Fœtal.
Cellular Cartilage in ear of Bat.
Human Tendon (section.)
Do. Muscular Fibre, voluntary.
Do. do. do. involuntary.
Do. do. do. Fœtal, vol.
Do. White Fibrous Tissue.
Do. Yellow Elastic.
Do. Adipose Tissue.
Striated Ligamentum nuchæ from neck of Giraffe.

Muscular Fibre (Voluntary)—
Mammal—Man.
Bird—Pigeon.
Insect—Blowfly.
Reptile—Salamander.
Fish—Lepidosiren.

Ultimate Fibrous Structure in Crystalline Lens, Eye of Man.
Crystalline Lens, Eye of Frog, Shark.
Scalp of African Negro, superficial view showing the insertion of hair in tufts. Also vertical section with the curling of hair at the roots.
Section of Leather, Calf.
Do. Tanned Skin of Hippotamus.

Feathers, Transparent—
From Emeu, Goldfinch.
Do. Humming Bird, Nightingale.
Do. Rifle Bird, Australia.

Barbs of Fibrils of Feathers Typical of Structure—
From Wing of Condor, Owl.
Do. Emeu, Ostrich.
Down from the Eider Duck, showing transition from Down to Feather.

Scales of Fish.

Cycloid, Carp and Eel.
Ctenoid, Perch and Sole.
Ganoid, Lepidosteus, and Section.
do. Sturgeon (section).
Placoid, Dog Fish, Shark.
Epidermis of Saw of Sawfish.

Spines of Echinodermata.

Acrocladia trigonaria.
Cidaris metulariæ.
Diadema Savignyi.
Echinus esculentes, and lividæ.
Echinothrix Petersii.
Echinocidaris purpurescens.
Echinometra lucunter.

Hairs (Superficial View)—
From African Squirrel.
Do. Albino Mole.
Do. English Mole.
Do. Beaver (felting surface).
Do. Bat, Australian.
Do. Bat, Indian.
Do. Bat, British.
Do. Caterpillar of Tiger Moth.
Do. do. Vapor Moth.
Do. Bird-catching Spider.
Do. Mouse, Brown.
Do. Mouse, Shrew.
Do. Mouse, White.
Do. Mole.
Do. Ornithorhynchus paradoxus.
Do. Ringtailed Monkey.
Do. Spider ditto.
Do. Rein Deer (body) cellular.
Do. do. (legs) bristly.
Do. Russian Sable.
Do. Rat.
Do. Wild Rabbit.
Do. Squirrel.
Do. Sea Mouse.
Do. Seal, Falkland Islands.
Do. Sea Otter, ditto.
Human Hair, Transverse Sections.
Human Hair Surface, various kinds.
Do. do. beard shavings.
Do. do. bulbous roots.
Do. do. eyebrows.
Do. do. Albino Girl.
Fœtal Hair Imbricated surface.

Hairs (Transverse Section)—
From Ant Eater.
Do. Peccary.
Do. Eyelash of Whale.
Do. Tail of Asiatic Elephant.
Do. Tail of African Elephant.
Do. Tail of Giraffe.
Do. Tail of Hippotamus.
Do. Tail of Rhinoceros.
Do. Tail of Siberian Mammoth.
Do. Whisker of Wild Cat.
Do. Whisker of Lioness.
Do. Whisker of Walrus.
Palate of Garden Snail, Helix aspersa.
Do. Cellar Slug.
Do. Doris, bilamellata.
Do. Chiton.

Hair and Skin for Polariscope, Page 73.

ANIMAL SUBSTANCES, BONE, TEETH, SHELL, SPICULES, &c.
75 cents and $1.

Sections of Bone. $1

Bone of Albatross.
Do. Armadillo.
Do. Boa Constrictor.
Do. Chimpanzee.
Do. Crocodile.*
Do. Elephant.
Do. Eagle.
Do. Flying Fish.
Do. Gorilla.
Do. Grampus.
Do. Lion.*
Do. Rhinoceros.
Do. Saw Fish.
Do. Siluras.
Do. Toad.
Do. Toad (Surinam).
Do. Turtle (fin).
Do. Walrus.
Do. Whale, &c.

Sections of Human Bones. $1.

Clavicle (transverse).
Femur (transverse).*
Do. (vertical).*
Skull, parietal and frontal.*
Earthy Matter of Femur.
Animal do. do.
Fœtal Bone, Femur (transverse).
Do. do. (vertical).

A series of (12) *slides, completely illustrating the Structure and Growth of Bone, Cartilage, &c.* $10 00.

Sections of Teeth. $1.

From Alligator, Cat Fish.
Do. Deer, Dolphin.
Do. Dugong, Hippopotamus.
Do. Fox, Hare, Horse.
Do. Human (various).*
Do. Myliobatis, Zygobatis.
Do. Porcupine, Rhinoceros.*
Do. Rabbit, Rat, Ox.*
Do. Saw Fish, Silurus.
Do. Sheep, Shark.
Do. Sperm Whale,* Suis Gigas.
Do. Tiger, Wild Cat, Walrus.
Ossification of Pulp cavity in Tooth of Elephant.

**These may be had larger size.*

Sections of Shell.

Egg of Emeu, Cassowary.
Do Ostrich (superficial and vertical)
Do. Guinea Fowl, Goose.
Pearl Oyster (avicula margaritiœa).
Haliotis splendens.
Pinna marina (vert. sec. and surface).
Crab (vertical and superficial section).
Cyprea annulus, Cerithium atratum.
Meleagrina margaritifera.
Oliva Peruviana.
Ricinula ricinus (long. sec.) $1 25.
Mitra cucumerina (long. sec.) 1 25.
Cerithium atratum (long. sec.) 1 25.
Terebratula Australis.
Orbiculina complanata
Syderolina Spenglerii.
Foraminifers, in chalk formation (section)
Hydrophora rigida do. do.
Seriatopora hystrix do. do.
Section of White Coral. Red do.
Do. Pearls from River Tay.

Spicula from Zoophytes, &c. 75 cents.

Alcyonium digitatum.
Spongilla Meyeni, Ceylon.
Do. plumosa, Bombay.
Glass Rope Sponge (Hyalonema mirabile).
Geodia Baretti. Grantia compressa.
Hymedesmia Johnsoni.
Halichrondria Griffithsii.
Pachymatisma Listeri.
Tethia cranium. Tethia lyncurium.
Gemmules of Sponge Geodia.
Section of Smyrna Sponge.
British Spongilla and Spongilla Meyeni, with Spicula in situ.
Fibres from Euplectella speciosa.
Spines of Spatangus.
Spicula of Gorgonias, various.
Ambulacral disks from Echinus.
Plates and hooks (Astrophyton Linkii).
Do. do. (Synapta digitata).
Do. do. Synapta (inhærens).
Wheel Plates, Chirodota (violacea).
Do. do. do. (inhærens).
Cutaneous plates (Holothuria edulis).
Do. do. Holothuria (floridana).
Do. do. (from Tongataboo).
Spicules of Xenia.
Do. Renilla Americanus.
Spines of Brissiopis.
Do. young Star Fish.
Star Fish.
Seven Pointed Spicules of Sponge.

TEST OBJECTS AND DIATOMACEÆ. 50 and 75 cents.

Thickness of covering glass . ·006
For 1-12th and 1-16th Objectives ·004
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The following are Mounted Dry.

GENUS PLEUROSIGMA.
Balticum, Hippocampus, quadratum, strigosum, strigilis, attenuatum, intermedium, elongatum, Spencerii, angulatum, fasciola, scalprum, macrum.
NAVICULA—Cuspidata, crassinervis.
Amician test, N. rhomboides.
Nitzschia birostrata.
Nitzschia sigmoidea.
Surirella gemma.
Hyalodiscus subtilis.
Grammatophora marina.
Do. subtilissima.
Do. serpentina.
Amphipleura pelucida.

A Series of Test Diatomaceæ arranged on one Slide. Price $6 00.

Test Diatoms in Balsam.

PLEUROSIGMA formosum.
Do. decorum, Hippocampus.
Do. Balticum, strigosum.
Do. attenuatum, strigilis.

Miscellaneous Test Objects.

SCALES of Lepisma saccharina.
Do. Podura plumbea.
Do. Amathusia Horsfieldi.
Do. Tinea vestimenti.
Do. Morpho menelaus.
Do. Hipparchia janira.
Do. Pontia brassicæ.
Do. Pieris rapæ.
Do. Wing of Gnat.
Do. do. do. in Balsam.
HAIR of Indian Bat.
Do. Australian Bat.
Do. Indian Mouse.
Do. Dermestes (Anthrenus).
Proboscis of Blowfly.
Pygidium of Flea.
Ultimate Fibrous Tissue of Muscle of Pig (Powell's Test). $1 00.
Disks of Deal (Dr. Carpenter's Test for Achromatism).

Ocean Telegraph Soundings.

From Indian Ocean, 2,200 Fathoms.
Do. Red Sea, Selections.
Do. Persian Gulf, 504 Fathoms.
Do. Coast of Malabar, 188 Fathoms.

By Prof. Sir Wm. Thompson, F.R.S.

1856. Atlantic Ocean, 2,070 fathoms.
1866. Do. do. 2 miles deep.

Diatomaceæ, &c., from Guano.

California. Isle of Elide.
Old Ichaboe, 1844. New, 1860.
Lobos de Tierra. Canary Islands.
Saldannah Bay. Chincha Islands
St. Helena. Lower Peruvian.
Bolivia. New Peruvian, 1862.

Recent Diatomaceæ from

Ormesby; Torquay, Keswick.
Ocean Surface (Bay of Bengal).
Brodick Bay (Isle of Arran).
Coast of Cherbourg, Japan, Cuxhaven, Kiel, Corsica, St. Bees.
Rivers Humber, Thames, Severn.

Fossil Infusorial Deposits from

Australia, Bermuda.
Badjik (Turkey), Santa Fiore.
Berghmehl, Lapland, and Sweden.
Cornwallis, Nova Scotia.
Los Angelos, California.
Cherryfield and Monmouth, Maine.
Perley's Meadow, South Bridgton, Maine.
Duck Pond and French's Pond, Maine.
Calvert County, Richmond, U. S.
Shokoe Hill, Bangor, U.S.
Polirschiefer Bilin, Bohemia.
Lüneburg, Franzenbad, Eger, Bohemia.
Linfjord, Jutland.
Oran, Algeria.
Maremma, Leghorn.
Lamplugh, South Australia.
Stonyford, River Down, Ireland.
Med Combre, Antrim, Ireland.
Lough Mourne, Toome Bridge, Ireland.
Holderness, Yorkshire.
Isle of Raasay, Scotland.
Isle of Mull, Scotland.
Dolgelly, North Wales.

RECENT AND FOSSIL DIATOMACEÆ. 50 and 75 cents.

* These are in symmetrical groups, 75 cents, and some in larger and more elaborate forms at $1.00 to $2.50.

Achnanthes longipes.
Actinosphœnia splendens.*
Actinocyclus Ralfsii.
Actinoptychus undulatus.*
Do. Halyonyx.*
Asterolampra vulgaris.*
Do. stella.*
Asteromphalus Ralfsianus.*
Do. arachne.*
Do. duodenarius.*
Arachnoidiscus Ehrenbergii.*
Do. Japonicus.*
Amphitetras antediluviana.*
Do. ornata.*
Amphora ovalis.
Aulacodiscus Oreganus.
Do. formosus.*
Do. Crux.*
Do. radiatus.*
Auliscus sculptus.
Do. ovalis.
Biddulphia pulchella.*
Do. aurita.*
Do. obtusa.*
Bacillaria paradoxa.
Campylodiscus costatus.* C. clypeus.
Do. spiralis.*
Colletonema neglecta.
Cocconies splendita.*
Cocconema lanceolatum.*
Do. parvum. C. cistula.
Coscinodiscus radiatus.* C. elegans.*
Do. ellipticus.* C. ovalis.
Do. Oculus Iridis.*
Craspedodiscus pixidicula.*
Cymatopleura elliptica.* C. solea.
Cymbella Ehrenbergii.*
Donkinia carinata. D. minuta.
Diatoma vulgare.
Eupodiscus Ralfsii.* E. Argus.*
Do. radiatus.*
Endyctia oceanica.*
Epithemia turgida.* E. gibba.
Fragillaria capucina.
Gephyria incurvata.*
Gomphonema geminatum.*
Grammatophora marina.
Heliopelta metii.*
Himantidium pectinale.
Homœocladia Martini.
Hydrosera triquetra.*
Isthmia nervosa.*
Do. enervis.*
Licmophora splenditda.
Do. flabellata, $1.00.
Mastogloia Grevillii.
Meridion circulare (*perfect*), $1.00.
Melosira varians.
Do. radians.
Navicula didyma.*
Do. elliptica.*
Do. granulata. N. Amphisbœna.
Do. serians. N. varians.
Do. lyra.* N. splendida.*
Do. bullata.* N. firma.*
Nitzschia sigmoidea. N. virgata.
Do. obliqua. N. birostrata.
Odontidium mesodon. O. Harrisoni.
Orthosira arenaria.
Pinnularia major.* P. nobilis.
Do. lata.* P. alpina.*
Do. virdis. P. oblonga.
Do. Johnsoni.
Pleurosigma, eight species, mixed.
Pyxidicula cruciata.
Rhabdonema arcuatum.
Schizonema Grevillii.
Stauroneis pulchella.*
Do. Phœnicenteron.
Surirella nobilis.* S. biseriata.
Do. gemma.* S. slesvicensis.*
Do. splendida.* S. fastuosa.*
Do. ovalis. S. minuta.
Solium exculptum.*
Stephanogonia danica.
Symbolophora trinitatis.*
Synedra capitata. S. radians.
Do. splendens. S. superba.
Tabellaria fenestrata.
Triceratium favus.* T. fimbriatum.
Do. striolatum.*
Do. Arcticus.*
Trincaria Regina.* T. excavata.*
Toxonidea Gregoriana.

A very superior Pocket Compound Achromatic Microscope is made specially for collecting Diatomaceæ. It gives excellent definition, a good field, and power 100 *diameters under which most of the genera and species of the Diatomaceæ may be recognized. Price* $10 00.

FOSSIL, WOOD, BONE, COAL.

$0 75 and $1 00.

Fossil Substances.

Sections of Teeth of Shark, &c. (vertical and transverse).
Bones and Teeth of Fish in situ from Northumberland Coal Shale.
Coprolites, from Lyme Regis.

Section of Coal.

Transverse, Vertical, and Radial.
Derbyshire, Newcastle, Yorkshire, Scotland, China, Australia, America, Heraclea on the Black Sea, Tertiary Coal, Bovey Tracey.
Cannel or Parrot Coal.
Torbane Hill Coal, from which Young's Paraffin Oil is made.
Sections of Jet (Whitby).
The above, very large size, $2.50.

Fossil Bone of Man (Guadaloupe).
Do. Mastadon. Irish Elk.
Do. Crocodile.—Dugong.
Do. Ichthyosaurus.—Iguanodon.
Do. Pterdactyl.—Whale.
Do. Dinornis giganteus, New Zealand.

Sections of Fossil Wood.

Endogens from Antigua, &c.
Palm, vertical and transverse.
Palm, from West Indies and Ceylon.
Fern, stem, and root.
Conifers and Exogens from Derbyshire, Portland, Lough Neagh. Unknown forms from Lancashire Coal.
Fibrous Fossil Wood, Egypt.
Opalized Wood, Tasmania.
Fossil Sponge.
Fossil Coral, Acervularia pentagona.
Pentacrinus basaltiformis.

Shells.

Foraminifera, Adriatic Sea.
Do. Bay of Bengal.
Do. The Levant.
Do. The River Nene.
Polycystina, Barbadoes, various.
Do. Island of Nicobar.

GEOLOGICAL SPECIMENS.

$0 75 and $1 00.

See also those at pages 72 and 74.

Moss Agates, various.
Basalt—Giant's Causeway.
Do. Fingal's Cave.
Do. Staffordshire.
Carbonate of Lime. Stalactite.
Flint, with various organic remains, Spicules, Sponges, Corals, Xanthidia (or Sporangia), and Shells.

Granite from Aberdeen.
Do. Peterhead.
Do. Killiney, Ireland.
Do. Guernsey.
Do. "Greenland's Icy Mountains."
Do. Cornwall, Cheesewring.
Do. Greywacke from Labrador.
Syenite from Mount Sorrel.
Do. Sarcophagus in Gt. Pyramid.
Limestone, Nummulitic—foundation of the Great Egyptian Pyramid.
Limestone, St. Vincent's Rock.

Limestone, Magnesian, Dudley.
Do. Mountain, Scotland.
Do. Upper Silurian, Dudley.
Do. Oolitic, Clifton and Bath.
Do. Encrinital Marble.
Do. Foundation Stone of Old Blackfriars Bridge.
Do. Himalaya Mountains.
Do. Lyme Regis and Portland.
Do. Niagara Falls.
Many of the above contain interesting organisms—Foraminifera, Echini, Shells, Coral, Spicules, Nummulites, &c., &c.
Lapis lazuli. Lepidolite.
Madrepores, various, Torquay.
Black Marble.
Encrinital Marble, Derbyshire.
Marble, Carrara, Temple of Ephesus.
Green Malachite from Russia.
Blue Malachite from Australia.
New Red Sandstone, Cumberland.
Old Red Sandstone, Scotland.
Pitch Stone, Isle of Arran.
Red Porphyry, Egypt.
Brown Porphyry, Sweden.
Heliotrope, Blood Stone.
Sun Stone.
Serpentine, Red and Green.
Water Cells in Quartz Rocks from Norway and Mount Blanc.
Various Organisms from the Chalk, Chalk Marl and Gault.

MICRO-PHOTOGRAPHS. 75 cents and $1.

200 Kings and Queens of England.
Her Majesty Queen Victoria.
The late Prince Consort.
The Royal Family, 1861.
The Prince and Princess of Wales.
Napoleon III. and Eugenie.
Shakespeare.
General Garibaldi.
Right Hon. W. E. Gladstone.
John Bright, Esq., M.P.
Charles Dickens.
Sir John Herschell.
The Lord's Prayer Illuminated.
The Creed Illuminated.
The Ten Commandments Illuminated.
The whole of the Sermon on the Mount, Matt. ch. v., vi., vii.
The Crucifixion, Michael Angelo.
The Descent, José Bellver, Madrid.
Christ Blessing Little Children.
Rebecca and Laban.
The Fall of Nineveh, Martin.
Belshazzar's Feast, Martin.
Passage of the Red Sea, Martin.
The Great Day of His Wrath, Martin.
The Great Pyramid and Sphinx.
Hindoo Mosque, A. D. 1469.
Statue of Buddha, Japan.
Notre Dame Cathedral, Paris.
Milan Cathedral.
View of Rome.
The Falls of Niagara.
Fingal's Cave (Staffa).
The Giant's Causeway.
Tintern Abbey.
Fountain's Abbey.
Melrose Abbey.
York Minster.
Canterbury Cathedral, interior.
Windsor Castle.
Osborne House.
Balmoral.
Sir Walter Scott's Monument.
St. Paul's Cathedral.
The Houses of Parliament.
The Crystal Palace and Fountains.
Trafalgar Square,
Moonlight at Sea.
Great Eastern Steamship.
American River Steamship.
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The Times Newspaper, 12,500 words.
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Map of Europe.
The Marriage of Her Majesty.
Mrs. Fry reading the Scriptures to the Prisoners in Newgate
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The Play Scene in Hamlet.
The Death of Lord Nelson.
The Dame School.
Happy as a King.
The Afternoon Nap.
The Village School in Uproar
The Blind Fiddler.
Laying Down the Law.
Bolton Abbey in Olden Time.
The Derby Day, W. P. Frith, R. A.
The Railway Station, do.
Life at the Sea Side, do.
The South Sea Bubble.
The Horse Fair, Mdlle. Rosa Bonheur.
The Moon, Crescent and Full.
The Planet Saturn, Rings, &c.
The Planet Jupiter, Belts, Moons, &c.
Statue—Sabrina. Ariadne.
Franklin's Letter to Strahan.
Declaration of Independence.
Ticket to Heaven.
Eminent Women—105 portraits
Eminent Men—115 portraits.
Going with the Stream.
Going against the Stream.
The Origin of Music.
"Oh!"
"May and December."
"Did you Ring?"
"Sherry, Sir?"

PARASITIC INSECTS, ACARI, &c. 75 cents and $1.

Parasites from Vampyre, Bat, Canary, Curlew, Crow, Dog. Fowl, Eagle, Gull, Hedgehog, House Fly, Bee, Horse, Mole, Ox, Passenger Pigeon, Rook, Starling, Fern, Turkey, Water Rat, Sole, &c.
Flea from Bat, Cat, Dog, Fowl, Pigeon, Mole, Squirrel, Hedgehog.
Acarus from Cheese and Meal.
Acarus from Sugar and Ergot of Rye.
Human Associates—
Flea (sexes), Pulex irritans.
Bed Bug, Cimex lectularius.
Acarus of Itch. Sarcoptes scabiei. $1 50.
The same, with Male, Female and Larva, on one slide, $2.50.
Face Insect, Desmodex folliculorum.
Crab Louse, Pediculus pubis. $1 25.
Body Louse, P. vestimenti. 1 25.
Head Louse (sexes), P. capitis.
Harvest Bug, Trombidium. 1 25.

The sexes of the above may be had.

WHOLE INSECTS. 75 cents to $3.

Flies and their Allies

Aphis rosæ, and others.
Ant, Formica rufa, and others.
Blossom Fly, Anthomyia pluvialis.
Bronze Fly, Pachygaster ater.
Biting Field Fly, Stomoxys calcitrans.
Black-tip Fly, Ortalis vibrans.
Cattle Fly, Musca corvina.
Corn Fly, Empis livida.
Crane Fly, Tipula oleracea. $1 50.
Dung Fly, Scatophaga merdana.
Drone Fly, Helophilus pendulus.
Flirt Fly, Sepsis punctum.
Fantail Fly, Dolichopus Æneus.
Fungus, Mycetophila.
Gnat, Culex pipiens, Sexes (Male).
Do. Window, Rhyphus fenestralis.
Do. Ringed, Culex annulatus.
Do. Plumed, Chironomus plumosa.
Do. Winter, Trichocera hiemalis.
Do. Wood, Sciara brunipes.
Do. Short Legs, Micropeza corrigiolata.
Grass Fly, Opomyza germinationis.
Hairy Fly, Bibio Marci.
Hawk Fly, Dioctria rufipes.
Herbage Fly, Platypalpus fasciatus.
His Grace, Calobata petronella.
House Fly, Musca domestica.
Ichneumon Fly, Ophion luteum. $1 50.
Lace Wing, Chrysopa perla. $2 00.
Leaf Insect, Phyllophorella acerina.
Mayflower Fly, Dilophus.
Merrydancer, Hilara maura.
Mosquito, Culex Mosquito Australis.
Mosquito, Jamaica, Labrador, &c.
Midge, Psychoda.
Mud Fly, Borborus longipennis.
Marsh Fly, Tetanocera aratoria.
Marsh Crane Fly, Phycoptera.
Nettle Fly, Platystoma seminationis.
Pearl Fly, Sialis lutarius.
Scorpion Fly, Panorpa communis. $1 50.
Shadow Watcher, Syritta pipiens.
Snipe Fly, Leptis scolopacea.
Snout Fly, Rhingia campestris.
Saw Fly, Allantus scolopacea. $1 25.
Thistle Beetle, Crepidodera ferruginea.
Thrips, Phlæothrips coriaceus.
Vinegar Fly, Drosophila cellaris.
Unicorn Fly, Odontocera denticornis.
Wasp Fly, Syrphus ribesii.
Window Fly, Phora.

Our assortment of the above, as of all other Whole Insects, is constantly changing with frequent additions.

Bugs, Beetles, &c.

Corn Bug, Miris.
Cuckoo Spit, Aphrophora spumaria.
Collared Florist. Anthobium torquatum.
Cardinal Beetle, Pyrochroa rubens.
Earwig, Forficula auricularia.
Frog Hopper, Amblycephalus viridis.
Grass Hopper, Locusta viridis.
Glow-worm, Lampyrus noctiluca.
Grass Flea, Thyamis femoralis.
Lady Bird, Coccinella variabilis, &c.
Parsnip Beetle, Anaspis melanopa.
Pond Beetle, Lactophilus minutus.
Mud Beetle, Hyphydrus ovatus.
Marsh Flea, Delphax lineata.
Raspberry Beetle.
Soldier Beetle, Telephorus.
Sailor Beetle, Halipus lineatocollis.
Thistle Beetle, Crepidodera ferruginea.
Wood Beetle, Leptura levis.
Water Beetle, Hygrotus elegans.
Water Bug, Corixa fossarum.
Water Boatman, Notonecta glauca.
Water Scorpion, Nepa cinerea.
Pond Skater, Gerris lacustris.
Ditch Skater, Velia rivelorum.
Gyrinus natator.

Spiders.

Bush Spider.
Garden Spider, Epeira diadema. $3 00.
Ground Spider, Lycosa agrestica.
House Spider, Aranea labyrinthica.
Harvest Spider, Phalangium cornutum.
Hunting Spider, Drassus lucifergus.
Shepherd Spider, Opilio.
Water Spider, Argyroneta aquatica.
Water Wolf, Lycosa aquatica.

Larvæ and Pupæ.

Pupa of Water Boatman.
Do. Scorpion.
Larva of Dragon Fly, Agrion.
Do. of Water Beetle.
Do. and Pupa of Gnat. $1 25.
Do. Flea, House and Blow Fly.
Do. Bot Fly in Egg, on hair.
Do. Staphylinus, Devil's Coach-horse.
Do. Lady Bird, Coccinella.
Wire Worm.
Centipede, Lithobius forcipatus.
Millipede, Geophilus electricus.
Skin of Caterpillar, many species.
Do. Silkworm, Bombyx mori.
Earth Mite, Trombidium.

PARTS OF INSECTS. 50 and 75 cents.

Antennæ of Cockchafer, sexes.
Do. House Fly, and Blow Fly.
Do. Moths, Gnat, sexes.
Head of Butterflies and Moths.
Do. Crane Fly, Gnat.
Do. Mosquito (Lancets).
Eye, showing facets, transparent.
Eye, Cockchafer.
Eye, Crane Fly.
Eye, Dragon Fly.
Eye, House Fly.
Eye, Humble Bee.
Eye, Butterfly.

See also Opaque, page 71.

Gizzard of Dytiscus.
Do. Cricket.
Stomach of Beetle.
Do. Blow Fly.
Foot of Caterpillar.
Leg and Foot of Blow Fly.
Do. Drone Fly.
Do. Dung Fly.
Do. Dytiscus.
Do. Frog Hopper.
Do. Gyrinus.
Do. Honey Bee.
Do. Hawk Fly.
Do. Hornet.
Do. Ophion.
Do. Pearl Fly.
Do. Saw Fly.
Do. Spiders, various.
Do. Wasp.

Mouth and Jaws of Wasp.
Do. Spiders.
Feathered Oar of Corixa.
Do. do. Dytiscus.
Expanding Paddle, Gyrinus.

Lancets of Flea.
Do. Bed Bug.
Do. Gad Fly.
Do. Mosquito.
Do. Gnat.

Ovipositor of Cuckoo Spit.
Do. Crane Fly.
Do. Blow Fly.
Do. Drone Fly.
Do. Dragon Fly.
Do. Saw Fly.
Do. Frog Hopper.
Do. Corn Bug.

Proboscis or Tongue—
Do. Butterfly and Moth.
Do. Honey Bee, Humble Bee.
Do. Blow Fly, House Fly.
Do. Cricket, Hawk Fly.
Do. Drone Fly, Rhingia.

Reproductive Organs, Male Wasp.
Do. Do. Hornet.

Scales from Wings of—
Death's Head Moth.
Oak Egger. Cloth Moth.
Paris Butterfly. Fritillary.
Giant Silk Moth, Japan, and many others.

See also Test Scales, page 65.

Spinneret of Silkworm.
Do. Garden Spider.
Skin of Caterpillar.
Do. Chrysalis.
Do. Silkworm.
Do. Garden Spider.

Spiracles of Blow Fly.
Do. Drone Fly.
Do. Cockchafer.
Do. Dytiscus.
Do. Privet Caterpillar.
Sting of Bee. Hornet. Wasp.
Do. With poison gland. $1 50.
Tail of Dolichopus Æneus.

Tracheæ of Silkworm.
Do. Blow Fly.
Do. And ultimate ramifications in stomach of Bee. $1 00.
Do. In nerves of Caterpillar. 1 00.
Do. Intestines of Blow Fly.

Halteres of Crane Fly. Rhingia.
Do. Drone Fly. Blow Fly.

Wings of Bee, with hooklets.
Do. Hornet, do.
Do. Wasp, do.
Do. Blow Fly.
Do. Butterflies, various
Do. Moths, do.
Do. Mosquitos.

Elytron of Corixa fossarum.
Do. Water Beetles, various.
Winglet of Blow Fly.
Anatomy of the Blow Fly, 12 Slides in a box, $7.50.

For Insect Anatomy, complete on one Slide, see page 77

OPAQUE AND BINOCULAR OBJECTS. 75 cts. and $1.

Diatomaceæ on Sea Weed, in situ.
Gemmules of Sponge.
Hairs of Peccary, sections.
Isthmia nervosa and enervis.
Orthosira arenaria.
Shell of Orbitolite.
Spines and Shell of Spantangus.
Spicules of Gorgonias.
Young Oysters.
Ophiura texturata. $1 50.
Ophiocoma rosula. $1 50.
Feathers of Humming Birds.
Do. Love Bird. Peacock.
Do. Rifle Bird, Australia.
Skin of Sole—
From Belly and Back.
Do. Dogfish. White Shark.
Brittle Starfish, Ophiocoma neglecta.
Sun Starfish, Solaster papposa. $2 00.
Bones of Ophiocoma rosula.
Pedicellaria of Echinus sphæra.
Do. Echinus esculentus.
Do. Uraster rubens.
Spines of Palmipes membranaceus.
Sponge with Spicules, in situ.
Spider Crab, Stenorhynchus phalangium.
Mantis Shrimp.

Polyzoa, Corallines, &c.

Anguinaria spatulata.
Bicellaria ciliata. B. grandis.
Bugula avicularia.
Catenicella plagiostoma.
Cellularia avicularis.
Crisea eburnea. Flustra foliacea.
Membranipora pilosa.
Notamia bursaria.
Sertularia operculata.

Whole Insects, &c.

Tingis arcuata.
Beetles and Weevils, various.
Cicada from Maryland,
Gall Fly, Typhloryba uloni.
Asparagus Beetle. House Fly.
British Diamond Beetle.
Eggs of Insects, various.
Do. Parasite of Pigeon.
Do. do. Hornbill.
Do. and Larvæ of Oak Egger.
Eyes showing facets, from Beetle, House Fly, Butterfly, Moth.
Facets and Ocelli in Wasp.
Do. do. Dragon Fly.
Eyes of Garden Spider.
Aphis pierced by Ichneumon Fly.
Legs of Dytiscus marginalis.
Heads and Parts of Beetles.
Cyphus germari.
Cicindela sylvatica.
Eustales adamantinis.
Chrysolophus.
Curculio imperialis.
Eupholus.
Hypomeces squamosus.
Golden girdle.
Exuvium of Myriapoda, Polyxenus.
Wing of Magpie Moth.
Do. Butterfly. Azure Blue.
Do. Cloth Moth. Vapourer.
Do. Alexis. Clouded Yellow.
Do. Fritillary. Morphomenelaus.
Do. Paris. Peacock. Copper.
Do. Tortoiseshell. Red Admiral.

Palate of Haliotis tuberculata.
Do. Limpet, Patella vulgaris.
Do. Periwinkle, Littorina littoralis.
Do. Trochus zizyphinus.
Do. Whelk, Buccinum undatum.
Do. Gizzard of Cricket.

Foraminifera—from Adriatic Sea, Bay of Bengal, Levant, River Nene.
Polycystina, Barbadoes, various
Fossil Infusoria.

Transparent at page 67.

Opaque Objects,

Mounted expressly for Binocular and Lieberkuhn Symmetrical Groups, $1 *to* $15.

Arachnoidiscus Ehrenbergii.
Actinosphœnia splendens.
Aulacodiscus radiatus.
Actinoptychus undulatus.
Biddulphia pulchella.
Campylodiscus costatus.
Coscinodiscus radiatus.
Foraminifera, various.
Heliopelta metii.
Isthmia nervosa and enervis.
Pinnularia major.
Pleurosigma formosum.
P. Balticum. P. Hippocampus.
P. Decorum. P. Angulatum.
Triceratium favus.
Polycystina, various.
Haliomma Humboldtii.
Astromma Aristotelis.

These may be had Transparent.

OPAQUE AND BINOCULAR OBJECTS. 50 and 75 cents.

Opaque Minerals, &c.

Avanturine (artificial.)
Antimony, Needle form.
Do. Red, Oxy-sulphuret.
Crystals of Berberine.
Bismuth. Sulphuret of Iron.
Crystalline Oxide of Lead.
Do. Lead, Ore, Galena.
Do. Titanium, Indigo.
Do. Lava from Mt. Vesuvius.
Do. Silver, Electro deposit.
Decomposed Glass from Pompeii.
Peacock and Ruby Copper.
Fibrous or Moss Copper.
Specula Iron from Elba.
Gold Nuggets, California.
Gold Dust, British Columbia.
Gold Sand with Quartz, Australia.
Gold Leaf transmitting Green Light.
Hypersthène. Sun Stone.
Iridescent Oxide of Lead.
Iridium.
Ores of various Metals.
Picrotoxine.
Tooth of Myliobatis.
Gill of Sword Fish.
Ivory Turnings.

Vegetable.

Leaf of Deutzia. Nettle, with Stings.
Do. Elæagnus, Onosma taurica.
Do. Alyssum Olympicum.
Skeleton Leaf of Box Tree.
Section of Leaf of Orchid.
Do. Stem of Clematis.
Do. do. Sugar Cane.
Do. Shell of Mexican Gourd.
Do. Pith of Rice Paper Plant.
Seeds of Antirrhinum. Dandelion. Garden Poppy. Henbane. Lobel's. Catchfly. Orchis. Portulaca. Petunia. Paulownia imperialis. Eccremocarpus Scaber.
Pollen of Hollyhock. Mallow.
Raphides from Tabaiba.
Peristomes of Mosses, various.
Funaria hygrometrica, mounted in cell for hygrometric experiment.

Fungus (Blight)

On Leaf of Pea, Erysiphe Martii.
On Gooseberry, Æcidium grossulariæ.
On Bramble, Aregma bulbosum.
On Willow, Puccinia pulverulenta.
On Alchemilla, Uredo potentillarum.
On Thistle, Trichobasis suaveolens.
On Hop Mildew, Sphærotheca castagnei.

ALGÆ, DESMIDIACEÆ, FUNGI, &c. 75 cents.

Confervaceæ, Algæ, and Desmidiaceæ.

Batrachospermum moniliforme.
Draparnaldea plumosum.
Zygnema, Closterium, Euastrum.
Micrasterias rotata.
Volvox globator.
Spirogyra.
Hepatica, Frullania dilatata.

Marine Algæ.

Calithamniom, corymbosum.
Do. refractum.
Ceramium citatum.
Cladophora rupestris.
Catenicella plagiostoma.
Dasya coccinea.
Griffithsia.
Polysiphonia parasitica.
Do. fibrata.

Capsules and Spores of Mosses.

Bryum capillare.
Dicranum scoparium.
Hypnum rutabulum.
Tortula unguiculata.
Funaria hygrometrica.

Thecæ and Spores of Ferns, &c.

From Pteris aquilina.
From Polypodium vulgare.
From Osmunda regalis.
Platycerum alcecorne.

Fungi, Blight, Mould, Mildew, &c.

Smut in Ear and Grain of Wheat (Ustilago segetum).
Bunt fungus in Corn grains; Uredo fœtida (or Tilletia caries).
Rust or Brand on Leaf (Corn Mildew); Puccinia graminis.
Red Rust Trichobasis rubigo-vera.
Eels in Wheat, Vibrio tritici.
Timber fungus, Arcyria nutans.
Do. Stemonitis fusca.
Spiral fungus, Trichia chrysosperma.
Star fungus, Asterosporium Hoffmanii.
Chain-Brand, Xenodochus carbonarius.
Section of Truffle.

POLARISCOPE OBJECTS. 50 cents, 75 cents, and $1.

Animal Substances.

Palate of Haliotis tuberculata.
Do. Limpet, Patella vulgaris.
Do. Nassa reticulata.
Do. Periwinkle, Littorina littoralis.
Do. Trochus zizyphinus.
Do. Whelk, Buccinum undatum.

Claw of Ourang Outang, Lynx.
Do. Sloth, Lioness, Wild Cat.
Do. Fowl, Polar Bear, Seal.
Finger Nail—Human. Cuttings.
Toe Nail, Transverse Section.
Corns of Elephant.
Do. Human.
Foot Pad of Dromedary, Cat.

Hoof of Antelope, Elk, Pig, Ox.
Do. Mustang, Reindeer, Zebra.

Horn of American Bison.
Do. Antelope, Brahmin Bull.
Do. African Rhinoceros.
Do. Indian Rhinoceros.
Quill of Porcupine.
Whisker of Walrus.

Spines of Hedgehog.
Do. Cat's Tongue.
Section of Cat's Tongue, Nose and Lip.
Bone of Cuttle Fish.

Whalebone, Finland Whale.
Do. Bottlenose.
Do. Beluga Catodon.
Embryo Oysters.
Exuvium of Prawn.
Teeth of Medicinal Leech.
Tendon Achilles, Human.
Tendon Ostrich.
Leg of Dytiscus.
Elytron of Dytiscus.

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These preparations require to be warmed until the substance melts. Its crystallization may then be observed as it cools on the stage.

Hard Acid from Human Fat.
Do. Cotton Seed Oil.
Margaric Acid from Olive Oil.
Palmitic Acid from Palm Oil.
Stearic Acid from Ruminants.

Fine Transparent Injected Specimens. $1 50.

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Do. Human Tongue.
Do. Toe of White Mouse.

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Do. Negro Scalp, with incipient Curl in Roots of Hair.
Do. Alligator, the Nile.
Do. Giraffe, with Hair.
Do. Lip of Calf, with Hair.
Do. Lip of Cat, with Hair.
Do. Nose of Cat.
Do. Eel, with Scales in situ.
Do. Sole, with Scales in situ.
Do. Synapta, Anchors in situ.
Scales of Carp, Eel, Perch, Sole, Gudgeon, and Mullet.
Tail of Whitebait.
Crystals of Carbonate of Lime, in Tail of Prawn and Shrimp.
Plates from Skin of Holothuria.
Anchors, &c. from Synapta.
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Do. do. Shavings of Beard.
Do. do. Albino Girl.
Do. do. Infant.
Do. do. Young Lady's Eyelash.
Do. Gorilla.
Do. Brahmin Bull.
Do. Reindeer.
Do. Polar Bear.
Do. White Mouse.
Do. Persian Cat.
Do. Angora Goat, Mohair.
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Pine Apple Muslin, Philippines.
Finest French Cambric, $10 00 per yard.

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Young Oysters.

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Creatin. Cholesterin.
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Chloride of Barium.
Cinchonine.
Cinchonidine.
Citric Acid.
Ferri-cyanide of Potassium.
Iodide of Potassium.
Iodo-disulphate of Quinine.
Murexide (Dichromatic).
Naphthaline.
Nitro-prusside of Sodium.
Oxalate of Lime.
Oxalate of Ammonia.
Oxalate of Chromium and Potash.
Oxalic Acid.
Oxalurate of Ammonia.
Platino-cyanide of Magnesia.
Do. do. Barium.
Do. do. Thallium.
Plumose Quinidine.
Quinidine. Santonine.
Salignine. Salicine.
Strychnine. Sugar.
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Do. Nickel and Potash.
Do. Copper.
Do. Spiral form.
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Thionurate of Ammonia.
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Pyroxylin (Gun Cotton).
Shoddy Fibre.

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Gibralter Rock.
Granite, various localities.
Labrador Felspar.
Jasper with Amethyst
Quartz Rock, various.
Quartsite, Mount Blanc.
Satin Spar. Sandstone.
Selenites, various colors.
Sulphate of Baryta.
Zeolite.

Vegetable Substances.

Starch from Arrow Root.
Do. Calabar Bean.
Do. Colchicum autumnale.
Do. Potato, Oats, Rice.
Do. Sago, Palm, Tapioca.
Do. Tous les Mois, Ginger.
Do. Maize, Barley, Wheat.
Section of Potato, Starch in situ.

Starches also mounted in Fluid.

Cuticle of Leaf of Correa cardinalis.
Do. do. Deutzia scabra.
Do. do. Elæagnus.
Do. do. Onosma taurica.

Silicous Cuticles—
From Araucaria imbricata.
Do. Bamboo Cane.
Do. Sugar Cane.
Do. Equisetum arvense.
Do. Dutch Rush, E. hyemale.
Do. Indian Corn.
Do. Canary Seed.
Do. Husk of Rice Grain.
Do. Straw of Rice.
Do. Leaf of Wheat.
Fibro cells from Ærides roseum.
Do. do. Oncidium bicallosum.
Scalariform vessels from Fern.
Do. do. Dicksonia Antarctica.
Spiral do. Rhubarb.
Fern Scales, Cheilanthes Eckloniana.
Do. Elaphoglossum squamosum.
Do. Nothochlæna maranta.
Do. do. lævis.
Stellate Hairs from Elæagnus.
Wing of Seed of Eccremocarpus.

VEGETABLE PREPARATIONS. 50 cts., 75 cts. and $1.

The number 3 indicates that Three Sections of Stems are on one Slide Transverse, Vertical, and Radial.

Arancaria excelsa, 3.
Apple Tree, Pyrus malus, 3.
Asparagus, Asparagus officinalis.
Aristolochia sipho.
Do. ornithocephalus.
Do. Japan.
Baobab Tree, Adansonia digitata.
Berberry, Berberis vulgaris.
Beech, Fagus sylvatica, 3.
Brake Fern, Pteris aquilina.
Brava, Cissampelos Pereira.
Burdock, Arctium lappa.
Butcher's Broom, Ruscus aculeatus.
Cane, Bamboo, 3.
Bambusa, 3.
Do. Malacca, Calamus scipionum.
Do. Rattan, Calamus rotang, 3.
Do. Sugar, Saccharum officinarum, 3.
Do. Wanghae.
Catalpa syringæfolia, 3.
Cedar of Lebanon, Cedrus Libanus, 3.
Cherry Tree, Cerasus communis, 3.
Cinnamon, Cinnamonum Zeylanicum.
Chili Pine, Araucaria imbricata, 3.
Cocoa Nut Palm, Cocus comosa.
Cork Tree, Quercus suber, 3.
Cutleya Leopoldii.
Dendrobium nobile.
Do. speciosum.
Dog Rose, Rosa canina.
Dragon Tree, Dracœna ferrea.
Date Palm, Phœnix humilis.
Elder, Sambucus nigra, 3.
Fennel, Fœniculum officinale.
Fig Tree, Ficus carica.
Gesnera grandis.
Gum Tree, Eucalyptus, 3.
Gutta Percha Tree, Isonandra gutta, 3.
Grape Vine, Vitis vinifera.
Hibiscus Africanus, 3.
Ivy, Hedera helix.
India-rubber, Ficus elastica.
Jasmine.
Jasminum officinale.
Lavender, Lavandula vera.
Lace Bark, Lagetta lintearia, 3.
Land Rush, Juncus communis.
Larch, Larix, 3.
Larix Europæus, 3.
Lemon Tree, Citrus limonum.
Magnolia grandiflora.
Mahogany, Swietenia mahagoni, 3.
Maple, Acer campestre, 3.
Mimosa Nilotica.
Mulberry, Morus Nigra, 3.
Miltonia cuneata.
Misletoe, Viscum album.
Oak, Quercus pedunculata, 3.
Orange Tree, Citrus aurantium, 3.
Pampas Grass, Gynerium argenteum.
Passion Flower, Passiflora quadrangularis.
Pepper (Australia), Piper alba.
Do. (Malacca), P. Nigrum.
Pear Tree, Pyrus domestica.
Pine, Pinus strobus, 3.
Pine Apple, Ananas lucida.
Pilea Smilacifolia.
Plane Tree, Platanus Occidentalis, 3.
Sanseviera Zeylanica.
Sarsaparilla, Smilax officinalis.
Satin Wood, Chloroxylon Swietenia.
Screw Pine, Pandanus odoratissimus.
Sea Rush, Juncus maritimus.
Sunflower, Helianthus annuus.
Sandal Wood, Santalum album, 3.
Tea Tree, Lycium barbarum.
Traveller's Joy, Clematis vitalba.
Upas (Java), Antiaris toxicaria, 3.
Water Plantain, Alisma plantago.
Water Lily, Nuphar luteum.
Walnut, Juglans regia, 3.
Wellingtonia gigantea, 3.
Willow, Salix alba, 3.
Yew, Taxus baccata, 3.
Section of Petiole of Arum.
Do. Cinnamon.
Do. Date Palm.
Do. India-rubber.
Do. Oleander.
Bulb of Orchid, sections.
Pith of Rice Paper Tree.
Root of Wellingtonia gigantea
Root Fern, Pteris aquilina.

Sections of Leaf, Vertical and Transverse.

Of Ærides roseum and crispum.
Of Dracœna Draco and ferrea.
Of India-rubber Tree.
Of Odontoglossum grande.
Of Oncidium bicallosum.
Of Saccolabium guttatum.
Of Vanda Roxburghii.
Of Lily.
Of Hyacinth.
Of Oleander.
Of Wax Plant.
Of Cactus.

VEGETABLE PREPARATIONS. 50 and 75 cents.

Cuticles of Petals—
From Geranium, Peony.
Do. Pansy, Fritillaria.
Do. Nasturtium and Verbena.

Cuticles from Cherry, Plum.
Do. Pitcher Plant.
Do. Rhubarb. Potato.
Do. Sugar Grass.
Stomata in Cuticle of Orchid.
Do. Aloe, Hyacinth, Lily.
Do. Yucca, Oleander, Dog Rose.

Spiral Vessels from Collomia Seed.
Do. Rhubarb Stalk.
Do. Compound, Nymphæa edulis.
Spiro-annular, Musa paradisiaca.
Seed of Paulownia imperialis.
Flower of Houstonia caerulea.

Section of Hard Tissues.

Betel Nut, Palm, Areca pumila.
Vegetable Ivory Nut.
Cuticle of ditto, Surface and vert.

Shell of Cocoa Nut (vertical).
Do. do. (surface).
Do. Coquilla Nut, Attalea funifera.
Do. Brazil Nut.
Do. Mexican Gourd.
Stone of Apricot and Cherry.
Do. Damson and Peach.
Elementary particles of Cherry Stone.
Raphides in Cactus, Garlic.
Do. Hyacinth, Onion, Pear.
Do. Rhubarb, Squill, Rea.
Do. Tabaiba, Water Lily.

Pollens, Transparent.

From Cobœa scandens.
Do. Œnothera.
Do. Convolvulus, Geranium, Hollyhock.
Do. Lily, Nasturtium, Flax.
Do. Lobelia, Cuphea platycenta.
Do. Mallow, Passion Flower, Dahlia.
Do. Arum, Yucca, Vegetable Marrow.
Abelmoschus manihot.
Filaments from Stamens of Tradescantia.

Scales from Ferns.

Cheilanthes Eckloniana.
Do. elegans.
Ceterach officinarum.
Goniophlebium sepultum.
Niphobolus lingua.
Nothochlæna lævis.
Do. maranta.
Elaphoglossum squamosum.
Sporules and Thecæ of Ferns.
From Pteris aquilina.
Do. Polypodium vulgare.
Do. Osmunda regalis.
Fructification on Fronds of Ferns.
Adiantum Capillus veneris.
Asplenium Adiantum-nigrum.
Athyrium Filix-femina.
Crystopteris fragilis.
Davallia Canariensis.
Gymnogramma Laucheana.
Lastrea Filix-mas.
Pteris aquilina.
Polypodium fragilis.
Scolopendrium vulgare, and others.
Platycerum alcecorne.

Typical Illustrations of the Organic Structure of Plants.

Simple Cellular Tissue (*parenchyma*) .	in Rice Paper Plant.
Isolated Cells	in Vegetable Ivory.
Stellariform Cells	in Common Rush.
Fibro-cellular Tissue	in Bulb and Leaf of Orchid.
Fibro-cells separated	from Ærides roseum.
Do. do.	from Leaf of Oncidium.
Scalariform Vessels	from Fern, Pteris aquilina.
Single Spiral Vessels	from Rhubarb and Seed of Callomia.
Compound Spiral Vessels . . .	from Nymphæa edulis.
Spiro-annular Vessels . . .	from Musa paradisiaca.
Stomata in Cuticle	of Leaf of Hyacinth and Aloe.
Resin and Gum Cells	in Pine Seed, and Stem of Eucalyptus.
Muriform Cells	in Yellow Water Lily.
Pitted Ducts or Glands . . .	in Radial Section of Larch, and Pine.
Stem of Endogen, Vascular composition	Screw Pine.
Do. Exogen, Concentric annular layers	Cedar of Lebanon.
Petiole of Acrogen intermediate structure	Pteris Aquilina.

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Do. Incrustration in Steam Boiler.

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Do. Beetles.	Do. Vegetable.	Tongue of Blow Fly,	Do. Hornet.
Scales of Moths,	Eye of Butterfly,	Do. Bee,	Petal of Geranium,
Do. Butterflies,	Do. Dragon Fly,	Do. Wasp.	Do. Deutzia, &c.
Do. Fish,	Do. Blow Fly,	Wings of Beetles,	Leaves of Oleander,
Do. Lepissima.	Do. Bee,	Do. Flies,	Do. Box,
Hairs of Bee,	Do. Lobster,	Do. Wasps,	Do. Mosses.
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1993.	Griffith. Elementary Text Book of the Microscope, with a Description of the Methods of Preparing and Mounting Objects, &c. With twelve colored plates, 451 figures. By J. W. Griffith, M.D., F.R.S., ...	3 75	20
1994.	Cooke. Microscopic Fungi: An Introduction to the Study of Rust, Smut, Mildew, and Mould. Illustrated by nearly 300 figures, colored. By M. C. Cooke, author of British Fungi, &c.,	3 00	20
1995.	Richardson. Hand-book of Medical Microscopy. 40 Illustrations. By J. G. Richardson, M.D., ...	2 25	16
1996.	Ward. The Microscope. Profusely illustrated by Colored Plates. By the Hon. Mrs. Ward, ...	1 75	12
1997.	Ward. Microscopic Teachings. With Colored Plates. By the Hon. Mrs. Ward, ...	3 75	20
1998.	Suffolk. On Microscopical Manipulation. Being the subject matter of a Course of Lectures delivered before the Queckett Microscopical Club. By W. T. Suffolk, F.R.M.S., with 49 Engravings and 7 Lithographs, ...	2 00	16
1999.	Gosse. Evenings at the Microscope. 477 pages. Profusely illustrated. By Phillip Henry Gosse, F.R.S., . . .	2 50	24
2000.	Clarke. Objects for the Microscope. By L. Lane Clarke. 250 pages, ...	1 75	12

No.		Price.	Postage.
2001.	Cooke. 1000 Objects for The Microscope with 400 Engravings. By M. C. Cooke,	$0 50	$0 08
2002.	Pritchard's Infusoria. The last London Edition, with Plates,	25 00	
2003.	Griffith and Henfrey. The Micrographic Dictionary. 750 pp., 45 Plates, and over 800 Wood Cuts,	22 50	
2004.	Harley and Brown. Histological Demonstrations of Microscopic Anatomy. Profusely illustrated. Last London Edition,	6 00	20
2005.	Nugent. A Treatise on Optics. By E. Nugent. 103 illustrations,	2 00	16
2006.	Frey. Das Mikroskop, und die Mikroskopische Technik Ein Handbuch fur Aerzte und Studirende. 257 illustrations,	4 00	24
2007.	Slack. Marvels of Pond Life. Plates,	2 50	16
2008.	Lankester. Half Hours with the Microscope; being a popular guide to its use. By Edwin Lankester, M.D. A new edition, with profuse illustrations,	2 00	16
2009.	Lardner. The Microscope. By Dr. Lardner,	1 00	12
2010.	Sommerville. On Molecular and Microscopic Science. By Mary Sommerville. Illustrated; 2 volumes. London, 1869,	10 50	48
2011.	Monthly Microscopic Journal. Transactions of the Royal Microscopical Society. Edited by Henry Lawson, M.D. Monthly subscription price, per annum,	10 00	
2012.	Quarterly Journal of Microscopical Science. Edited by Edwin Lankester, F.R.S., and George Bush, F.R.S., with wood cuts and lithographic illustrations. Published quarterly. Subscription price, per annum,	10 00	
2013.	Tyson. The Cell Doctrine, for use of Medical and Dental Students. Illustrated By James Tyson, M.D.,	2 00	16

All new works are added to our stock as soon as they appear.

A

CATALOGUE

OF

ACHROMATIC MICROSCOPES

AND ACCESSORIES,

MANUFACTURED BY

R. & J. BECK, London,

TO WHOM

THE FOLLOWING MEDALS HAVE BEEN AWARDED

FOR

"THE EXCELLENCE OF THEIR MICROSCOPES."

THE COUNCIL MEDAL OF THE GREAT EXHIBITION OF 1851,
THE FIRST-CLASS MEDAL OF THE FRENCH EXHIBITION OF 1855,
THE PRIZE MEDAL OF THE INTERNATIONAL EXHIBITION OF 1862,
THE GOLD MEDAL OF THE FRENCH EXHIBITION OF 1867.

"Vino bono non opus est hedera."

JAMES W. QUEEN & CO.

SOLE AGENTS FOR THE UNITED STATES,

924 Chestnut Street, Philadelphia.

535 Broadway, New York.

NOTICE.

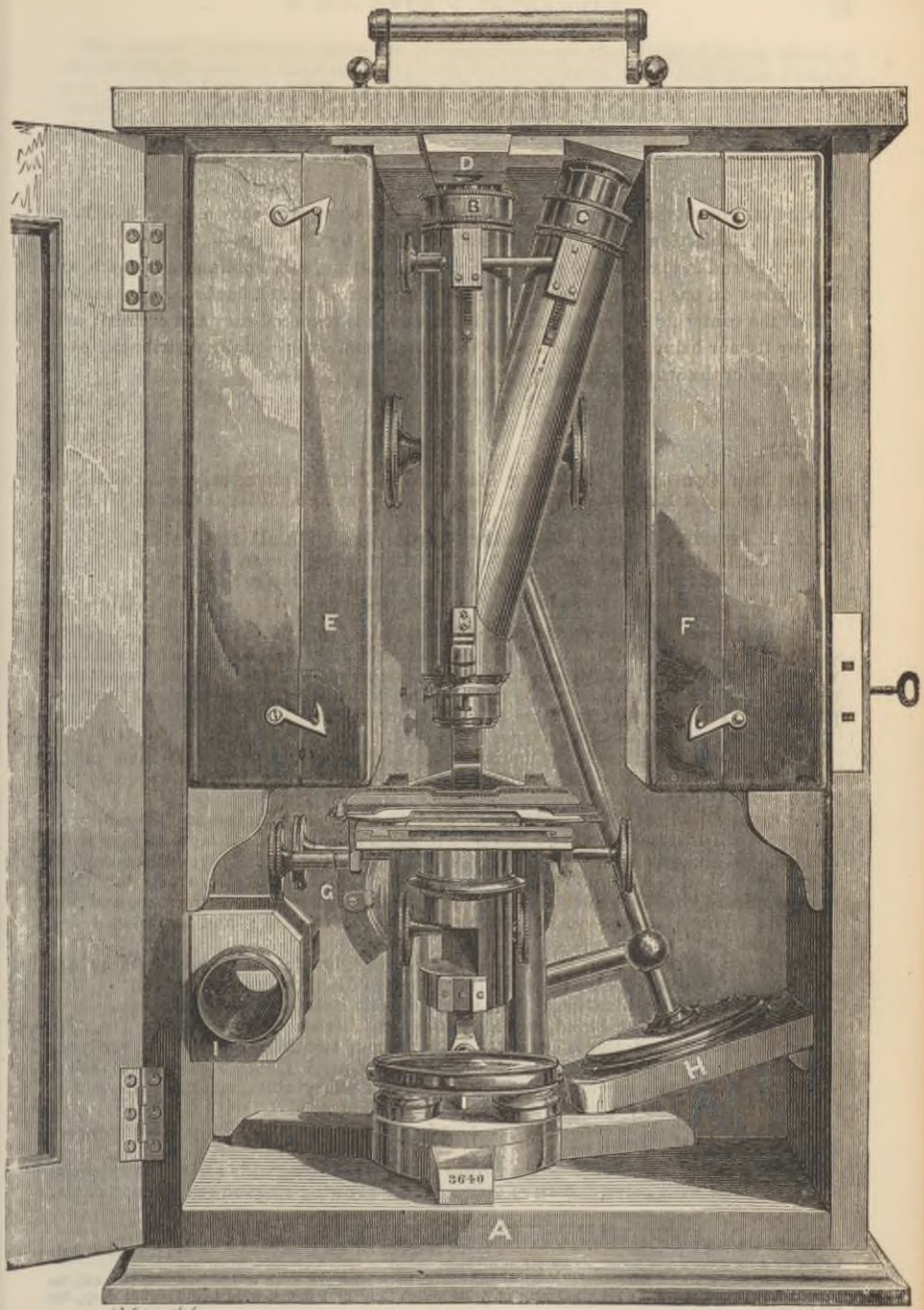
Having completed arrangements with Messrs. R. & J. Beck, whereby we are constituted special agents for the sale of all articles of their manufacture in the United States, it affords us pleasure to announce to our friends and the public generally, that we have now in stock, and shall hereafter keep on hand a full line of their goods, the prices of which are the same as those in London, United States duties and freight charges only being added. These goods are specially selected for our sales, and are guarantied to be only the first qualities of their respective grades.

Having them always in stock, we are prepared to fill orders promptly, thus avoiding the vexatious delays our microscopists have so long been obliged to submit to in obtaining instruments and accessories. If it is desired, however, to import any article specially, we can do so at the shortest notice; in this case a pre-payment of one-half the amount of the order will be required.

Under the New Tariff Act, Institutions of Learning, are entitled to import scientific instruments free of duty. We are prepared to receive and execute such orders very promptly.

It is unnecessary for us to say aught in praise of the instruments manufactured by this eminent firm, whose fame is world wide. We would, however, call especial attention to their New $\frac{1}{10}$ Immersion Object-Glass, which, in every particular, is believed to be superior to any of similar power heretofore produced, whilst its price is but little more than half those of other makers.

JAMES W. QUEEN & CO.



B. A. 1.

FIRST-CLASS MICROSCOPES.

A STAND, of similar construction to those in this class, was shown by R. & J. B. at the Great Exhibition of 1851, and is thus mentioned by the Jury:—

"The Stand is excellent in principle; the body, stage, and appliances beneath are all carried on one stout bar, on the recommendation of Mr. G. Jackson, by means of which the centering of the achromatic illumination is rendered easy and certain; and on any tremor being communicated to the instrument, it is equally distributed over the whole of the working parts."

(Reports of the Juries, p. 266, Class X., No. 253.)

Notice.

The New Concentric Rotating Stage, with Iris Diaphragm, can be added to all the Improved Large Microscopes, Nos. A 1 to 8, at an additional cost of $50.00.

B. A. 1. **Improved Large Binocular Microscope, with all the Latest Additions, Complete,** in which the magnifying power, the stand, the illumination, and all the accessory apparatus are carried to the greatest possible perfection. Price, ... $1300 00

In this instrument there are 9 *Object-Glasses*, viz. 3 (12°), 1½ (23°), ⅔ (32°), $\frac{4}{10}$ (55°), $\frac{4}{10}$ (90°), ¼ (75°), ⅛ (100°), ⅛ (120°), $\frac{1}{10}$ (140°), which, when successively combined with *Eyepieces* Nos. 1, 2, 3, 4, and 5, magnify from about 12 to 5000 times linear: besides these, there is also an *Erecting Glass*, which with the ⅔ Object-Glass and the Eyepieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

Two Kelner's Eye-pieces for giving a large field.

The *Body* has quick and slow motions, and a graduated sliding draw-tube, and is fitted with *Wenham's Binocular*, with rack adjustments to the draw-tubes, complete, and 3 *pairs of Eyepieces.*

For direct illumination of transparent objects, there is an *Achromatic Condenser*, of an improved construction of two powers; it has a revolving diaphragm to give various illuminating pencils from 25° to 80°, with stops for the central rays, with complete adjustments. Also a *Right-angle Prism* for reflecting the light more perfectly than the flat mirror, with movements and fittings to the triangular mirror-stem, and the reflecting surface uncovered for the convenience of wiping; and *a Brown's Iris Diaphragm.*

For oblique illumination of transparent objects, *Amici's* and *Nachet's Prisms* are mounted on improved plans, the reflecting surface of both being uncovered.

For "dark field illumination," *Wenham's Parabolic Reflector*, and a *Spot-Lens.*

Rainey's Moderator, on Stand, and a *White-ground Illuminator.*

The *Polarizing Apparatus* is complete, consisting of two *Nicol's Prisms* (an analyzer and an extra large polarizer) with revolving fittings, and *Darker's Series of Selenites*, which give 13 different colors and their complementary tints, mounted on an improved plan, for their more easy and accurate appliance.

Sorby's Micro-Spectroscope. Sorby's Standard Spectrum-scale. Sorby's Dichroiscope. Leeson's Goniometer.

A Tourmaline. Two Double-image Prisms and *Selenite Film*, with fittings to eyepiece and *brass plate* with holes. *A set of* 6 *Crystals* for showing rings round the optic axis.

*** The vertical and horizontal movements to the Stage of all the First-Class Microscopes can be given either by a Rackwork and Screw, or by White's Lever.

The "Improved Large Microscope" (either Monocular or Binocular), with complete apparatus, can be packed for portability in a case measuring only 19 inches long by 9 inches wide, and 5 inches deep, for $25.00 extra.

The Cases for all Instruments going to hot climates should be brass-bound, and all blocks screwed in. This adds $18.00 to the expense of Microscopes Nos. 3 to 6, and $15.00 to Nos. 7 and 8.

For opaque illumination, there are *a large Bull's-eye Condensing Lens* on stand, *a smaller Side Condensing Lens* with ball and socket joint to limb, *Side Silver Reflector* with complete fittings, *Parabolic Illuminator*, with *Sorby's Reflector*, *Beck's Patent Illuminator*, and *Lieberkuhns* to the $1\frac{1}{2}$, $\frac{2}{3}$, $\frac{4}{10}$, and $\frac{1}{4}$ Object-glasses, together with 3 *Dark Wells* and *Holder*.

The following are also supplied:—

Opaque-Disk Revolver with three trays of Disks, Forceps, and bottle of Gold Size, in mahogany case, complete.

Quadruple Nosepiece, in Aluminium, for changing either of four Object-glasses without the trouble of screwing or unscrewing.

Wollaston's Camera Lucida, and *a Neutral-Tint Glass Camera*, for drawing objects.

Eyepiece and *Stage Micrometers*, for measuring objects, the former mounted with Jackson's adjusting-screw.

Indicators to 5 Eyepieces, for pointing to any particular object in the field of view.

A Set of Live Traps.

A Lever Compressor, *Wenham's Compressor*, *and Parallel-plate Reversible Compressor.* *Screw Live-Box*, *Large* and *Small Live-Boxes.* *A Growing-Cell.* *Two Large Glass Troughs* with wedge and spring complete, 2 *Glass Plates* with *Ledge and Covers*, and a set of *Glass Tubes*—for the examination of objects in fluid.

Maltwood's Finder.

A Frog Plate for showing the circulation of the blood. *A Mineral-holder.* *A pair of Three-pronged Forceps.*

A Key for tightening the joint of the stand. *A pair of Forceps* fitted to the stage, and *a pair of Brass Pliers.*

The whole packed in an *Upright Spanish-Mahogany Case*, with two boxes for containing the Apparatus.

B. 1. **Improved Large Binocular Microscope, Complete,** in which the magnifying-power, the stand, and the illumination are carried to the greatest possible perfection, Price, ... $1000 00

In this instrument there are 9 *Object-glasses*, viz. 3 (12°), $1\frac{1}{2}$ (23°), $\frac{2}{3}$ (32°), $\frac{4}{10}$ (55°), $\frac{4}{10}$ (90°), $\frac{1}{4}$ (75°), $\frac{1}{5}$ (100°), $\frac{1}{8}$ (120°), $\frac{1}{10}$ (140°), which when successively combined with 3 pairs of *Eyepieces*, Nos. 1, 2, and 3, magnify from about 12 to 3000 times linear; besides these, there is also an *Erecting Glass*, which, with the $\frac{2}{3}$ Object-glass and the Eyepieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

The *Body* is fitted with *Wenham's Binocular*, with rack adjustments to the draw-tubes complete, has quick and slow motions, and a graduated sliding tube.

For direct illumination of transparent objects, there is an *Achromatic Condenser*, of an improved construction, of two powers; it has a revolving diaphragm to give various illuminating pencils from 25° to 80°, with stops for the central rays, with complete adjustments. Also a *Right-angle Prism* for reflecting the light more perfectly than the flat mirror, with movements and fittings to the triangular mirror-stem, and the reflecting surface uncovered for the convenience of wiping.

For oblique illumination, of transparent objects, *Amici's and Nachet's Prisms* are mounted on improved plans, the reflecting surface of both being uncovered.

For "dark-field illumination," *Wenham's Parabolic Reflector*, and a *Spot Lens.*

The *Polarizing Apparatus* is complete consisting of two *Nicol's Prisms* (an analyzer and an extra large polarizer) with revolving fittings, and *Darker's Series of Selenites*, which give 13 different colors and their complementary tints, mounted on an improved plan, for their more easy and accurate appliance.

Two Double-image Prisms and *Selenite Film*, with fittings to eyepiece and *Brass plate* with holes.

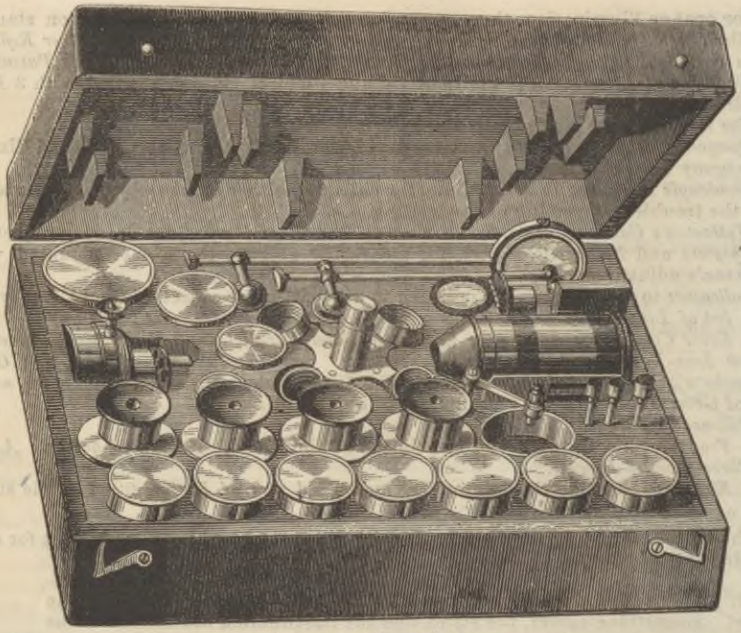
For opaque illumination, there are *a large Bull's-eye Condensing Lens* on stand, *a smaller Side Condensing Lens* with ball and socket joint to limb, *Parabolic Illuminator*, and *Lieberkuhns* to the $1\frac{1}{2}$, $\frac{2}{3}$, $\frac{4}{10}$, and $\frac{1}{4}$ Object-glasses, together with 3 *Dark Wells* and *Holder*

The following are also supplied:—

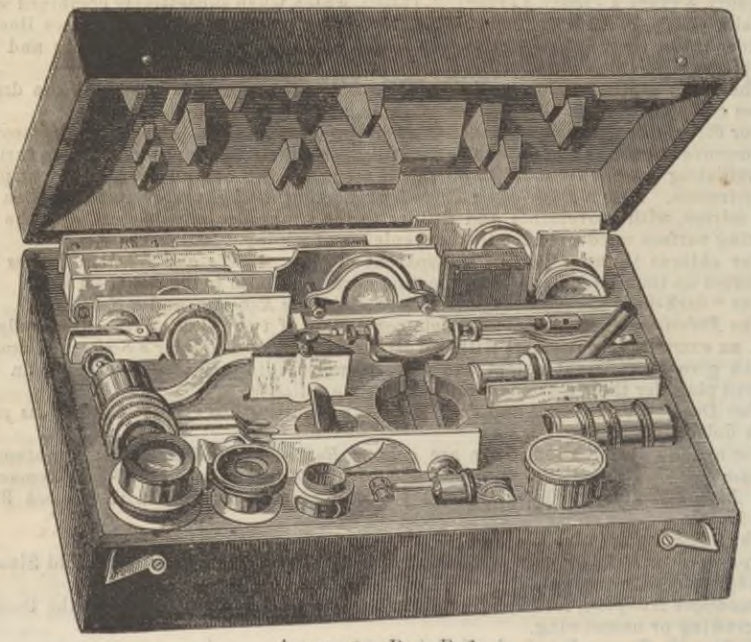
Opaque-Disk Revolver with three trays of Disks, Forceps, and bottle of Gold Size, in mahogany case, complete.

Quadruple Nosepiece, for changing either of four Object-glasses without the trouble of screwing or unscrewing.

Wollaston's Camera Lucida, for drawing objects.



Accessory Box, B. 1.



Accessory Box, B. 1.

Eyepiece and *Stage Micrometers*, for measuring objects, the former mounted with Jackson's adjusting-screw.

An Indicator, to each of 3 Eyepieces, for pointing to any particular object in the field of view.

The Lever Compressor, Wenham's Compressor, and Parallel Plate Reversible Compressor. Screw Live-Box, Large and *Small Live-Boxes. Large Glass Trough* with wedge and spring complete, 2 *Glass Plates* with *Ledge and Covers*, and a set of *Glass Tubes*, for the examination of objects in fluids.

Maltwood's Finder.

A Frog-plate for showing the circulation of the blood. *A pair of Three-pronged Forceps.*

A pair of Forceps fitted to the stage, and *a pair of Brass Pliers.*

The whole packed in an *Upright Spanish-Mahogany Case*, with two boxes for containing the Apparatus.

B. 2. **Improved Large Monocular Microscope, Complete,** in which the magnifying-power, the stand, and the illumination are carried to the greatest possible perfection. Price, ... $960 00

With the same Object-glass and Apparatus as No. 1. B.

B. 3. **Improved Large Binocular Microscope.** Price, ... 650 00

In this instrument there are 5 *Object-Glasses*, viz, $1\frac{1}{2}$ (23°), $\frac{3}{4}$ (32°), $\frac{4}{10}$ (55°), $\frac{1}{2}$ (100°), and $\frac{1}{4}$ (120°), which when successively combined with 3 pairs of *Eyepieces*, Nos. 1, 2 and 3, magnify from about 20 to 1300 times linear; besides these, there is also an *Erecting Glass*, which, with the $\frac{3}{4}$ Object-glass and the Eye-pieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

For direct illumination of transparent objects, there is an *Achromatic Condenser* of an improved construction, of two powers, and revolving diaphragm to give various illuminating pencils from 25° to 80°, with stops for the central rays, with complete adjustments.

Wenham's Parabolic Reflector, for dark field illumination.

Polarizing Apparatus, complete, with extra-large polarizing prism and one *selenite*, &c.

A large Bull's-Eye Lens, on a separate stand, a smaller *Side Condensing Lens* with ball-and-socket movements and fittings to the limb, and *Lieberkuhns* to $1\frac{1}{2}$, $\frac{3}{4}$, and $\frac{4}{10}$ Object-Glasses, with *Dark Wells* and *Holder*, for the illumination of opaque objects.

Brooke's Double Nosepiece, for changing either of two Object-Glasses without the trouble of screwing or unscrewing.

Camera Lucida, for drawing objects.

Eye-piece and *Stage Micrometers*, for measuring objects, the former mounted with Jackson's Adjusting Screw.

Opaque Disk Revolver, with three trays of Disks, Forceps and bottle of Gold Size, in mahogany case, complete.

Parallel-plate Reversible Compressor, Wenham's Compressor, Large and Small Live-Boxes, Large Glass Trough with wedge and spring complete, a set of *Glass Fishing Tubes*, and 2 *Glass Plates*, with *Ledge and Covers* for the examination of objects in fluid.

Maltwood's Finder.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers.*

The whole packed in an *Upright Spanish-Mahogany Case*, with one box for containing the apparatus.

B. 4. **Improved Large Monocular Microscope.** Price, ... $600 00

With the same Object-glasses and Apparatus as No. 3. B.

B. 5. **Improved Large Binocular Microscope.** Price, ... 525 00

With 3 pairs of *Eyepieces*, and $1\frac{1}{2}$ (23°), $\frac{3}{4}$ (32°), $\frac{4}{10}$ (55°), and $\frac{1}{2}$ (100°) *Object-glasses*, magnifying, when successively combined, about 20, 45, 60, 80, 105, 180, 120, 210, 240, 350, 430 and 720 times linear, and the *Erecting Glass*, which, with the $\frac{3}{4}$ Object-glass and the Eyepieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

Achromatic Condenser of two powers, with apertures of 20° and 60°, with adjusting-screws, for a more perfect illumination of transparent objects.

Wenham's Parabolic Reflector, for dark-field illumination.

Polarizing Apparatus complete, with *Selenite*, &c.

A large Bull's-eye Lens on a separate stand, a smaller *Side Condensing Lens* with ball-and-socket movements and fittings to the limb, and *Lieberkuhns* to 1½, ⅔ and $\frac{4}{10}$ Object-glasses, with *Dark Wells* and *Holder*, for the illumination of opaque objects.

Brooke's Double Nosepiece, for changing either of two Object-glasses without the trouble of screwing or unscrewing.

Camera Lucida for drawing objects.

Eyepiece and Stage Micrometers, for measuring objects, the former mounted with Jackson's adjusting-screw.

Wenham's Compressor, *Large and Small Live Boxes*, *Large Glass Trough*, with wedge and spring complete, a set of *Glass Fishing-Tubes*, and 2 *Glass Plates* with *Ledge and Covers*, for the examination of objects in fluid.

Maltwood's Finder.

A Pair of Forceps, fitted to the stage, and a pair of *Brass Pliers.*

The whole packed in an *Upright Spanish-Mahogany Case, with one box for containing the apparatus.*

B. 6. **Improved Large Monocular Microscope.** Price, . . $475 00

With the same Object-glasses and Apparatus as No. 5. B.

B. 7. **Improved Large Binocular Microscope.** Price, ... 330 00

With 3 pairs of *Eyepieces*, and ⅔ (32°) and ⅓ (85°) *Object-Glasses*, magnifying, when successively combined, about 60, 105, 180, 240, 430 and 720 times linear, and the *Erecting Glass*, which, with the ⅔ Object-glass and the Eyepieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

Side Condensing Lens, with ball-and-socket movements and fittings to the limb, and a *Lieberkuhn* to ⅔ Object-glass, with *Dark Wells* and *Holder* for the illumination of opaque objects.

Large Live-Box, and two *Glass Plates* with *Ledges* and *Covers* for objects in fluid.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers.*

Packed in an *Upright Honduras-Mahogany Case*, with a box for holding the appatus.

B. 8. **Improved Large Monocular Microscope.** Price, . . . $280 00

With the same Object-glasses and Apparatus as No. 7. B.

B. 11. **Improved Smaller Binocular Microscope.** Price, . . . 600 00

3 pairs of *Eye-pieces*, and 1½ (23°), ⅔ (32°), $\frac{4}{10}$ (55°), ⅓ (100°) and ⅛ (120°) *Object-Glasses*, magnifying, when successively combined, about 20, 45, 60, 80, 105, 180, 120, 210, 240, 350, 430, 720, 450, 760 and 1300 times linear, and the *Erecting Glass*, which, with the ⅔ Object-glass and the Eyepieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

For direct illumination of transparent objects, there is an *Achromatic Condenser*, of an improved construction, of two powers, and *revolving diaphragm* to give various illuminating pencils from 25° to 80°, with stops for the central rays, with complete adjustments.

Wenham's Parabolic Reflector, for dark-field illumination.

Polarizing Apparatus complete, with extra-large polarizing prism and one *selenite*, &c.

A large Bull's-eye Lens on a separate stand, a smaller *Side Condensing Lens* with ball-and-socket movements and fittings to the limb, and *Lieberkuhns* to 1½, ⅔ and $\frac{4}{10}$ Object-glasses, with *Dark Wells* and *Holder*, for the illuminating of opaque objects.

Brooke's Double Nosepiece, for changing either of two Object-glasses without the trouble of screwing or unscrewing.

Opaque-Disk Revolver with three trays of Disks, Forceps and bottle of Gold Size, in mahogany case, complete.

Camera Lucida, for drawing objects.

Eye-piece and Stage Micrometers, for measuring objects, the former mounted with Jackson's adjusting-screw.

Parallel Plate Reversible Compressor, *Wenham's Compressor*, *Large and Small Live-Boxes*, *Large Glass Trough* with wedge and spring complete, a set of *Glass Fishing-Tubes* and 2 *Glass Plates* with *Ledge and Covers*, for the examination of objects in fluid.

Maltwood's Finder.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers.*

The whole packed in a strong *Flat Spanish-Mahogany Case*, with covered dovetails.

B. 12. **Improved Smaller Monocular Microscope.** Price, . . $560 00
With the same Object-glasses and Apparatus as No. 11. B.

B. 13. **Improved Smaller Binocular Microscope.** Price, . . . 480 00

With 3 pairs of *Eyepieces*, and 1½ (23°), ⅔ (32°), $\frac{4}{10}$ (55°) and ¼ (100°) *Object-Glasses*, magnifying, when successively combined, about 20, 45, 60, 80, 105, 180, 120, 210, 240, 350, 430 and 720 times linear, and the *Erecting Glass*, which, with the ⅔ Object-glass and the Eyepieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

Achromatic Condenser of two powers, with apertures of 20° and 60, with adjusting-screws, for a more perfect illumination of transparent objects.

Wenham's Parabolic Reflector, for dark-field illumination.

Polarizing Apparatus complete, with *Selenite*, &c.

A large Bull's-eye Lens on a separate stand, a smaller *Side Condensing Lens* with ball-and-socket movements and fittings to the limb, and *Lieberkuhns* to 1½, ⅔ and $\frac{4}{10}$ Object-glasses, with *Dark Wells* and *Holder*, for the illumination of opaque objects.

Brooke's Double Nosepiece, for changing either of two Object-glasses without the trouble of screwing or unscrewing.

Camera Lucida, for drawing objects.

Eyepiece and Stage Micrometers, for measuring objects, the former mounted with Jackson's adjusting-screw.

Wenham's Compressor, *Large and Small Live-Boxes*, *Large Glass Trough* with wedge and spring complete, a set of *Glass Fishing-Tubes*, and 2 *Glass Plates* with *Ledge and Covers*, for the examination of objects in fluids.

Maltwood's Finder.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers*.

The whole packed in a strong *Flat Spanish-Mahogany Case*, with covered dovetails.

B. 14. **Improved Smaller Monocular Microscope.** Price, . . . $435 00
With the same Object-glasses and Apparatus as No. 13. B.

B. 15. **Improved Smaller Binocular Microscope.** Price, . . . 290 00

With 3 pair of *Eyepieces*, and ⅔ (32°) and ¼ (85°) *Object-glasses*, magnifying, when successively combined, about 60, 105, 180, 240, 430 and 720 times linear, and the *Erecting Glass*, which, with the ⅔ Object-glass, and the Eyepieces Nos. 1 and 2, magnifies from 5 to 150 times linear.

Side Condensing Lens with ball-and-socket movements and fitting to the limb, and a *Lieberkuhn* to ⅔ Object-glass, with *Dark Wells* and *Holder*, for the illumination of opaque objects.

Large Live-Box, and two *Glass Plates* with *Ledge and Covers*, for objects in fluids.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers*.

The whole packed in a strong *Flat Spanish-Mahogany Case*, with covered dovetails.

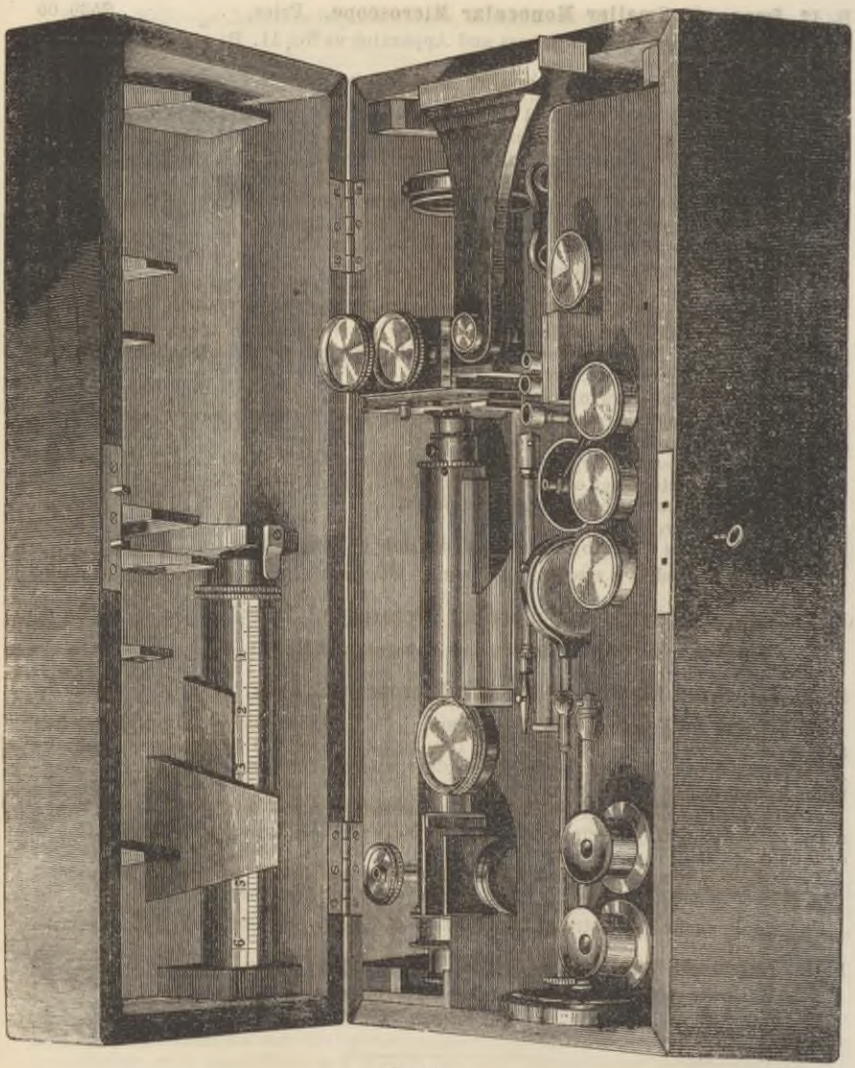
B. 16. **Improved Smaller Monocular Microscope.** Price, . . $250 00
With the same Object-glasses and Apparatus as No. 15. B.

SECOND-CLASS OR STUDENT'S MICROSCOPES.

In this class the *Magnifying Powers* are the very best, but they are combined with *Stands* less expensive than those of the *First Class*, but efficient.

B. 20. **Student's Best Binocular Microscope.** Price, ... $375 00

With 3 pairs of *Eyepieces*, and 1½ (23°), ⅔ (32°), $\frac{4}{10}$ (55°) and ¼ (85°) *Object-glasses*, magnifying, when successively combined, about 20, 45, 80, 60, 150, 180, 120, 210, 350, 240, 430 and 720 times linear, and the *Erecting Glass*, which, with the ⅔ Object-glass and Nos. 1 and 2 Eyepieces, magnifies from 5 to 150 times linear.



B. 20.

Side Condensing Lens on stand, and *Lieberkuhns* to the $1\frac{1}{2}$, $\frac{2}{3}$ and $\frac{1}{10}$ Object-glasses, together with *Dark Wells* and *Holder*, for the illumination of opaque objects.

Wenham's Parabolic Reflector, for dark-field illumination.

Polarizing Apparatus complete, with *Selenite stage*, &c.

Camera Lucida and *Stage Micrometer*, for drawing or measuring objects.

Brooke's Double Nosepiece, for changing either of two Object-glasses without the trouble of screwing or unscrewing.

Glass Trough with wedge and spring complete, *Live-Box* and *Glass Plate* with *Ledge and Covers*, for objects in fluids.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers*.

The whole packed in a *Flat Dove-tailed Mahogany Case*.

B. 21. **Student's Best Monocular Microscope.** Price, ... $325 00

With the same Object-glasses and Apparatus as No. 20. B.

B. 22. **Student's Best Plain Binocular Microscope.** Price, . . 340 00

Stage, with Sliding-piece and Clamping-spring, with the same Object-glasses and Apparatus as No. 20. B.

B. 23. **Student's Best Plain Monocular Microscope.** Price, . . 290 00

With the same Object-glasses and Apparatus as No. 22. B.

B. 24. **Student's Best Binocular Microscope.** Price, ... 290 00

With 3 pairs of *Eyepieces*, and $\frac{3}{4}$ (32°) and $\frac{1}{4}$ (85°) *Object-glasses*, magnifying, when successively combined, about 60, 105, 180, 240, 430 and 720 times linear, and the *Erecting Glass*, which, with $\frac{3}{4}$ Object-glass and Nos. 1 and 2 Eyepieces, magnifies from 5 to 150 times linear.

Side Condensing Lens on stand, and a *Lieberkuhn* to $\frac{3}{4}$ Object-glass, with *Dark Wells* and *Holder*, for the illumination of opaque objects.

Wenham's Parabolic Reflector, for dark-field illumination.

Polarizing Apparatus complete, with *Selenite stage*, &c.

Camera Lucida and *Stage Micrometer*, for drawing or measuring objects.

Glass Trough with wedge and spring complete, *Live-Box* and *Glass Plate* with *Ledge and Covers*, for objects in fluids.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers*.

The whole packed in a *Flat Dove-tailed Mahogany Case*.

B. 25. **Student's Best Monocular Microscope.** Price, ... $240 00

With the same Object-glasses and Apparatus as No. 24. B.

B. 26. **Student's Best Plain Binocular Microscope.** Price, . . 260 00

Stage, with Sliding-piece and Clamping-spring, with the same Object-glasses and Apparatus as No. 24. B.

B. 27. **Student's Best Plain Monocular Microscope.** Price, . . 210 00

With the same Object-glasses and Apparatus as No. 26. B.

B. 28. **Student's Best Binocular Microscope.** Price, ... 250 00

With 2 pairs of *Eyepieces* and $\frac{3}{4}$ (32°) and $\frac{1}{4}$ (80°) *Object-glasses*, magnifying, when successively combined, about 60, 105, 240 and 430 times linear, and the *Erecting Glass*, which, with the $\frac{3}{4}$ Object-glass and the Eyepieces, magnifies from 5 to 150 times linear.

Side Condensing Lens on stand, and a *Lieberkuhn* to $\frac{3}{4}$ Object-glass, with *Dark Wells* and *Holder*, for the illumination of opaque objects.

Live-Box and *Glass Plate* with *Ledge and Covers*, for objects in fluids.

A Pair of Forceps fitted to the stage, and a pair of *Brass Pliers*.

The whole packed in a *Flat Dove-tailed Mahogany Case*.

B. 29. **Student's Best Monocular Microscope.** Price, ... 200 00

With the same Object-glasses and Apparatus as No. 28. B.

B. 30. **Student's Best Plain Binocular Microscope.** Price, . . 210 00

Stage, with Sliding-piece and Clamping-spring, with the same Object-glasses and Apparatus as No. 28. B.

B. 31. **Student's Best Plain Monocular Microscope.** Price, . . 160 00

With the same Object-glasses and Apparatus as No. 30. B.

PRICES OF FIRST AND SECOND CLASS

MICROSCOPE STANDS AND CASES,

IF ORDERED SEPARATELY.

FIRST-CLASS MICROSCOPE STANDS.

B. 36. New Large Best Binocular-Microscope Stand, with Concentric Rotating Stage and Iris Diaphragm, most complete movements to the Body, Stage, and Double Mirror, Two pairs of Eyepieces, Pliers, Forceps, &c. $260 00

B. 37. New large Best Monocular-Microscope Stand, with Concentric Rotating Stage and Iris Diaphragm, most complete movements to the Body, Stage, and Double Mirror, Two Eyepieces, Pliers, Forceps, &c. 210 00

B. 40. Improved large Binocular-Microscope Stand, with the most complete movements to the Body, Stage, and Double Mirror, Two pairs of Eyepieces, Pliers, Forceps, &c. 225 00

B. 41. Improved large Monocular-Microscope Stand, with the most complete movements to the Body, Stage, and Double Mirror, Two Eyepieces, Pliers, Forceps, &c. 180 00

B. 42. Improved large Binocular-Microscope Stand, the same as No. 40, but made very portable, ... 250 00

B. 43. Improved large Monocular-Microscope Stand, the same as No. 41, but made very portable, ... 200 00

B. 44. Improved smaller Binocular-Microscope Stand, on the same principle, and with the same actions as No. 40, Two pairs of Eyepieces, Pliers, Forceps, &c., but with single pillar, ... 200 00

B. 45. Improved smaller Monocular-Microscope Stand, on the same principle, and with the same actions as No. 41, Two Eyepieces, Pliers, Forceps, &c., but with single pillar, ... 150 00

CASES FOR FIRST-CLASS MICROSCOPES.

B. 46. Best Upright Case, in Spanish Mahogany, for Nos. 40 and 41, with best brass handle, two boxes for Apparatus, ... 36 00

B. 47. Best Upright Case, in Spanish Mahogany, for Nos. 40 and 41, with best brass handle, only one box for Apparatus, ... 30 00

B. 48. Upright Case, in Honduras Mahogany, for Nos. 40 and 41, with best brass handle, two boxes for Apparatus, ... 25 00

B. 49. Upright Case, in Honduras Mahogany, for Nos. 40 and 41, with best brass handle, one box for Apparatus, ... 20 00

B. 50. Strong Flat Case, in Spanish Mahogany, with covered Dovetails (19 inches long by 9 inches wide, and 4 inches deep), for Nos. 42 and 43, 28 00

B. 54. Best Upright Case, in Spanish Mahogany, for Nos. 44 and 45, with best brass handle and box for Apparatus, ... 28 00

B. 55. Upright Case, in Honduras Mahogany, for Nos. 44 and 45, with best brass handle and box for Apparatus, ... 20 00

B. 56. Strong Flat Case, in Spanish Mahogany, with covered Dovetails, for Nos. 44 and 45, with best brass handle, ... 15 00

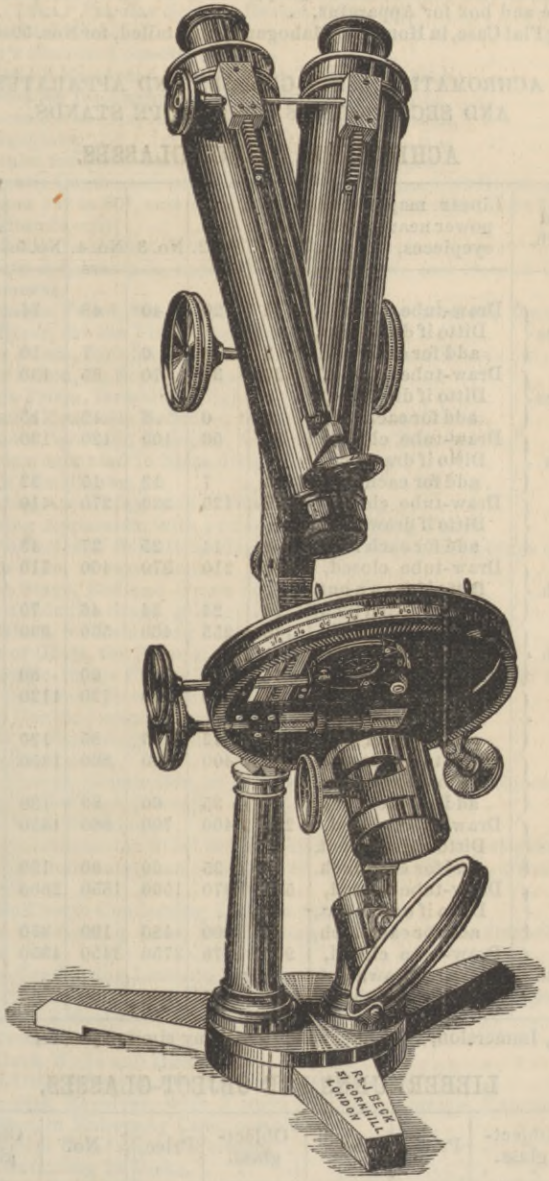
SECOND-CLASS MICROSCOPE STANDS.

B. 59. Student's Best Binocular-Microscope Stand, with complete movements to Body, Stage, and Double Mirror, Two pairs of Eyepieces, Pliers, Forceps, &c. 150 00

B. 60. Student's Best Monocular-Microscope Stand, with complete movements to Body, Stage, and Double Mirror, Two Eyepieces, Pliers, Forceps, &c. 100 00

B. 61. Student's Best Plain Binocular-Microscope Stand, Stage Movements by means of Sliding-piece and Clamping-spring, Double Mirror, Two pairs of Eyepieces, Pliers, Forceps, &c. 115 00

B. 62. Student's Best Plain Monocular-Microscope Stand, Stage-movements by means of Sliding-piece and Clamping-spring, Double Mirror, Two Eyepieces, Pliers, Forceps, &c. 70 00



B. 36.

CASES FOR SECOND-CLASS MICROSCOPES.

B. 64. Upright Case, in Honduras Mahogany, for Nos. 59–62, B. with best brass handle and box for Apparatus, ... $20 00
B. 65. Strong Flat Case, in Honduras Mahogany, Dovetailed, for Nos. 59–62, B. 10 00

PRICES OF ACHROMATIC OBJECT-GLASSES AND APPARATUS FOR FIRST AND SECOND-CLASS MICROSCOPE STANDS.

ACHROMATIC OBJECT-GLASSES.

No.	Focal Length.	Linear magnifying power nearly, with eyepieces, . . .	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	Angle of aperture about.	Price.
								°	$ c.
B. 71.	3 inches	Draw-tube closed,	12	20	40	48	74	12	28 00
		Ditto if drawn out,							
		add for each inch,	2	4	6	7	10		
B. 72.	2 inches	Draw-tube closed,	20	38	70	85	130	18	28 00
		Ditto if drawn out,							
		add for each inch,	4	6	8	12	15		
B. 73.	1½ inch	Draw-tube closed,	30	56	100	120	190	23	28 00
		Ditto if drawn out,							
		add for each inch,	5	7	12	15	22		
B. 74.	⅔ inch	Draw-tube closed,	70	120	220	270	410	32	25 00
		Ditto if drawn out,							
		add for each inch,	8	14	25	27	48		
B. 75.	$\frac{4}{10}$ inch	Draw-tube closed,	120	210	370	460	710	55	42 00
		Ditto if drawn out,							
		add for each inch,	14	24	34	46	70		
B. 76.	$\frac{4}{10}$ inch	Draw-tube closed,	146	255	460	560	890	90	60 00
		Ditto if drawn out,							
		add for each inch,	18	32	48	60	80		
B. 77.	¼ inch	Draw-tube closed,	200	340	590	720	1120	75	42 00
		Ditto if drawn out,							
		add for each inch,	24	42	63	85	120		
B. 78.	⅕ inch	Draw-tube closed,	225	400	700	860	1450	85	42 00
		Ditto if drawn out,							
		add for each inch,	18	35	60	80	130		
B. 79.	⅕ inch	Draw-tube closed,	225	400	700	860	1450	100	50 00
		Ditto if drawn out,							
		add for each inch,	18	35	60	80	130		
B. 80.	⅛ inch	Draw-tube closed,	500	870	1500	1850	2800	120	68 00
		Ditto if drawn out,							
		add for each inch,	60	100	180	190	370		
B. 81.	$\frac{1}{20}$ inch	Draw-tube closed,	900	1570	2750	3450	4950	140	125 00
		Ditto if drawn out,							
		add for each inch,	80	150	300	350	900		

B. 82. New $\frac{1}{10}$ Immersion, very fine, superior to any similar power, . $50 00

LIEBERKUHNS FOR OBJECT-GLASSES.

No.	Object-glass.	Price.	No.	Object-glass.	Price,	No.	Object-glass.	Price.
		$ c.			$ c.			$ c.
B. 87.	3-inch,	6 00	B. 89.	1½-inch,	4 50	B. 91.	$\frac{4}{10}$-inch,	4 00
B. 88.	2-inch,	6 00	B. 90.	⅔-inch,	4 50	B. 92.	¼-inch,	4 00

APPARATUS.

B. 66.	Sorby's Spectroscope Eyepieces, for the Microscope, in Mahogany Case. (See "Popular Science Review," No. 18),	$50 00
B. 67.	Sorby's Dichroiscope,	8 50
B. 67*.	Sorby's Standard Spectrum-scale,	8 50
B. 96.	Orthoscopic Eyepieces, giving a very large field, each,	8 50
B. 97.	Eyepieces for the Improved Large Microscope, each,	7 00
B. 98.	Eyepieces for the Improved Smaller Microscope, each,	6 00
B. 99.	Erecting-glass,	8 00
B. 100.	Draw-tube for First- and Second-Class Microscopes,	4 25
B. 101.	Achromatic Condenser, with Revolving Diaphragm, with Stops, aperture from 25° to 80°, complete Adjustments, applicable to the First-Class Stands only,	40 00
B. 102.	Achromatic Condenser, without Diaphragm, aperture from 20° to 60°, complete Adjustments, applicable to the First- and Second-Class Instruments,	20 00
B. 104.	Right-angle Prism, for reflecting the light more perfectly than the Flat Mirror, for the First-Class Stands only,	20 00
B. 105.	Amici's Prism, for oblique light, for the First-Class Stands only,	18 00
B. 106.	Amici's Prism, on Separate Stand,	18 00
B. 107.	Nachet's Prism, for oblique light,	8 50
B. 108.	Wenham's Parabolic Reflector, for the First-Class Stands,	15 00
B. 109.	Wenham's Parabolic Reflector, for the Second-Class Stands,	15 00
B. 110.	Spot Lens, mounted in brass fitting,	4 50
B. 113.	Brown's Iris Diaphragm,	18 00
B. 115.	Polarizing Apparatus, with 1 Film of Selenite,	20 00
B. 116.	Polarizing Apparatus, with extra-large Polarizing Prism,	35 00
B. 117.	Darker's Series of Selenites, adapted for the First-Class Stands only,	30 00
B. 118.	Selenite Film, of two colours,	2 00
B. 119.	Selenite Stage, Red and Green or Blue and Orange, each,	3 00
B. 120.	Darker's Selenite Stage, giving 13 tints,	18 00
B. 121.	Black Glass, for Polarizing Light,	5 00
B. 122.	Bundle of Glass, for Polarizing Light,	8 50
B. 123.	Two Double-Image Prisms and Selenite Film, with fittings to Eyepiece, and brass plate with holes,	18 00
B. 123*.	Single Double-Image Prism, in fitting,	8 00
B. 124.	Crystals to show rings round the Optic Axis each,	4 25
B. 125.	Tourmalines, each,	8 00
B. 126.	Beck's Patent Illuminator, in a brass box, for viewing Objects as Opaque under high powers,	4 50
B. 127.	White-cloud Illuminator,	4 50
B. 128.	Parabolic Illuminator, fitted to the 1½-inch and ⅔-inch Object-glasses,	9 00
B. 129.	Parabolic Illuminator, same as No. 128, with the addition of Sorby's Reflector,	18 00
B. 130.	Large Bull's-eye Condensing Lens, on stand,	9 00
B. 131.	Smaller Condensing Lens, with Fitting to Limb of the First-Class Stands,	8 00
B. 132.	Smaller Condensing Lens, on Stand,	5 00
B. 133.	Side Silver Reflector, with Fittings to Limb of the First-Class Stands,	9 00
B. 134.	Side Silver Reflector, on Stand,	9 00
B. 135.	Rainey's Moderator, on Stand,	9 00
B. 136.	Three Dark Wells and Holder,	5 00
B. 137.	Opaque-Disk Revolver, one Tray of Disks, in Case,	15 00
B. 138.	Opaque-disk Revolver, with 3 trays of Disks, Forceps, Capsule of Gold Size, in Mahogany Case, complete,	30 00
B. 139.	Opaque-disk Revolver and Forceps,	9 00
B. 140.	Boxes containing 24 Disks,	5 00
B. 141.	Trays containing 24 Disks,	5 00
B. 142.	Three-pronged Forceps, in German Silver, with Screw Adjustment.	7 00
B. 143.	Three-pronged Forceps,	6 00
B. 144.	Stage Forceps,	3 25
B. 145.	Stage Mineral-holder,	8 50

B. 146. Eyepiece Micrometer, with Jackson's Adjusting Screw, . . . $8 50
B. 147. Stage Micrometer, mounted in brass, ... 4 00
B. 148. Stage Micrometer, mounted in card, ... 2 00
B. 150. Maltwood's Finder, in case, ... 3 50
B. 152. Indicator to each Eyepiece, ... 2 00
B. 154. Leeson's Goniometer, ... 20 00
B. 155. Wollaston's Camera Lucida, ... 8 00
B. 156. Neutral-tint Glass Camera Lucida, ... 3 50
B. 157. Steel-disk Camera Lucida, ... 6 00
B. 159. Brooke's Double Nosepiece, ... 12 50
B. 160. Quadruple Nosepiece, ... 28 00
B. 161. Quadruple Nosepiece, in Aluminium, ... 40 00
B. 162. Lever Compressorium, ... 8 00
B. 163. Parallel Compressor, ... 8 50
B. 164. Reversible Compressor, ... 8 50
B. 165. Wenham's Compressorium, for use with Wenham's Parabola, . . 3 50
B. 166. Screw Live-box. 6 00
B. 167. Large Live-box, ... 3 75
B. 168. Smaller Live-box, ... 2 75
B. 169. Large Class Trough, with Wedge and Spring complete, . . . 3 75
B. 170. Smaller Glass Trough, with Wedge and Spring complete, . . 2 75
B. 171. Glass Slip, with Ledge 50
B. 172. Growing-cell, for preserving objects alive in water for many days, . 4 50
B. 173. Set of Six Live-traps and Trough, in Case, complete, . . . 12 50
B. 174. Live-trap, ... 3 00
B. 175. Frog-plate, with Bag, &c., complete, ... 4 50
B. 176. Glass Slip, with Hollow and Ledge, ... 75
B. 177. Glass Slip, with Hollow and Ledge and Lip, ... 2 00
B. 180. Glass Tubes, Set of Three, ... 50
B. 181. Key for Tightening joint of First-Class Instruments, . . . 2 00
B. 182. Opal Glass, for moderating the light, 3×1 inch, ... 50
B. 183. Blue Glass, for moderating the light, 3×1 inch, ... 50
B. 186. Astral Oil Lamp, with flat wick, ... 6 00
B. 190*. Lamp Chimneys for No. 186, ... 25
B. 191*. Flat Wicks for No. 186, per dozen, ... 25
B. 191. Gallon Can of Astral Oil, ... 1 00

THIRD-CLASS MICROSCOPES.

B. 220. **The Binocular Popular Microscope.** Price, ... $125 00

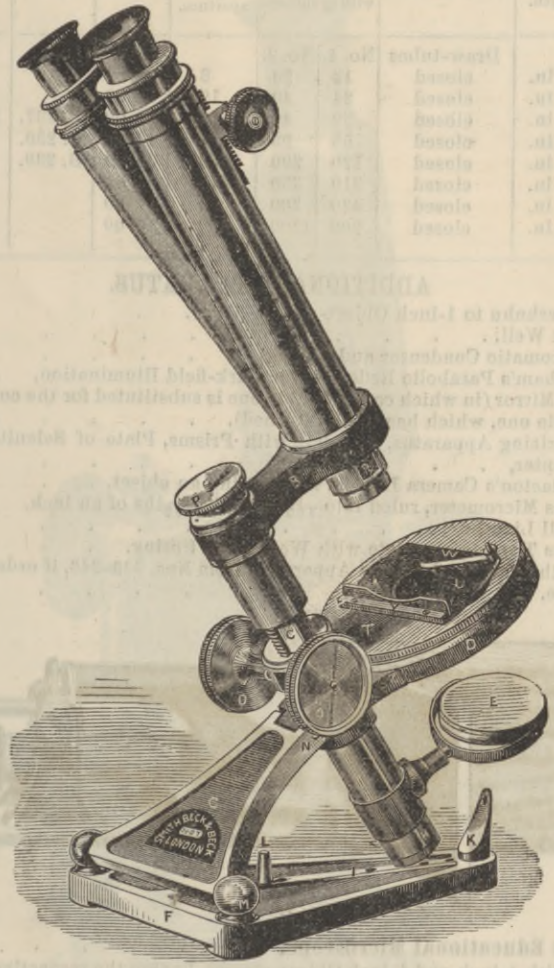
With 2-inch, 1-inch, and ¼-inch Object-glasses, having the respective apertures of 10, 22, and 75 degrees, and 2 pairs of Eyepieces; a new improved Stand with arrangement for varying the position, quick and slow motions to the body; Stage with improved object-holder and concentric revolving fitting; Concave Mirror with complete adjustments; a Side Condensing Lens on Stand; Diaphragm with perforated revolving disk; improved Forceps; Glass Plate, and a pair of Pliers, packed in a strong French-polished Mahogany Case, with brass hooks, a good lock and strong handle, together with Two Trays provided with the necessary fittings for the complete series of Object glasses and Apparatus.

B. 221. **The Binocular Popular Microscope.** Price 85 00

With 2-inch Object-glass; one pair of Eyepieces; Concave Mirror; Side Condensing Lens on Stand; Diaphragm; Forceps; Glass Plate, Pliers, &c., in Mahogany Case.

B. 222. **The Monocular Popular Microscope.** Price, ... 85 00

With 1-inch and ¼-inch Object-glasses; 2 Eyepieces; Concave Mirror; Side Condensing Lens on Stand; Diaphragm; Forceps; Glass Plate, Pliers, &c., in Mahogany Case.



B. 220.

B. 223. The Binocular Popular Microscope Stand, with one pair of Eyepieces; Concave Mirror; Diaphragm; Forceps; Glass Plate, Pliers, &c., . $75 00

B. 224. The Monocular Popular Microscope Stand, with One Eyepiece; Concave Mirror; Diaphragm; Forceps; Glass Plate, Pliers, &c., . . 45 00

B. 225. Mahogany Case for the Popular Microscope, ... 6 50

B. 226. Side Condensing Lens, on Stand, ... 3 50

B. 227. Improved Stage-Forceps, ... 2 00

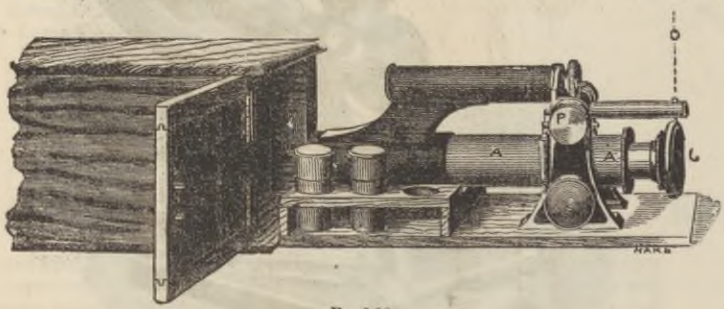
B. 251. Stage, with Horizontal and Vertical Mechanical Movements, Sliding Object-holder, and Revolving Fitting, complete, ... 22 50

PRICE LIST OF OBJECT-GLASSES AND LIEBERKUHNS.

No	Focal length.	Linear magnifying power nearly, with eyepieces.		Degrees of angle of aperture.	Price.	No.	Object-glass.	Price.
		Draw-tubes	No. 1.	No. 2.				
		closed			$ c.			$ c.
B. 229.	3 in.	closed	12	20	8	18 00		
B. 230.	2 in.	closed	24	40	10	14 00		
B. 231.	1½ in.	closed	29	48	15	22 00	B. 237.	1½-in. 4 00
B. 232.	1 in.	closed	55	90	22	22 00	B. 238.	1-in. 3 25
B. 233.	½ in.	closed	120	200	40	22 00	B. 239.	½-in. 3 25
B. 234.	¼ in.	closed	210	350	75	22 00		
B. 235.	⅛ in.	closed	420	700	85	44 00		
B. 236.	$\frac{1}{20}$ in.	closed	800	1200	100	70 00		

ADDITIONAL APPARATUS.

B. 238. Lieberkuhn to 1-inch Object-glass, ... $3 25
B. 240. Dark Well, ... 1 75
B. 241. Achromatic Condenser and Fitting, ... 8 50
B. 242. Wenham's Parabolic Reflector, for Dark-field Illumination, . . 8 50
B. 243. Flat Mirror (in which case a double one is substituted for the concave single one, which has to be returned), ... 3 00
B. 244. Polarizing Apparatus, complete with Prisms, Plate of Selenite and Adapter, ... 15 00
B. 245. Wollaston's Camera Lucida, for drawing an object, ... 6 50
B. 246. Glass Micrometer, ruled into $\frac{1}{100}$ths and $\frac{1}{1000}$ths of an inch, . . 2 00
B. 247. Small Live-box, ... 2 00
B. 248. Glass Trough, complete with Wedge and Spring, ... 2 75
B. 250. All the above Additional Apparatus, from Nos. 238–248, if ordered at once, ... 40 00



B. 260.

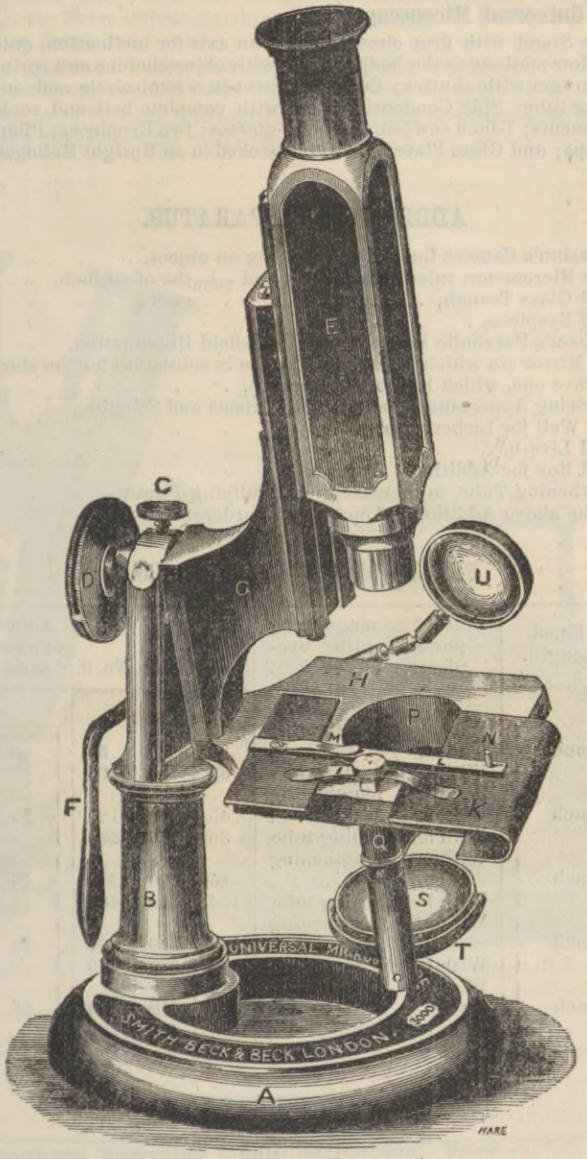
B. 260. **The Educational Microscope.** Price, ... 85 00
With 1-inch and ¼-inch Object-glasses, having the respective apertures of 22 and 75 degrees, and 2 Eyepieces; a firm Stand with a joint for varying the position, quick and slow motions to the body, a Stage with springs that allow any motion to be given to the object; a Supplementary Stage; Concave Mirror with complete adjustments; a Side Condensing Lens; Diaphragm with a Shutter; Forceps; Glass Plate, and a pair of Pliers, packed in a strong Mahogany Case.

B. 261. **The Educational Microscope Stand.** Price, ... 45 00
With two Eyepieces; Supplementary Stage; Concave Mirror; Side Condensing Lens; Diaphragm; Forceps; Glass Plate and Pliers, in a strong Mahogany Case.

B. 262. Eyepieces for Educational Microscope, ... 5 00

ADDITIONAL APPARATUS.—The same as with the Popular and at same prices.

B. 269. Mahogany Board, required for packing any of the additional parts, . 3 00
B. 272. Springs for Stage of Educational Microscope, each, ... 50



B. 275.

FOURTH-CLASS MICROSCOPES.

B. 275. **The Universal Microscope.** Price, ... $45 00

The Stand with firm circular base; an axis for inclination, quick and slow motions to the body; Stage with object-holder and spring; Diaphragm with shutter; Concave Mirror in a semi-circle and on a sliding tube; Side Condensing Lens with complete ball and socket movements; 1-inch and ¼-inch Object-glasses; two Eyepieces; Pliers; Forceps; and Glass Plate; the whole packed in an Upright Mahogany Case.

ADDITIONAL APPARATUS.

B. 245. Wollaston's Camera Lucida, for drawing an object, ... 6 50
B. 246. Glass Micrometer, ruled into $\frac{1}{100}$ths and $\frac{1}{1000}$ths of an inch, . . 2 00
B. 248. Small Glass Trough, ... 2 75
B. 280. Third Eyepiece, ... 4 50
B. 281. Wenham's Parabolic Reflector, for Dark-field Illumination, . . 8 50
B. 282. Flat Mirror (in which case a double one is substitute for the single concave one, which has to be returned), ... 3 00
B. 283. Polarizing Apparatus, complete with Prisms and Selenite, . . 15 00
B. 284. Dark Well for Lieberkuhns, ... 1 75
B. 285. Small Live-box, ... 2 00
B. 288. Small Box for Additional Apparatus, ... 3 00
B. 290. Lengthening Tube, to increase the Magnifying-Power, . . . 1 50
B. 292. All the above Additional Apparatus, if ordered at once, . . . 40 00

PRICES OF OBJECT-GLASSES.

No.	Focal Length.	Linear magnifying power, with eye-pieces,	No. 1.	No. 2.	No. 3.	Angle of aperture.	Price.
							$ c.
B. 294.	2 inches	Without lengthening tube,	20	30	50	9	12 00
		With lengthening tube,	35	50	95		
B. 295.	1 inch	Without lengthening tube,	45	60	120	25	12 00
		With lengthening tube,	80	110	220		
B. 296.	½ inch	Without lengthening tube,	85	120	240	45	20 00
		With lengthening tube,	150	200	400		
B. 297.	¼ inch	Without lengthening tube,	140	200	400	75	12 00
		With lengthening tube,	230	320	640		
B. 298.	⅛ inch	Without lengthening tube,	300	410	820	85	34 00
		With lengthening tube,	500	700	1400		

PRICES OF LIEBERKUHNS.

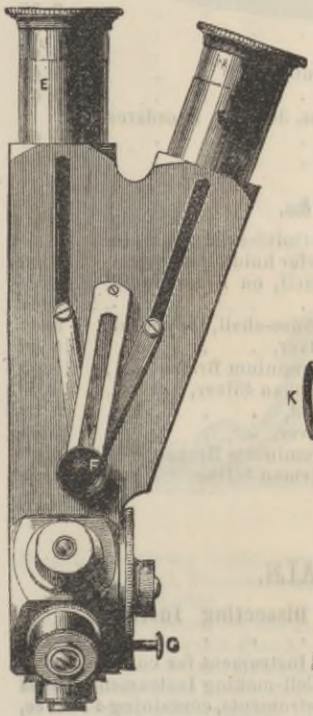
No.	Object-glass.	Price.	No.	Object-glass.	Price.
B. 299.	1-inch	$3 25	B. 300.	½-inch	$3 25

ADDITIONS TO STAND.

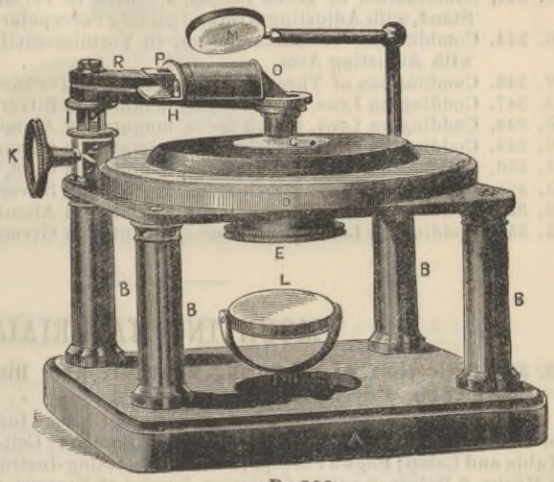
B. 303. Binocular Body, with Adjustment for distance of eyes; Revolving Disk for Three Object-glasses; complete fittings for Prism, and Two extra Eyepieces, ... $45 00

B. 304. The Combined Body, with Revolving Disks, capable of receiving Three Eyepieces and Three Object-glasses at the same time, . . 15 00

B. 305. Stage, with Vertical, Horizontal, and Revolving Movements, the latter being always central with axis of body, ... 22 50



B. 303.



B. 306.

SINGLE MICROSCOPES.

B. 306. **Improved Dissecting Single Microscope.** Price, . . . $45 00

Stand with complete sliding and revolving Stage-plates; One Arm to carry the lenses, with rack-and-pinion adjustment; Side Condenser on lengthening arm; Mirror with complete adjustments; Two single lenses and Two Coddingtons, ¾ and ½-inch focus, the whole packed in a strong Mahogany Case.

ADDITIONAL APPARATUS.

B. 309. Coddington Lens, 1-inch focus, ... $6 00
B. 310. Coddington Lens, ½-inch focus, ... 6 00
B. 311. Coddington Lens, ¼-inch focus, ... 6 50
B. 312. Holder for Glass Slips, ... 2 00
B. 313. Two Brass Saucers with Glass Bottoms, ... 3 00
B. 314. Two Flat Glasses, ... 1 00
B. 315. Two Concave Glasses, ... 2 00
B. 316. One Piece of Box-wood covered with Cork, ... 1 00
B. 317. One Gutta-Percha Tray loaded with Lead, ... 1 00
B. 318. One Piece of Lead and Cork, ... 1 00
B. 319. One Pair of Steel Forceps, ... 1 25
B. 320. Two Pairs of Scissors, ... 3 50
B. 321. One Needle-holder, ... 2 00
B. 322. Two Knives, ... 2 50
B. 323. Two Hooks, ... 2 00
B. 324. Two Points, ... 2 00
B. 325. Wooden Tray for holding Dissecting-Instruments, ... 3 00
B. 326. Box for containing Additional Apparatus, ... 3 00
B. 327. All the above Additional Apparatus, from Nos. 309–326, if ordered at once, ... 40 00
B. 328. Binocular Prisms and Arm for carrying ditto, ... 22 50

CODDINGTON LENSES, &c.

B. 343. Combination of Three Lenses, mounted in Tortoise-shell, on Brass Stand, with Adjusting Arm and Sliding Forceps for holding an object, 12 00
B. 344. Combination of Three Lenses, in Tortoise-shell, on Brass Stand, with Adjusting Arm, ... 8 00
B. 346. Combination of Three Lenses, mounted in Tortoise-shell, for pocket, 5 00
B. 347. Coddington Lens, ⅜-inch focus, mounted in Silver, ... 10 00
B. 348. Coddington Lens, ⅜-inch focus, mounted in Aluminium Bronze, . 10 00
B. 349. Coddington Lens, ⅜-inch focus, mounted in German Silver, . . 8 00
B. 350. Coddington Lens, ¼-inch focus, mounted in Gold, ... 25 00
B. 351. Coddington Lens, ¼-inch focus, mounted in Silver, ... 8 00
B. 352. Coddington Lens, ¼-inch focus, mounted in Aluminium Bronze, . 8 00
B. 353. Coddington Lens, ¼-inch focus, mounted in German Silver, . . 6 50

MOUNTING MATERIALS.

B. 360. **Collection of Mounting-Materials and Dissecting Instruments.** Price, ... $100 00

Consisting of Wood-cutting Instrument and Chisel; Instrument for cutting circles of thin Glass; Glazier's Diamond; Writing Diamond; Cell-making Instrument; Brass Table and Lamp; Page's Forceps; Case of Dissecting-Instruments, containing 4 Knives, 2 Hooks, 2 Points, 3 pairs of Scissors, 3 pairs of Forceps, and Needle-holder; Valentin's Knife; 1 oz. Thin Glass; 9 dozen Slips, 3 inch by 1 inch; 3 dozen Wooden Slips; 3 dozen Cells; 200 Labels; 5 Capped Bottles, containing Canada Balsam, Asphalt, Gold Size, Glycerin, and Marine Glue; Bottle of Deane's Medium; 3 Stoppered Bottles for containing Chloroform, Nitric Acid, and Liq. Potassæ.

The whole packed in a strong Dovetailed Mahogany Case.

B. 361. **Collection of Mounting-Materials.** Price, ... $45 00

Consisting of Writing Diamond; Cell-making Instrument; Brass Table and Lamp; Page's Forceps; Case for Dissecting-Instruments; 1 oz. Thin Glass; 6 dozen Slips, 3 in. by 1 in.; 3 dozen Wooden Slips; 2 dozen Cells; 150 Labels; 5 Capped Bottles, containing Canada Balsam, Asphalt, Gold Size, Glycerin, and Marine Glue; Bottle of Deane's Medium.

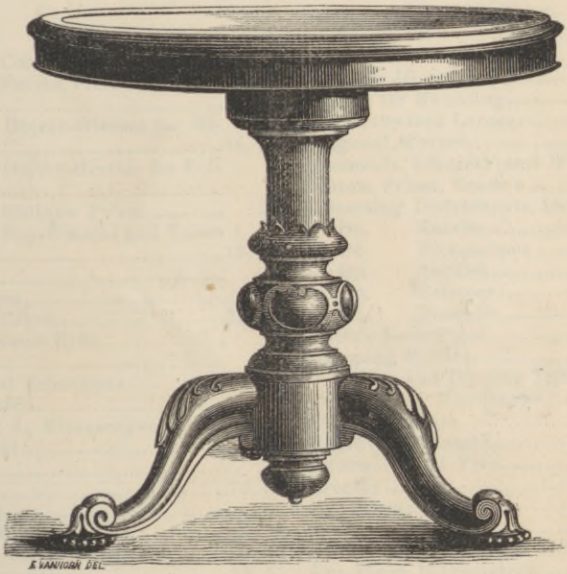
The whole packed in a strong Mahogany Case.

B. 362. **Collection of Mounting-Materials.** Price, ... $25 00

Consisting of a Writing Diamond; Cell-making Instrument; Brass Table and Lamp; Page's Forceps; ½ oz. Thin Glass; 3 dozen Slips, 3 in. by 1; 1 dozen Cells; 100 Labels; 5 Bottles, containing Canada Balsam, Asphalt, Gold Size, Glycerin, and Mariné Glue; Small Bottle of Deane's Medium.

The whole packed in a Mahogany Case.

B. 368. Improved Wood-cutting Machine, with Chisel, packed in Mahogany Case, ... $12 00



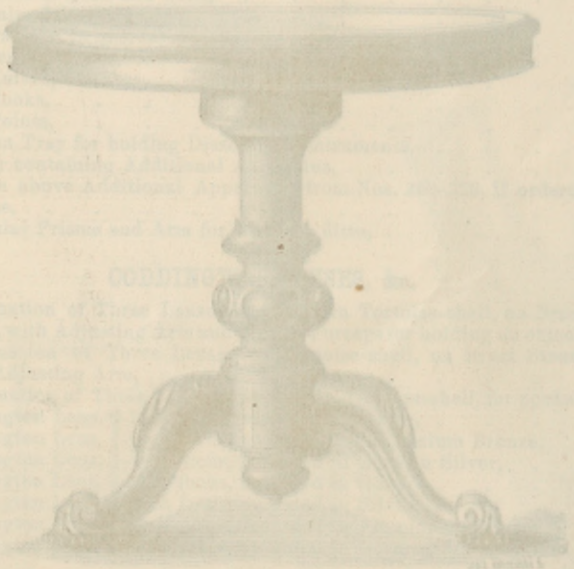
B. 491.

B. 491. Revolving Table, especially arranged for Microscopic purposes, in Walnut, Rosewood, Mahogany, or Oak, with handsome Leather Top, Gilt Border, ... 70 00

B. 492. Iron Centre, for the above, ... 10 00

B. 495. Walnut-wood Stand, with Leather Top, on Rollers, to carry a Microscope and Lamp round a Table, ... 9 00

B. 496. Bell-Glass Shade and Stand, with handsome Leather Cover, to place over a Microscope. 10 00



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