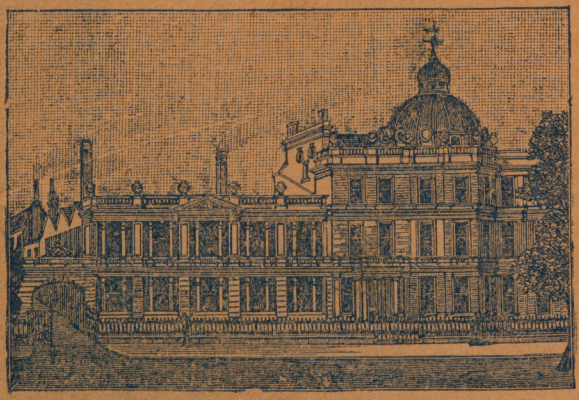
ABRIDGED CATALOGUE for 1904,
Cancelling all Previous Lists.

MEDALS AND HIGHEST AWARDS.

London, 1851. Paris, 1867. London, 1862. Philadelphia, 1876. Paris, 1878.
Antwerp, 1878. Inventions Exhibition, 1885. Sydney, 1879.
Grand Prix and Gold Medal Paris, Exposition Universelle, 1889.
Kingston, Jamaica, 1891. Chicago, 1893.
Grand Prix, Diploma of Honour, and Gold, Silver, and Bronze Medals, Brussels, 1897

GRAND PRIX and GOLD MEDAL, PARIS, 1900.



ROSS' NEW OPTICAL WORKS, CLAPHAM COMMON.

ROSS, LTD.,

MANUFACTURING OPTICIANS,

Contractors to His Majesty's Governments, British and Colonial, also to the Principal Foreign Governments.

ESTABLISHED 1830.

TAKEN WITH

FOCAL PLANE CAMERA

From a Negative by C. H. HEWITT, Gateshead-on-Tyne. 1/150 sec. April, 6 p.m.

FITTED WITH

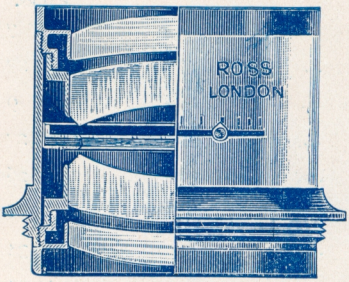
6 IN. ROSS' PATENT HOMOCENTRIC LENS F/6·3.

INDEX.

A NEW LENS.

Ross' "Homocentric"

PATENT.



"HOMOCENTRIC" signifies the ideal definition obtained when all rays of light emanating from any one point of the object are converged by a lens again into one point in the image.

The New "HOMOCENTRIC" Lens possesses this definition to a degree hitherto unattained, and hence the name "Homocentric.

In the construction of photographic lens systems generally, a certain residue of secondary spherical aberration cannot be eliminated when a flat field is obtained. This aberration, known as "spherical zones," tends to destroy the fine detail, more especially in the centre of the image, and causes the focus of the lens to vary with the aperture of stop used, imperfections which are particularly injurious to the quality of the image when enlarged and in lenses of long focus.

"HOMOCENTRIC" Lenses are absolutely free from these spherical zones, and have not the slightest variation in focus whatever diaphragm is used; consequently they possess the most exquisite defining power. Enlargements, therefore, from a negative taken with a "HOMOCENTRIC" Lens are perfect in detail and fineness of contrast.

"HOMOCENTRIC" Lenses, while being equal to any other anastigmat in flatness of field, freeness from coma and astigmatism, have their colour correction so perfect that the different coloured images are identical in size and position, thus rendering the "HOMOCENTRIC" Lens, which is semi-apochromatic, specially suitable for three-colour and other process work

See following pages.

A NEW LENS.

Ross' "Homocentric"

PATENT.

THE "HOMOCENTRIC" is symmetrical; of four single meniscus lenses, with sufficient space for between-lens shutters.

THE "HOMOCENTRIC" is made in Series of different relative apertures to suit various purposes, as follows :—

SERIES B, aperture *f*/5·6, a universal lens for Snap Shot Hand Camera Work, extremely rapid exposures in the Studio or out of doors, such as Portraits, Groups, Instantaneous Pictures and for Cinematograph and Lantern Projection.

SERIES C, aperture *f*/6·3, specially recommended for Snap Shots, Hand Cameras, Instantaneous Views and Groups, and all work requiring quick exposure. Though not so rapid as Series B, a larger angle of view is embraced when required.

SERIES D, aperture *f*/8, for ordinary Hand Camera work, Landscapes, Groups, Interiors, and Copying. Even with a medium size stop, lenses of this Series may be used for wide angles and uniform covering obtained.

SERIES Da, *f*/8, supplied in rigid setting with Waterhouse Diaphragms, specially for Line, Half-Tone, Three Colour, and all Process work.

The particular construction of the "HOMOCENTRIC" lenses renders the employment of small stops unnecessary, as the very best results for wide angle and time exposures can be obtained with medium size stops, and none smaller than *f*/16 should be used.

The single combinations of the series C & D "HOMOCENTRICS" may be employed as long focus landscape lenses, and give good definition and depth of focus with large stops on the same size of plate as the complete lens.

"HOMOCENTRICS" are accurately paired for Stereoscopic work at an extra cost of 8s.

For Prices, &c., see following pages.

ROSS' NEW PATENT

Homocentric Lenses.

SERIES B. *f* 5·6

SPECIALLY CONSTRUCTED FOR

Portraits, Groups, Instantaneous Pictures, and Snap Shot Hand Camera Work.

RATIO OF STOPS ... *f*/5·6 *f*/8 *f*/11·3 *f*/16 *f*/22·6.

No.	Equiv. Focus.	Plate Covered. Full Aperture.	Plate Covered. Medium Stops.	Price. In Iris Setting. £ s. d.	Code Word.
B 1	5 inch	... $4\frac{1}{4} \times 3\frac{1}{4}$ ...	$4\frac{3}{4} \times 3\frac{1}{2}$ ...	5 0 0	Haarlem
2	$5\frac{1}{2}$,,	... $4\frac{3}{4} \times 3\frac{1}{2}$ ...	5 × 4 ...	5 10 0	Habesh
3	6 ,,	... 5 × 4 ...	$6\frac{1}{2} \times 4\frac{3}{4}$ ...	6 0 0	Hachen
4	7 ,,	... $6\frac{1}{2} \times 4\frac{3}{4}$ ...	$7\frac{1}{2} \times 5$ ...	7 0 0	Hadda
5	$8\frac{1}{2}$,,	... $7\frac{1}{2} \times 5$ ...	$8\frac{1}{2} \times 6\frac{1}{2}$ ...	8 10 0	Hælen
6	10 ,,	... $8\frac{1}{2} \times 6\frac{1}{2}$ ...	10 × 8 ...	12 0 0	Haffen
7	12 ,,	... 10 × 8 ...	12 × 10 ...	17 0 0	Hague
8	15 ,,	... 12 × 10 ...	15 × 12 ..	23 0 0	Hahma
9	18 ,,	... 13 × 11 ...	18 × 16 ...	30 0 0	Haida
10	21 ,,	... 15 × 12 ...	22 × 18 ...	38 0 0	Hakata
11	24 ,,	... 18 × 16 ...	25 × 22 ...	47 10 0	Haleb

Cost of Pairing two Lenses for Stereoscopic Work, 8/-

The Lenses of this Series are specially recommended for all kinds of extremely rapid work for Portraits and Groups, also for Cinematograph work and Lantern Projection.

THE ABOVE PRICES ARE NET.

ROSS' NEW PATENT

Homocentric Lenses.

SERIES C. *f* 6·3.

SPECIALLY CONSTRUCTED FOR

Instantaneous Views and Groups, and Snap Shot Hand Camera Work.

RATIO OF STOPS ... *f*/6·3 *f*/8 *f*/11·3 *f*/16 *f*/22·6.

No.	Equiv. Focus.	Plate Covered. Full Aperture.	Plate Covered. Medium Stops.	Price. In Iris Setting. £ s. d.	Code Word.
C 1	5 inch	... $4\frac{1}{4} \times 3\frac{1}{4}$	... 5 × 4	... 4 0 0	Heath
2	$5\frac{1}{2}$,,	... $4\frac{3}{4} \times 3\frac{1}{2}$	... 6 × 5	.. 4 5 0	Hebra
3	6 ,,	... 5 × 4	... $6\frac{1}{2} \times 4\frac{3}{4}$	... 4 10 0	Hector
4	7 ,,	... $6\frac{1}{2} \times 4\frac{3}{4}$	... $7\frac{1}{2} \times 5$	... 5 10 0	Hedon
5	$8\frac{1}{2}$,,	... $7\frac{1}{2} \times 5$	... $8\frac{1}{2} \times 6\frac{1}{2}$	... 7 0 0	Heeg

Cost of Pairing Two Lenses for Stereoscopic Work, 8s.

The Lenses of this Series are admirably adapted for Hand Cameras. Their Single combinations may be used for work requiring lenses of long focus, giving excellent results when used with medium stop on the same sizes of plates as the Doublets.

THE ABOVE PRICES ARE NET

ROSS' NEW PATENT

Homocentric Lenses.

SERIES D. *f* 8.

FOR

Views, Groups, Interiors, Copying, and Hand Camera Work, with large Aperture.

RATIO OF STOPS ... ... *f*/8 *f*/11·3 *f*/16 *f*/22·6.

No.	Equiv. Focus.	Plate Covered. From	Plate Covered. To	Price. In Iris Setting.	Code Word.
D 1	5 in.	$4\frac{1}{4} \times 3\frac{1}{4}$	$6\frac{1}{2} \times 4\frac{3}{4}$	£3 10 0	Hiata
2	$5\frac{1}{2}$,,	$4\frac{3}{4} \times 3\frac{1}{2}$	7 × 5	3 15 0	Hibba
3	6 ,,	5 × 4	$7\frac{1}{2} \times 5$	4 0 0	Hicory
4	7 ,,	$6\frac{1}{2} \times 4\frac{3}{4}$	$8\frac{1}{2} \times 6\frac{1}{2}$	5 0 0	Hida
5	$8\frac{1}{2}$,,	$7\frac{1}{2} \times 5$	10 × 8	6 0 0	Hiendel
6	10 ,,	$8\frac{1}{2} \times 6\frac{1}{2}$	12 × 10	8 0 0	Hiffar
7	12 ,,	10 × 8	15 × 12	10 10 0	Higor
8	15 ,,	12 × 10	18 × 16	13 10 0	Hihone
9	18 ,,	13 × 11	22 × 18	18 10 0	Hikur
10	21 ,,	15 × 12	25 × 22	24 10 0	Hileh
11	24 ,,	18 × 16	30 × 24	31 10 0	Himal

Cost of Pairing two Lenses for Stereoscopic Work, 8s.

The Single Combinations of the Homocentric Lenses may be used for work requiring lenses of long focus. They give excellent results when used with medium stop on the same size of plate as the complete combination for distant Landscapes.

The above Prices are net.

ROSS' NEW PATENT

Homocentric Lenses.

SERIES Da, *f*8.

For Process, Line, Half-Tone, and Three-Colour Work.

Ratio of Stops: *f*/8 *f*/11·3 *f*/16 *f*/22·6.

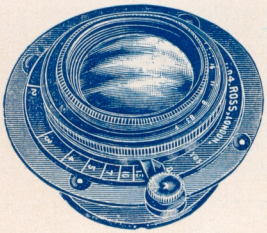
Covering and Prices.

No.	Equiv. Focus.	Large Aperture.	Smaller Stops. Up to	In Waterhouse Setting. £ s. d.	Code Word.
Da 7	12 inch	10 × 8	15 × 12	10 10 0	Hoang
8	15 ,,	12 × 10	18 × 16	13 10 0	Hobart
9	18 ,,	13 × 11	22 × 18	18 10 0	Hocher
10	21 ,,	15 × 12	25 × 22	24 10 0	Hodder
11	24 ,,	18 × 16	30 × 24	31 10 0	Hoei

THE HOMOCENTRIC LENS, from its complete zoneless spherical correction, freedom from astigmatism and curvature, is specially adapted for all Process work, including that in Three Colours. The most delicate work is copied reduced, or enlarged by it with absolute accuracy and sharpness.

THE ABOVE PRICES ARE NET.

ROSS' NEW . . . . . PATENT *HOMOCENTRIC LENSES* . . .



In Spiral Focussing Mounts for

HAND CAMERAS

of Fixed Extension.

	Focus.	Plate Covered.	Price.	Code Word.
SERIES B *f* 5·6	5 in.	$4\frac{1}{4} \times 3\frac{1}{4}$ in.	£5 15 0	Hama.
	$5\frac{1}{2}$,,	$4\frac{3}{4} \times 3\frac{1}{2}$,,	6 5 0	Handa.
	6 ,,	5 × 4 ,,	7 0 0	Haoz.
	7 ,,	$6\frac{1}{2} \times 4\frac{3}{4}$,,	8 0 0	Hapura.
SERIES C *f* 6·3	5 ,,	$4\frac{1}{4} \times 3\frac{1}{4}$,,	4 15 0	Hefta.
	$5\frac{1}{2}$,,	$4\frac{3}{4} \times 3\frac{1}{2}$,,	5 0 0	Hegar.
	6 ,,	5 × 4 ,,	5 5 0	Hehnan.
	7 ,,	$6\frac{1}{2} \times 4\frac{3}{4}$,,	6 5 0	Heida.
	$8\frac{1}{2}$,,	$7\frac{1}{2} \times 5$,,	8 0 0	Hekar.
SERIES D *f* 8	5 ,,	$4\frac{1}{4} \times 3\frac{1}{4}$,,	4 5 0	Hinka.
	$5\frac{1}{2}$,,	$4\frac{3}{4} \times 3\frac{1}{2}$,,	4 10 0	Hioto.
	6 ,,	5 × 4 ,,	4 15 0	Hippos.
	7 ,,	$6\frac{1}{2} \times 4\frac{3}{4}$,,	5 15 0	Hirado.

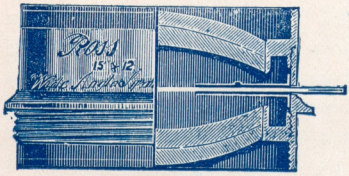
Cost of Pairing Lenses for Stereoscopic Work, 8/-.

THE ABOVE PRICES ARE NET.

SPECIAL TERMS TO HAND CAMERA MANUFACTURERS FOR LARGE QUANTITIES OF LENSES IN SPECIAL OR ORDINARY SETTINGS.

ROSS' Wide-Angle SYMMETRICAL LENSES

For Landscapes, Architecture, and Use in Confined Situations.



Ratio of Stops.	$\frac{f}{16}$	$\frac{f}{22{\cdot}6}$	$\frac{f}{32}$	$\frac{f}{45{\cdot}2}$	$\frac{f}{64}$

THESE Lenses are remarkably free from distortion and flare, and give sharp definition. They are constructed for 90° and upwards, a wider angle, perhaps, than given by any wide-angle lenses hitherto issued, giving equal definition at the margin of the plate. **These Lenses are confidently recommended for architectural subjects and for use in confined situations.**

SIZES AND PRICES.

No.	Size of Plate with medium Stop.	Size of Plate with full Aperture.	Equ. Focus.	PRICE. Brass Settings.	Code Word.
*1	5 × 4	4¼ × 3¼	3 ins.	£3 0 0	Ladas
*2	7¼ × 4½	5 × 4	4 ,,	3 5 0	Lebanon
*3	8½ × 6½	6½ × 4¾	5 ,,	3 15 0	Levant
4	10 × 8	8½ × 6½	6 ,,	4 10 0	Lexicon
5	12 × 10	10 × 8	7 ,,	6 0 0	Lothair
6	13 × 11	12 × 10	8 ,,	7 0 0	Lucy
7	15 × 12	13 × 11	9 ,,	9 0 0	Luna
8	18 × 16	15 × 12	12 ,,	13 0 0	Lustre
9	22 × 18	18 × 16	14 ,,	17 0 0	Lycia
10	25 × 22	22 × 18	16 ,,	24 0 0	Lyonia

* *These Lenses are supplied accurately paired for Stereoscopic purposes.*

Rotary Diaphragms only are supplied, as there is not sufficient space between the front and back combinations to introduce the Iris diaphragm.

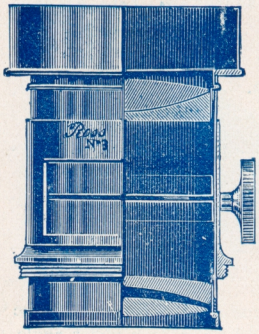
FIVE PER CENT. DISCOUNT FOR CASH.

ROSS'

RAPID

"Cabinet" Lenses

FOR THE STUDIO.



NO. 3 CABINET LENS.

+ + +

ROSS' **"Cabinet" Lenses** differ from ordinary Portrait lenses in being constructed to give as flat a field as is consistent with good marginal definition. They are invaluable for the production of either standing or sitting figures with full aperture, and give very rapid results with brilliancy and exquisite defining power.

CABINET LENSES.

No. 1 Cabinet Lens, $2\frac{3}{4}$ inches clear aperture, 6 inches focus; should be placed 14 feet from the sitter ...	£12 0 0	Code Wd. Quagga
No. 2 Ditto ditto, $3\frac{1}{4}$ inches clear aperture, 8 inches focus; should be placed at 18 feet from the sitter	£16 10 0	Queen
No. 3 Ditto ditto, $3\frac{1}{2}$ inches clear aperture, 10 inches focus; should be placed at 20 feet from the sitter	£18 10 0	Quiver

The above prices include a set of Waterhouse Diaphragms in morocco case.

In choosing a Cabinet Lens to obtain the best results it is desirable to use No. 3 when the Studio exceeds 20 feet in length. Many of the finest Cabinet portraits from leading Studios in Paris, London, and New York are taken with this Lens.

FIVE PER CENT. DISCOUNT FOR CASH.

SOLD BY LEADING DEALERS EVERYWHERE.

CAUTION.

EVERY Lens made by Ross, Ltd., is engraved "ROSS, LONDON," with its stock number, by which it can be verified in the Lens Register. Large numbers of Lenses purporting to be of Ross' manufacture, but which are worthless imitations, are frequently palmed off on the unwary. Ross, Ltd., therefore find it necessary to caution Amateur and Professional Photographers to beware of such fraudulent imitations, and to purchase from the manufacturers direct or through respectable recognised dealers.

ZEISS' ..

(PATENT)

"Planar," Unar," and "Protar"

.. LENSES

MANUFACTURED BY

ROSS, Ltd.

See following pages.

IMPORTANT NOTICES.

THE Zeiss Patent Anastigmatic Lenses are manufactured (under Licence) by ROSS, Ltd., at their Optical Works, Clapham Common, EXACTLY TO FORMULÆ SUPPLIED BY CARL ZEISS; and the optical glasses and methods of construction are precisely similar to those employed at Jena, the only difference between the respective lenses being that the Zeiss Anastigmats made by ROSS, Ltd., are mounted in the English style, and furnished with the Standard apertures of the Royal Photographic Society.

THE Objectives, Series VII. and VII.^{a} Convertible "Protars" *f*-12·5 and *f*-6·3 and Sets of "Protars," as well as the Tele-positives *f*-3 and the Tele-Combinations formed with them, also the "Planar" and "Unar" lenses (Series I^{a} and I^{b}), being patented in France, may not be introduced commercially into that country.

ROSS, LTD.

ESTABLISHED 1830.
THE OLDEST PHOTOGRAPHIC OPTICIANS IN ENGLAND.

Series 1a.

ZEISS' ANASTIGMATS.

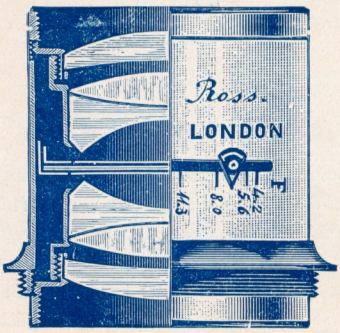
(THE PLANAR.)

A Rapid Anastigmatically Corrected Lens.

MANUFACTURED BY

ROSS, Limited,

Sole Manufacturing Licensees for the British Empire.



Planar F 3, 8. f=160 mm. (6¼).
Series Ia. No. II.
(About two-thirds Full Size.)

THE PLANAR, as shown in the illustration, is a symmetrical objective consisting of four separated lenses. It possesses the following important features: it is very rapid, and yields sharply defined pictures; it is anastigmatically well corrected, and embraces a comparatively wide angle. The rapidity varies from f/3·6 to f/6, according to the size and application of the lens, and the angle embraced by it varies from 62° to 72°.

The Planars are superior in precision or defining power to the Anastigmats hitherto made. They are therefore pre-eminently adapted for **all kinds of copying processes.** They work equally well when used for enlargements, projection, full-size copies and reductions. Even the finest details are reproduced with a degree precision which satisfies the highest requirements.

Owing to its extreme rapidity, the Planar is excellently adapted **for the most rapid instantaneous exposures out of doors** (as in the preparation of animated pictures for the kinematograph and similar work), and for **Portraits and Groups** both outdoors and in the studio.

The Planars are, however, not so well adapted for wide-angle architectural and nterior views as the Series V. Zeiss Lenses, owing to their greater aperture and consequent smaller angle.

The Planars are supplied in nineteen regular sizes, as specified on next page, which gives all necessary particulars as to size, covering power, and prices.

Series I^{A}.—Zeiss' Anastigmats

(THE PLANAR.)

A Rapid Special Lens for Instantaneous Photographs, Portraits and Groups, also for Copying, Enlarging and Projections on a Screen.

Manufactured by ROSS, LIMITED.

Sole Licensees for the British Empire.

Series and No.	Equivalent Focus.		Relative Aperture.	Size of Plate covered.		In Brass Mount with Iris-Diaphragm.			Code Word.
				At full Aperture.	With intermediate stops.				
	mm.	in.	F.	in.	in.	£	s.	d.	
1	20	$\frac{3}{4}$	4.5	$\frac{1}{2} \times \frac{1}{2}$	$\frac{3}{4} \times \frac{3}{4}$	5	0	0	Placage
2	35	$1\frac{3}{8}$	4.5	$\frac{7}{8} \times \frac{7}{8}$	$1\frac{1}{4} \times 1\frac{1}{8}$	5	0	0	Placard
3	50	2	4.5	$1\frac{1}{4} \times 1\frac{1}{8}$	$1\frac{3}{4} \times 1\frac{3}{4}$	5	0	0	Placenta
4	75	3	4.5	$1\frac{5}{8} \times 1\frac{5}{8}$	$2\frac{3}{8} \times 2\frac{3}{8}$	6	0	0	Placet
5	100	4	4.5	$2\frac{3}{8} \times 2\frac{3}{8}$	$3\frac{1}{4} \times 3\frac{1}{4}$	6	0	0	Placitum
6	40	$1\frac{5}{8}$	3.6	1×1	$1\frac{5}{8} \times 1\frac{5}{8}$	5	0	0	Placadus
7	60	$2\frac{3}{8}$	3.6	$1\frac{3}{8} \times 1\frac{3}{8}$	$2\frac{3}{8} \times 2\frac{3}{8}$	5	0	0	Plafond
8	83	$3\frac{1}{4}$	3.6	2×2	$3\frac{1}{4} \times 2\frac{1}{2}$	6	0	0	Plagiat
9	110	$4\frac{1}{2}$	3.6	$3\frac{1}{4} \times 2\frac{1}{2}$	$4\frac{1}{4} \times 3\frac{1}{4}$	7	10	0	Plagium
10	130	5	3.8	$3\frac{1}{4} \times 3\frac{1}{4}$	5×4	9	0	0	Plakoid
11	150	$6\frac{1}{4}$	3.8	$4\frac{1}{4} \times 3\frac{1}{4}$	$6\frac{1}{2} \times 4\frac{3}{4}$	11	0	0	Planeta
12	205	8	4.0	$6\frac{1}{2} \times 4\frac{3}{4}$	$7\frac{1}{2} \times 5$	15	10	0	Planum
13	250	10	4.0	$7\frac{1}{2} \times 5$	9×7	21	10	0	Plasma
14	300	12	4.2	$8\frac{1}{2} \times 6\frac{1}{2}$	10×8	27	10	0	Plastic
15	370	$14\frac{1}{2}$	4.5	9×7	16×12	34	10	0	Plastron
16	423	$16\frac{3}{4}$	4.5	10×8	18×14	43	0	0	Plata
17	470	$18\frac{1}{2}$	5.0	$12 \times 9\frac{1}{2}$	20×16	50	0	0	Platanus
18	610	24	5.0	16×12	24×20	100	0	0	Platinid
19	840	33	6.0	20×16	32×26	175	0	0	Platon

In consequence of the large aperture of the "Planar," it is extremely sensitive, and great care must therefore be given to delicate focussing to insure the best results.

Neither Front nor Back combinations can be used as a single landscape lens except with very small stops.

The cost of pairing two Lenses for Stereoscopic Work is 8s.

THE ABOVE PRICES ARE NET.

SERIES IB.

ZEISS "UNAR" LENSES

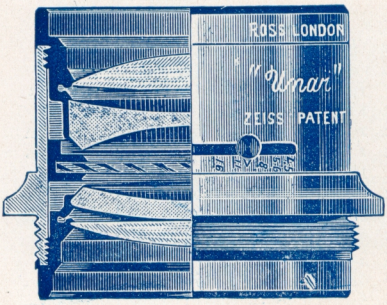
(PATENT.)

A Photographic Objective of Large Aperture with Anastigmatic flatness of field.

ROSS, LONDON,

Sole British Makers of "Unar" and other Zeiss Lenses.

THE "UNAR" LENS is intended to provide Amateur and Professional Photographers with an objective of extreme rapidity, combined with a field exceeding 60°, which is very flat and evenly illuminated.



THE "UNAR" LENS is constructed of hard, colourless Jena Glass of a very permanent character, and it is remarkable for its uniformly crisp definition from the centre to the margin of the field, hitherto unapproached in lenses of such large aperture, with the exception of the "Planar" lenses, which have still larger apertures.

THE "UNAR" LENS is believed to be the most universal lens now in the market that either Professional or Amateur Photographer can possess, the price being at the same time moderate for such a high-class instrument.

THE "UNAR" LENS is specially recommended for all work requiring great intensity of light, such as rapid Hand Camera Work, Portraits, Groups, and photography under unfavourable conditions of lighting. It is also well suited for Enlargements and Reproductions.

NOTE.—All "Unar" Lenses made by Ross, Limited, are guaranteed to be optically similar in quality to those of Carl Zeiss' own make, but Ross-made Lenses are mounted in their usual English style, with the series of Stops adopted as the Standard by the Royal Photographic Society.

The "UNAR" Lenses,

WITH IRIS DIAPHRAGM.

Series I B.

Series.	Dia. of Lenses.		Equiv. Focus.		Rel. Apert.	Avail-able angle.	Plate covered.		Price.	Code Word.
							Large Aperture.	Medium Stop.		
No.	mm.	in.	mm.	in.			in.	in	£ s. d.	
3	25	1	112	4½	*f* 4·5	65°	3½ × 2½	4 × 3¼	4 10 0	Undine.
4	31	1¼	136	5¼	*f* 4 5	65	4 × 3¼	4¾ × 3½	5 10 0	Ungko.
5	31	1¼	155	6	*f* 5	65	4¾ × 3½	6½ × 4¾	6 0 0	Ungvar.
6	42	1¾	210	8¼	*f* 5	65	6½ × 4¾	7 × 5	9 0 0	Unimak.
7	51	2	255	10	*f* 5	65	7 × 5	8½ × 6½	13 0 0	Unit.
8	61	2½	305	12	*f* 5	65	8½ × 6½	9½ × 7¼	18 0 0	Univers.
9	71	2¾	375	15	*f* 5·3	65	10 × 8	12 × 10	23 10 0	Unpro.
10	82	3¼	460	18	*f* 5·6	65	12 × 10	14 × 11	30 0 0	Unze.

The front and back lenses of the "Unar" are not corrected separately for use as single lenses.

In consequence of the success attained by the "Unar" *f* 4·5 to *f* 5 Lenses since their introduction, Carl Zeiss have issued a new series of "Unar" Lenses with a light intensity of *f* 6·3.

Series.	Dia. of Lenses.		Equiv. Focus.		Rel. Apert.	Avail. angle	Plate covered.		Price in Iris Setting.	Code Word.
							Large Aperture.	Medium Stop.		
No.	mm.	in.	mm.	in.			in.	in.	£ s. d.	
13	19	¾	112	4½	*f* 6·3	65°	3½ × 2½	4 × 3¼	4 0 0	Unala.
14	22·5	1⁹⁄₁₆	136	5¼	,,	,,	4¼ × 3½	5 × 4	4 5 0	Unama.
14a	22·5	1⁹⁄₁₆	145	5⁷⁄₁₆	,,	,,	4¾ × 3½	5½ × 4¾	4 10 0	Unaste.
15	25	1	155	6	,,	,,	5 × 4	6 × 4¾	5 5 0	Unave.
15a	31	1¼	180	7⅛	,,	,,	6½ × 4¾	7 × 5	6 5 0	Unazel.
16	35	1⁴⁄₁₀	210	8¼	,,	,,	7 × 5	8½ × 5	7 15 0	Unazet.
17	42	1¾	255	10	,,	,,	8½ × 5	8¼ × 6¼	10 0 0	Unazir.
18	51	2	305	12	,,	,,	8¼ × 6¼	9½ × 7¼	15 0 0	Unazest.

The Front and Back Lenses of the *f* 6·3 "Unar" are not corrected separately for use as single Lenses

THE ABOVE PRICES ARE NET.

For HAND CAMERAS
with fixed extension

in which the shutter works either directly in front of the sensitive plate or directly behind the objective.

"UNARS"

are supplied in special mount A,

(*as illustrated*),

which is provided with

IRIS DIAPHRAGM and FOCUSSING COLLAR.

Series.	Dia. of Lenses.	Equiv. focus.	For Plates.	Special Mount.	Objective in special mount A.	
					Price.	Code Word.
No.	in.	in.	in.	No.	£ s. d.	
Ib, 3	1	4½	3½ × 2½	A_2	5 0 0	Uspal.
Ib, 4	1¼	5¼	4 × 3½	A_3	6 5 0	Uspafa.
Ib, 5	1¼	6	4¾ × 3½	A_4	6 15 0	Usperial.

Objectives with special mounts A cannot be used in conjunction with Hand Cameras where the Shutter works between the lenses of the Objective.

For Snap-shots with small plates, Nos. 3, 4, and 5 are recommended.

No. 3 "Unar" ... ... 4½ in. focus, *f* 4·5 is suitable for 3½ × 2½ to 4 × 3¼ in.
„ 4 „ ... ... 5¼ in. „ *f* 4·5 „ 4 × 3½ to 4¾ × 3½ in.
„ 5 „ ... ... 6 in. „ *f* 5 „ 4¾ × 3½ to 6½ × 4¾ in.

Nos. 6, 7, and 8 are suitable for Portraits :—

No. 6 "Unar" ... ... 8¼ in. focus, *f* 5 for full length Carte-de-Visite.
„ 7 „ ... ... 10 in. „ *f* 5 for Carte-de-Visite Busts.
„ 8 „ ... ... 12 in. „ *f* 5 for Cabinet Busts.

For taking Groups :—No 6 should be used with Plates 6½ × 4¾ in. to 7¼ × 5¼ in.
„ 7 „ „ „ „ „ 7¼ × 5¼ in. to 8½ × 6½ in.
„ 8 „ „ „ „ „ 8½ × 6½ in. to 9½ × 7¼ in.

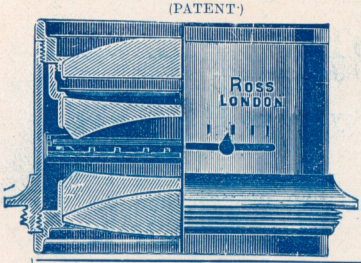
For Landscape work it should be remembered that it is advisable to select an Objective with sufficient focal length, so that the proportions of distant objects are not too greatly reduced.

THE ABOVE PRICES ARE NET.

Series IIb.

Zeiss' "Tessar," *f* 6·3

(PATENT)



MANUFACTURED BY

ROSS, Limited,

Sole Licensees for the British Empire.

A HIGH CLASS ANASTIGMAT FOR ALL PURPOSES.

These Lenses are perfectly corrected for Astigmatism and embrace a large angle.

The Smaller Sizes are specially suitable for Hand Cameras.

No.	Equivalent Focus.		Plate Covered.		PRICE.	Code Word.
	m/m.	Inches.	From	To	Brass Mounts with Iris Diaphragms.	
					£ s. d.	
3	12	4½	3½ × 2½	4 × 3¼	4 10 0	Adescarent.
4	136	5¼	4¾ × 3½	5 × 4	4 15 0	Adescassi.
4a	145	5 7/10	4¾ × 3½	5½ × 4¼	5 0 0	Adescaturo.
5	155	6	5 × 4	6 × 4¾	5 15 0	Adescavamo.
5a	180	7 1/10	6½ × 4¾	7 × 5	7 0 0	Adeschero.
6	210	8¼	7 × 5	8¼ × 5	8 10 0	Adesco.
7	255	10	8¼ × 5	8¼ × 6¼	11 10 0	Adesivo.
8	305	12	8¼ × 6¼	9½ × 7¼	17 0 0	Adesmie.

Larger Sizes to Order.

Series IIb.

Zeiss' "Tessar," *f* 6·3

(PATENT.)

In Focussing Mount for Hand Cameras with Fixed Extension.

No.	Equivalent Focus.		Plate Covered.	PRICE.	Code Word.
	m/m.	Inches.		In Focussing Mount.	
				£ s. d.	
3	112	4½	3½ × 2½	5 0 0	Adiabenos.
4	136	5¼	4¾ × 3½	5 5 0	Adiacente.
4a	145	5 7/10	4¾ × 3½	5 10 0	Adiactinic.
5	155	6	5 × 4	6 7 0	Adiafano.
5a	180	7 1/10	6½ × 4¾	7 12 0	Adiaforia.

The cost of pairing two Lenses for Stereoscopic work is 8s.

THE ABOVE PRICES ARE NET.

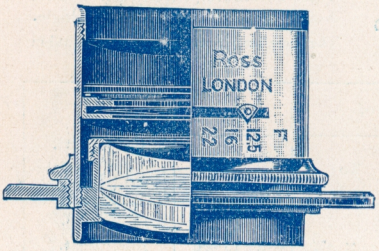
SERIES VII., f. 12·5,

CONVERTIBLE SINGLE "PROTAR" LENSES.

(ZEISS' PATENT.)

Manufactured by ROSS, Ltd.

(*Sole Manufacturing Licensees for the British Empire.*)



Admirably adapted for Portraits, Groups, Landscapes, and every class of Photography, in the Studio or out of doors, when used either Singly or Combined as in Series VIIa. They are unapproached by any other Single Lens in existence.

THE **"relative rapidity" of this Anastigmatic Lens is F 12·5, and the** field embraced is about 85°. The anastigmatic flatness of the image is unapproachable in any Single Landscape Lens hitherto produced, while the marginal distortion when used on a moderate angle is practically inappreciable. The Lens is therefore suitable for instantaneous outdoor pictures such as landscapes and seascapes, and also for large portraits and groups in a good light.

ENGLISH RATIO OF STOPS—*f* 12·5, *f* 16, *f* 22·6, *f* 32, *f* 45, *f* 64.

No.	Equivalent ocus.		Plate covered, *f* 12·5.		Price with Iris Diaphragm.	Code Word.
	mm.	Ins.	c.m.	Ins.	£ s. d.	
0	100	4	6 × 9	3½ × 2½	4 10 0	Abdera
00	135	5⅜	7 × 10	4 × 2¾	4 10 0	Absynth
000	170	6¾	9 × 12	4¾ × 3	4 10 0	Abydos
1	183	7¼	12 × 15	6½ × 4¾	3 15 0	Acacia
2	224	9	13 × 18	7½ × 5	4 5 0	Acarina
3	285	11½	16 × 21	8½ × 6½	5 0 0	Aceton
4	350	14	21 × 27	10 × 8	6 0 0	Achilles
5	412	16½	24 × 30	12 × 10	7 15 0	Acidalia
6	480	19¼	29 × 34	13 × 11	10 15 0	Aconitum
7	590	23¼	30 × 40	15 × 12	13 15 0	Adinol
8	600	27½	34 × 39	15 × 12	18 0 0	Aeneas
9	782	30¾	39 × 47	18 × 16	25 0 0	Aeolus
10	862	34	40 × 50	20 × 16	32 10 0	Aequator
11	1000	39	47 × 57	22 × 18	42 10 0	Aether

THE ABOVE PRICES ARE FOR NET PROMPT CASH.

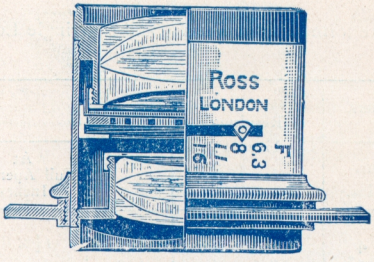
For Rapid and Extra Rapid Doublets and Sets formed from the above Series of Single Lenses, see five following pages.

SERIES VIIa.

Convertible "Protars"

F6·3. (ZEISS' PATENT.)

Manufactured by ROSS, Ltd.



Rapid Universal Lenses for Portraits, Groups, and Wide-angle Instantaneous Photographs, also for Architecture, Landscapes, Process Work, and Copying.

THESE Lenses are composed of two single combinations of the Series VII., and, like other symmetrical lenses, are free from distortion. Either of the components may be used singly, as in the Series VII. ; a screen ring being provided to screw in the front of the mount in place of the combination removed, so as to intercept reflected light. The settings are furnished with Iris diaphragms, the stops being marked off both for the doublets and the single combinations. A variety of other foci (*f*8) are available by combining suitable dissimilar single lenses ; in all, thirty doublets are formed from the combination of the eleven single lenses of the Series VII. Anyone possessed of a doublet (*f*6·3) can, therefore, be supplied with one or two more single lenses to combine in the manner shown on the next two pages. An alteration to the setting is necessary for this conversion to provide the divisions showing apertures of the stops for the resulting foci. This modification consists of the adaptation of a movable ring, so constructed that the engraving on it and the setting indicates four or seven series of apertures, as the case may require. The price charged for this adaptation and engraving is **7/6** or two single lenses of different foci, with **2/6** extra for each additional single lens. The stops in all the lenses we manufacture are, for greater convenience, marked off in accordance with the form generally accepted in England, each aperture requiring double the exposure of the next larger.

For Prices of Various Combinations see two next pages.

Series VIIa. CONVERTIBLE

Made by ROSS, Limited, Sole Manu-

Universal Series of Lenses specially suitable for Portraits and groups in the

These Lenses are formed by combining suitable single Lenses

No.	Combination of Two Lenses. $f/12{\cdot}5$				Resulting Combined Focus.		Largest Aperture.	Size At Full Aperture Inches.
	Front Lens.		Back Lens.					
	mm.	ins.	mm.	ins.	mm.	ins.		
0	100	4	100	4	61	$2\frac{3}{8}$	6·3	$1\frac{1}{2} \times 1\frac{1}{2}$
00	135	$5\frac{3}{8}$	135	$5\frac{3}{8}$	82	$3\frac{1}{4}$	6·3	2×2
000	170	$6\frac{3}{4}$	170	$6\frac{3}{4}$	102	4	6·3	$2\frac{3}{8} \times 2\frac{3}{8}$
1	183	$7\frac{1}{4}$	183	$7\frac{1}{4}$	105	$4\frac{1}{8}$	6·3	$3\frac{1}{4} \times 3\frac{1}{4}$
2	224	9	183	$7\frac{1}{4}$	115	$4\frac{1}{2}$	7	$4\frac{1}{4} \times 3\frac{1}{4}$
3	285	$11\frac{1}{2}$	183	$7\frac{1}{4}$	127	5	8	5×4
4	224	9	224	9	128	5	6·3	5×4
5	285	$11\frac{1}{2}$	224	9	143	$5\frac{3}{4}$	7	6×5
6	350	14	224	9	156	6	8	6×5
7	285	$11\frac{1}{2}$	285	$11\frac{1}{2}$	163	$6\frac{1}{2}$	6 3	$6\frac{1}{2} \times 4\frac{3}{4}$
8	350	14	285	$11\frac{1}{2}$	179	7	7	$7\frac{1}{2} \times 5$
9	412	$16\frac{1}{2}$	285	$11\frac{1}{2}$	192	$7\frac{1}{2}$	8	8×5
10	350	14	350	14	200	8	6·3	8×5
11	412	$16\frac{1}{2}$	350	14	216	$8\frac{1}{2}$	7	$8\frac{1}{2} \times 6\frac{1}{2}$
12	480	$19\frac{1}{4}$	350	14	232	9	8	$8\frac{1}{2} \times 6\frac{1}{2}$
13	412	$16\frac{1}{2}$	412	$16\frac{1}{2}$	235	$9\frac{1}{4}$	6·3	$8\frac{1}{2} \times 6\frac{1}{2}$
14	480	$19\frac{1}{4}$	412	$16\frac{1}{2}$	254	10	7	9×7
15	590	$23\frac{1}{2}$	412	$16\frac{1}{2}$	277	11	8	9×7
16	480	$19\frac{1}{4}$	480	$19\frac{1}{4}$	275	11	6·3	9×7
17	590	$23\frac{1}{2}$	480	$19\frac{1}{4}$	303	12	7	10×8
18	690	$27\frac{1}{2}$	480	$19\frac{1}{4}$	324	$12\frac{3}{4}$	8	10×8
19	590	$23\frac{1}{2}$	590	$23\frac{1}{2}$	337	$13\frac{1}{4}$	6·3	10×8
20	690	$27\frac{1}{2}$	590	$23\frac{1}{2}$	304	$14\frac{1}{2}$	7	12×10
22	690	$27\frac{1}{2}$	690	$27\frac{1}{2}$	395	$15\frac{1}{2}$	6·3	12×10
25	782	$30\frac{1}{2}$	782	$30\frac{1}{2}$	465	$18\frac{1}{4}$	6·3	13×11
28	862	34	862	34	515	$20\frac{1}{4}$	6·3	13×11
30	1000	39	1000	39	595	$23\frac{1}{2}$	6·3	15×12

The above Prices are for Net Prompt Cash. For

"PROTAR" LENSES, F:6·3

(Zeiss' Patent.)

facturing Licensees for the British Empire.

Studio, and for all Classes of Outdoor Photography, also for Interiors, Copying, &c.

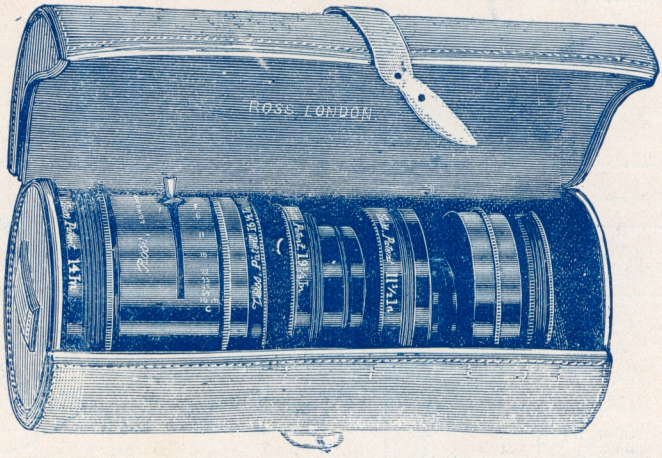
of Series VII. ($f/12{\cdot}5$), as described on the preceding pages.

OF PLATES COVERED.		PRICES IN LONDON.		
At $f/11{\cdot}3$. Inches.	At $f/22{\cdot}6$. Inches.	In Brass Settings, with Iris. £ s. d.	Cable Code Word.	No.
2 × 1¾	2½ × 2	8 15 0	Accord	0
2½ × 2¼	3 × 2½	8 15 0	Agathe	00
3¼ × 2½	4 × 3	8 15 0	Agnes	000
5 ×	5 × 4	7 5 0	Agonie	1
6 × 5	6 × 5	7 15 0	Alabaster	2
6½ × 4¾	6½ × 4	8 10 0	Alauda	3
7½ × 5	7½ × 5	8 5 0	Albatros	4
8 × 5	8 × 5	9 0 0	Alizarin	5
8 × 5	8½ × 6½	10 0 0	Alkaloid	6
8½ × 6½	8½ × 6½	9 15 0	Alkohol	7
8½ × 6½	9 × 7	10 15 0	Amidon	8
9 × 7	9 × 7	12 10 0	Ananas	9
9 × 7	10 × 8	11 15 0	Anchovis	10
10 × 8	10 × 8	13 10 0	Anilin	11
10 × 8	12 × 10	16 10 0	Anthracit	12
10 × 8	12 × 10	15 5 0	Antimon	13
12 × 10	12 × 10	18 5 0	Antipyrin	14
12 × 10	12 × 10	21 5 0	Apostat	15
12 × 10	12 × 10	21 0 0	Aristos	16
12 × 10	13 × 11	24 0 0	Asbest	17
13 × 11	13 × 11	28 5 0	Athene	18
13 × 11	13 × 11	27 0 0	Atlas	19
13 × 11	15 × 12	31 5 0	Atropin	20
13 × 11	15 × 12	35 10 0	Aurora	22
15 × 12	18 × 16	49 10 0	Aurum	25
15 × 12	18 × 16	64 10 0	Ave	28
18 × 16	22 × 18	84 10 0	Azalie	30

Sets of Convertible "Protars" see following Pages.

Sets of Convertible "Protars."

Composed of Anastigmatic Lenses, F/12·5, Series VII.
(Zeiss' Patent.)



SETS of lenses affording a considerable variety of Rapid combinations of various focal lengths can be readily selected from Table VIIA. These sets, consisting of few component Rapid and Anastigmatic lenses, provide a series working at *f*/6·3, *f*/8 and /12·5 of very high efficiency for all photographic purposes.

Of these sets of "Protars" we keep in stock those suitable for half-plate and whole-plate, and any of the other combinations we can only undertake to supply in a reasonable time after receiving definite order.

Each of the Stock Sets consists of—

1. A special setting fitted with Iris diaphragm so arranged that either of the combinations may be screwed into back or front as desired.
2. Three or four single "Protars" *f*/12·5, each cell being engraved with the focal length.
3. A "screen ring" to intercept any reflected light when a single lens only is in use.
4. A portable case to contain lenses and setting.

When these lenses are used as Single "Protars" they must be inserted into the back of the setting and the "screen ring" screwed into the front. When two lenses are to be used in combination the "screen ring" is replaced by the second lens, or in the case of two different focal lengths, by the longer of the two, as in this way the largest possible relative opening of the doublet is obtained.

SET C.

For Plates $6\frac{1}{2} \times 4\frac{3}{4}$ or $7\frac{1}{2} \times 5$ inches.

Consisting of Single Lenses Nos. 2, 3, and 4, Series VII., with setting and screen ring complete in Leather Case.

No.	Front Lens. Inches.	Back Lens. Inches.	Combined Focus. Inches.	Largest Aperture. *f*	Plate Covered. Inches.	Price £14 15s., with 10/- extra for additional Ring and Scales of Apertures.*	Code Word, Alpha.
1		9	9	12·5	$7\frac{1}{2} \times 5$		
2		$11\frac{1}{2}$	$11\frac{1}{2}$	12·5	$8\frac{1}{2} \times 6\frac{1}{2}$		
3		14	14	12·5	10 × 8		
4	$11\frac{1}{2}$	9	$5\frac{3}{4}$	7	6 × 5		
5	14	9	$6\frac{1}{2}$	8	$6\frac{1}{2} \times 4\frac{3}{4}$		
6	14	$11\frac{1}{2}$	7	7	$7\frac{1}{2} \times 5$		

PRICES ARE STRICTLY NET.

SET D.

For Plates $8\frac{1}{2} \times 6\frac{1}{2}$ or 9×7 inches.

Consisting of Single Lenses Nos. 3, 4, 5, and 6, Series VII., with setting and screen ring complete in Leather Case.

No.	Front Lens. Inches.	Back Lens. Inches.	Combined Focus. Inches.	Largest Aperture. *f*.	Plate Covered. Inches.	Price £28 15s., with 15/- extra for additional Ring and Scales of Apertures.*	Code Word, Alphabet.
1		$11\frac{1}{2}$	$11\frac{1}{2}$	12·5	$8\frac{1}{2} \times 6\frac{1}{2}$		
2		14	14	12·5	10 × 8		
3		$16\frac{1}{2}$	$16\frac{1}{2}$	12·5	12 × 10		
4		$19\frac{1}{4}$	$19\frac{1}{4}$	12·5	13 × 11		
5	14	$11\frac{1}{2}$	7	7	$7\frac{1}{2} \times 5$		
6	$16\frac{1}{2}$	$11\frac{1}{2}$	$7\frac{1}{2}$	8	8 × 5		
7	$16\frac{1}{2}$	14	$8\frac{1}{2}$	7	$8\frac{1}{2} \times 6\frac{1}{2}$		
8	19	14	$9\frac{1}{4}$	8	$8\frac{1}{2} \times 6\frac{1}{2}$		
9	$19\frac{1}{4}$	$16\frac{1}{2}$	10	7	9 × 7		

PRICES ARE STRICTLY NET.

* To make intricate calculations unnecessary, and to simplify the fixing of the different apertures when several combinations of Series VII. are used in the same setting, we have adopted a special arrangement by which a revolving click ring is supplied with each setting. The lenses of Series VII*a*. when supplied with similar ends, each *f*/6·3, will not require this ring, and will only be engraved for the stops of the complete combination; the extra ring not being required in this case there will be no extra charge. If one such doublet has a dissimilar combination added afterwards, the setting (which is so made to allow of this) will require to have this ring added with the necessary scale of stops for the additional single lens, and for those of the combination it forms with one or other of the original combinations. For this additional ring and scale a charge of 7/6 will be made. Should two additional single lenses be ordered, the extra charge for the ring and scales will be 10/-. A set of three dissimilar ends ordered at the same time will, therefore, be subject to an extra charge of 10/- on the original prices, as a ring and six sets of engraved scales would have to be supplied.

Zeiss' Tele-Photographic Lenses.

THE TUBE MOUNT.

THE length of our Tube-mount is varied by rack and pinion fittings. The mount is short, and an automatic iris shutter has been substituted for the ordinary iris diaphragm. This ensures the absolute steadiness of the whole apparatus during the exposure.

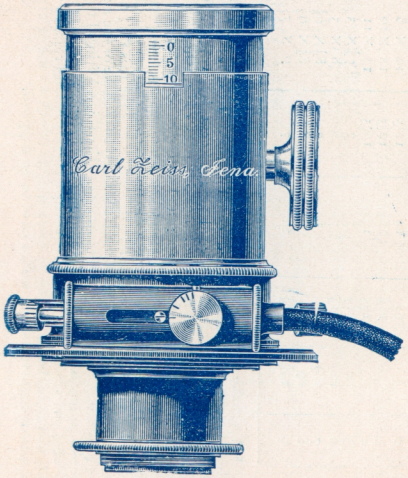


FIG. 1.
Tube-Mount III., Half Full Size
Side View.

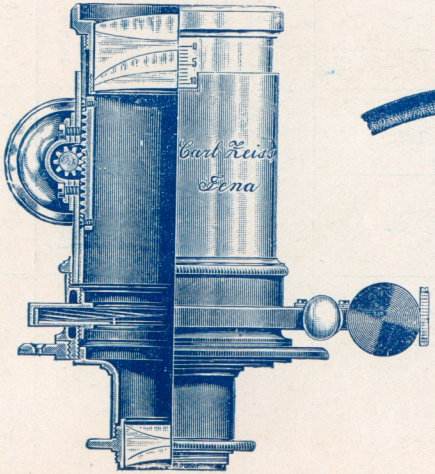


FIG. 2.
Tube-Mount III., Half Full Size.
Elevation and Sectional View.

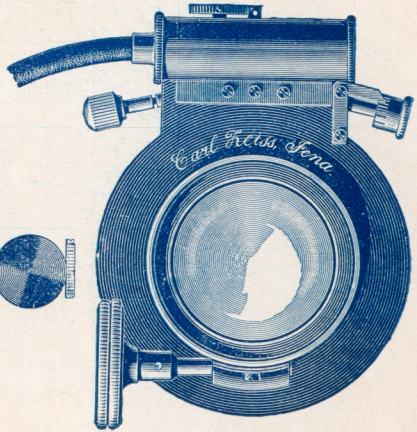


FIG. 3.
Tube-Mount III., Half-Full Size.
Plan View.

The mount is provided with a millimètre scale, by which the length of the tube may be accurately adjusted. The tube has its shortest length when the index points to O. The important advantage of this scale consists in the facility with which the **resulting focal length of the Tele-photographic combination** corresponding to any tube-length, as indicated by the scale, may be accurately calculated or found from the **Tables** supplied with the objectives.

The positive element screws into the inner movable tube at the front of the mount, either directly or by the interposition of an adapter. At the opposite end, that is at the camera end, the negative element is attached by means of an adapter. These adapters, if supplied as portions of a certain combination, are adjusted in such a manner that the Tele-photographic objective acts as a telescopic combination when the Tube-mount is in its shortest position. It is, of course, absolutely necessary that existing parts be sent to us in all cases where any part is to be fitted to a given Tele-photographic combination.

We make two regular sizes (III and IV) of the Tele-photographic Tube-mount, as described above. Their prices will be found in the table on next page. Tube V is made to order only. Its price varies according to special requirements.

If specially ordered, Tube-mounts III and IV may also be fitted with an ordinary iris diaphragm, intead of the automatic iris shutter, at a reduction of 30s. from the prices quoted.

ZEISS' TELE-OBJECTIVES.

Patented in Germany, Great Britain, the United States, &c.

Tube-mount.

No.	Net Price.	Code-word.
	£ s. d.	
III.	5 0 0	Ration.
IV.	9 0 0	Ratte.

Tele-Positive 1 : 3.*

No.	Diameter of lenses mm.	Focus mm.	Net Price.	Code-word.
			£ s. d.	
1	45	135	6 15 0	Raffinade
2	75	225	20 0 0	Raphael
3	125	375	50 0 0	Reaction

Tele-Negative 1 : 2.

No.	Diameter of lenses mm.	Focus mm.	Net Price.	Code-word.
			£ s. d.	
1	15	27	2 0 0	Realitas
2	24	45	2 10 0	Record
3	30	58	3 10 0	Regulus
4	37	75	5 0 0	Remedium
5	50	100	7 10 0	Reptilia
6	63	125	11 0 0	Relais

* The Tele-Positives must not be imported into France commercially.

Adapters for the Combined use of the Tube-mounts and Anastigmat Lenses, 5/- to 10/- each.

A. SPECIFICATION

of Tele-photographic Combinations adapted for Tube-mount III.

B. SPECIFICATION

of Tele-photographic Combinations adapted for Tube-mount IV.

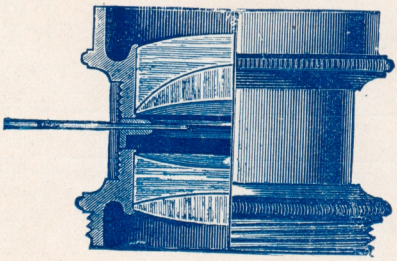
No.	Positive Element.	Focus mm.	Neg. Elem. Focus mm.	Net Price. £ s. d.	Code-word.	For	Positive Element.	Focus mm.	Neg. Elem. Focus mm.	Net Price. £ s. d.	Code-word.	No.
1*	Tele-Pos. 1 : 3	135	45	14 5 0	Resonator	Landscapes and Large Portraits	Tele-Pos. 1 : 3	225	75	34 0 0	Rubin	1*
2*	Tele-Pos. 1 : 3	135	58	15 5 0	Retina		Tele-Pos. 1 : 3	225	100	36 10 0	Rubrik	2*
	Anast. 1 : 8	205	58	16 10 0	Rosmarin	Landscapes and Architectural Views	"Protar," 1 : 8	350	100	35 0 0	Rumor	3
4	Anast. 1 : 8	196	75	15 5 0	Rosso		"Protar," 1 : 8	433	125	43 10 0	Rundung	4
5*	"Protar," 1 : 7	179	58	19 10 0	Rotator		"Protar," 1 : 8	407	125	35 10 0	Rune	5
6*	"Protar," 1 : 6·3	200	75	22 0 0	Rubens		"Protar," 1 : 6·3	337	100	44 0 0	Russe	6*
7*	"Protar," 1 : 7	216	75	23 15 0	Ruptura		"Protar," 1 · 7	364	125	51 15 0	Ruthene	7*

The Combinations marked with a * must not be imported into France commercially.

SERIES V.

WIDE ANGLE AND COPYING LENS.

Zeiss' "Protar," F:16



MANUFACTURED BY

ROSS, Ltd.,

Sole Licensees for the British Empire.

RATIO OF STOPS.

F/16, F/22, F/32, F/45, F/64.

THIS Doublet consists of four single lenses cemented to form two combinations. The field measures in the smaller numbers over 100°, in the larger ones about 90°. The first seven sizes are specially useful for interiors, or work in confined situations. The five larger sizes are specially intended for the reproduction of maps, plans, and drawings; they yield a perfectly flat and anastigmatic image, and are entirely free from distortion. These lenses are very moderate in price.

No.	Equivalent focus. mm.	in.	Size of plate covered with stop. F/16. Inches	F/32. Inches.	Revised Price with Iris Diaphragms.	Code Word.
1	86	3¼	4¼×3¼	5 ×4	£3 4 0	Labrador.
2	112	4¼	5 ×4	6½×4¾	3 4 0	Lagune.
3	141	5½	6½×4¾	8½×6½	4 0 0	Lama.
4	182	7¼	8½×6½	10×8	5 0 0	Lapsus.
5	212	8¼	10×8	12×10	6 5 0	Lateran.
6	265	10½	12×10	13×11	7 15 0	Lava.
7	315	12¼	13×11	15×12	9 5 0	Lawine.
			Reproductions of charts at 85°.			
8	460	18	13×11	15×12	12 5 0	Legende.
9	632	24¾	15×12	20×16	18 0 0	Legion.
10	947	37¼	20×16	25×22	35 10 0	Leo.
11	1310	51½	25×22	34×27	60 10 0	Libelle.
12	1660	65⅓	34×27	42×35	100 10 0	Lictor.

The cost of pairing two Lenses for stereoscopic work is 8/-.

The five smallest sizes cannot be fitted with Iris Diaphragms, and are kept in stock with Wheel Stops only. All other sizes are stocked with Iris only.

THE ABOVE PRICES ARE NET.

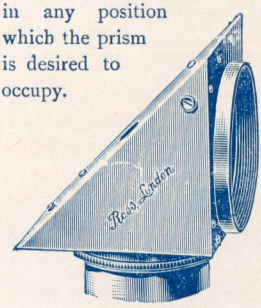
Reversing Prisms & Mirrors

For Photo-Mechanical Process Work, &c.

THESE Prisms are made of carefully annealed and colourless crown glass; they are accurately rectangular, and their hypothenuse surface is silvered to insure complete reflection.

The mount of the prism screws directly to the hood of the objective in such a manner as to bring one of the non-reflecting surfaces into close proximity of the front lens. By this arrangement the prism becomes fully utilised.

The prices of the prisms include an objective-ring fitted with revolving collar and clamp, which allows of the objective being turned about its axis and clamped in any position which the prism is desired to occupy.



PRICES OF PRISMS.

No.	Length and breadth of Non-reflecting Surfaces.		Price.
	Ins.	mm.	£ s. d.
1	1	25	4 15 0
2	1⅜	35	6 10 0
3	1⅞	46	8 0 0
4	2⅜	60	13 5 0
5	3	75	20 0 0
6	3¼	90	28 15 0
7	4⅛	105	40 5 0
8	4⅞	125	71 5 0

The above Prices are Net.

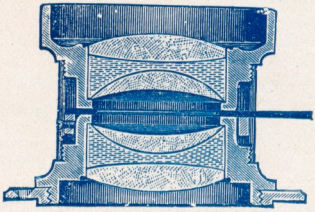
Prices of Mirrors, Worked Optically Plane & Silvered,

Including Mahogany Mirror Box.

Size.	6×4	7×5	8×6	10×8
Mirror	£4 10 0	£5 0 0	£6 0 0	£7 10 0
Re-silvering	0 5 0	0 7 6	0 10 0	0 12 6

The above Prices are net.

The Double Anastigmat.



(GOERZ' PATENT.)

SERIES III

MANUFACTURED BY

ROSS, Limited.

Nos. 00 to 6, F 6·8

Nos. 7 to 11, F 7·7

These Lenses are universal in character and highly suitable for Landscapes, Instantaneous Work, Portraits, Groups, and Architecture. The Double Anastigmat permits the use of the largest stop without diminishing the sharpness of the image at the extreme margins of the plate up to an angle of 70°. By the use of a smaller stop an angle of over 80° is obtained. Definition, brilliancy, and flatness of field are uniform from the centre to the magrin of the plate.

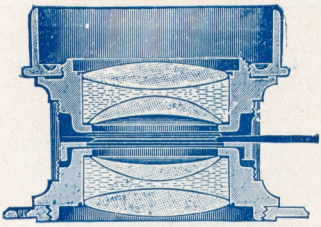
No.	Equiv. Focus.	Plate covered F 8. ✻	Plate covered F 16. ✻	Plate covered F 64. ✻	Price with Iris Diaphragms. £ s. d.	Code Word.
	ins.	ins.	ins.	ins.		
00	4	3 × 3	$4\frac{1}{4}$ × $3\frac{1}{4}$	5 × 4	5 0 0	Sabre
0	5	$4\frac{1}{4}$ × $3\frac{1}{4}$	5 × 4	$6\frac{1}{2}$ × $4\frac{3}{4}$	5 5 0	Salem
1	6	5 × 4	$6\frac{1}{2}$ × $4\frac{3}{4}$	8 × 5	6 5 0	Sappho
2	7	$6\frac{1}{2}$ × $4\frac{3}{4}$	8 × 5	$8\frac{1}{2}$ × $6\frac{1}{2}$	7 5 0	Sarepta
3	$8\frac{1}{4}$	8 × 5	$8\frac{1}{2}$ × $6\frac{1}{2}$	9 × 7	8 15 0	Saxon
4	$9\frac{1}{2}$	$8\frac{1}{2}$ × $6\frac{1}{2}$	9 × 7	10 × 8	10 10 0	Signet
5	$10\frac{1}{2}$	9 × 7	10 × 8	12 × 10	12 15 0	Sinbad
6	12	10 × 8	12 × 10	15 × 12	15 5 0	Sirius
7	14	12 × 10	15 × 12	18 × 16	19 15 0	Socrates
7A	$16\frac{1}{2}$	13 × 11	17 × 13	22 × 18	26 0 0	Sorcerer
8	19	15 × 12	18 × 16	22 × 18	31 0 0	Spartan
9	24	18 × 16	22 × 18	25 × 22	46 0 0	Sphinx
10	30	22 × 18	25 × 22	30 × 24	76 5 0	Spinster
11	35	25 × 22	30 × 24	36 × 28	151 5 0	Sprite

The plates indicated as covered with F 8, F 16, and F 64, are rather under the Continental sizes given in the Patentee's list, and therefore the lenses may be advantageously used for the next larger sizes of plates under favourable conditions.

A charge of 10/- extra is made for pairing two lenses for stereoscopic work.

THE ABOVE PRICES ARE NET.

THE DOUBLE ANASTIGMAT.



(GOERZ' PATENT.)

SERIES IV.

MANUFACTURED BY

ROSS, Limited.

F 11.

A WIDE-ANGLE AND PROCESS LENS.

This is a Wide-Angle Lens specially suitable for Copying, Enlarging, Architecture, Interiors, &c. The angle of clearly defined image, with the largest aperture, includes 75°, so that it may be employed for wide-angled instantaneous views and groups. With a smaller stop, it will define with uniform sharpness up to the margins of a plate whose diagonal is equal to twice the focus of the lens, thus including an angle of 90°.

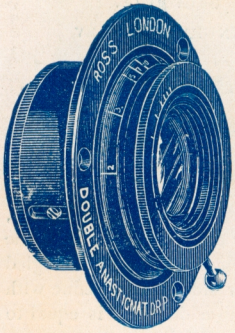
No.	Equiv. Focus.	For Reproduction. *F*16–*F*22.	For Enlarging. *F*16–*F*22	For Groups. *F* 11.	With Smaller Stops.	Prices with Waterhouse Stops.			Prices with Iris.		
	In.	Inches.	Inches.	Inches.	Inches.	£	s.	d.	£	s.	d.
6	12	18 × 16	12 × 10	12 × 10	18 × 16	15	10	0	16	5	0
7	14	22 × 18	15 × 12	15 × 12	22 × 18	20	0	0	20	15	0
8	19	25 × 22	18 × 16	18 × 16	25 × 22	32	10	0	33	5	0
9	24	30 × 24	22 × 18	22 × 18	30 × 24	48	15	0	49	15	0
10	30	36 × 28	25 × 22	25 × 22	36 × 28	80	0	0	81	0	0
11	35	44 × 34	30 × 24	30 × 24	44 × 34	155	0	0	156	0	0
12	47	60 × 40	36 × 28	36 × 28	60 × 40	280	0	0	281	5	0

The above Prices are Net.

SOLD BY LEADING DEALERS EVERYWHERE.

IMPORTANT NOTICE.—The Goerz Patent Double Anastigmat Lenses, manufactured (under licence) by Ross, Ltd., at their Optical Works, Clapham Common, are guaranteed to be exactly similar in optical properties and construction to those made by Mr. C. P. Goerz, in Germany, the only difference between the respective lenses being that the Ross-Goerz Anastigmats are mounted in the English style, the apertures in all cases corresponding to the Standard of the Royal Photographic Society.

FOR HAND CAMERAS.



THE 'ROSS-GOERZ' LENSES

ARE SUPPLIED

With Iris Diaphragms and Focussing Jackets.

SERIES III.—F 6 8.

THE smaller sizes of Series III., ROSS-GOERZ Double Anastigmats, are particularly well adapted for Hand Camera work; at full aperture they cover sharply up to the corners of a plate whose longest side is equal to the focus. To facilitate the adaptation of these Lenses to Hand or Detective Cameras which have no focussing adjustment, Ross, Limited, are now prepared to supply them to order, mounted in special settings, fitted with Iris diaphragms and a very convenient worm focussing screw, with scale marked off for various distances.

No.	Equiv. Focus.	Size of Plate Sharply Covered at f/7·7.	f/16.	f/64.	Code Word.	Price with Iris Diaphragm.
	Ins.	Ins.	Ins.	Ins.		£ s. d.
0	5	$4\frac{1}{4} \times 3\frac{1}{4}$	5 × 4	$6\frac{1}{2} \times 4\frac{3}{4}$	Corso	6 0 0
1	6	5 × 4	$6\frac{1}{2} \times 4\frac{3}{4}$	8 × 5	Courant	7 5 0
2	7	$6\frac{1}{2} \times 4\frac{3}{4}$	8 × 5	9 × 7	Cuba	8 5 0

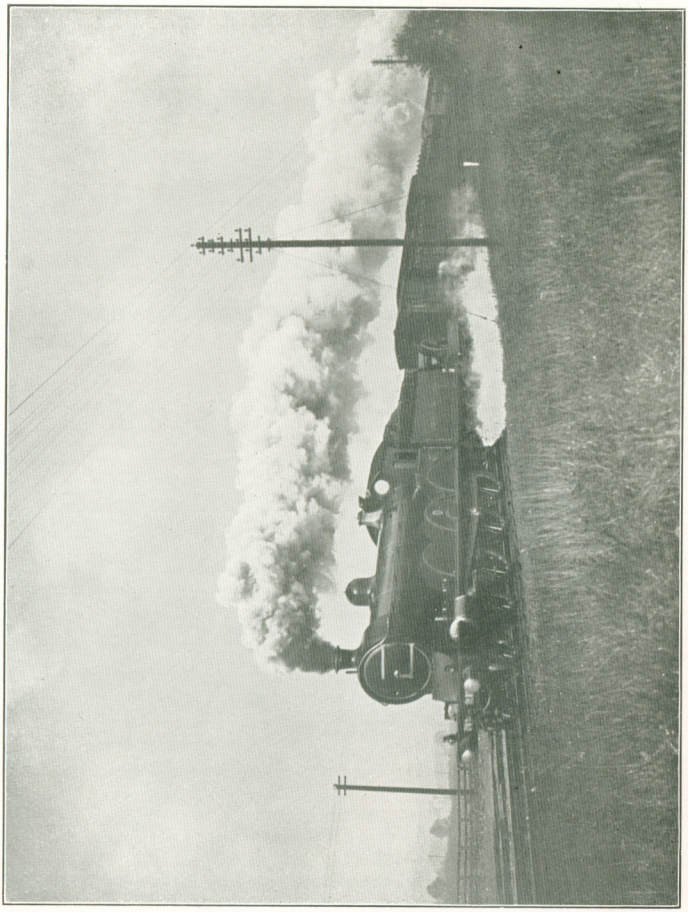
The cost of pairing two lenses for Stereoscopic Work is 10/-

An extra charge will be made if special scales are required.

The above Prices are Net.

TAKEN WITH

FOCAL PLANE CAMERA



TRAIN TRAVELLING 45 to 50 MILES PER HOUR. 1/900 sec.

From a Negative by
C. H. HEWITT, Gateshead-on-Tyne.

FITTED WITH

6 IN. ROSS' PATENT HOMOCENTRIC LENS F/6·3.

FOCAL PLANE CAMERA

(ERNEMANN'S)

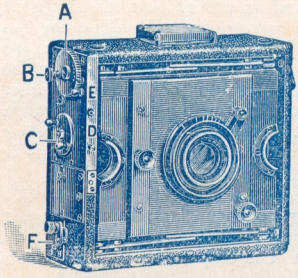
MADE SPECIALLY FOR . .

Ross' New Patent Homocentric Lens,

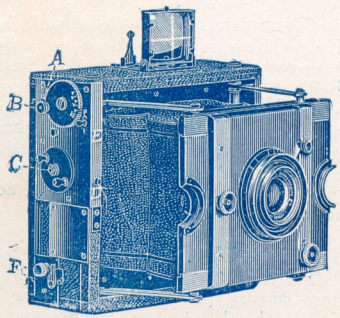
COMBINING

LIGHTNESS, SIMPLICITY,

PORTABILITY, and EFFICIENCY.



FOCAL PLANE CAMERA
CLOSED.



FOCAL PLANE CAMERA
OPEN.

THIIS Focal Plane Camera is an extremely compact collapsible Camera, embodying the latest achievements in lens and shutter construction in a simple and practical form, and in such a manner that the highest class work is possible even under the most disadvantageous circumstances.

The Camera is made of ebonised wood exquisitely finished with a dull polish, and the body containing the shutter is covered with morocco leather of the best quality. The extending front, with its Rising and

FOCAL PLANE CAMERA

(CONTINUED).

Falling Lens Board for vertical and horizontal pictures, is supported by very strong metal arms, which are absolutely rigid when the Camera is open for use. The front is thus kept perfectly plane with the sensitive surface of the plate, and absolute definition is obtained with the largest lens aperture. The new form of **Focal Plane Shutter** gives exposures of from 1/10th to 1/1000th of a second at will, and is equally suited for **Time Exposures**, an important improvement which will appeal to those who wish to do indoor portraiture or architectural interiors.

The Lens.—The Ross Patent Homocentric Lens fitted to the Focal Plane Camera is unrivalled for crisp and sharp definition at full aperture, and consequently the negatives obtained are such as will bear enlarging to a very great extent. The Lens usually supplied is of the Series C. working at F.6·3, but one of the Series B., F.5·6, may be had at a slight extra cost. For full particulars see pages 38 and 39. The Lens is mounted in a focussing jacket on which the distances from two yards to infinity are accurately engraved, and the Iris diaphragm is marked according to the standards of the Royal Photographic Society.

The Shutter.—It is well known that the Focal Plane Shutter has a higher efficiency than any other, and is a *sine qua non* for high speed work. Hitherto this form has not been easily adjustable, nor has it been adapted for time exposures. This Focal Plane Shutter fills every requirement of the practical photographer. The speed can be adjusted in an instant **from the outside**, and it is arranged for either time or instantaneous exposures. Moreover, it has the very great range of from 1/10th to 1/1000th of a second, consequently it is suitable for photography under any circumstances, and will give better results in a dull light than any other form.

The Finder.—This is a folding concave glass, reproducing in miniature the picture taken with the lens. Being ruled with cross lines and supplied with a centering sight it is easy to see if the Camera is held level.

The Dark Slides.—The double dark slides are designed to remove the objections pertaining to ordinary dark slides which have either projecting shutters when the plate is exposed or else a loose sheath which has to be withdrawn, leaving an opening through which light enters when the protecting valve happens to be defective. With the roller slides there are no valves or loose parts, the exposure of the plate being made by sliding back a roller shutter which works in the slide itself. They are, moreover, exceedingly small and very light.

The Changing Box.—This box may be fitted to the Camera if desired, and is very strongly recommended. It is perfect and rapid in action, the changing of plate or film being accomplished by the simple action of pulling out and closing a drawer without

FOCAL PLANE CAMERA

(CONTINUED).

the necessity of removing the box from the Camera. It holds twelve plates or twenty-four cut films, and may be kept attached to the Camera ready for use.

Roll Holder.—A roll holder taking rollable film in cartridge form which may be loaded and unloaded in daylight can be fitted if desired.

PRICES.

	¼-plate with 5 in. lens.	5 × 4 6 in. lens.	½-plate 7 in. lens.
	£ s. d.	£ s. d.	£ s. d.
Focal Plane Camera fitted with Ross' Patent Homocentric Lens, Series C, *f* 6·3, in focussing mount, adjustable Focal Plane shutter for Time or Instantaneous Exposures, Three Roller double dark slides and black leather carrying case	11 10 0	12 10 0	15 10 0
Additional double dark slides with special double roller shutters as described, each	0 12 0	0 12 0	0 15 0
Extra for Series B, Homocentric Lens *f* 5·6	1 0 0	1 15 0	1 15 0
Extra for best quality hand-sewn solid leather case with spring lock and key and sling shoulder strap in place of ordinary case as above	0 10 6	0 12 6	0 15 0
Changing Box with 12 plate sheaths	2 5 0	2 5 0	3 15 0
24 film sheaths ... ... extra	0 10 0	0 10 0	1 0 0
Roll Film Holder for loading and unloading in daylight	1 10 0	1 10 0	2 0 0
Aluminium Tripod Stand	1 15 0	1 15 0	1 15 0

THE ABOVE PRICES ARE NET.

For further particulars see Pamphlet sent free on application.

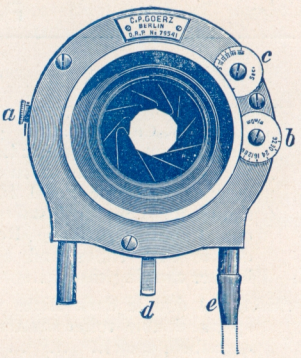
The Sector Shutter.

(GOERZ' PATENT.)

THIS Shutter is formed by segments situated in the plane of the diaphragm, and opening from and closing towards the centre.

This Shutter not only combines the good qualities of the best systems of Shutters hitherto known, but surpasses them in many respects.

Its advantages are as follows :—



1. Simplicity of mechanism, hence permanently uniform and reliable action.

2. All moving parts are completely covered in, and are therefore not susceptible to disturbing external influences, such as concussion, dust, moisture, &c.

3. It can be fitted between lens systems which have very little separation from each other (*e.g.*, double anastigmats with short focus), as the segments are one-tenth of a millimetre only in thickness.

SMALL MODEL, suitable for the Double Anastigmats Nos. 0 to 3, or any Lens with an aperture not exceeding $^{15}/_{16}$ in.

Price £3 10 0 net.

LARGER MODEL, suitable for the Double Anastigmats Nos. 4 to 6, or any Lens with an aperture not exceeding 1½ in.

Price £4 10 0 net.

THE ABOVE PRICES ARE NET.

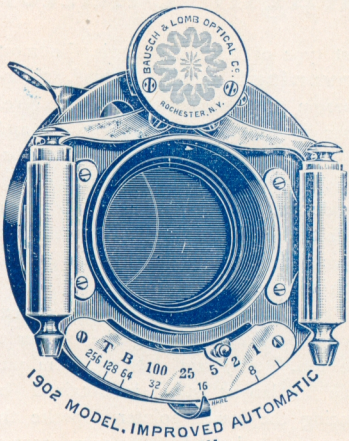
Cost of fitting, 6/- to 15/- each, according to size.

The original Lens Tube is not altered, and will be returned.

No charge will be made for fitting if the Shutter is ordered from Ross Limited, *simultaneously with* a Lens manufactured by them.

The Automat Shutter.

THE Automat is, as its name implies, a strictly automatic shutter. It is always set ready for exposure and is released by simple pressure of the pneumatic bulb or finger release. It gives exposures from one second to about $\frac{1}{100}$ second and may in addition be set so that time exposures of any duration may be made as well as "bulb exposures," in which case pressing the pneumatic bulb opens the blades and they remain open as long as the pressure is applied. The various speeds are secured by moving the pointer along the scale. The speeds are controlled by a patent pneumatic retarding device.



AUTOMAT.

An Iris diaphragm operated by lever at the lower edge gives any size stop, the stop values being read off on the graduated scale. This scale is graduated especially for the particular Lens used with the shutter.

The Automat is very compact and neat in appearance. The working parts are nearly all inclosed within the case, preventing injury from dust or accident.

This type of shutter was only recently introduced, and sprang into instant popularity both with camera makers and the public. It is thoroughly practical and up-to-date.

PRICES.

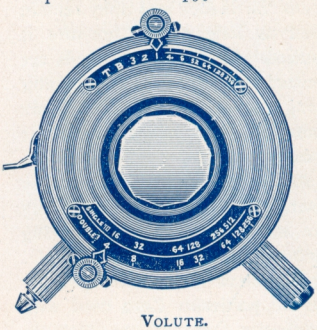
Telegraphic Code.	No.	Will take Lenses with opening of	Price when ordered with Lenses of Our Manufacture.	Price fitted to Lenses of Other Manufacturers.
			£ s. d.	£ s. d.
Autom	1	23 mm.	1 8 0	1 15 6
Autara	2	30 mm.	2 5 0	2 12 6
Autexil	3	40 mm.	2 17 6	3 7 6

FIVE PER CENT. DISCOUNT FOR CASH.

The VOLUTE B. & L.

Iris Diaphragm Shutter

VOLUTE represents the highest type of Shutter. It is the most **rapid, compact, convenient, dust-proof, durable** and **elegant** Iris Diaphragm Shutter ever offered. It gives exposures from $\frac{1}{150}$ second to 3 seconds automatically, also bulb and time exposures. All speeds are controlled by our patent pneumatic retarding device. An exposure of $\frac{1}{150}$ second is fast enough for athletes, racehorses, express trains and the like in motion with very good-sized images.



VOLUTE.

The Shutter is set for the various speeds by simply moving the pointer at the top. Any size opening, from pinhole to largest stop, is obtained by placing the lower pointer opposite the stop number desired. No extra stops or diaphragms are needed. It cannot open or expose the plate while being set. There is no recoil even at highest speed.

The Shutter is set by raising the setting lever. Exposure is made either by pneumatic bulb or by depressing the setting lever.

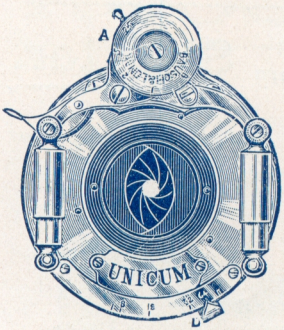
PRICE LIST.

Telegraphic Code.	No.	Will take Lenses with opening of	Automatic Exposure.	Price when ordered with Lenses of Our Manufacture.	Price fitted to Lenses of Other Manufacturers.
				£ s. d.	£ s. d.
VOLU ...	1	24 mm.	3 sec. to $\frac{1}{150}$ sec.	3 12 6	4 0 0
VOLAAF ...	2	36 mm.	3 sec. to $\frac{1}{100}$ sec.	3 17 6	4 5 0
VOLUTAR	3	52 mm.	3 sec. to $\frac{1}{75}$ sec.	4 4 0	4 15 0

On account of its very small size, Volute is applicable to the pocket cameras. The blades being extremely thin it can be applied to those lenses in which the combinations are very close together.

FIVE PER CENT. DISCOUNT FOR CASH.

B. & L. IRIS SHUTTER.



THE "UNICUM."

THIS Shutter has pneumatic and finger release, and instantaneous exposures of various speeds can be given by turning a dial. Time exposures can be given by retaining the pressure on the ball or finger release at will; while to obtain lengthened exposures for interiors it may be set to remain open for any period.

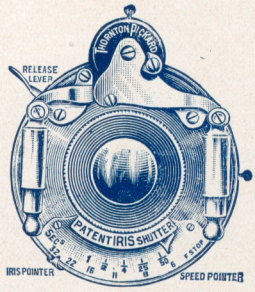
Prices, in Brass, with Speed Indicator.

$4\frac{1}{4} \times 3\frac{1}{4}$ and 5 × 4	£1 7 6 each.
$6\frac{1}{2} \times 4\frac{3}{4}$ and $7\frac{1}{2} \times 5$	£1 17 6 ,,
$8\frac{1}{2} \times 6\frac{1}{2}$	£2 12 6 ,,

A small Extra Charge is made for Adaptation to Lenses according to the time required.

THORNTON-PICKARD NEW PATENT

"IRIS" SHUTTER.



A New Between-Lens Shutter made entirely of Metal

SMALL, COMPACT, AND EFFICIENT.

All moving parts carefully adjusted and accurately balanced. Works smoothly without vibration. Speeds from $\frac{1}{100}$ of a second to 1 second.

Time Exposures of any Duration.

Price 25s. ¼-plate and 5 in. × 4 in.

FIVE PER CENT. DISCOUNT FOR CASH.

PATENT

Time & Instantaneous

Standard Pattern Shutter.

To fit on either the Hood or Tube of Lens.
Particulars of the smallest size:

Price 14/6.

SPEED up to $\frac{1}{50}$ of a second.
DIMENSIONS, $3\frac{1}{4} \times 3 \times \frac{7}{8}$ inches.
WEIGHT, $3\frac{3}{4}$ ozs.

Speed Indicator included.

CHEAPER PATTERN MADE IN ALUMINIUM,
Price from **12/6.**

SIZE, to fit on a Lens Hood or Tube up to Ins. diam.—	$1\frac{1}{2}$	$1\frac{5}{8}$	2	$2\frac{1}{2}$	3	$3\frac{1}{4}$
TIME AND INSTANTANEOUS. STANDARD PATTERN	14/6	15/-	16/-	18/-	21/-	25/-
Do. do. BEHIND LENS	15/6	16/-	17/6	19/6	22/6	26/6
Do. do. ALUMINIUM PATTERN ...	12/6	13/6	15/6	18/-	—	—
Do. do. ALUMINIUM BEHIND LENS	13/6	14/6	16/6	19/-	—	—
If fitted with cord release instead of ball and tube for Hand Cameras, 1/- *less.*						
EXTRA RAPID AND FOREGROUND. TIME AND INSTANTANEOUS	—	23/6	25/6	28/6	32/6	37/6
STEREOSCOPIC. TIME AND INSTANTANEOUS, at 3 in. or $3\frac{1}{4}$ in. centres	20/-	21/-	23/-	27/-	—	—
Do. do. BEHIND LENS do.	22/6	23/6	25/6	29/6	—	—
$3\frac{1}{2}$ *in. centres,* 2/- *extra;* $3\frac{3}{4}$ *in centres,* 4/- *extra.* ADJUSTABLE PANEL FOR BEHIND LENS, extra 7/6						
SNAP SHOT, *for Instantaneous only.* Standard Pattern	10/-	10/-	12/-	15/-	20/6	—
Aluminium do.	9/-	9/-	10/6	13/6	—	—
SPECIAL, *for more Rapid Instantaneous* ...	—	23/6	25/6	28/6	32/6	37/6
SILENT STUDIO	—	—	20/6	23/6	27/6	32/6

FOCAL PLANE, NEW MODEL.	$\frac{1}{4}$-Plate	5×4	$\frac{1}{2}$-Plate	$7\frac{1}{2} \times 5$	$\frac{1}{1}$-Plate	10×8	12×10
	£2 5 0	£2 10 0	£2 15 0	£3 6 0	£3 10 0	£4 4 0	£5 5 0

ROSS' "Century" Camera.

An Instrument of the highest quality and finish, in which the advantages of the "Square" and "Tourist" Pattern Cameras are combined.

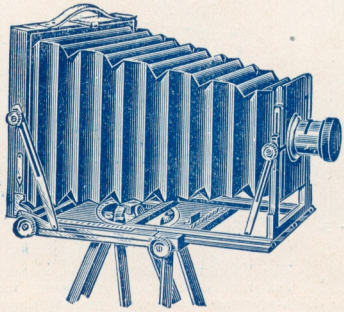


Fig. 1.

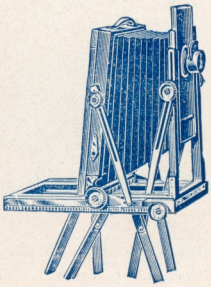


Fig. 2.

THIS Camera has been specially designed to meet the requirements of the modern Anastigmatic Lenses.

The chief advantages of the "Century" Camera are :—

1st.—Its Lightness and Portability.

2nd.—Its Extensive Rising Front.

3rd.—Its Double Rack Focussing.

DESCRIPTION.

Expert users of modern high-class Lenses have hitherto found that the old-fashioned square bellows cameras, notwithstanding their weight, possessed some points of advantage over the lighter and more popular tourist patterns. The defects of the usual conical bellows cameras are especially noticeable when photographing architectural subjects with wide-angle lenses, or copying. In the former case the bellows is forced backwards in front of the plate when the lens is raised, and unless great care is taken a portion of the picture is lost. When copying it is a great advantage to have the lens fixed and to focus from the back, but with most portable cameras the contrary is the case.

The 'Century' Camera has been introduced because it is entirely free from the defects enumerated above, and combines, in a most perfect manner, the advantages of both systems.

ROSS' "CENTURY" CAMERA

(CONTINUED).

The "Century" Camera is made of the finest selected and seasoned Spanish mahogany and can be recommended for any climate. Although it is very light, the lightness has not been secured by weakening any part of the instrument, but by eliminating wood and brass from places where it served no useful purpose. Great care has been taken to make the camera as rigid as possible, and in all cases where there are metal parts it will be found that these work on metal, and not on wood. The various screws are kept in position with locking screws, and therefore there is no danger of their working loose and getting lost.

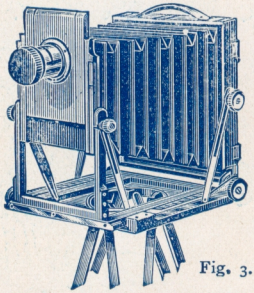


Fig. 3.

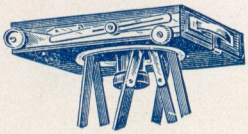


Fig. 4.

GENERAL INFORMATION.

The "Century" Camera has, in addition to the great rise on the front, a swing motion to the front, also swing back. The dark slides are made in the best possible manner, and have special light-tight hinges, rendering them safe in all climates.

The camera may be had either with or without turntable, but we strongly recommend that the turntable be fitted, for it makes the camera far more rigid, and permits of its being rotated into any position and then firmly clamped.

PRICES.

The following prices include camera, three double dark slides, best quality three-fold tripod and revolving turntable, complete.

Size in inches.	Prices.	Extra double Dark Slides.	Brass Binding extra.	Size of Camera closed.
$6\frac{1}{2} \times 4\frac{3}{4}$ ...	£11 10 0 ...	£1 2 0 ...	£1 10 0 ...	$8\frac{1}{2} \times 8\frac{1}{2} \times 2$
$7\frac{1}{2} \times 5$ ...	12 10 0 ...	1 2 0 ...	1 10 0 ...	$9\frac{1}{2} \times 9\frac{1}{2} \times 2$
$8\frac{1}{2} \times 6\frac{1}{2}$ ...	14 0 0 ...	1 5 0 ...	1 15 0 ...	$11 \times 10\frac{3}{4} \times 2\frac{1}{4}$
10×8 ...	16 0 0 ...	1 12 0 ...	2 0 0 ...	$12\frac{1}{2} \times 12\frac{3}{4} \times 3$
12×10 ...	19 0 0 ...	2 0 0 ...	2 10 0 ...	$14\frac{1}{2} \times 14\frac{1}{2} \times 3$
15×12 ...	24 0 0 ...	2 15 0 ...	3 0 0 ...	$17\frac{1}{2} \times 17\frac{1}{2} \times 3\frac{1}{2}$
18×16 ...	35 0 0 ...	3 10 0 ...	4 0 0 ...	$21 \times 21 \times 3\frac{1}{2}$

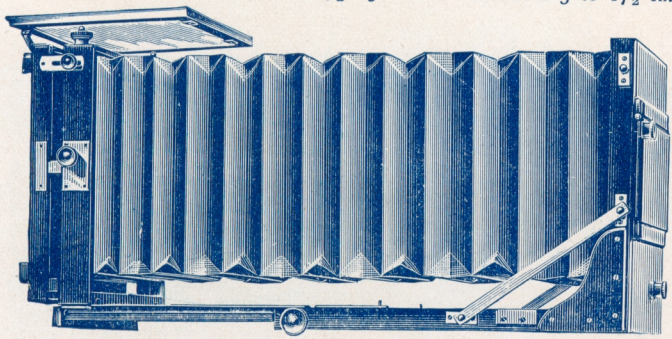
Five per cent. discount for cash.

For 12 × 10 and larger sizes we recommend a light supplementary leg for the front of camera. The price of this, including camera fittings, is **10/6.**

ROSS' Improved Portable Square Bellows Cameras.

DOUBLE EXTENSION WITH REVERSIBLE HOLDERS.

For Lenses of Long Focus. The $7\frac{1}{2} \times 5$ size extends from 3 to $17\frac{1}{2}$ in.



THIS pattern is a favourite with Professional Photographers and Process Workers, and also for Railway, Shipyard, and Engineering Photographic Work.

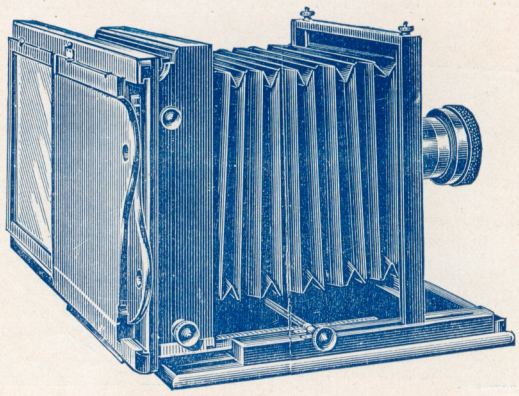
The Front is rigid, and therefore well adapted for carrying long focus heavy lenses, and, as the bellows racks backwards, wide-angle lenses may be employed without having the foreground of the picture cut off by the baseboard, as frequently happens with Cameras of other patterns. The baseboard folds over the ground-glass screen when closed, thus protecting it from danger of breakage.

Size.	Price of Camera only.	Brass binding extra.	Double Dark Slides. Each.	Brass Binding Dark Slides. Each.	Rack & Pinion to double Swing Back.
5 × 4	£6 0 0	£0 15 0	£0 18 0	£0 5 0	£0 10 0
$6\frac{1}{2}$ × $4\frac{3}{4}$	7 5 0	0 15 0	1 2 0	0 5 0	0 10 0
$7\frac{1}{2}$ × 5	7 10 0	0 15 0	1 2 0	0 5 0	0 10 0
$8\frac{1}{2}$ × $6\frac{1}{2}$	9 10 0	0 15 0	1 5 0	0 5 0	0 10 0
10 × 8	10 0 0	1 0 0	1 12 0	0 6 0	0 15 0
12 × 10	11 10 0	1 10 0	2 0 0	0 6 0	0 15 0
15 × 12	13 10 0	1 15 0	2 15 0	0 7 6	1 0 0
18 × 16	22 0 0	2 10 0	3 10 0	0 10 0	1 0 0

Divisions for Stereoscopic Views are supplied with the $8\frac{1}{2} \times 6\frac{1}{2}$ and all smaller sizes, and with the larger Cameras (at an extra charge) when desired. The prices of Cameras include two fronts or lens boards.

FIVE PER CENT. DISCOUNT FOR CASH.

ROSS' IMPROVED Studio Cameras.



IMPROVED UNIVERSAL STUDIO CAMERAS,

WITH SINGLE DARK SLIDE REPEATING BACK AND TWO INNER FRAMES.

Size.		Size.		With Single Swing Back.	With Double Swing Back.	Brass Binding.
6½ × 6½	for Plates	6½ × 4¾	and under	£6 0 0	£7 0 0	£1 5 0
8½ × 8½	,,	8½ × 6½	,,	7 10 0	8 10 0	1 5 0
9 × 9	,,	9 × 7	,,	7 15 0	8 15 0	1 5 0
10 × 10	,,	10 × 8	,,	8 15 0	9 15 0	1 10 0
12 × 12	,,	12 × 10	,,	10 10 0	11 15 0	2 5 0
15 × 15	,,	15 × 12	,,	15 10 0	17 10 0	2 15 0

Rack Adjustments to Swing Back, 20s. each motion.

CAMERA STANDS.

LIGHT TRIPOD STANDS ... ... from £0 12 6

ASH TRIPOD STAND, triangle top 1 1 0

,, ,, (Kennett's pattern), small, medium, or large... 1 6 0

,, ,, threefold or fourfold 1 6 0

,, ,, with brass turntable 1 17 6

TABLE STANDS FOR THE STUDIO, in polished pine, with rack adjustment 3 16 0

,, ,, ,, in oak or mahogany, with rack adjustment 5 10 0

,, ,, ,, in polished pine, large, with rack adjustment 7 10 0

,, ,, in polished mahogany, with rack adjustment 9 10 0

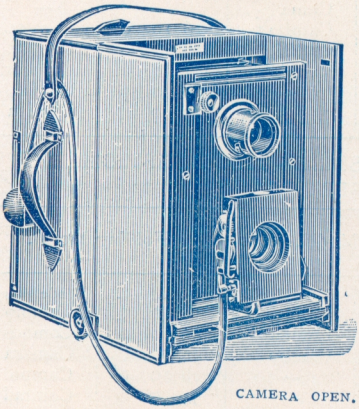
FIVE PER CENT. DISCOUNT FOR CASH.

ROSS' NEW MODEL

Twin Lens Camera.

(PATENT).

THE great popularity of the Twin-Lens Camera has created a demand for Cameras to take plates of larger sizes than those formerly listed. To meet this want, and for the convenience of many Lady Photographers, and others who prefer to make a medium size picture, ROSS, Ltd., have devised and patented a



CAMERA OPEN.

NEW FOLDING TWIN-LENS CAMERA

of even less weight, and which, when closed, is only two-thirds the size of the original model.

This important improvement has been achieved by discarding the hinged front door and portions of the top and base of the body, and thus decreasing the weight, and utilising the front portions of the two sides to form folding doors (as shown in the illustration). The lower portion of the inside of these doors have grooved fittings, which form guides for the travelling frame, and thus render this new form, when ready for use, absolutely rigid. When closed, the doors are fastened by a spring clip.

To set up the apparatus it is only necessary to press this spring and rack out the front, when the doors open automatically and the travelling frame runs into position.

This camera is used in precisely the same manner as the original model, being suspended from the neck by a sling, or mounted upon a stand, as desired.

THE FOLLOWING IMPORTANT ADVANTAGES ARE CLAIMED FOR THIS CAMERA:—

1st.—Each picture can be obtained with microscopic sharpness.

2nd.—The composition and lighting of instantaneous pictures can be studied.

3rd.—In photographing yachts and other large subjects, there is an absolute certainty of the whole of the objects being correctly centred, and contained within the limits of the plate.

4th.—When used as an ordinary camera on a tripod stand for obtaining portraits of children and animals, the many out-of-focus failures (due to the subject moving) during the comparatively long interval that must elapse after focussing before the plate can be substituted for the screen are by this system entirely avoided.

Prices of Twin

Including Two Lenses, accurately paired, Blind Shutter, Box for Twelve Glass

WITH PAIR ROSS RAPID HAND CAMERA LENSES, F 8.

For Plates.	Focus of Lenses.	Rigid Model.			Folding Model.		
Inches.	Inches.	£ s. d.	Code Word.		£ s. d.	Code Word.	
$3\frac{1}{4} \times 3\frac{1}{4}$	$4\frac{1}{2}$	12 10 0	Cama		—	—	
$4\frac{1}{4} \times 3\frac{1}{4}$	5	14 10 0	Cambo		16 10 0	Cameta	
5 × 4	6	16 10 0	Camel		18 10 0	Camfie	
$6\frac{1}{2} \times 4\frac{3}{4}$	8	18 10 0	Camden		21 0 0	Camgar	
$7\frac{1}{2} \times 5$	9	—	—		25 0 0	Camho	
$8\frac{1}{2} \times 6\frac{1}{2}$	12	—	—		33 0 0	Camina	

WITH PAIR ROSS-ZEISS SERIES IIIa. ANASTIGMATIC LENSES, F 8.

For Plates.	Focus of Lenses.	Rigid Model.			Folding Model.		
Inches.	Inches.	£ s. d.	Code Word.		£ s. d.	Code Word.	
$4\frac{1}{4} \times 3\frac{1}{4}$	6	16 10 0	Camjos		18 10 0	Cammo	
5 × 4	$6\frac{3}{4}$	20 0 0	Camka		22 0 0	Camnos	
$6\frac{1}{2} \times 4\frac{3}{4}$	$7\frac{3}{4}$	22 0 0	Camlin		24 10 0	Camora	
$7\frac{1}{2} \times 5$	$7\frac{3}{4}$	—	—		26 10 0	Campo	
$8\frac{1}{2} \times 6\frac{1}{2}$	$9\frac{1}{4}$	—	—		34 0 0	Camrad	

WITH PAIR ROSS-GOERZ SERIES III. DOUBLE ANASTIGMATIC LENSES, F 7·7.

For Plates.	Focus of Lenses.	Rigid Model			Folding Model.		
Inches.	Inches.	£ s. d.	Code Word.		£ s. d.	Code Word.	
$4\frac{1}{4} \times 3\frac{1}{4}$	5	20 10 0	Camstar		22 10 0	Camver	
5 × 4	6	23 10 0	Camtur		25 10 0	Camwell	
$6\frac{1}{2} \times 4\frac{3}{4}$	7	26 0 0	Camura		28 10 0	Camixa	
$7\frac{1}{2} \times 5$	$8\frac{1}{4}$	—	—		34 0 0	Camyat	
$8\frac{1}{2} \times 6\frac{1}{2}$	$9\frac{1}{2}$	—	—		42 0 0	Camzie	

Any other suitable Lenses or Shutters may be

THE ABOVE PRICES

Lens Cameras,

and either Three Double Dark Slides, or a Changing Plates or Twenty Films.

WITH PAIR ROSS' PATENT HOMOCENTRIC LENSES, F 8.

For Plates.	Focus of Lenses.	Rigid Model.			Folding Model.		
Inches.	Inches.	£	s.	d.	Code Word.	£	s.	d.	Code Word.
$4\frac{1}{4} \times 3\frac{1}{4}$	5	17	0	0	Hoama	19	0	0	Hoamden
5×4	6	19	0	0	Hoambo	21	0	0	Hoameta
$6\frac{1}{2} \times 4\frac{3}{4}$	7	21	10	0	Hoamel	24	0	0	Hoamfie
$7\frac{1}{2} \times 5$	$8\frac{1}{2}$		—		—	28	10	0	Hoamgar
$8\frac{1}{2} \times 6\frac{1}{2}$	10		—		—	37	0	0	Hoamho

WITH PAIR ROSS' PATENT HOMOCENTRIC LENSES, F 5·6.

For Plates.	Focus of Lenses.	Rigid Model.			Folding Model.		
Inches.	Inches.	£	s.	d.	Code Word.	£	s.	d.	Code Word.
$4\frac{1}{4} \times 3\frac{1}{4}$	6	22	0	0	Hoamina	24	0	0	Hoamlin
5×4	7	25	0	0	Hoamjos	27	0	0	Hoammo
$6\frac{1}{2} \times 4\frac{3}{4}$	$8\frac{1}{2}$	28	10	0	Hoamka	31	0	0	Hoamnos
$7\frac{1}{2} \times 5$	10		—		—	40	10	0	Hoamora
$8\frac{1}{2} \times 6\frac{1}{2}$	12		—		—	55	10	0	Hoampo

EXTRA DOUBLE DARK SLIDES.

$4\frac{1}{4} \times 3\frac{1}{4}$	5×4	$6\frac{1}{2} \times 4\frac{3}{4}$	$8\frac{1}{2} \times 6\frac{1}{2}$
15s.	18s.	£1 2s.	£1 5s.

EXTRA CHANGING BOXES.

$4\frac{1}{4} \times 3\frac{1}{4}$	5×4	$6\frac{1}{2} \times 4\frac{3}{4}$	$8\frac{1}{2} \times 6\frac{1}{2}$
£2 5s.	£2 12s.	£2 15s.	£3 5s.

INNER FRAMES.

(Outside Sizes of Frames.)

5×4	$\frac{1}{2}$-plate	$7\frac{1}{2} \times 5$	$\frac{1}{1}$-plate
1s. 9d.	1s 9d.	2s.	2s. 6d.

EXTRAS.

Double Swing Back Attachment, polished black, $4\frac{1}{4} \times 3\frac{1}{4}$, 25/-; 5×4, 30/-; $6\frac{1}{2} \times 4\frac{3}{4}$, 35/-; $7\frac{1}{2} \times 5$, 40/-

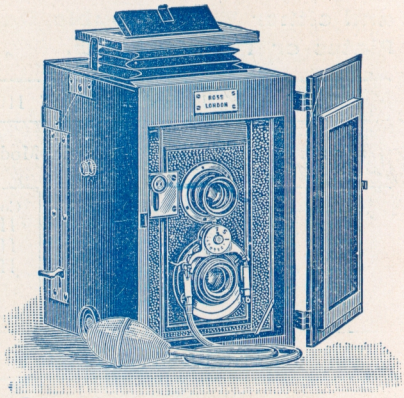
Focussing Hoods, to exclude sunlight from finder, with cups for eyes, 9/6.; without eye cups, 6/6.

Brass Binding Cameras and Double Dark Slides, $4\frac{1}{4} \times 3\frac{1}{4}$, 20/-; 5×4, 25/; $6\frac{1}{2} \times 4\frac{3}{4}$, 30/-; $7\frac{1}{2} \times 5$, 30/-

substituted at the difference in Catalogue prices.

ARE NET.

ROSS' New Magazine . . Twin-Lens Camera.



Holds 12 Plates or 24 Films, $4\frac{1}{4} \times 3\frac{1}{4}$ in.
Measures only 8 in. × 5 in. × $6\frac{1}{2}$ in.
Weight only $4\frac{3}{4}$ lbs.
Collapsing Focussing Hood.

Price **£16 10s.** complete, with accurately paired Lenses and Shutter.

WE have introduced the new Magazine Twin-Lens Camera to meet the wishes of those who require the certainty of the Twin-Lens system combined with the compactness and rapidity of working of the Automatic Plate Changer. Notwithstanding many ingenious devices of opticians, the Ross' Twin-Lens System maintains its position as the simplest and most reliable means for focussing an object right up to the moment of exposure, and therefore it is the best for easily and accurately photographing

FIGURES, GROUPS, OR GENRE SUBJECTS,

only to name the most difficult in which many hand camera workers frequently fail.

The Ross Twin-Lens System allows a lens of ordinary focus being used.
It is free from the complication and uncertainty of moving mirrors.
With it an object is photographed immediately it is seen, and without the loss of time which must necessarily occur where a single lens is used with the mirror reflector.
It is the smallest and also the cheapest form of Camera with focussing finder.

The Ross Magazine Twin-Lens consists of a small rectangular box, in which lenses, shutter, and twelve plates or twenty-four cut films are self-contained. It is made of well-seasoned mahogany covered with fine grained morocco leather, and is fitted with a pair of the Ross Patent HOMOCENTRIC LENSES, with Iris diaphragm, and time and instantaneous automatic shutter. In common with our other Twin-Lens Cameras the image may be focussed right up to the moment of exposure; and an improved expanded focussing chamber, which can be instantaneously brought into position and adjusted for long or short sight, will be found of great benefit when photographing subjects out of doors in a strong light. The Rising Front is very extensive, and will be of much value to architectural photographers.

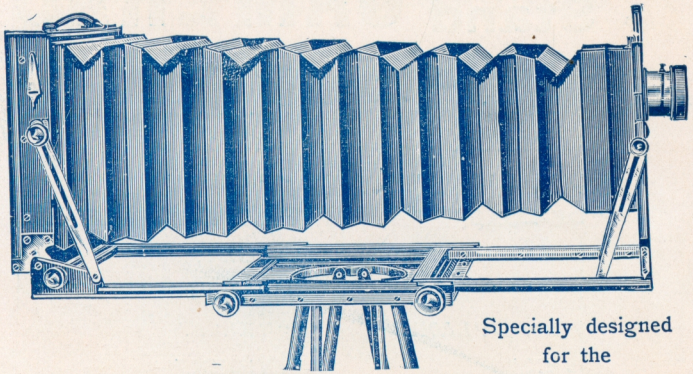
The Plate or Film Changing System is exceedingly simple and efficient. The plates or films are inserted in sheaths and placed in the camera. The action of raising and lowering the knob at the side removes the exposed plate and places another automatically in position. It is delightfully easy, and the whole of the plates or films may be changed in a few seconds if so desired. An indicator records the number of plates or films which have been changed.

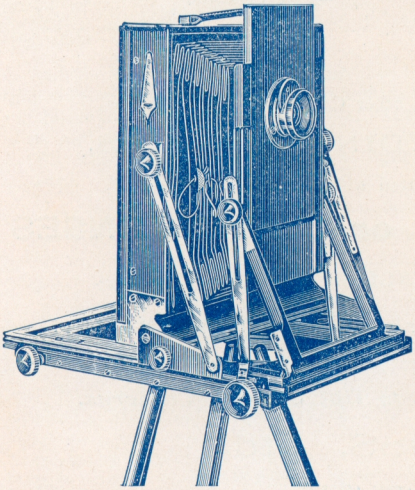
	£	s.	d.
PRICE complete, fitted with pair of Ross Patent Homocentric Lenses, *f*8, and Diaphragmatic Shutter ... net cash	16	10	0
With pair Ross Rapid Hand Camera Lenses, *f*8	15	0	0
" " " *f*5·6	17	10	0
" Ross-Goerz Double Anastigmats, *f*7·7	20	0	0
" Ross-Zeiss "Protar" Lenses, *f*8	17	0	0

Any other suitable Lenses or Shutters may be substituted at the difference in list price.

THE ABOVE PRICES ARE NET.

ROSS' Triple Extension "Century" Camera.





Specially designed for the Pictorial and Professional Photographer.

Amongst the many good points claimed for this New Camera are the following, viz. :—

1st. Its Extreme Lightness and Portability.

2nd. The Triple extension of bellows, enabling Lenses of long focus to be used, such as the single combinations of the Ross-Zeiss Convertible "Protar" and other Lenses. The Half-plate Camera has an extension of fully 22 inches.

3rd. Its Extensive Rising and Swing Front.

4th. Its adaptability for short focus or wide angle work.

5th. Its Strength and Rigidity when in use.

6th. Its Simplicity of working parts and its First-class Workmanship and High Finish.

Price of Camera, with three double dark slides for plates $6\frac{1}{2} \times 4\frac{3}{4}$, Turntable, and Three-fold Tripod, **£14 0s.**

Brass binding extra **£1 10s.** Extra double dark slides **£1 2s.** each.

For full particulars and prices of other sizes see complete Catalogue, sent post free on application.

FIVE PER CENT. DISCOUNT FOR CASH.

Hand and Stand CAMERAS

"ALPHA,"	"NATTI,"
"AMBER,"	"N. & G."
"ANSCHUTZ,"	"NYDIA,"
"CHALLENGE,"	"PREMO,"
"DE-LUXE,"	"REFLEX,"
"ECLIPSE,"	"RUBY,"
"FRAM,"	"SANDERSON,"
"FOCAL-PLANE,"	"TELLA,"
"ILEX,"	"VIDEX,"
"KODAK,"	"WENO,"
"MIRAL,"	"XIT,"

And other Cameras by

ALL LEADING MAKERS,

supplied fitted with the celebrated

ROSS, ZEISS, or GOERZ LENSES

OF FINEST ENGLISH MANUFACTURE.

A SPECIAL PRICE LIST OF ABOVE SENT ON APPLICATION.

For adaptation to Old or New Cameras,

ROSS, Ltd.,

can offer to

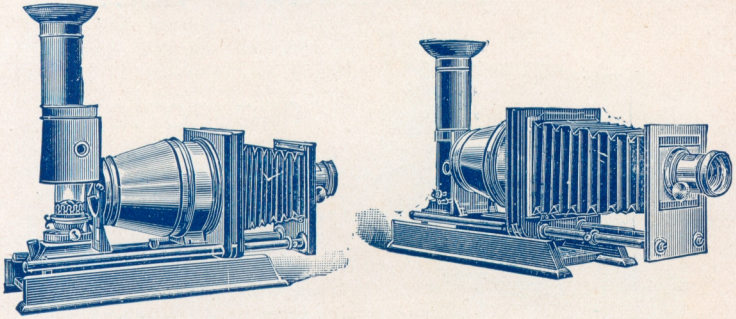
AMATEUR OR PROFESSIONAL PHOTOGRAPHERS AND PROCESS WORKERS

A Greater Choice and Finer Selection

of High-class Lenses than any other Manufacturer in the world.

ROSS' NEW SERIES

Enlarging Lanterns.



With the various improvements that have been added since its introduction, combined with beautiful workmanship, this instrument has gained a reputation in the Trade as being the BEST VALUE and the FINEST APPARATUS of its kind at present on the market. Each instrument is fitted with Ross' Patent Rising Body, and any form of light can be adapted and readily adjusted.

No.	Diameter of Condenser.		Negative fully covered.		PRICES without Objective, but including good Oil Lamp.
	Inches.	m/m	Inches.	c/m	
0	5½	140	4¼ × 3¼	—	£10 0 0
1	6½	163	5 × 4	9 × 12	12 0 0
2	7	177	5½ × 4½	—	13 10 0
3	8	203	6½ × 4¾	12 × 16	15 0 0
4	9	228	7 × 5	13 × 18	20 10 0
5	10	253	8 × 5	—	25 10 0
6	11	279	8½ × 6½	—	32 0 0

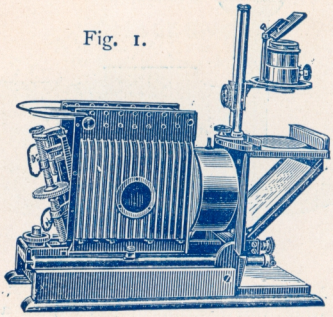
	EXTRA.
Incandescent Fittings instead of Oil Lamp	£0 12 6
Brass and Aluminium Body in place of Russian Iron for Arc Lamp or "Radiant" Jet	3 15 0
Special Tray to fit this body to take any Jet	0 8 0
Limelight Body for Ross' Special Jet	0 16 6
Ross Jet with cut-off for Limelight Body	2 12 6
Ordinary Jets, from ... ... £1 5 0 to	2 15 0
"Radiant" Jet (see page 56)	4 4 0
"B" Arc Lamp (see page 54)	5 5 0

THE ABOVE PRICES ARE NET.

ROSS' NEW UNIVERSAL

"Combination" Lantern

Fig. 1.



FOR

PROJECTION,

SCIENCE WORK,

OR

ENLARGING.

THIS is an extremely fine instrument, and will be found of great service in colleges and institutions where a great variety of work is performed. Whether used for Science Demonstration, for ordinary Projection or Enlarging, it will be found a most satisfactory apparatus.

The body is constructed of stout black brass plates, with an outer shell or body of aluminium, and the ventilation thus obtained is very perfect and admirably adapted for powerful illuminants, as there is nothing whatever to warp or get on fire with the intense heat.

A body thus made of aluminium is both serviceable and at the same time really good in appearance. Ross, Limited, were the originators of the ribbed aluminium lantern body.

Illustration (Fig. 1) shows the instrument as arranged for vertical projection, and this can be lowered in a moment for ordinary projection, or removed altogether, and another front with bellows to exclude the light substituted.

The instrument is supplied with a 4½-inch Triple Condenser, also a Double Condenser of 5½-inch diameter; a fine Objective for Projection, and Block Front, on which can be mounted any suitable Photographic Lens for Enlarging.

Complete with Two Condensers, Objective, best quality Jet, Vertical Attachment, and strong Wooden Case with lock and key, £28 10s. If fitted with patent "Radiant" Jet, £3 extra. With Ross' Arc Lamp, £4 extra.

THE ABOVE PRICES ARE NET.

ROSS' NEW UNIVERSAL
Combination Lantern.

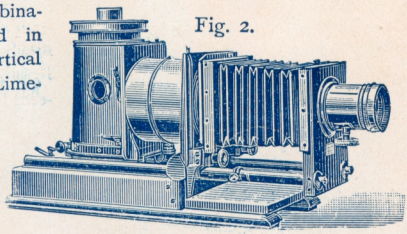


Fig. 2.

ANOTHER form of the Combination Lantern as illustrated in Fig. 2, is supplied without vertical attachment, and with Patent Limelight Body instead of the special brass and aluminium pattern. An important feature of this Lantern is the novel and comparatively small body or head inclosing the illuminant and carrying the chimney. This is fitted with sight holes, but no doors. The metal body can, by a patent arrangement, be raised several inches from its base, disclosing that portion of the jet which carries the lime, and leaving it entirely free for fixing. When this is done, the body can with equal facility be lowered into its original position. The jet taps and lime turner are placed outside this rising body, and the ventilation of the instrument is very thorough, both the direct and radiated heat being carried off thoroughly, no part of the apparatus being liable to undue heating.

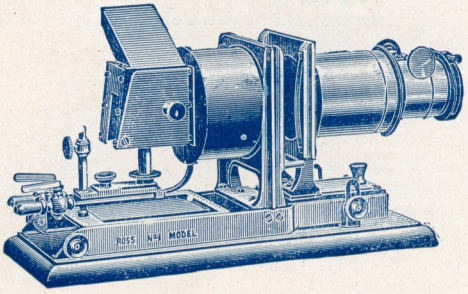
THE FOLLOWING ARE SOME OF THE USES TO WHICH THIS LANTERN MAY BE PUT:—

PROJECTION OF LANTERN SLIDES.
PROJECTION OF ¼-PLATE TRANSPARENCIES.
ENLARGING FROM ¼-PLATE.
ENLARGING FROM LANTERN PLATES.
ENLARGING FROM PORTIONS OF LARGE PLATES.
PROJECTION OF 4½-INCH PARALLEL BEAMS.
PROJECTION OF 5½-INCH PARALLEL BEAMS.
THE ILLUMINATION OF TABLEAUX, Etc.
GENERAL SCIENCE WORK.

PRICE, complete with the two Condensers and Objective (better than the usual "best quality" commercial objective), Ross Special Jet with cut-off, neat case, **£20 10s.** Vertical Attachment extra, £5 5s.

THE ABOVE PRICES ARE NET.

ROSS' - NEW - Limelight Lantern.



No. 1 MODEL.

THE construction of this Lantern was mainly suggested by the ordinary Table Lamp. In such a Lamp certain portions are very hot, but we easily avoid them when it becomes necessary to adjust the light. In a similar manner this Lantern can be worked with ease and convenience, and with no more danger from heat than the Table Lamp, and there is actually less heating in the other portions of the Lantern than in instruments constructed with bodies of the usual pattern. The Condenser, for instance, does not get nearly so hot as is usually the case.

Every part is exceedingly rigid and substantial, and this makes the working of it a positive pleasure.

Any thickness of slide or carrier can be used, from two or three inches down to the thinness of paper.

Two of these Lanterns, placed one over the other, form a most efficient Biunial, but the Jets in this case must be fitted with "cut-off" taps, with a few simple parts to connect the Lanterns together.

The Lenses are excellent, and taken altogether, it may be said that a more convenient Lime-light Lantern for all ordinary purposes could not possibly be constructed.

Price complete, with Objective and "Blow through" or "Mixed Jet."

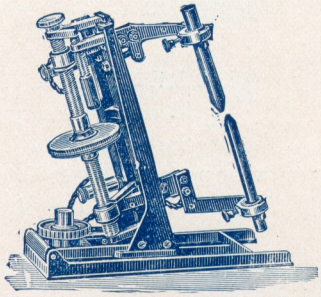
£10 0 0 NET.

ROSS' NEW MODEL
Projection Arc Lamps.

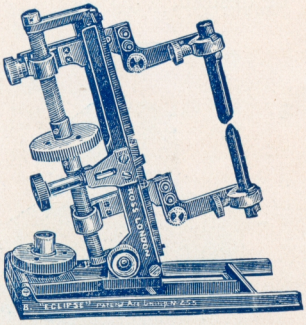
(Patent.)

Electricians and other Experts have stated that these are the best Lamps yet devised for Cinematograph Projection, Microscope, Photo-Micrographic and Projection Work generally.

They work at from 5 to 15 Amperes.



(A) Lamp.



(B) Lamp.

Briefly summarised the leading features of the Lamp are:—1. Very quick and accurate centering. 2. Great ease and comfort in manipulation. 3. No current in the Lamp itself, therefore less liability to "Shocks." 4. Great steadiness of the light. 5. Excellence of workmanship. 6. A moderate price.

Since first introduced the Lamp has been modified, so that it may also be useful in Laboratory work; this is known as Lamp B.

Price of the A Lamp - - £4 15 0

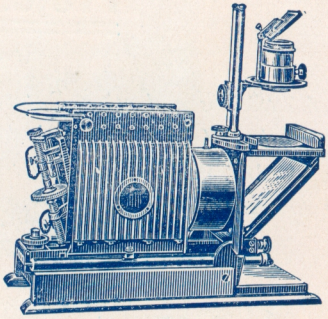
Price of the B Lamp - - 5 5 0

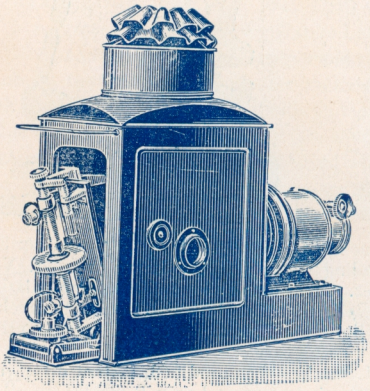
CASE FOR EITHER MODEL, **5s.**

THE ABOVE PRICES ARE NET

ROSS' - NEW - ARC LAMP

IS here shown fitted to a Lantern having a Body specially designed for Arc Lamp and very high-power jets. The working of this Lantern and Lamp combined is the very acme of perfection, and leaves nothing further to be desired.





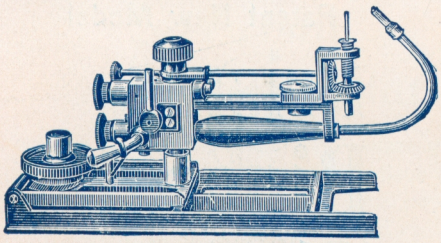
WHERE it is not considered necessary to incur the expense of the very perfect Lantern illustrated above, the New Lamp can be fitted to an inexpensive Russian Iron Lantern, as here illustrated, where the lamp is shown exactly in the position it occupies when in use; its convenience will be readily noted.

Price of Lantern with Condenser and Objective ...	£6	0	0
Arc Lamp, A model	4	15	0
Do. B ,, ...	5	5	0
Rheostats ... ... from	5	5	0

THE ABOVE PRICES ARE NET.

ROSS' "RADIANT" JET

(PATENT.)



THE leading advantage of the Jet is that the luminous area or "spot" is smaller than usual in proportion to the power of the Jet, but the *intensity* is much greater, and this, too, with a smaller consumption of gas.

No. I. is powerful enough for almost every purpose.

No. II. for use with screens of excessive size, and when the maximum amount of light must be had.

PRICE for either size **£4 4 0**

Or without the vertical and lateral motions, but adapted to fit on any ordinary lime tray ... **£3 10 0**

Best Electric Light Carbons.

THE quality of the Carbon Rods used in the production of the Electric Light is of the greatest importance, for with poor carbons the very best lamp is incapable of yielding a perfectly steady and satisfactory light.

Arrangements have therefore been made to supply best quality Carbon Rods of suitable size, pointed and cut to length for the Ross Optical Lamps.

Price per Half-dozen pairs:— s. d.

1. For Continuous Current, 5 to 10 ampères **1 0**
   (7 *mm. solid and* 10 *mm. cored.*)
2. For Continuous Current, 10 to 15 ampères **1 6**
   (10 *mm. solid and* 13 *mm. cored.*)
3. For Alternating Current, 5 to 10 ampères **1 3**
   (10 *mm. cored.*)
4. For Alternating Current, 10 to 15 ampères **1 9**
   (13 *mm. cored.*)

THE ABOVE PRICES ARE NET.

ROSS'

"THE POWER AND FIELD OF A TELESCOPE IN THE COMPASS OF AN OPERA GLASS."

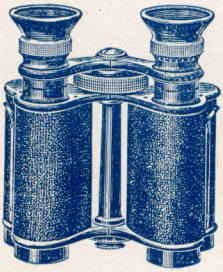
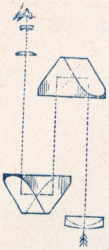


FIG. 1.

Patent New Model

Prism Binocular Glasses.



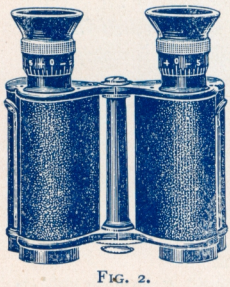


FIG. 2.

LEADING FEATURES.

- Perfect Mechanical and Optical Construction and Elegant Design.
- Great Compactness and Portability combined with Light Weight.
- Brilliant Definition, High Magnifying Power, and Large Field.
- Great Illuminating and Penetrating Power with Long Range.
- Simultaneous Focussing and Convenient Eye Distance Adjustments.
- Universal and Serviceable, Rigid, Strong, and Handy Field Glasses.

POWER, SIZE, and WEIGHT, with Simultaneous Focussing Adjustment (Fig. 1):—

POWER.	SIZE.	WEIGHT
8 diameters ...	4½ in. high, 3⅜ in. wide	... 15 oz.
10 ,, ...	5 ,, 3¾ ,,	... 16 ,,
12 ,, ...	5½ ,, 3¾ ,,	... 17 ,,

In the case of the model focussing only by Eyepiece Adjustment (Fig. 2), the weight of each size is about 2 ounces less,

For Prices See Following Page.

ROSS' PATENT NEW MODEL

Prism Binocular Glasses.

With Simultaneous Screw Focussing Adjustment and One Adjustable Eye-piece (Fig. 1).

REVISED PRICES IN LONDON.

Magnification Diameters.	£	s.	d.	BINOCULAR. Marks.	Francs.	Dols
8 ..	7	5	0	... 145	... 185	... 35
10 ...	8	10	0	... 170	... 215	... 42
12 ...	9	10	0	... 190	... 240	... 47

Focussing by Adjustment of Eye-pieces (Fig. 2).

Each eye-piece should be focussed separately, so as to allow for differences in refraction of the eyes. The eye-cups can be turned up or down, until a distant object appears clearly defined.

REVISED PRICES IN LONDON.

Magnification Diameters.	£	s.	d.	BINOCULAR. Marks.	Francs.	Dols.
8 ...	6	10	0	... 130	... 165	... 32
10 ...	7	15	0	... 155	... 195	... 38
12 ...	8	15	0	... 175	... 220	... 43

MONOCULAR GLASSES.

Focussing by Adjustment of Eye-piece only.

REVISED PRICES IN LONDON.

Magnification Diameters.	£	s.	d.	Marks.	Francs.	Dols.
8 ...	3	0	0	... 60	... 75	... 15
10 ...	3	10	0	... 70	... 88	... 18
12 ...	4	0	0	... 80	... 100	... 21

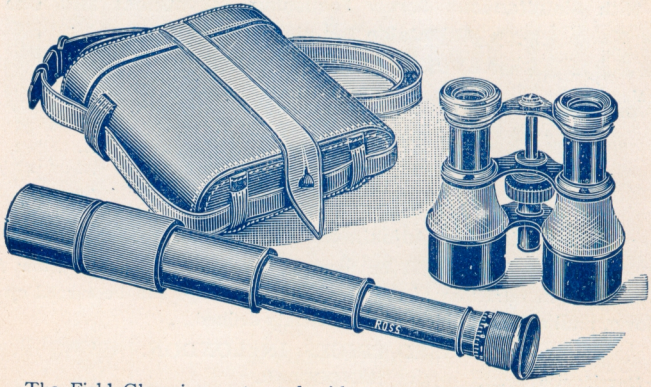
Each Binocular and Monocular Glass is supplied with a best quality Leather Sling Case, which is smaller and neater in appearance than those supplied with any other Prismatic Binoculars of equal power.

The above prices are for net prompt cash

ROSS' NEW COMBINATION

SPECIALLY SUITABLE FOR OFFICERS ON ACTIVE SERVICE, SPORTSMEN, TRAVELLERS, &c.

Field Glass and Telescope Sets.



The Field Glass is constructed with a power of 4 times that it may be useful as a Night Glass as well as for ordinary field work.

The Telescope is intended for the examination of objects in detail and for long ranges. It is fitted with a rotating screw Eye-cup, whereby focussing is attained with much greater facility than with an ordinary telescope, with the added advantage that no refocussing is required, the instrument being immediately available for use by simply extending it to its full length.

Field Glass, Power 4 Times. **Telescope, Power 15 Times.**

BRILLIANT DEFINITION.

PRICE in compact Solid Leather Sling Case £6 10 0

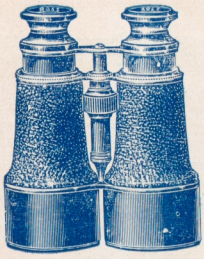
" with the well known "Lovat" telescope of 20 times magnification 8 0 0

THE ABOVE PRICES ARE NET.

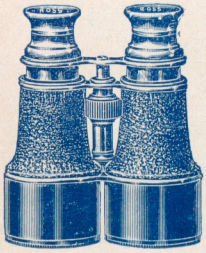
REVISED AND REDUCED PRICES of

ROSS' *MILITARY, NAVAL, and RACE BINOCULAR GLASSES.*

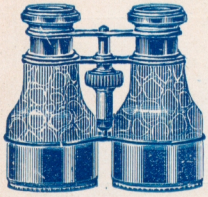
Highest Quality and Finish with Superior Lenses.



MILITARY MODEL.



MARINE MODEL.



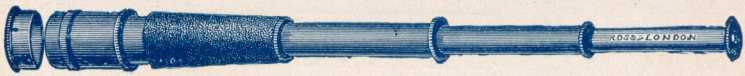
SQUAT MODEL

No.	2A	3	4	5	6
Clear Aperture of Object Glasses	1·35	1·55	1·8	2·0	2 1
DESCRIPTION.	£ s.	£ s.	£ s.	£ s.	£ s.
6 LENSES.					
Race Glass, bronzed or japanned mount... ...	—	2 10	3 0	3 10	4 0
Race Glass, bronzed or japanned aluminium mount	—	3 10	4 0	4 10	5 0
Race Glass, bright aluminium mount	—	4 0	4 10	5 0	5 10
12 LENSES.					
Military Glass, special design, bronzed or japanned	—	3 10	4 0	4 10	5 0
Military Glass, aluminium, bronzed or japanned	—	4 10	5 0	5 10	6 0
Military Glass, bright aluminium mount ...	—	5 0	5 10	6 0	6 10
6 LENSES.					
Marine Night Glass, bronzed or japanned.	—	—	2 10	3 0	3 10
"Standard" Night Glass, as used in the British and foreign navies ...	—	—	—	3 10	4 0
New Squat Model, Field or Theatre—					
With 12 lenses, mounted in brass ...	3 0	3 5	3 15	4 5	4 15
Ditto, japanned or bronzed aluminium	4 0	4 5	4 15	5 5	5 15
Do., bright aluminium	4 10	4 15	5 5	5 15	6 15
With 6 lenses, for night work at sea, brass mount...	—	—	2 15	3 5	3 15

JOINTED CENTRES to Nos. 2A and 3, 10/- ex. 4 to 6, 12/6 ex.

These Glasses are also supplied covered with Pigskin, Crocodile, and other fancy leathers at a small extra cost.

ROSS' MILITARY AND SPORTING TELESCOPES.



No.	Description.	Magnifying Power.	No. of Draws.	Length. Open.	Length. Closed.	Price in lightmetal very durable.	Price in aluminium
		Times.				£ s. d.	£ s. d.
1a	Watcher, in sling case	15	2	23¼	10¼	3 10 0	—
2a	Reconnoitring ,,	20	4	21	6½	4 0 0	—
3	Deer Stalking ,,	20	3	30½	10¼	5 0 0	7 10 0
4c	Deer Stalking ,,	20	3	30	10½	6 15 0	10 10 0
5	Stalking Pancratic ,,	20, 25 and 30	3	30	10¾	7 7 0	11 10 0
5a	Military ... ... ,,	30, 40 and 50	4	43	12½	10 0 0	—
6	Deer Stalking ,,	20	3	30½	10½	9 0 0	14 0 0
6a	Military ... ... ,,	30	4	43	12½	16 10 0	—

Ross' Naval Telescopes

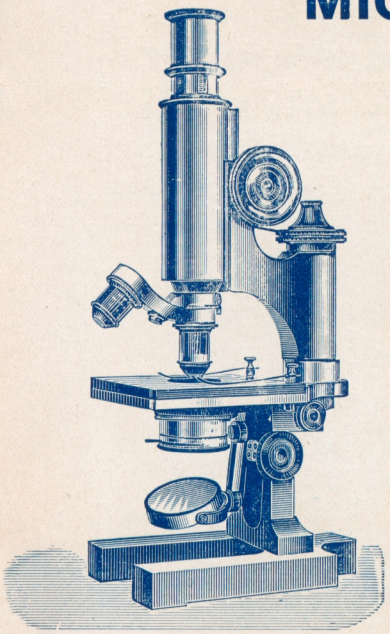
German Silver Mounts and One Draw.

No.	Magnifying power.	Aperture in Inches.	Area of Light.	Length. Open.	Length. Closed.	Price.
1	14	1¼	1·227	23½	17	£2 10 0
2	20	1⅝	2·073	31	25	4 0 0
3	20	1⅞	2·761	31	25	6 0 0
4	20	2⅛	3·546	31	25	8 0 0
5	30, 40 and 50	2⅛	3·546	43	37½	9 0 0
6	30	2½	4·908	43	37½	12 0 0
7	30	2¾	5·939	43	37½	15 0 0
8	50, 60 and 70	2¾	5·939	57	dividing.	16 0 0

The Nos. 7 and 8 Naval Telescopes are specially suitable when mounted on a Tripod Stand for coastguard work and look-out stations. A Rack and Pinion for easy focussing is supplied to these when required. Extra 30/–

	Nos. 1	2	3	4	5	6	7
Signals, extra	5/–	7/6	7/6	7/6	7/6	10/–	10/–
Caps and Slings, extra ...	10/6	10/6	12/–	12/–	—	—	—

ROSS' New "STANDARD" MICROSCOPE STANDS.



Specially Designed for the use of BACTERIOLOGISTS, DEMONSTRATORS, TEACHERS, STUDENTS, ANALYSTS, and Every Department of Microscopical Research.

Abridged Specification.

The **Body Tube** has the Continental length of 160 m/m, with the standard screw of the Royal Microscopical Society.

The **Stage** is attached to the lower portion of the limb so that great rigidity is secured. The stage plate is of vulcanite.

The **Mechanical Stage** has rectangular movements of about two inches.

The **coarse adjustment** is unusually substantial and sensitive. The motion obtained is sufficiently accurate for all necessary focussing without using the fine adjustment except in the case of high power objectives.

The **fine adjustment** affords an extremely sensitive and decided movement by the direct action of the micrometer screw.

Special New "Standard" Microscope for Students.

In workmanship and efficiency the "S.S." Microscope is equal to the more elaborate Instruments, and on account of its stability, completeness, and moderate price, it is particularly adapted to the requirements of Medical Schools and other Educational Institutions.

Full particulars and Estimates sent free on application.

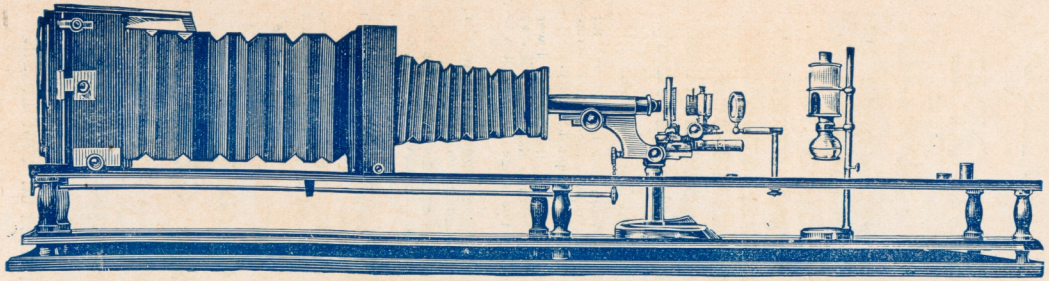


PHOTO-MICROGRAPHIC CAMERAS.

THESE Cameras are of the most substantial construction, and yet capable of the most delicate adjustment. The superstructure is fixed on a solid mahogany baseboard. The top board on which the camera runs is so arranged that the Microscope, Camera, Condenser, Lamp, &c., are all central with each other, and the whole can be adjusted for work both quickly and accurately.

The following prices include Baseboard, Camera, with one dark slide, and fine adjustment rod. Microscopes and other optical parts can be supplied at the catalogue prices, or customers' own Apparatus may be used, a small charge being made for adaptation of same. Particulars of Ross Zeiss Planar Lenses fitted with society screw for Photo-Micrography will be found on page 47.

Size of Camera	Length of Baseboard.	Extension of bellows, including cone.	Price, exclusive of any necessary adapting.
$4\frac{1}{4} \times 3\frac{1}{4}$	48 inches.	18 inches.	£11 0 0
$6\frac{1}{2} \times 4\frac{3}{4}$	60 ,,	30 ,,	13 0 0
$8\frac{1}{2} \times 6\frac{1}{2}$	70 ,,	36 ,,	15 0 0
10 × 8	80 ,,	44 ,,	18 0 0
12 × 10	90 ,,	54 ,,	21 0 0

A cheap conical-shaped mahogany Camera for attachment to tube of Microscope can be supplied for 50/-, including one $4\frac{1}{4} \times 3\frac{1}{4}$ single dark slide.

THE ABOVE PRICES ARE NET.

ABRIDGED CATALOGUE
for 1904
Cancelling all previous Lists..

GOLD MEDALS AND HIGHEST AWARDS

LONDON, 1851 · PARIS, 1867 · LONDON, 1862
PHILADELPHIA, 1876 · PARIS, 1878 · ANTWERP, 1878
INVENTIONS EXHIBITION, 1885 · SYDNEY, 1879

Grand Prix and Gold Medal Paris Exposition Universelle, 1889.

KINGSTON, JAMAICA, 1891 · CHICAGO, 1893

Grand Prix, Diploma of Honour & Gold Silver & Bronze Medals, Brussels, 1897.

GRAND PRIX & GOLD MEDAL PARIS 1900.

ROSS, LTD.,
MANUFACTURING OPTICIANS.

Contractors to His Majesty's Governments, British & Colonial.

Also to the Principal Foreign Governments.

ESTABLISHED 1830.