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A CATALOG
OF

COOKE
LENSES

COOKE ANASTIGMATS

for fine photography



Made and imported by

TAYLOR, TAYLOR & HOBSON, LTD

1135 BROADWAY
NEW YORK

Head Office and Factory
LEICESTER (Eng.)

LONDON OFFICE
18, Berners Street, W.

Sole American Agents for

DALLMEYER PORTRAIT LENSES

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OUR IDEAL

FOR twenty years our aim has been to produce the best photographic lenses, and the best only. Optical and mechanical perfection has been our ideal. While we do not claim to make the most lenses, we do claim to make the best, and this catalog gives our reasons.

Some articles are better for being made automatically. Watches, safety-razors, sewing-machines and typewriters are examples. With photographic lenses it is otherwise. Making a lens is like making a violin. Both demand ungrudging care, and personal painstaking skill by a workman who is an artist.

Cooke anastigmats are comparatively new to this country. They are imported direct from our model factory at Leicester, England, where conditions of labor help us. Having grown up with the business, our workmen have gained long years of a peculiar training, and have become highly skilled specialists. Our tools and appliances are instruments of precision in a rare sense, while our microscopic tests are of the most sensitive nature. Our STANDARD of EXCELLENCE is higher than that of our competitors. Evidence of this is found in the outward finish of each lens-mount. A plate properly exposed, forms proof.

Believing, then, that we have realized something of our ideal, we merely invite intelligent comparison between Cooke lenses and others. On pages 20 and 21 are some suggestions for making a simple photographic test.

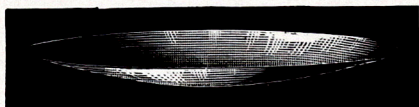
TAYLOR, TAYLOR & HOBSON, LTD

New York.

WHAT ARE ANASTIGMATS?

NO "Rectilinear" lens of the old type condenses to fine points the light which passes through it OBLIQUELY to the margins of the plate. Consequently the images formed by such lenses are built up, not of fine circular points, but of blurred lines of light which overlap and cause that peculiar streakiness of definition noticeable in many photographs, particularly at the margins. This is improved by "stopping down" the lens, but that involves a longer exposure. The defect is called astigmatism, and lenses which are more or less free from it are called anastigmats.

Another defect of the Rectilinear lens is the formation of images which are not flat like the plates, but dished like this:



Obviously a curved image cannot be focussed sharply on a flat plate. If the centre be focussed, the margins must be out of focus. If the margins be in focus, the centre cannot be. This error is known as "curvature of field," but the perfect anastigmat shows no curvature, its field being flat like the plate.*

*These and other questions are fully discussed in an article on "The Principles of a Lens' Action," mailed free on request.

Advantages of Cooke Anastigmats

THE right choice of a modern anastigmat has become exceedingly difficult. There are many types, and the claims for each are so conflicting as to mislead rather than guide. We wish to state fairly how Cooke anastigmats differ from others.

The lenses consist of three glasses, and with this simple construction is combined a unique screw-adjustment for use in our final corrections. Errors which remain in more complex systems are thus easily removed and a uniform excellence is attained, whereas the older anastigmats frequently show a marked difference one from another. Obviously, more light reaches the sensitive plate through three glasses than through six or eight. Moreover there is no cement, and the adjustable air-spaces assist still further in correcting the entire system. The familiar night-pictures by John Beeby and W. A. Fraser of New York show how singularly free are the lenses from what is known as "flare" and "ghost." This again is due to the simple construction and to the design of the curves whereby surface-reflections can not fall on the plate. Since the first appearance of the lenses, European opticians have recognized that, while mathematically perfect, these are mechanically the simplest invented since the introduction of Jena glass. They are light, compact, and rigid and durable to a remarkable degree.

These statements suggest why Cooke Lenses are employed in astronomical observatories, and why they are used at Harvard. For difficult copying and enlarging they are invaluable, and are now used exclusively by the U. S. Geological Survey and by other departments at Washington. In process-engraving works throughout Europe and America they are used under process-gratings of 250 lines or more to the inch. And for tricolor-photography they are unique because the screw-adjustment gives an exact coincidence in the sizes of the color-images.

While thus selected for the best scientific work, the lenses are used by amateurs everywhere—by engineers, in the portrait-studio, by army and navy photographers, and by newspaper-men who seek, above all else, rapidity and fine definition. Wherever possible, the makers facilitate the trial of Cooke Lenses for comparison with others.



From a negative made with a No. 5 Cooke Anastigmat



Photographed from the same position with a No. 5
Cooke Extension-lens

COOKE EXTENSION LENSES

By removing the back-glass and substituting another, the entire focal length is increased. Thus, from the same point of view, the photographer obtains larger images of distant objects. These extension-lenses increase the size of image about fifty per cent.; for example: an object taken with the normal lens, and two inches long in the photograph, is, from the same position, made three inches long with the extension-lens. Better results are thus obtained than with portions of other types used alone. The normal Cooke lenses may be used upon plates many sizes larger than those covered by them with full apertures, but the extension-lenses are not intended for this. The latter are supplied in leather pocket cases.

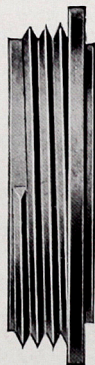


Protection From Injury

Compact carrying-cases of solid English leather are included free of charge, and metal dust-caps are made for further protection if necessary. (See page 17). All the lens-surfaces are accessible by unscrewing the front and back cells, and may be cleaned safely and easily by anyone. The improved screw abolishes the trouble usual in screwing a lens to its flange. As shown in the illustration, the screw on the lens (like that on the flange) is formed with the thread com-

Improved Screw

encing abruptly at a point plainly marked upon each by an arrow. To screw the two together, the arrow-marks are placed in line, and the "engagement" is effected with perfect smoothness and without a hitch. Three turns will bring the lens home, while, in removing it, there is no fear of dropping the lens through uncertainty in this respect. A further improvement lies in the fact that any number of Cooke Lenses, fitting the same flange, screw home with their diaphragm-indexes in one position convenient for use.



Advantages Summarized

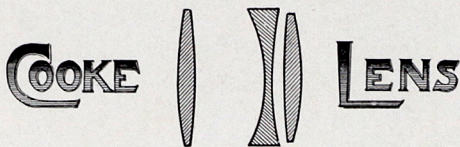
In buying Cooke Anastigmats you pay for our ungrudging care. We make three perfect glasses, and these we adjust microscopically yet permanently without cement. Three glasses admit more light than do six or eight; and error is less likely. Scientific tests enable us to attain uniform excellence. Most lenses vary appreciably. Ours do not. You thus pay rather less than before, for a faster lens giving keener definition, and you run no risk of a bad one. Light and compact, Cooke lenses are mounted and finished in a style approached by no others.

These facts suggest why Government departments, and progressive workers everywhere, are steadily replacing their lenses with Cooke Anastigmats. We stock lenses with and without shutters, and attach them to Kodaks and other cameras.

TAYLOR, TAYLOR & HOBSON, LTD

New York.

WHY COOKE LENSES EXCEL



ONLY THREE GLASSES
(NO CEMENT)



GOERZ (SERIES III).



GOERZ (SERIES I & II).



COLLINEAR.



HELIAR.



DYNAR.



PLASTIGMAT.



ZEISS PROTAR (SERIES IIIA).



ZEISS UNAR



ZEISS TESSAR.



ZEISS PLANAR.



ZEISS PROTAR (SERIES IIA).



DALLMEYER'S STIGMATIC.



ROSS HOMOCENTRIC.

COOKE ANASTIGMATS work faster than others, because they have only three glasses, (uncemented). If you doubt this, examine a sheet of white paper, first through a "Cooke", and then through a cemented lens, and you will see why the "Cooke" is faster. It is **COLORLESS**. The simple construction offers no drawbacks. On the contrary, it permits the removal of those troublesome errors which in other lenses must be tolerated. Most lenses vary appreciably, but Cooke anastigmats are of **UNIFORM EXCELLENCE**. Their sale is growing by leaps and bounds.

Series II. Full aperture F/4.5.

THESE ultra-rapid anastigmats are designed for the finest portraiture and for subjects demanding extreme speed. Like other Cooke lenses, they give definition at the margins of the plates equal to that at the centre, and are quite free from that peculiar streakiness of marginal definition familiar to the professional photographer.



The lenses, numbered 22 and 23, are provided with the means for moving the back glass as shown in the illustration. This device enables the photographer to secure at will uniform sharp definition, or to introduce any

required softness evenly throughout the plate.

The right choice of a shutter is of vital importance. The highest efficiency in the photography of rapidly moving subjects can be secured only with focal-plane shutters, while for portraiture a suitable studio shutter is best.

DIMENSIONS IN INCHES				TELE-GRAPHIC CODE	PRICES
Number	Equivalent Focus	With full apertures to cover plates	Diameter of Flange-Screw		With Iris Diaphragm and Standard Flange
20	4.	$3\frac{1}{4} \times 3\frac{1}{4}$	$1\frac{1}{2}$	Febraticos	\$44.00
20a	5.	$3\frac{1}{4} \times 4\frac{1}{4}$	$1\frac{1}{2}$	Febratidum	52.50
21	6.	4×5	2	Fedorento	67.50
*22	8.	5×7	$2\frac{1}{4}$	Fegatoso	91.00
*23	13.	$6\frac{1}{2} \times 8\frac{1}{2}$	4	Fechuvias	182.00

The Cooke lens is very fast and the detail remarkable. I developed the plates with the same formula, and the same proportions, and yet there was in the negative a "something" I never had before. Everything seemed perfect with a snap and brilliancy unusual, yet all harshness was lacking.

Quite a number of friends have examined the negatives, and pronounce them "way above par," and yet they are used to negatives I have made with one of the best convertible anastigmats. It is an ideal lens.

E. C. PAXTON,
Irwin, Pa.

After carefully testing a number of Cooke lenses of varying focal length. I am impressed by the wonderful definition even at full aperture. I know of no other modern lens possessing this feature to so marked a degree. In flatness of field and freedom from astigmatism they are unequalled. In its mechanical construction, however, the Cooke lens stands alone; the system of standard threads, flanges, and adapters is absolutely perfect. I can not conceive of a more thoroughly efficient outfit than a battery of Cooke lenses.

CHARLES R. PANCOAST,
1213-1215 Filbert Street, Philadelphia, Pa.

Series III. Full Aperture F/6.5.

THE SERIES III lenses are the best for persons desiring all-round anastigmats of the very highest grade. They are designed for general photography, landscapes, interiors, street scenes, and



for difficult photographs on dull days. For use as wide-angle lenses on relatively large plates they are perfect. They may be focussed wide open and afterwards stopped down, without spoiling the image. Briefly, they are universal lenses suitable for all accurate and

rapid work requiring uniformly fine definition. Lenses of this series are the best for Kodaks. The No. 3 lens can, if specified, be fitted to the No. 3 Kodak, the No. 4 lens to the No. 3a, and the No. 6 to the No. 4a Kodak.

DIMENSIONS IN INCHES						TELE-GRAPHIC CODE	PRICES
No.	Equivalent Focus	With full apertures to cover plates	At F/16 to cover plates	Diameter of Flange-Screw	Diameter of Hood		With Iris Diaphragm and Standard Flange
1	3	2 1/4 x 2 1/4	3 1/4 x 4 1/4	1 1/4	1.15	Fiducium	\$27.50
2	4 1/4	3 1/4 x 3 1/4	4 x 5	1 1/4	1.15	Fidiature	32.00
3	5	3 1/4 x 4 1/4	4 3/4 x 6 1/2	1 1/4	1.25	Fidalgos	35.00
4	6	4 x 5	6 1/2 x 8 1/2	1 1/2	1.40	Petilladas	39.50
5	7 1/2	5 x 7	8 x 10	1 1/2	1.65	Festeremo	48.50
6	8 1/4	5 x 8	8 x 10	1 3/4	1.9	Festinabat	53.00
7	11	6 1/2 x 8 1/2	11 x 14	2 1/4	2.5	Festucone	91.00
8	13	8 x 10	14 x 17	2 1/2	2.8	Fiambraba	130.00

Other sizes on application.

Longer focus lenses of Series III can be made to order, but are not included in this list because such lenses have of necessity less "depth" than have short-focus lenses, and not sufficient to permit of their common use with very large apertures. This is so with every kind of lens, and implies no deficiency in Cooke lenses.

It is superior to any of the other three Anastigmats. I am glad to see an English house beating the Germans.

LOUIS MELDON, Dublin.

I have given the Cooke lenses a thorough test and have found them to work beautifully. During my many years of experience in photographic work, I have never had their equal, and compliment your firm highly upon their success in producing such a good article.

GUSTAV THEILKUHLE, Photographer,
Washington, D. C.

Series IV. Full aperture F/5.6.

THE SERIES IV lenses are designed for high-speed photography with focal-plane shutters; for the portraiture of groups; and for difficult photographs in exceptionally poor lights. The definition is



perfect throughout THE SIZES OF PLATE SPECIFIED, even with the full aperture of F/5.6. In that respect the lenses equal those of the series III and V, but they cannot be used with such good effect upon plates larger than those for which they are listed.

The advantages of a simple construction are fully developed in this series, and result in objectives of greater rapidity and defining power, with a more uniform excellence than has hitherto been possible in lenses having such large apertures.

The right choice of a shutter is of vital importance. The series IV lenses can be fitted to the ordinary between-lens pattern if specified, but the highest efficiency in the photography of rapidly moving subjects can be secured only with focal-plane shutters. For portraiture, a suitable studio shutter is best.

DIMENSIONS IN INCHES				TELE-GRAPHIC CODE	PRICES
No.	Equivalent Focus	With full apertures to cover plates	Diameter of Flange-Screw		With Iris Diaphragm and Standard Flange
25	5.	3¼ x 4¼	1½	Fromentace	\$42.00
26	6.	4 x 5	1½	Frondario	44.00
27	8.	5 x 7	1¾	Frontalero	67.00
28	11.	6½ x 8½	2½	Fructifero	107.50
29	13.	8 x 10	3	Frugaglia	146.00

For photography on wet and dull days, I prefer the Cooke Lens to all others after trying every important make. My work of such subjects and my lantern-slides have all been made with your lens.

For this work I have been awarded many medals and diplomas, both here and in Europe.

JOHN BEEBY.
New York Camera Club.

Series V. Full aperture F/8.

THE series V lenses are similar to the series III except for their smaller apertures and more compact mountings. Optically, the two series are



identical and give equal results at equal apertures.

Especially suitable are the series V lenses for copying, enlarging, machine photography, and for every thing demanding microscopically fine definition under average conditions of lighting.

Our success with Government departments and astronomical observatories has been largely with lenses of this series.

DIMENSIONS IN INCHES						TELE-GRAPHIC CODE	PRICES
No.	Equivalent Focus	With full apertures to cover plates	At F/16 to cover plates	Diameter of Flange-Screw	Diameter of Hood		With Iris Diaphragm and Standard Flange
13	7½	5 x 7	8 x 10	1½	1.40	Favoniana	\$39.50
14	9	5 x 8	10 x 12	1½	1.65	Fervedouro	48.00
15	11	6½ x 8½	12 x 15	1¾	1.9	Ferruginis	67.50
16	13	8 x 10	14 x 17	2	2.5	Ferricouque	87.00
17	16	10 x 12	18 x 20	2½	2.8	Fermaglio	130.00
18	18	12 x 15	20 x 24	3	3.3	Ferculum	160.50
19	25	16 x 18	24 x 27	4	4.25	Fenusculo	260.00
19a	30	20 x 24	Proportionately larger	5		Fenogregio	460.00
19b	36	24 x 27		6			650.00
19c	42	30 x 36		6			1,100.00

As a maker of lantern-slides, I was asked to make a slide from a written letter filling a sheet of foolscap. The result was such that I sold all my other lenses and used the Cooke only, and for all work.

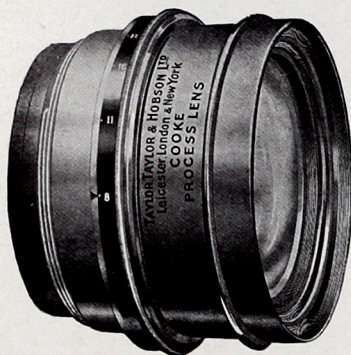
A. H. SAUNDERS,
Stapleton, Staten Island.

The Cooke lens is indeed superb. With the 6½ x 8½ lens at F/8 on an 8 x 10 plate, the curvature of field is only one or two thousandths of an inch, not appreciable to the unaided vision and F/15 and F/22.5 there is no curvature whatever that I can detect, even micrometrically. No zonal error, no astigmatism, no central aberration. In short a perfect lens as you may judge by the enclosed test chart proof.

LCUIS A. LAMB,
217 La Salle Street, Chicago, Ill.

Cooke Process Lenses

THE illustrations in the leading magazines throughout the world are now made with Cooke Process Lenses. The reason is that for such work they give uniformly well defined images, free from distortion,



from fog, and other common defects of lenses; while for three-color work they have the unique property of being adjustable so that in our final tests we secure color-images of equal size.

The lens-hood which receives the cap is removable, and a screw-thread receives interchangeably any prism or mirror

suitably mounted, and always in the correct position. An Iris diaphragm is provided, and in front of it is a slot to receive process diaphragms if necessary. This slot may be closed or opened at pleasure, merely by revolving the inscription-tube.

DIMENSIONS IN INCHES				TELE- GRAPHIC CODE	PRICES
No.	Equivalent Focus	To cover plates	Diameter of Flange- Screw		With Iris Diaphragm and Standard Flange
14p	9	5 x 8	1½	Fagopyro	\$48.00
15p	11	6½ x 8½	1¾	Fagutalis	67.50
16p	13	8 x 10	2	Falbalas	87.00
17p	16	10 x 12	2½	Falcasserb	130.00
18p	18	12 x 15	3	Falcoliere	160.50
19p	25	16 x 18	4	Faldericas	260.00
19ap	30	20 x 24	5	Faldiglia	460.00
19bp	36	24 x 27	6		650.00
19cp	42	30 x 36	6		1,100.00

Other sizes on application

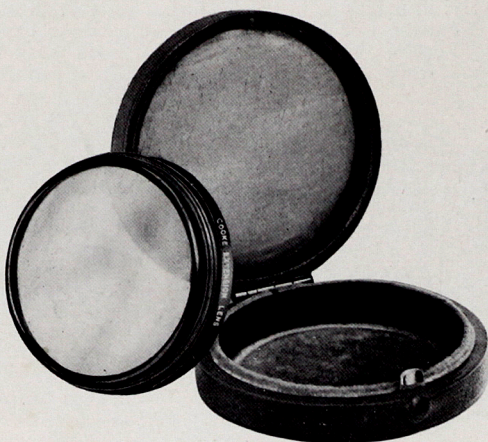
"The Cooke Lens is the best universal half-tone lens that we have had the pleasure to try, and we have tried in thirty years' experience, we believe, without an exception, every make of a lens that ever came to this market."

C. L. WRIGHT & CO.,
132-136 W. 14th St., N. Y.

"The Cooke Process Lens is in every respect satisfactory. We found it superior to anything else we have in our establishment, and we have lenses of almost every make. It is certainly an ideal process engravers' lens, and we can highly recommend it."

AMERICAN COLORTYPE CO.,
1205 Roscoe St., Chicago, Ill.

Cooke Extension Lenses



AMONG the advantages of Cooke anastigmats we give on page 6 a short description of the Extension lenses. These form a convenient means of increasing the focal length so that the photographer may obtain larger images of distant objects *without moving his camera*.

It is occasionally pointed out to us that a series III Cooke lens with extension costs rather more than do certain anastigmats whose "combinations" may be used separately. Our reply is the request that the complete anastigmat, formed by the Cooke Extension lens, be tested against any "separate combination" now on the market.

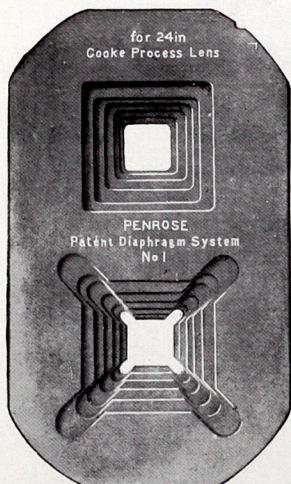
SERIES III			SERIES IV			SERIES V		
Focus of normal lens Series III f/6.5	Focus with extension lens f/11	Prices	Focus of normal lens Series IV f/5.6	Focus with extension lens f/11	Prices	Focus of normal lens Series V f/8	Focus with extension lens f/16	Prices
4 1/4	6.6	\$7.75	6	9.5	\$11.00	7 1/2	12.	\$9.50
5	7.8	8.50	8	12.3	17.00	9	13.9	11.50
6	9.4	10.00	11	16.7	27.00	11	17.	16.50
7 1/2	12.	11.75	13	19.5	36.50	13	20.2	21.50
8 1/4	13.	13.00				16	25.	32.50
11	17.5	22.50				18	28.	40.50
13	20.	32.25						

"The Cooke Lens gives excellent definition and beautiful modeling without any wire-drawn effect. The 6 1/2 x 8 1/2 inch lens covers an 8 x 10 at its full aperture. The extension-lens also gives a fine image in views. I consider it much superior to the half of a symmetrical anastigmat.

MALCOM D. MILLER, A. B.,
Harvard Medical School,
Boston, Mass.

Penrose Patent Diaphragms

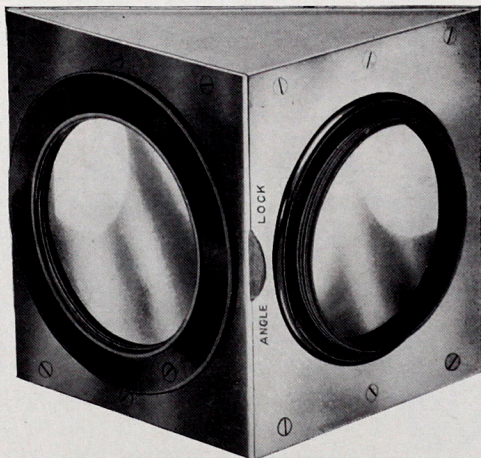
These patent diaphragms are for halftone photo-engraving with any Cooke Process Lenses. A full description will be mailed free on request.



For Lens No.	Price per set in morocco-covered case	For Lens No.	Price per set in morocco-covered case
14 p	\$9.50	17 p	\$10.75
15 p	9.50	18 p	12.00
16 p	10.00	19 p	15.50

Photo-Engraving Prisms

Into the manufacture of these prisms are put the finest material and workmanship that money can buy. The accuracy of each surface is guaranteed, while the convenience of the mounting is unique. Standard screw-threads are provided (see page 7). One Thread receives Cooke Process Lenses interchangeably, while the other receives the



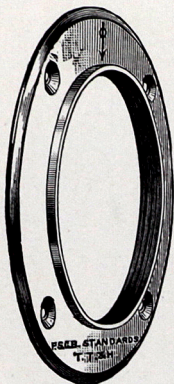
hood of the lens as shown in the illustration. A small lock clamps the prism at the desired angle. Cheaper prisms are of course to be had, but it is poor economy to buy them.

For Lens No. . . .	14 p	15 p	16 p	17 p	18 p	19 p	19ap
Square face of prism inches	1½	1¾	2	3	3½	4½	5½
Price	\$49.50	57.00	64.50	80.00	98.00	142.00	250.00

Standard Flanges

For attaching lenses to cameras

Standards adopted by the Royal Photographic Society of Great Britain.



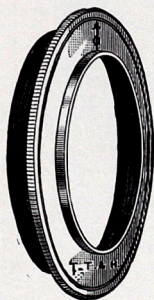
THESE flanges possess the important advantages described on page 7. Their screws are formed within one to two thousandths of an inch above the normal sizes, and are thus freely interchangeable. A flange of this form is included with every Cooke lens not mounted in a between-lens shutter.

Diameter of Screw in inches	PRICE	Diameter of Screw in inches	PRICE
1¼	\$1.00	3	\$1.50
1½	1.00	3½	1.50
1¾	1.00	4	1.75
2	1.00	5	2.25
2¼	1.25	6	2.75
2½	1.25		

Standard Adapters

To carry lenses in flanges larger than their own

R. P. S. Standards



THESE adapters contain the improved facilities for engagement and release, with the advantage of holding all Cooke lenses with their diaphragm indexes in one position convenient for use. They are guaranteed interchangeable with other T. T. & H. lens fittings.

INCHES		PRICE	INCHES		PRICE
Diameter External Screw	Internal Screw		Diameter External Screw	Internal Screw	
1½	1¼	\$1.00	2½	2¼	\$1.25
1¾	1½	1.00	3	2½	1.25
2	1¾	1.00	3½	3	1.50
2	1¾	1.00	4	3½	1.75
2¼	2	1.25	5	4	2.25
2½	2	1.25	6	5	2.75

STANDARD LENS CAPS

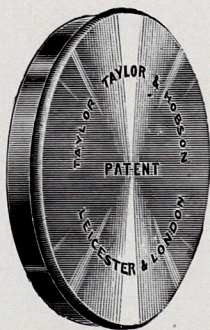
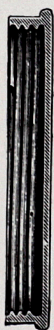
THE cap fittings of all Cooke lenses are made to standards, and extra caps, covered with imported Morocco leather, are supplied at the following prices.

In case of doubt as to the size, it is best to send a narrow strip of paper, cut to fit round the hood with its ends meeting nicely.

Diameter of hood in inches	PRICE	Diameter of hood or fitting in inches	PRICE
1.15	\$0.50	2.8	\$0.95
1.25	.60	3.3	1.15
1.40	.60	4	1.20
1.65	.65	4.25	1.30
1.9	.70	5	1.50
2.1	.75	6	1.75
2.5	.90		

REAR DUST CAPS

With standard screws

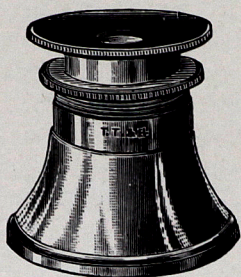


THESE caps are for covering the back glasses of lenses when not in use, to protect them from dust and injury. They are of bronzed metal. Having the standard screws, they

fit any Cooke lenses which have similar flange screws. When ordering, say what lenses the caps are to fit, as the depths vary.

Diameter of screw in inches	1¼	1½	1¾	2	2¼	2½	3
PRICE . .	\$1.00	\$1.00	\$1.00	\$1.00	\$1.25	\$1.25	\$1.50

FOCUSSING-MAGNIFIER



THIS draws out for use like a telescope, and is placed on the ground-glass of the camera to magnify the image while focussing. It closes for compactness, and has a screw adjustment to suit the user's eyesight. It facilitates accurate focussing, makes a cloth unnecessary, and often saves plates, especially in dull lights. "In workmanship it's like a Cooke Anastigmat."

Price \$2.50 postpaid



February, 1905

"Lately it has been our pleasure to take up photography, and in the preparation of lantern slides from the subjects worked upon, the matter of focussing had been rather difficult until the aid of a T., T., & H. Focussing Magnifier was tried so successfully that it now forms a permanent adjunct to our outfit. Not only is it used in microscopic work, but for the accurate focussing of flash-light pictures, or anything else that cannot ordinarily be clearly seen upon the ground glass. We are truly amazed that we had not invested the \$2.50 in one long ago—it would have saved its cost many times. To those who have difficulty in focussing, the magnifier is truly the desideratum."

How to Preserve Lenses

LENSES should be kept in a pure, dry atmosphere, away from dust and damp. These impair the perfect polish of a high-class instrument, and by scattering some of the light which passes through, produce a degree of "fog" in its images and negatives. Use an old clean cambric handkerchief to remove dust. Never *rub* the glass, nor use whiting, leather, flannel, paper, or anything likely to contain a particle of grit; but only brush it lightly with such a smooth, soft duster as the clean old cambric handkerchief.

Hold the lens inverted and wipe the *under side*, that the dust may fall away from it.

A visible speck on the lens is of less importance than an invisible and general imperfection of polish, or a film of fine dust or moisture.

Lenses should not be left before a fire nor in the sun to become unduly heated; nor should they be so cold, when used in a damp atmosphere, that moisture is condensed upon their surfaces.

In screwing together the parts of a lens, unless the screws are of TAYLOR, TAYLOR & HOBSON'S patent form, turn first in the wrong direction until the fittings snap together in a position for starting; then reverse the motion to screw them together.

To guard against a frequent cause of fogged negatives, and to secure the full effect of a high-class lens, the inside of every camera should be quite black and free from any trace of shiningness. This important matter is too commonly neglected.

An excellent blacking for wood or leather is made by mixing lamp-black with *only* as much French polish as is needed to make it adhere sufficiently after being applied with a flat camel hair brush and allowed to dry. Too much polish will make the surface shiny, and too little will not secure the black pigment. The mixture may be made in a saucer and stirred with the brush, and thinned with a little wood alcohol, if necessary. It is well to try it first upon a piece of waste wood or card, and not to use it until the constituents have been so adjusted by trial. But it must be used quite freshly mixed. Bought blacking is apt to be spoiled by keeping.

HOW TO TEST LENSES

THE difference in cost between an ordinary "Rectilinear" lens, and a modern anastigmat, is (or should be) represented largely by the difference shown on page 4. The image formed by the cheap lens is "dished," whereas that of a fine anastigmat should be as flat as the plates themselves. A simple but searching test can be made by anyone who will pin a sheet of newspaper tight against the wall, and expose a plate. To examine the ground-glass is insufficient. A reliable test can be made only by exposing a plate. Care must be taken, however, to place the back and front of the camera accurately parallel with the surface to be copied, or the negative cannot be sharply defined throughout. The finer the lens, the more sensitive it is, to such error. A perfect anastigmat properly placed, forms a perfectly flat image.

But most views contain objects at different distances from the camera, which cannot all be focussed perfectly at once. One object gains in sharpness at the expense of another.

To secure the sharpest possible definition of everything is not, as some suppose, one of the simplest of operations. The photographer who looks chiefly at the centre of the screen, because it is easiest, and focuses to get sharpness there, lacks either proper interest in his work or proper knowledge of how to perform it. And when he finds the centre only of his photograph is sharp, and sees the deficiency elsewhere, he frequently exemplifies that old proverb: "A bad workman blames his tools." The wise photographer will, therefore, learn the secret of placing the ground-glass where it gives a just division of sharpness among the principal objects in the view.

Requests are made daily for lenses described as "fast anastigmats to cut near and distant objects sharp simultaneously." While light travels in straight lines, no such lens can do this fully, though you may be told otherwise by salesmen, and by lens makers. Even the human eye makes no such attempt.

It should be clearly understood that "depth of focus," with any given stop, is alike in all lenses of equal focal length regardless of their construction. "Depth" can be increased only by using a smaller aperture, or by choosing, it may be, a more suitable focal length.

The confusion partly arises because a lens of short focal length has more "depth" than one of long focus. At a given aperture the short one is better able to define the foreground and far distance simultaneously, and so is often preferred for hand-cameras notwithstanding its giving a smaller image. For studio portraiture a lens of long focus is better because it is used farther away from the entire subject. Better perspective is thus secured, and better definition of the near and distant portions which from a distance appear less separated.*

*This and other questions are fully discussed in an article on "The Principles of a Lens' Action," mailed free on request.

WARNING

COOKE ANASTIGMATS can be fitted by us to most shutters now on the market. It should, however, be specially noted that any interference with their mounting, except by the makers, should NEVER UNDER ANY CIRCUMSTANCES be permitted, and that the makers can not hold themselves responsible for any such interference or remounting, even by other opticians.

UNBIASED OPINIONS

The tests show an extremely flat field with no appreciable astigmatism.

U. S. NAVAL OBSERVATORY,
Washington, D. C.

The instrument is capable of doing in a perfect way all that you claim. That, with only three lenses and an air-space, such perfection can be obtained, is a decided success upon which I offer you my congratulations.

DR. LOHSE,
Astronomer, Potsdam, Germany.

The three Cooke lenses in 4 x 5 and 5 x 7 sizes I have tested side by side with some of the best anastigmats in the market and find them equal if not superior in all the qualities that appertain to a good lens of this nature. If I were to select the best lens for my own use I should certainly choose the Cooke lens.

PROF. A. H. DANIELSON,
State Agricultural College and Experiment Station,
Fort Collins, Col.

I have had a Cooke anastigmat for the last four years, and before purchasing, tested it with lenses of several other makers. I had no hesitation in choosing the Cooke Lens, and have never had occasion to regret my choice. I am using it constantly in difficult copying. It is giving perfect satisfaction.

PROF. WM. H. LAWRENCE,
Mass. Institute of Technology, Boston, Mass.

Having bought one of your Cooke lenses I wish to say that I am more than satisfied with it and think it is the best investment I ever made. I am using it for making Bromide Enlargements 16 x 20 from 4 x 5 plates without stopping down, also for portraits and groups. Any time anybody wants to see the workings of a Cooke lens in St. Louis, you can refer them to me and I will gladly show them.

E. RENGER,
St. Louis, Mo.

After corresponding with some of the best photographers in the country, regarding a lens to buy for newspaper work, I found that yours are the favorites. Those who were using other lenses would say, that were they going to buy a lens to-day, they would buy a Cooke. After careful consideration, I ordered a "Cooke" from a Chicago firm, and have found it everything you claimed, a perfect lens.

W. W. THUNE,
1260 Oak St., Columbus, Ohio.

Several months ago I obtained one of your 11-inch V Cooke lenses and several of other makes on trial, fitted them to an 11 x 14 camera, set it up at a window and invited several of my photographic friends to examine the various images on the ground glass without their knowing what lens was on the front of the camera. Without hesitation and without exception they chose the image made by the Cooke as the best. I then tried them on copying maps, drawings, etc., and still found the Cooke the equal if not the superior of the others. It was also the lightest, most compact and the lowest priced. What more could be desired? I have been using the Cooke ever since and it is giving perfect satisfaction. I also find the extension-lens very useful, much more so than using one of the lenses of a combination which doubles the focal length.

WALTER GARDNER,
Engineering Dept. of Waterworks,
Boston, Mass.

I am using the Cooke lenses exclusively and must say that they give me better service than any other anastigmat, bar none.

F. HENIUS,
Care Craig-Henius Co., Pittsburg, Pa.

The Cooke lens without doubt represents the highest point to which optics and mechanics have so far been brought. A feature not to be overlooked is the absolute permanence of its construction due to the absence of cement which inevitably will discolor through long use, resulting in greatly reducing the speed of a lens so constructed. Such a defect is equivalent to working with a light yellow screen, on account of the discoloration of the several cement films which are a feature of other lenses.

A. P. WEAVER,
Montgomery, Ala.

The Cooke lens has been very satisfactory in every particular. It was chosen and purchased in the first place as the result of a direct competition with three of the best-known anastigmats in the market. The lens has a flatter field, and defines better than any lens I have seen. It will undoubtedly prove faster than any other lens of the same relative aperture on account of the small amount of material that the light has to transverse and the few reflecting surfaces.

DR. MILTON FRANKLIN,
153 West 46th Street, New York City.

It gives me pleasure to state that I took a Cooke lens of $8\frac{1}{4}$ inches focus with me on an expedition to Martinique, St. Vincent and other Caribbean Islands last winter and spring, undertaken for the American Museum of Natural History. The lens gave most excellent results, as may be seen from the panoramic photos of Mont Pelee taken with it, which I have sent you. The lens is rapid, the focus is deep and the definition is sharp and rectilinear to the very edge of the plate, even when the diaphragm is "wide open." I am much pleased with the lens.

DR. E. O. HOVEY,
American Museum of Natural History, New York.

It seems to me that when a man has done a good thing, it is only fair to tell him so; and for that reason I am prompted to write you. It is my desire to congratulate you upon your marvelous Cooke lens—you justly deserve all your success and the future is unquestionably assured, for after any photographer, whether he be professional or amateur, learns the value of a perfect lens, he will have a Cooke anastigmat. I have used nearly all the so-called high grade anastigmats with their fascinating names and promised mysteries, but in my judgment the Cooke lens is in a class by itself without a superior or equal, and if I could not own one of your lenses, I would abandon one of my greatest pleasures—the art of amateur photography. With all good wishes, I am very cordially yours,

MATT STRATTON,
Essex Camera Club, Newark, N. J.

I have decided after a very exhaustive test to keep the three Cooke lenses you sent me for trial and dispose of my other make of lenses and use none but a Cooke. I have been using a Cooke lens for all my race track pictures for the past twelve months and I find it such an advantage over every other class of high-grade lens that I have concluded to use no other make.

Your series III is a stunning lens for yacht work; no one could ask for a more perfect anastigmat, and the short focus lenses of this series are constantly used by me for making my big enlargements, as they have splendid depth, beautiful brilliancy and large covering capacity.

You will be interested to know my intention and I write this letter so that you may use it as you may see fit and without any recompense. You have supplied the photographic fraternity with that for which they have sought for years.

J. C. HEMMENT,
108 Fulton Street, New York.

TERMS

THIS CATALOGUE cancels previous editions.

TELEGRAMS may be addressed "LENSES NEW-YORK." Use the code word specified for each lens.

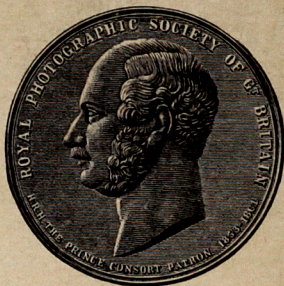
FOR STEREOSCOPIC PHOTOGRAPHS, Cooke lenses are "paired" at a charge of \$2.50.

The PRICES in this catalogue are strictly net. An offer from the dealer of any discount whatever, is now a violation of the terms under which the goods are purchased and sold by him.

COOKE ANASTIGMATS can be fitted by us to SHUTTERS, but we cannot hold ourselves responsible for any interference or remounting even by other opticians. Lenses are fitted free of charge to shutters ordered from and supplied by us; otherwise our net charge varies from \$1.50 for the "4 x 5 size," up to \$3.50 for the 8 x 10.

COOKE ANASTIGMATS will be found listed in the catalogues of all large dealers in photographic supplies. They may be obtained ready fitted to Kodaks and other cameras, including Centurys, Graflex, Graphics, Premos and Hawk-Eyes. The lenses may be seen and examined at the best stores throughout the country, and procured for free trial by intending purchasers. We earnestly ask for information by letter, of the slightest difficulty in learning about our lenses from dealers. Correspondents should state their size of camera and class of photography. We can then advise on the selection of the best lens, and furnish if necessary the names of dealers who are reliable.

Medals
of the
Royal Photographic Society
of
Great Britain



awarded twice to

TAYLOR, TAYLOR & HOBSON, LTD

being two of the only three awards made for
improvements in lenses during thirty years.

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Boston, Mass.