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NOTICE BIBLIOGRAPHIQUE

Auteur(s)	Krauss, E.
Titre	Photographic lenses and apparatus : galilean field and opera glasses, stereoscopic prism binoculars, telescopes, microscopes, magnifiers
Adresse	Montligeon : Imp. de Montligeon , 1924
Collation	1 vol. (72 p.); 28 cm
Nombre de vues	76
Cote	CNAM-MUSEE CM0.4-KRA
Sujet(s)	Photographie -- Appareils et matériels Objectifs photographiques Optique -- Instruments Microscopes Appareils et instruments scientifiques Catalogues commerciaux
Thématique(s)	Catalogues de constructeurs Machines & instrumentation scientifique Technologies de l'information et de la communication
Typologie	Ouvrage
Langue	Anglais
Date de mise en ligne	13/12/2016
Date de génération du PDF	07/02/2026
Recherche plein texte	Disponible
Notice complète	https://documentation.arts-et-metiers.net/cgi-bin/koha/opac-detail.pl?biblionumber=14727
Permalien	https://cnum.cnam.fr/redir?M12208

1924

GENERAL CATALOGUE

Established 1882

E. KRAUSS

Optical

and

Scientific Instruments

PARIS

18-20, Rue de Naples

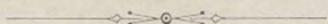
(VIII^{me} Arr^e)

Branch at TOKYO
Branch Works at DREUX (Eure-et-Loir)

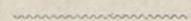
E. Krauss

OPTICAL AND SCIENTIFIC INSTRUMENTS

Contractor to the Admiralty and War Office of France and other countries



PHOTOGRAPHIC LENSES AND APPARATUS



Galilean Field and Opera Glasses

Stereoscopic Prism Binoculars — Telescopes

Microscopes — Magnifiers



OFFICES, SHOW ROOMS AND FACTORY AT

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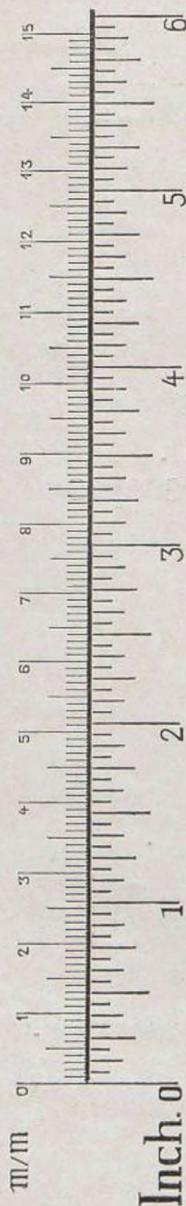
TELEPHONE WAGRAM 46-15

TOKYO

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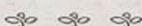
METRIC AND ENGLISH MEASURES



All dimensions in this catalogue are given in metric units. To assist our English readers in converting those into English inches we append a conversion table ranging from 0 to 6 inches and from 0 to 15 cm. In addition, we have added to this a table showing side by side the standard English plate sizes with their continental equivalents.

Inches	cm.
2 5/16 x 1 3/4	4.5 x 6
2 1/2 x 1 5/8	4 x 6.5
2 x 3	5 x 8
2 1/2 x 2 1/2	6 x 6
3 1/2 x 2 1/2	6.5 x 9
3 1/2 x 3 1/2	9 x 9
4 1/4 x 3 1/4 1/4 plate	8.3 x 10.8
4 1/4 x 2 1/2	6.5 x 11
4 3/4 x 3 1/2	9 x 12
5 1/2 x 3 1/4 Postcard	8 x 14
5 1/2 x 3 1/2 Postcard	9 x 14
6 x 4 Postcard	10 x 15
5 x 4	10 x 12.5
6 3/4 x 3 1/4 Stereoscopic	8 x 17
6 1/2 x 4 3/4 1/2 Plate	12 x 16.5
8 1/2 x 6 1/2 1/1 Plate	16.5 x 21.5
10 x 8	20 x 24.5
12 x 10	24.5 x 30.5
15 x 12	30.5 x 38

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Our invoices are payable in Paris. They are for prompt cash and are not subject to any discount or other deduction.

Our bills of exchange or acceptance of payment are not to be regarded as a waiver of the latter condition in a legal sense.

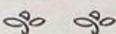
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Note. Owing to the existing state of the market the prices quoted in our various lists are subject to sudden variations and cannot therefore be guaranteed. The actual prices invoiced and charged are those ruling at the time when delivery is made.

Moreover, for the same reason, the fact that an article figures in our catalogue does not imply that it is always in stock, and consequently it does not bind us to make immediate delivery.



Claims



Although the severe tests to which our instruments are subjected obviates almost entirely every cause for complaint, we are nevertheless prepared to give due consideration to any objection, provided it be addressed to us within eight days after the receipt of the goods, **but it must be understood that in the event** of such claims proving unfounded, or if it is shown that the defect, if any, did not emanate from **our workshops**, the purchaser undertakes to refund the cost occasioned by such objections.

FIRST PART

KRAUSS and KRAUSS-ZEISS

Photographic Lenses



Guarantee. All our apparatus and lenses are guaranteed to be of faultless quality and will not fail to give excellent results within reasonable limits. This guarantee signifies a readiness on our part to repair or replace admittedly defective parts, but does not imply any further obligation.

We decline responsibility for any damage which has arisen in consequence of the purchaser of an instrument having dismounted it or any part thereof or attempted to introduce any alteration on his own initiative.

Choice of Glass. The glasses which we employ in the making of our lenses are selected with **Air Bubbles.** the utmost care, in order to rigorously exclude any material which may be vitiated by striae and strains. Experience extending over more than thirty years has sufficiently demonstrated the permanence of these materials. As far as practicable we also avoid the presence of air bubbles. It should, however, be noted in this connection that the high degree of correction which is attained in our lenses demands the use of certain kinds of glass endowed with very special qualities, and that it is practically impossible to obtain these free from air bubbles. These blemishes are purely artistic and have no effect whatever upon the optical quality of the lenses. Their sole effect, if any, is to cause a wholly inappreciable loss of light of the order of 1/5000. On no account therefore can we admit the observed presence of these small air bubbles as a reasonable ground of objection.

Focal Length. The focal length, briefly referred to as "Focus", is the distance of **Camera Extension.** the image from the second principal point for an infinitely distant object. In all the tables contained in this catalogue the term "camera extension" signifies the distance between the back of the lens ring and the ground glass focussing plate when set to infinity. This applies to all lenses in standard mounts or in helical focussing mounts. In the case of lenses mounted on shutters of the **Compur** type this distance is reckoned from the position of rest of the shutter. In the various tables and descriptions in which the shutters are specified the term **Compur** is indiscriminately applied to shutters of the **Compound** type (with pneumatic release) and those of the **Compur** type. The Compur shutter comprises the models Nos. 00 to 2 in Body No. VI, while beyond No. 3 with Body No. VII it becomes a Compound shutter (see Table of Compur Shutters, p. 31).

Stereoscopic Lenses. In order that two lenses may be stereoscopically paired it is necessary, not only that they have the same camera extension, as above defined, but also that their focal lengths, reckoned from the second principal point, may be identical. If these two conditions be not fulfilled with that degree of precision, as obtains in our lenses, stereoscopic pairing cannot be effected for all distances.

Variation in Focal Length. The focal lengths and camera extensions stated in this catalogue are mean values, which are subject to a tolerance of 3 per cent either way.

Cleaning Lenses. Care and cleanliness are essential to success in photography, and in order that a good lens may permanently maintain its fine optical qualities it is desirable to clean from time to time its exposed surfaces if upon examination they are found not to exhibit their accustomed transparency.

It may not be out of place to lay stress on **the very pronounced influence which the presence of dust, and more especially that of grease on the lens surfaces has upon the clearness of the image.** Above all, one should avoid allowing the fingers to come in contact with the lens surfaces and to leave their print there.

Many lenses have passed through our hands which furnished badly fogged negatives and gave rise to a very pronounced halo, and yet where simple cleaning sufficed to restore their marvellous qualities.

No hesitation need be entertained in unscrewing the barrel of our lens mounts. The screw threads are so formed that they cannot run out of centre, provided that they are screwed on with proper care. Next, all dust particles should be removed with a soft badger hair mop, after which the glass surfaces should be wiped with a piece of very fine linen or worn cotton applied in the dry state, but no leather, wool, silk or other material of an animal origin should be employed.

In order to clean lenses which are too small to admit of applying a rag wrapped round a finger one may use the end of a stick of elder pith.

No liquid should ever be employed for cleaning lenses.

Oxidation. After the lenses have been in prolonged contact with the moisture of the air or with corroding substances, or if a film of fungoid growth should form on the surface, iridescent patches may appear which even after wiping remain visible, though only by reflection and not when looking through the lens. These are due to tarnish.

Choice of a Camera. The camera should match the lens in quality, and rightly our lenses should only be associated with an apparatus which is sufficiently accurate in its movements if it is to bring into play all their excellent qualities. It is therefore not good enough to possess a good objective; it requires also a camera which in its way is likewise an instrument of precision.

Size of the sharp image. In the tables given in subsequent pages, with the exception of copying lenses, the size of the sharp image or the covered surface, applies to landscape views or **Depth of focus.** to instant photographs, and it is assumed that the objects are at a great distance. The covered surface increases when stops are employed. Naturally, the sharpness in the direction of depth receives no consideration in these tables, since the depth of focus, as the sharpness in depth is called, is solely governed by the focal length, the relative aperture and the distance of the object upon which the lens is focussed. **The depth of focus is a purely geometrical quality of the lenses** and has nothing to do with a special correction.

Two lenses of similar focal length, whatever their type of construction, will always have the same depth of focus when used with similar stops. We specially mention this aspect, as very often expression is given to entirely erroneous notions on this point. There are indeed certain lenses which, owing to the fact that they do not produce perfectly sharp images, seem to have a greater depth of focus than others. This, however, is merely an illusory effect obtained at the cost of the general sharpness of the image.

Relative Aperture. The relative aperture, or the rapidity, of a lens, for instance F/6.3, is the ratio between the focal length of the lens and the diameter of its clear aperture, i. e. the dia-

meter of the pencil of light at its entrance into the lens. This relative aperture supplies a measure of the rapidity of the lens, in that the light transmitting power is inversely proportional to the squares of these numbers.

Brightness of the Image. In accordance with the laws of optics the brightness of the image diminishes from the centre to the edge by reason of the increasing obliquity of the pencils.

Another cause of this diminution is the interception of the outer pencils by the edges of the lenses.

The second cause can be neutralised by introducing a stop of medium size. The first named cause cannot be overcome in any way, but the effect of the decreasing intensity can be mitigated most successfully by a slight overexposure.

Inscription on the lens mounts. Our lens mounts bear only particulars relating to their stops. The name of our firm and the designation by which the lens is identified

are engraved upon the front part of the lens mount. Each lens is identified by its type, its rapidity, its focal length, and its factory number. For example, thus :

Zeiss Tессar F/4.5, f. = 21 cm. Breveté S. G. D. G. No. 141,229. E. Krauss, Paris.

The Double Protar, made up of two members, cannot be engraved as a whole, in that it only comes into existence by the combination of those two members. Hence in their case the engraving on the mount of the component single Protar lenses takes the place of the engraving on the combination mount.

For example, thus :

Zeiss Protar Lens F/12.5, f = 35 cm. Breveté S. G. D. G. No. 132,462. E. Krauss, Paris.

Zeiss Protar Lens F/12.5, f = 29 cm. Breveté S. G. D. G. No. 132,469. E. Krauss, Paris. This combination furnishes a Double Protar VII a, F/7, f = 18.5 cm. (7½ in.).

The term "**Anastigmat**", which we adopted to characterise our first objectives, is a scientific term and has since been used by several other makers. We have now abandoned this term as a distinctive name and have replaced it by the registered name "**Protar**", which applies exclusively to our objectives of the Series V, VII and VIIa. The change applies to the name only, and it goes without saying that the lenses themselves have undergone no change.

The word **Protar** has been registered for the legal protection of the lenses, and the same applies to the names **Tessar** and **Trianar** of our new series.

RESPECTING CHANCE PURCHASES.

The excellence of our products, the name of which is a guarantee of quality, has not failed to encourage many imitations.

The best means of avoiding any disagreeable surprise or even responsibilities, every time that a chance opportunity arises of purchasing a lens, is to send the instrument to the maker, who will promptly return it and state whether the lens is of his make or not. In the event of the answer being in the affirmative and if the purchase has already been concluded the purchaser should always demand from the vendor a bill stating the professed maker's name.

The purchase of a lens is a sufficiently important matter to justify a delay of a few days which may be the means of guarding against a costly and vexatious imposition and at the same time serves to protect the maker's rights.

(Extract from the circular of the Associated Chamber of Makers of and Dealers in Photographic Goods, dated 22nd. August 1908.)

GRADUATION OF THE STOPS

In graduating our stops we have followed the convention adopted by the International Congress of Photography of 1900.

The numbers engraved on the mount are the denominators n of the relative apertures F/n corresponding to the respective stops.

These numbers n form a geometrical progression with 1 for its first term and the square root of 2 for the constant factor, i. e.

1 1.4 2.8 4 5.6 8 11.3 16 22.6 32 46 ... etc.

Since the times of exposure are proportional to these numbers i. e. n^2 , it follows that the series corresponding to the times of exposure is a geometrical series in which each term is double that of the preceding one, viz.

1 2 4 8 16 32 64 128 256 512 1024 2048 ...

These apertures, which are part of the adopted series, are such that the time of exposure varies in multiples of 2 from one stop to the next smaller one, and are marked on the barrel by short strokes.

The largest apertures, which do not always correspond to numbers in the standard series, are indicated by a dot. Between this dot and the first stroke the rule of doubling the exposure does not hold, so that within these limits one has to revert to the rule of squares.

To indicate the nature of this graduation and to show that it merely gives the relative apertures without any conventional reduction in terms of intensity or time of exposure, the graduation is preceded by the letter F.

We have in the past employed various systems of notation, but they all were such that the time of exposure had to be doubled when a transition was made from one aperture to the next smaller one.

Graduation in millimetres.

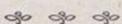
The mounts of the lenses of Series VII and VII^a and of the convertible sets can be fitted with several lenses, and hence it is impracticable in their case to provide a graduation to conform to the relative apertures of each combination. We employ therefore a graduation in millimetres which gives the diameter of the mechanical aperture, the corresponding relative aperture for which is to be looked up in the tables supplied with each of these objectives.

Other Notations of the Stops

In all these notations neither the starting point nor the scale numbers are the same, but all have this in common that the amount of light which passes through a diaphragm is one half that transmitted through the preceding and double that transmitted through the next diaphragm.

Date	Author or Origin	Graduation in terms of	Unit
1872 Adopted in 1900	W. E. Debenham U. S. A. at the International Photographic Congress Graduation F/ 1 — 1.4 — 2 — 2.8 — 4 — 5.6 —	Relative apertures 8 — 11.3 — 16 — 23 — 32 — 45	F/4 F/1
1890	Dr. Rudolph for Carl Zeiss	Relative Intensities 1 — F/100	
1895 Intensities	1 2 4 8 16 32	64 128 256 512	1 = F/ 50
Relative Apertures 1890 1895	F/100 72 50 36 25 18 F/ 50 36 25 18 12.5 9	12.5 9 6.3 4.5	
1889 1891	First International Photographic Congress Notation 0.2 0.25 0.5 1 2 4	Relative exposures 8 16 32	1 = F/10
Relative apertures	F/4.5 5 7 10 14 20	28 40 56	
	Royal Photographic Society of Great Britain Notation 1 2 4 8 16 32	64 128 256	
Relative apertures 1886	F/4 5.6 8 11.3 16 23	32 45 64	1 = F/4
	Dallmeyer (better known, as Dr. Stolze's)	Relative exposures 96 192 384	
Relative apertures	F/3.16 5.5 7.7 11 15.5	22 31 44 62	1 = F/√10

LENS MOUNTS



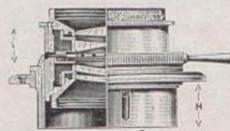
Our lens mounts are catalogued and supplied in the ordinary way in the mounts described below. For the convenience of camera makers we are prepared to supply our lenses in special mounts.



Standard Mount N



Sunk Mount R



Helical Focussing Mount H

The Standard Mount N is in the form of a cylindrical tube of polished brass, lacquered brass colour or black, with iris-diaphragm and flange. This form of mount is adapted for travelling and studio cameras.

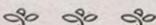
The Sunk Mount R, of brass, lacquered black, with iris-diaphragm, is specially designed for reflex cameras, folding cameras with struts, and focal plane folding cameras. The mount sinks almost entirely within the camera.

The Helical Focussing Mount H, with iris-diaphragm is intended for folding cameras with fixed extension. It consists of two tubes, one of which slides within the other and is constrained to move in and out by a pin and helical slot a means of focussing. The distances of the object are inscribed on the mount from infinity to 2 yards. This mount likewise sinks into the camera.

For the use of camera makers we append on page 11 a table of the principal dimensions and leading particulars of our standard, sunk, and helical focussing mounts.

The camera extensions are given for each lens and for each of the mounts in the tables relating to the various lens series.

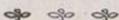
Compur Shutter Mount C. The central shutter serves as the mount and accommodates the iris-diaphragm. The Compur Shutter is universally acknowledged to be the best diaphragm shutter in existence (For description see page 31).



CHARACTERISTIC FEATURES

OF THE

KRAUSS and KRAUSS-ZEISS Photographic Lenses



The **Krauss-Zeiss Tessars** Ic, F/4.5 and IIb, F/6.3 are chiefly distinguished for their superb and uniform definition over a comparatively large field, in consequence of which the resulting negatives will bear being very considerably enlarged. These lenses are not separable. The Tessar Ic, F/4.5 has a rapidity which is double that of the Tessar II b, F/6.3. On the other hand, with the same stop, the latter embraces a somewhat greater angle. In point of definition there is a



scarcely appreciable difference, in favour of the Tessar IIb, F/6.3, when both lenses are stopped down to the same extent. The depth of focus being also the same (for the same focal length and stop) preference should in all cases be given to the Tessar Ic, F/4.5, assuming that the selected type of camera is rigid and exact enough for its attachment. When stopped down to F/6.3, the Tessar Ic, F/4.5 gives results which are in every way comparable to those obtainable with the Tessar II b, F/6.3.

For all photographic purposes, including the most exacting work, the Tessars Ic, F/4.5 and IIb, F/6.3, when stopped down to the same relative aperture, have a degree of sharpness which exceeds the responsive power of the usual bromide plates, even of slow fine grained plates.

The F/3.5 Tessar is specially intended for taking cinematograph views and for portrait work, for which purpose it surpasses the old Petzval lenses, for it is equally well adapted for taking heads, full figures, and groups. It will produce all the degrees of artistic softness, just like the Tessar Ic, F/4.5.

THE DOUBLE PROTAR VII^a is an all-round rapid lens, giving superb definition. It is convertible and adapted for every species of amateur work with a camera with long extension; also for taking street scenes, groups, panoramic views, landscapes, portraits, etc.



It is composed of two **single anastigmatic Protar Lenses VII**, which are completely corrected individually and with their long foci are well adapted for landscapes, large portraits, etc. The single Protar Lenses satisfy the oldest and most important rule in practical photography, which is : **Always use the greatest focal length at your disposal.** The single Protar Lens VII gives at full aperture F/12.5 a perfectly sharp image, a degree of flatness, and an absence of distortion which have never been surpassed or even equalled by any imitation. It is the prototype of the single lens and it should be given preference over the telephoto lens whenever the camera extension is sufficient to allow of the chosen focal length being used to full advantage.

The difference of rapidity between the apertures F/6.3 and F/7 being practically negligible

(viz. as 1.25 to 1), one would always do well to choose a Double Protar composed of two Protar Lenses of different foci, which provides a choice of three focal lengths embodied in one objective.

In the non-symmetrical Double Protars the largest lens should preferably be placed in front. When employed singly, the Protar Lens should always be put at the back of the mount.

By adding to the Double Protar a third Protar Lens of a not too widely differing focal length one obtains a convertible set, which may be further completed by the addition of a

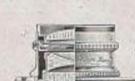


WIDE ANGLE PROTAR F/18. The latter is an objective which has not its equal for the purpose of photographing interiors and monuments. Such a set furnishes accordingly a universal equipment for all purposes.

The **Telephoto Lenses**, some of invariable, others of variable focal lengths, admit of objects being taken with such large figures as it would be impossible with ordinary cameras, the extension of which would be utterly inadequate to achieve this.

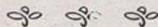
Intermediate between the standard objectives and the telephoto lenses there are the simple **Tele Lenses** of the " **Telar** " type, which serve to extend the focal length of standard photographic lenses and thus to take advantage of the longest extension of hand or stand cameras, so as to obtain pictures with figures a little larger than those furnished by the primary lens.

The **KRAUSS TRIANAR F/3, F/4.5 and F/6.3.** to which we wish to draw attention by a few lines, is a new anastigmatic objective made up of three lenses, which, though lower in price,

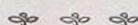


has nevertheless qualities which it owes to a deep study and a degree of exactness in manufacture comparable to that bestowed on the Tessar. This objective being exclusively intended for use on hand cameras of all types, we only make it at present in standard mounts with iris-diaphragm and with focal lengths ranging from 15 cm. (6 in.) upwards. The smaller foci are catalogued for provisional information only.

The **Apochromatic Tessars**, finally, are special lenses computed for photo-mechanical process work in one or more colours by selection. They hold a universally justified reputation which has never been disputed.



Tables of Lens Mounts



Standard Mount N with Iris Diaphragm.

No. of Body	Length of Body	DIAMETER				
		of barrel (outside)	of largest stop	of hole for flange	of flange (outside)	of flange screw
	mm.	mm.	mm.	mm.	mm.	mm.
0	16	19	10.5	23	32	20.3 pitch $\frac{2}{3}$
0 ^a	11.5	19	10.5	23	32	20.3 —
I	16	26.5	17	32.5	44	30 pitch 1
II	16	32	19.5	38	50	35 —
II ^b	20	32	19.5	38	50	35 —
III	23	36.5	23	43	47	40 —
IV	33	42	29.2	48	63	45 —
IV ^a	23	42	29.2	48	63	45 —
V	35	47	30	53.5	69	50 —
VI	40	51	34.4	58.5	74	55 —
VI ^a	30	51	34.4	58.5	74	55 —
VII	35	58	40	64	82	61 —
VII ^a	23	58	40	64	82	61 —
VIII	55	58	40	64	82	61 —
X	60	69	48	79	97	75 —
X ^a	45	69	48	79	97	75 —
XII	74	84	56.5	95.5	117	90 —
XII ^a	55	84	56.5	95.5	117	90 —
XIII	83	96	68	105	127	100 —
XIV	66	106.5	70.5	114	145	110 —
XV	103.5	115	79	126	155	120 —
XVI	100	127	90	136.5	164.5	133 —
XVII	145	153	98.5	164	199	159 —

Helical Focussing Mounts H.

No. of Body	Height of Tube at back of flange	Greatest Extension	DIAMETER				Increase of camera extension for lenses with focussing mounts
			of largest stop	of hole to be cut for flange	of Flange (outside)	of flange screw	
	mm.	mm.	mm.	mm.	mm.	mm.	mm.
0 ^a	6	4	10.5	28	37	25	5.5
I	9.5	8	17	38	50	35	7
II	13.5	12	19.5	43	57	40	8.5
III	16.5	13	23	48	63	45	12
IV ^a	17	14	29.2	53.5	69	50	11
VI	29.5	25	34.4	64	82	61	27
VI ^a	22.5	15.5	34.4	64	82	61	16
VII	28.5	25	40.1	69.5	89	65	21

Serie I^c — KRAUSS-ZEISS TESSARS F/3.5 AND F/4.5

No.	Focal Length	Dia- meter of clear aperi- ture	Recom- mended for Plate size	Dia- meter of sharp image circle with small stops	No. of Body	MOUNTS			FITTED TO Compur Shutter C		
						Camera Extension			No. of Shutter	No. of Body	Ca- mera Exten- sion mm.
	cm.	mm.	cm.	cm.		Stand- ard N	Sunk R	Focuss- ing H			

TESSAR F/3.5 for Cinematograph Work

0	3.5	10.5	1.2×1.8	2.5	0 ^a	31	—	36.5	00/N	0 ^a	32
0 ^a	4	11.5	1.4×2	2.8	0 ^a	34	—	39.5	00/N	0 ^a	35
1	5	15	1.8×2.4	3.5	I	40.5	48.8	47.5	00/N	I	44.5
1 ^a	7.5	21.5	3×3	5.5	II ^a	62	71.9	70.5	0/N	I ^b	66.5
2	10	27	4.5×4.5	9.5	III	84.5	97.5	96.5	1/N	II ^a	67

TESSAR F/3.5 for portraiture

6	21	61	6×9	15	X	170.5	—	—	4/X ¹	X ¹	194.5
7	25	72	9×12	18	XII	202	—	—	5/XII ¹	XII	233
8	30	87	12×16	21	XIII	257	—	—	—	—	—

TESSAR F/4.5 for ultra-rapid snap-shots.

10	4	9	3×3	4.5	0 ^a	35	—	40.5	00/N	0 ^a	37
11	5.5	12.5	4.5×4.5	6.5	0 ^a	49.5	—	55	00/N	0 ^a	50.5
11 ^a	6.5	14.5	4.5×5	7.5	I	59	67.3	66	00/N	0 ^a	60
11 ^b	7.5	17	4.5×6	8.5	I	64.5	72.8	71.5	00/N	0 ^a	69
12 ^a	8.5	19	6×6	10	II ^a	75	85	83.5	0/I	I	81
12	9	20	6×8	10.5	II ^a	79	89	87.5	0/I	I	83
13 ^a	10.5	23	6×9	13	II ^a	93.5	103.4	102	0/L	I ^b _{SP}	99.5
13	12	24.8	6×9	14	III	98.4	111.4	110.4	0/L	I ^b _{SP}	106.5
14	13.5	30.5	8.5×10	15.5	IV ^a	120	132	131	1/N	II ^a	106
15	15	33.5	9×12	18	IV ^a	135	147	146	1/I/III	III	127
15 ^a	16.5	37	10×15	20	VI ^a	147	165.8	163	2/IV ²	IV ^a	143.5
15 ^b	18	40	12×16	22	VI	159	188	186	2/VI ¹	VI	159.5
16	21	47	13×18	26	VII	190.5	213	211.5	3/VII	VII	205.5
17	25	56	13×21	31	X ^a	226	258.5	—	4/X ²	X ^a	244
18	30	67	16×21	37	XII ^a	263	—	—	5/XII ²	XI I ^a	284
18 ^a	36	85	18×24	43	XIV	323	—	—	—	—	—
19	40	90	18×24	50	XV	363	—	—	—	—	—
20	50	110	24×30	61	XVII	—	—	—	—	—	—

KRAUSS-ZEISS TESSARS F/3.5 and F/4.5 — Serie 1°

Standard Mount N		Sunk Mount R		Helical Focussing Mount H		Fitted to Compur Shutter C		FOCAL LENGTH
Price	Code word	Price	Code word	Price	Code word	Price	Code word	
								cm.

TESSAR F/3.5 for Cinematograph Work.

<i>Tache</i>	—	<i>Tachus</i>	<i>Tachero</i>	3.5
<i>Taco</i>	—	<i>Tacucus</i>	<i>Tacoco</i>	4
<i>Tabac</i>	<i>Tabacra</i>	<i>Tabaccus</i>	<i>Tabacco</i>	5
<i>Tabis</i>	<i>Tabisra</i>	<i>Tabiscus</i>	<i>Tabisco</i>	7.5
<i>Turc</i>	<i>Turcra</i>	<i>Turcus</i>	<i>Turcco</i>	10

TESSAR F/3.5 for Portraiture

<i>Table</i>	—	—	—	<i>Tableco</i>	21
<i>Tacet</i>	—	—	—	<i>Tacetco</i>	25
<i>Talent</i>	—	—	—	—	30

TESSAR F/4.5 for Portraits, Groups, Press Illustrations, Sport

<i>Therme</i>	—	<i>Thermus</i>	<i>Therco</i>	4
<i>Théorbe</i>	—	<i>Théorpus</i>	<i>Thérbeco</i>	5.5
<i>Thesis</i>	<i>Thera</i>	<i>Therus</i>	<i>Thesico</i>	6.5
<i>Thèse</i>	<i>Thesera</i>	<i>Theserus</i>	<i>Théco</i>	7.5
<i>Thorite</i>	<i>Thorira</i>	<i>Thorirus</i>	<i>Thorico</i>	8.5
<i>Tafia</i>	<i>Tafara</i>	<i>Tafarius</i>	<i>Tafaco</i>	9
<i>Teka</i>	<i>Tekara</i>	<i>Tekarus</i>	<i>Tekaco</i>	10.5
<i>Tebele</i>	<i>Tebera</i>	<i>Teberus</i>	<i>Tebeco</i>	
<i>Termite</i>	<i>Terra</i>	<i>Terrus</i>	<i>Tebeleco</i>	12
<i>Tambour</i>	<i>Tamra</i>	<i>Tamrus</i>	<i>Termico</i>	
<i>Tarte</i>	<i>Tartra</i>	<i>Tartrus</i>	<i>Terraco</i>	13.5
<i>Tenon</i>	<i>Tenora</i>	<i>Tenorus</i>	<i>Tambuco</i>	15
<i>Taquet</i>	<i>Taquera</i>	<i>Taquerus</i>	<i>Tarteco</i>	16.5
<i>Taraud</i>	<i>Taraura</i>	—	<i>Tenoco</i>	18
<i>Taureau</i>	—	—	<i>Taqueco</i>	21
<i>Tenue</i>	—	—	<i>Taraco</i>	25
<i>Temoin</i>	—	—	<i>Taureco</i>	30
<i>Tenaille</i>	—	—	—	36
		—	—	40
		—	—	50

Series II^b. — KRAUSS-ZEISS TESSAR F/6.3.Extra Rapid Lens for Snapshots, Groups, Landscapes, Architecture,
with perfect uniformity of light

No.	Focal Length	Dia- meter of clear aperi- ture	Recom- mended for Plate size	Dia- meter of sharp image circle with small stops	MOUNTS			FITTED TO		
					No. of Body	Stand- ard N	Camera Extension	No. of Shutter	No. of Body	Compur Shutter C
		cm.	mm.	cm.	cm.	mm.	mm.	mm.	mm.	mm.
0	4	7	3×3	6	0 ^a	34.5	—	40	00/N	0 ^a 36,5
1	5.5	9.5	4.5×4.5	8.5	0 ^a	49.5	—	45	00/N	0 ^a 51.2
1 ^b	6.5	10.5	4.5×6	9.5	0 ^a	59	—	64.5	00/N	0 ^a 60.5
1 ^a	7.5	12.5	6×6	11.5	0 ^a	66	—	71.5	00/N	0 ^a 67.5
2	8.5	14	6.5×6.5	12.5	I	74.5	82.8	81.5	00/N	0 ^a 78
2 ^b	9	15	6×8	13	I	79	87.3	86	00/N	0 ^a 82.5
3	12	19	6.5×9	17	II ^a	99.5	109.4	108	0/I	I 104
4	13.5	22.5	9×12	20	II ^a	124	134	132.5	0/N	I ^b 130
5	15	24	9×14	21	III	135.5	148.5	147	0/N	I ^b 142.5
5 ^b	16.5	26	10×15	23	III	149.5	152.5	151	1/II	II ^a 142.5
5 ^a	18	31	12×16	26	IV ^a	165	177	176	1/II	II ^a 157.5
6	21	35	13×18	31	V	187.5	211.5	203.5	2/IV ²	IV ^a 173
7	25	42	13×21	38	VII	231	253.7	252	3/VII	VII 245
8	30	51	18×24	44	X ^a	277.5	310	—	4/X ²	X ^a 295.5
9	36	61	21×26	53	XII ^a	328	—	—	5/XII ²	XII ^a 355
10	50	82	24×30	71	XIV	452	—	—	—	—
11	60	94	30×40	85	XVI	—	—	—	—	—

TESSAR F/4.5. Paired for Stereoscopic Cameras

FOCAL LENGTH	Standard Mount N		Sunk Mount R		Helical Focussing Mount H		Fitted to Compur Shutter C	
	Price	Code word	Price	Code word	Price	Code word	Price	Code word
cm.								
5.5		Stéthéorbe				Stetheorus		Stetheorco
6.5		Stéthesis				Stethesirus		Stethesico
7.5		Stéthésé				Stethesus		Stethesco
8.5		Stéthor				Stethorus		Stethorico
9		Stetafa				Stetafara		Stetafiako
10.5		Steteka				Stetekara		Stetekaco
12		Stetebole				Stetebera		Steteboco
13.5		Steterm				Steterra		Stetermico

KRAUSS-ZEISS TESSAR F/6.3. — Series II^b

Interiors, Copying, Enlargements. Giving extreme sharpness, from center to edge.

Standard Mount N		Sunk Mount R		Helical Focussing Mount H		Fitted to Compur Shutter C		FOCAL LENGTH
Price	Code word	Price	Code word	Price	Code word	Price	Code word	
				—				cm.
<i>Tesso</i>		—		<i>Tessorus</i>		<i>Tessoco</i>		4.11
<i>Tessun</i>		—		<i>Tessurus</i>		<i>Tessunco</i>		5.5
<i>Tessiko</i>		—		<i>Tessirus</i>		<i>Tessikoco</i>		6.5
<i>Tessunbi</i>		—		<i>Tessunrus</i>		<i>Tessunbico</i>		7.5
<i>Tesseux</i>		<i>Tessera</i>		<i>Tesserus</i>		<i>Tesserco</i>		8.5
<i>Tesseuxa</i>		<i>Tessara</i>		<i>Tesskarus</i>		<i>Tesskoco</i>		9
<i>Tessine</i>		<i>Tessinra</i>		<i>Tessinrus</i>		<i>Tessaco</i>		12
<i>Tessatre</i>		<i>Tessatrera</i>		<i>Tessatrus</i>		<i>Tessatreco</i>		13.5
<i>Tessing</i>		<i>Tesquera</i>		<i>Tesquerus</i>		<i>Testreco</i>		
<i>Tesquin</i>		<i>Tesquinra</i>		<i>Tesquinrus</i>		<i>Testoco</i>		15
<i>Tessinqua</i>		<i>Testrora</i>		<i>Testrorus</i>		<i>Tesmico</i>		
<i>Tessix</i>		<i>Testera</i>		<i>Tesberus</i>		<i>Tesquico</i>		16.5
<i>Tessept</i>		<i>Tesseptra</i>		<i>Tesseptrus</i>		<i>Testlaco</i>		
<i>Tessoct</i>		—		—		<i>Teslaco</i>		18
<i>Tesseuf</i>		—		—		<i>Tesboco</i>		21
<i>Tessem</i>		—		—		<i>Tesboco</i>		25
<i>Tessonc</i>		—		—		<i>Tessoclico</i>		30
						<i>Tessoclico</i>		36
						<i>Tessaufco</i>		50
								60

TESSAR F/6.3, Paired for Stereoscopic Work

Standard Mount N		Sunk Mount R		Helical Focussing Mount H		Fitted to Compur Shutter C		FOCAL LENGTH
Price	Code word	Price	Code word	Price	Code word	Price	Code word	
								cm.
<i>Stetessun</i>				<i>Stessunus</i>		<i>Stessunco</i>		5.5
<i>Stetessiko</i>				<i>Stessikus</i>		<i>Stessikoco</i>		6.5
<i>Stetessu</i>				<i>Stesserus</i>		<i>Stesserco</i>		7.5
<i>Stetesseux</i>		<i>Stesseux</i>		<i>Stessus</i>		<i>Stessusco</i>		8.5
<i>Steta</i>		<i>Stesshara</i>		<i>Stesskarus</i>		<i>Stesskoco</i>		9
<i>Stetessine</i>		<i>Stessinra</i>		<i>Stessinrus</i>		<i>Stessinco</i>		12
<i>Stetessat</i>		<i>Stessat</i>		<i>Stessatus</i>		<i>Stessaco</i>		13.5

KRAUSS-ZEISS DOUBLE PROTARS

N ^o s	FOCAL LENGTHS			Full aperture	Diameter of clear aperture	Recommended for plate size	Diameter of sharp image circle with small stops	MOUNTS						
	Component lenses		Combined focus					CAMERA EXTENSION						
	Front	Back						Body (3)	Standard N	Sunk R	Helical focussing H			
	cm.	cm.	cm.	F/	mm.	cm.	cm.		cm.	cm.	cm.			
Series VII. — SINGLE PROTAR Landscape Lenses (1)														
1	—	18	18	12.5	17	12×15	29	I II ^a III	20.5	21.4	21.2			
2	—	22	22	12.5	21	13×18	36	II ^a III IV	25	26	25.9			
3	—	29	29	12.5	27	16×21	46	III IV	33	34.3	34.2			
4	—	35	35	12.5	33	21×27	56	IV VIII	39.5	41.7	41.6			
5	—	41	41	12.5	39	24×30	66	VIII	46	—	—			
6	—	48	48	12.5	44	28×34	77	VIII	54	—	—			
7	—	59	59	12.5	55	30×40	94	X XII	66	—	—			
8	—	69	69	12.5	64	34×45	110	XII	77	—	—			
Series VII^a. UNIVERSAL DOUBLE PROTAR (2)														
1	18	18	10.5	6.3	17	6.5×9	17	I II ^a	10	11	10.7			
2	22	18	11.5	7	21	6.5×9	18	II ^a III	11	12	11.9			
3	29	18	13	7.7	27	8×10.5	20	III	12.	13.3	13.2			
4	22	22	13	6.3	21	8×10.5	20	II ^a III IV	12.3	13.3	13.2			
5	29	22	14.5	7	27	9×12	21	III IV	13.8	15.1	15			
6	35	22	15.5	7.7	33	10×13	22	IV	14.4	16.6	16.5			
7	29	29	17	6.3	27	10×15	26	III IV	16	17.3	17.2			
8	35	29	18.5	7	33	12×16	26	IV VIII	17	19.2	19.1			
9	41	29	20	7.7	39	13×18	30	VIII	18	—	—			
10	35	35	20.5	6.3	33	13×18	32	IV VIII	19	21.2	21.1			
11	41	35	22	7	39	13×21	34	VIII	20.5	—	—			
12	48	35	23.5	7.7	44	16×21	37	VIII	21.5	—	—			
13	41	41	24	6.3	39	16×21	37	VIII	22.5	—	—			
14	48	41	26	7	44	18×24	40	VIII	23.5	—	—			
15	59	41	28	7.7	55	18×24	44	X	25.5	—	—			
16	48	48	28	6.3	44	18×24	44	VIII	26	—	—			
17	59	48	31	7	55	18×24	48	X XII	28	—	—			
18	69	48	33	7.7	64	21×26	52	XII	30	—	—			
19	59	59	34	6.3	55	21×26	54	X	32	—	—			
20	69	59	37	7	64	24×30	58	XII	34	—	—			
22	69	69	40	6.3	64	24×30	63	XII	37	—	—			

(1) The Protar Lenses, used singly, should always be

(2) In the Double Protars the larger lens should always

(3) The bodies printed in heavy type are those cor-

We supply these lenses in tubular mounts, as indicated

KRAUSS-ZEISS DOUBLE PROTAR

Fitted to Compur Shutter C			Standard Mount N		Sunk Mount R		Helical Focussing Mount H		Fitted to Compur Shutter C		Nos.
No. of Shutter	No. of Body	Camera extension	Price	Code-word	Price	Code-word	Price	Code-word	Price	Code-word	
cm.											

SINGLE PROTAR LENSES for Landscape Work. Series VII

0	I	21	Labeur	Labera	Laberus	Laberco	1
1	II ^a	25.6	Lac	Lacra	Lacrus	Lacco	2
1	III	33.7	Laine	Lainra	Lainrus	Lainco	3
2	IV	40.8	Lais	Laisra	Laisrus	Laisco	4
3	VIII	48.3	Lamproie	—	Lamprus	Lamco	5
3	VIII	56.3	Lande	—	Landerus	Landeco	6
4	X	68.5	Larve	—	Larvus	Larveco	7
5	XII	80	Lecture	—	Lecturus	Lecturco	8

UNIVERSAL DOUBLE PROTAR. Series VII^a

0	I	10.5	Liane	Lianra	Lianrus	Lianco	1
1	II ^a	11.6	Liard	Liardra	Liardrus	Liardco	2
1	III	12.7	Libration	Librara	Librarus	Libraco	3
1	II ^a	12.9	Licorne	Licarra	Licarrus	Licarco	4
1	III	14.5	Lie	Liera	Lierus	Lieco	5
2	IV	15.7	Lierre	Libera	Liberus	Liberco	6
1	III	16.7	Limace	Limara	Limarus	Limaco	7
2	IV	18.3	Limande	Limandra	Limandrus	Limandco	8
3	VIII	20.3	Lin	—	—	Linco	9
2	IV	20.3	Lingot	Lingotra	Lingotrus	Lingotco	10
3	VIII	22.6	Lion	—	—	Lionco	11
3	VIII	23.8	Liqueur	—	—	Liqueco	12
3	VIII	24.8	Lis	—	—	Lisco	13
3	VIII	25.8	Liseron	—	—	Liseroco	14
4	X	28	Lit	—	—	Liteco	15
3	VIII	28.3	Literie	—	—	Literico	16
4	X	30.5	Litige	—	—	Litigeco	17
5	XII	33	Livre	—	—	Livreco	18
4	X	34.5	Locution	—	—	Locuco	19
5	XII	37	Loge	—	—	Logeco	20
5	XII	40	Lot	—	—	Lotteco	22

placed at the back.

be placed in front.

responding to the extensions stated in the next three columns.

by ordinary Roman figures, at the same prices.

CONVERTIBLE SETS OF ANASTIGMATS



By an appropriate choice of several, say three or four Single **Protar Lenses VII**, F/12.5 of different foci a Convertible Set may be made up, which with this restricted number of elements furnishes a much greater number of single or combined objectives of different focal lengths. This enables an operator to take any given object in the best manner from an artistic aspect by stepping as far back as his resources admit of and also to select that focal length by which the object can be attacked under the most favourable conditions as regards angle, size, and perspective.

A Convertible Set

Comprising 1 2 3 4 lenses

Furnishes objectives of 1 3 6 10 focal lengths.

Convertible Sets may be made up to suit all plate sizes and all purposes.

We append below three selected sets, which are in more frequent demand than any others and which have stood the test of many years, in consequence of which we have them always in stock.

Each Convertible Set comprises the following items :

- (1) A body or shutter with mount;
- (2) Three or four Single **Protar Lenses Series VII**;
- (3) A sunshade, which in front takes the place of the front lens when the back lens only is employed;
- (4) A flange for attaching the lens body to the lens panel;
- (5) A lens cap;
- (6) A Table of mechanical apertures corresponding to the relative apertures of the different lenses and their combinations.

Series and Number	Made up of lenses of Series VII Focus		Combined Focus	Angle subtended by the stated plate	Most suitable plate size			Plate covered with small stops	Price
	Front	Back			at full aperture	with stop F/12.5	with stop F/23		
	cm.	cm.		cm.	cm.	cm.	cm.		
Convertible Set B for 5 x 4-in. plates, C III (Codeword : <i>Lycee</i> , — on Compur Shutter : <i>Lyceco</i>)									
VII	3	—	29	29	24°	—	16 x 21	24 x 30	26 x 36
	2	—	22	22	30°	—	13 x 18	20 x 27	21 x 28
	1	—	18	18	37°	—	12 x 15	16 x 21	17 x 23
VII*	5	29	22	14.5	45°	9 x 12	11 x 15	12 x 16	14 x 19
	3	29	18	13	49°	8 x 10.5	10 x 14	11 x 15	12 x 16
	2	22	18	11.5	55°	6.5 x 9	9 x 14	10 x 15	10 x 16
Convertible Set C for 7 1/2 x 5-in. plates, C IV (Codeword : <i>Lynx</i> , — on Compur Shutter : <i>Lynco</i>)									
VII	4	—	35	35	29°	—	21 x 27	29 x 34	31 x 43
	3	—	29	29	35°	—	16 x 21	24 x 30	26 x 36
	2	—	22	22	44°	—	13 x 18	18 x 24	20 x 28
VII*	8	35	29	18.5	52°	13 x 18	15 x 20	16 x 21	17 x 23
	6	35	22	15.5	60°	10 x 13	12 x 15	13 x 18	14 x 19
	5	29	22	14.5	64°	9 x 12	11 x 15	12 x 16	13 x 18
Convertible Set D for 9 x 7-in. plates, C VIII (Codeword : <i>Lyre</i> , — on Compur Shutter : <i>Lyreco</i>)									
VII	6	—	48	48	28°	—	29 x 34	34 x 44	47 x 57
	5	—	41	41	33°	—	24 x 30	30 x 40	40 x 50
	4	—	35	35	38°	—	21 x 27	29 x 34	31 x 43
	3	—	29	29	45°	—	16 x 21	24 x 30	26 x 36
VII*	14	48	41	26	50°	18 x 24	24 x 30	25 x 31	27 x 33
	12	48	35	23.5	54°	16 x 21	23 x 28	24 x 29	24 x 32
	—	48	29	21	60°	13 x 20	15 x 21	17 x 23	18 x 24
	11	41	35	22	57°	13 x 21	15 x 23	19 x 25	21 x 27
	9	41	29	20	62°	13 x 18	15 x 21	17 x 22	18 x 24
	8	35	29	18.5	67°	13 x 18	15 x 20	16 x 21	17 x 23

As a completing supplement to the Set we recommend as a short focus lens a Wide Angle Protar of Series V, F/18 :

For plate size 5 x 4 in. 7 1/2 x 5 in. 9 x 7 in.
Protar V, F/18, f = 8.5 cm. 11 cm. 14 cm.

Series V

KRAUSS-ZEISS PROTARS F/18

The Protars of Series V are Wide Angle Lenses and have not their equals for photographing monumental architecture and interiors.

The full aperture is F/18, the angle embraced at this aperture being about 85° in the case of the shorter foci and 70 to 75° in the case of the long foci. The largest useful angle obtainable with small stops is 110° for the short foci (up to No. 3), while for the long foci it is 104° . Nos. 8, 9 and 10, finally, are corrected for an angle of 85° and are essentially copying lenses.

Generally speaking, the shortest focus possible should be taken for interiors, in order to cover the plate with a small stop, in view of local restrictions, the large angle, and the small amount of decentration required.

In the case of monumental architecture taken outdoors the operator stands further back and the necessity of placing the lens out of centre becomes more imperative. Hence that focal length should be taken which will cover the plate with a stop F/18 or F/20, so that a rather longer focus will be required.

At full aperture F/18 the Protars of Series V are adapted for large groups, for **photographing interiors** by artificial light, for panoramic views, and for photographing machinery and such like.

Nos. 8 to 10 are specially corrected for copying work and have for this reason a diminished secondary spectrum.

Nos. 2 to 10 can be mounted on Compur shutters.

Nos.	Focus	Dia- meter of clear aper- ture	Most suitable size of plate with stop			Dia- meter of the sharp image circle with small stops	STANDARD MOUNT N		
			F/18	F/36	F/45		Body	Ca- mera exten- sion	Price
0	4	3.5	4.5 × 6	6 × 8	—	10	00	37	Jury
00	6	5	6 × 8	8 × 10	—	14	00	58	Ja
1	8.5	8	9 × 12	12 × 15	13 × 18	22	I	81	Jabot
2	11	10.5	12 × 15	13 × 18	16 × 23	28	I	106	Jacinthe
3	14	12.5	13 × 18	16 × 21	23 × 28	36	II	135	Jade
4	18	17.5	16 × 21	21 × 26	27 × 38	46	II	175	Jais
5	21	20	21 × 26	24 × 30	30 × 45	54	II	205	Jalon
6	27	25	24 × 30	26 × 35	39 × 55	68	IV ^a	256	Jambe
7	32	30	26 × 35	30 × 40	47 × 66	81	IV ^a	298	Jardin
7 bis	39	37.5	30 × 40	40 × 50	60 × 80	100	VII	370	Jalet
						angle 85°			
8	46	26	30 × 40	40 × 50	54 × 65	84	III	432	Jarret
9	63	35	40 × 50	50 × 70	62 × 88	116	VI	600	Jeton
10	95	54	50 × 60	80 × 90	100 × 140	173	X	900	Joaillier

KRAUSS-TRIANAR F/3 to F/4.5 and F/6.3

No.	Focus	Body	Lengths of special Bodies	Dia- meter of clear aper- ture	Most suitable size of plate covered	Circle sharply covered with small stops	CAMERA EXTENSION				Compur Shutter	
							Standard Mount N	Sunk Mount R	Focusing Mount H	On Compur Shutter C	No	Body
	cm.		mm.	mm.	cm.	cm.	mm.	mm.	mm.	mm.		

Trianar F/3 for Cinematographic Work

1	3.5	0		12	1.2 x 1.8		24.4	—	29.9	29.5	00	00
2	4	I		13.5	1.4 x 2		29.2	35.5	36.2	33.5	0	I
3	5	I		16.5	1.8 x 2.4		38.6	46.9	45.6	43.2	0	I
4	7.5	II ^a		25	3 x 3		59.7	69.6	68.2	65.5	1	II ^a
5	10	IV		33.5	4.5 x 4.5		75.5	—	—	88.4	2	IV

Trianar F/4.5 for ultra-rapid instantaneous work

11	4			9	2 x 2							
12	5.5			12.5	3 x 3							
13	6.5			14.5	4 x 4							
14	7.5			16.7	4.5 x 6							
15	8.5			19	5 x 6							
16	9			19.5	5 x 7							
17	10.5			23.5	5 x 8							
18	12			24.8	6 x 9							
19	13.5	IV ^e	24	30	7 x 10		131.9	—	—	141.1	1	III
20	15	IV ^e	24	33.5	9 x 12		147.9	—	—	162.4	2	IV ^a
21	16.5	VI ^a		37	9 x 14		162.1	181	178	172.4	2	VI ^a
22	18	VI		40	10 x 15		178.4	208	205.4	189.5	2	VI
23	21	VII		47	13 x 18		208.3	231	229	221.4	3	VII

Trianar F/6.3 for rapid snapshots

31	4			6.5	2.5 x 2.5							
32	5.5			9	4 x 4							
33	6.5			10.5	4 x 5							
34	7.5			12	4.5 x 6							
35	8.5			13.5	6 x 6							
36	9			14.5	6 x 6.5							
37	10.5			17	5 x 8							
38	12			19	6.5 x 9							
39	13.5	II ^e	24.5	22	8 x 10.5		132	—	—	140.4	OL	I ^{sp}
40	15	III ^e	24	24	9 x 12		147.9	—	—	157.6	OL	I ^{sp}
41	16.5	III		26.5	9 x 14		165.3	178.3	177.3	173.1	1	III
42	18	IV		29	10 x 15		176.5	—	—	189.4	2	IV
43	21	V		34	13 x 18		207.8	231.8	—	221.5	2	IV

Trianars

With shorter focal lengths than 13.5 cm. (5 1/2 in.) are made to order only in quantity for camera makers, whose special requirements are embodied in the mounts.

Trianars

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KRAUSS TRIANAR F/3 to F/4.5 and F/6.3

Focus	Suitable for Plate Size	Standard Mount N		Sunk Mount R		Helical Focussing Mount H		On Compur Shutter C	
		Price	Code- word	Price	Code- word	Price	Code- word	Price	Code- word
cm.	cm.								

Trianar F/3 for Cinematograph Work

3.5	1.2 x 1.8	<i>Triama</i>	—	<i>Triamus</i>	<i>Triamaco</i>
4	1.4 x 2	<i>Trianon</i>	—	<i>Trianonus</i>	<i>Trianoco</i>
5	1.8 x 2.4	<i>Triast</i>	<i>Triastra</i>	<i>Triastus</i>	<i>Triasteo</i>
7.5	3 x 3	<i>Triape</i>	<i>Triapra</i>	<i>Triapus</i>	<i>Triapco</i>
10	4.5 x 4.5	<i>Tria</i>	<i>Triara</i>	<i>Triarus</i>	<i>Triaco</i>

Trianar F/4.5 for ultra-rapid instantaneous work

4	2 x 2	<i>Tribut</i>	—	—	—
5.5	3 x 3	<i>Trifa</i>	—	<i>Trifus</i>	—
6.5	4 x 4	<i>Trigem</i>	<i>Trigera</i>	<i>Trigemus</i>	<i>Trigeco</i>
7.5	4.5 x 6	<i>Trigar</i>	<i>Trigarra</i>	<i>Trigarus</i>	<i>Trigarco</i>
8.5	5 x 6	<i>Trigus</i>	<i>Trigusra</i>	<i>Trigusus</i>	<i>Trigusco</i>
9	5 x 7	<i>Triller</i>	<i>Trillera</i>	<i>Trillerus</i>	<i>Trilleco</i>
10.5	5 x 8	<i>Trillus</i>	<i>Trillusra</i>	<i>Trillusus</i>	<i>Trillusco</i>
12	6 x 9	<i>Trim</i>	<i>Trimra</i>	<i>Trimus</i>	<i>Trimco</i>
13.5	7 x 10	<i>Trina</i>	<i>Trinara</i>	<i>Trinasus</i>	<i>Trinaco</i>
15	9 x 12	<i>Trinem</i>	<i>Trinemra</i>	<i>Trinemus</i>	<i>Trinemco</i>
16.5	9 x 14	<i>Trinon</i>	<i>Trinonra</i>	<i>Trinonus</i>	<i>Trinonco</i>
18	10 x 15	<i>Trinite</i>	<i>Trinitera</i>	<i>Trinitus</i>	<i>Triniteco</i>
21	13 x 18	<i>Tripe</i>	<i>Tripera</i>	<i>Tripus</i>	<i>Tripeco</i>

Trianar F/6.3 for snapshots

4	2.5 x 2.5	<i>Trisar</i>	—	—	—
5.5	4 x 4	<i>Trisis</i>	—	—	—
6.5	4 x 5	<i>Trisup</i>	—	<i>Trisipus</i>	<i>Trisico</i>
7.5	4.5 x 6	<i>Trista</i>	<i>Tristara</i>	<i>Tristus</i>	<i>Tristaco</i>
8.5	6 x 6	<i>Trister</i>	<i>Tristerra</i>	<i>Tristerus</i>	<i>Tristerco</i>
9	6 x 6.5	<i>Tristek</i>	<i>Tristekar</i>	<i>Tristekus</i>	<i>Tristekko</i>
10.5	5 x 8	<i>Trispe</i>	<i>Trispera</i>	<i>Trispus</i>	<i>Trispeco</i>
12	6.5 x 9	<i>Trispir</i>	<i>Trispirra</i>	<i>Trispirus</i>	<i>Trispirco</i>
13.5	8 x 10.5	<i>Triton</i>	<i>Tritonar</i>	<i>Tritonus</i>	<i>Tritoco</i>
15	9 x 12	<i>Tritte</i>	<i>Trittar</i>	<i>Trititus</i>	<i>Tritteco</i>
16.5	9 x 14	<i>Trittel</i>	<i>Trittelar</i>	<i>Trittelus</i>	<i>Trittelco</i>
18	10 x 15	<i>Trive</i>	<i>Trivera</i>	<i>Trivelus</i>	<i>Triveco</i>
21	13 x 18	<i>Trix</i>	<i>Trixar</i>	<i>Trixus</i>	<i>Trixco</i>

Copying Lenses for Process Work

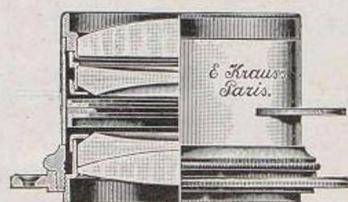
The illustration of reading matter has grown to such an extent that there is scarcely a printing establishment of any magnitude to which there is not attached a special studio for making reproductions of a more or less important character. The ultimate success of photo-mechanical operations depends in a very great measure upon the quality of the lenses employed.

All our objectives, being highly corrected, are available for **photographic reproductions**.

The long focus lenses of the Tessars and the Protars of Series V are particularly well adapted for **photo-engraving in the style of line drawings and mezzotint**.

For **photographic reproductions in selective colours and for photo-mechanical three-colour and polychrome printing** it becomes indispensable to employ the **Apochromatic Tessars** of Series VIII.

In these lenses the secondary chromatic aberrations are eliminated and hence they will yield three, four or more component colour negatives for superimposed printing. All these negatives are of a remarkable degree of crispness, in consequence of which these lenses are ideally adapted for reproduction work, in black and white as well as in colours.



Process Lenses for Line Work and Mezzotint, Photo Engraving and Colour Work.

Series	Nos.	Relative aperture	Focus	Body	Clear aperture	Suitable Size of plate for Reproduction		Stop to be used	Price (2)	Code-word
						full size	reduced 2:1			
			F/	cm.	mm.	cm.	cm.			
FOR MONOCHROME WORK										
Tessar	5	6.3	15	III	24	9×12	9×12			Tessing
	6	6.3	21	V	35	13×18	12×16			Tessix
	7	6.3	25	VII	42	15×21	13×18			Tessept
II^b	8	6.3	30	X ^a	51	18×24	14×20			Tessoc
	9	6.3	36	XII ^a	61	24×30	16×21			Tesseuf
(I)	10	6.3	50	XIV	82	30×40	24×30			Tesseum
	11	6.3	60	XVI	94	40×50	27×33			Tessonc
FOR MONOCHROME AND POLYCHROME WORK										
Protar	7	18	32	IV ^a	30	24×30	18×24	F/18		Jardin
	7 bis	18	39	VII	37.5	26×35	20×25	Half		Jalet
V	8	18	46	III	26	30×40	24×30	tones		Jarret
	9	18	63	VI	35	40×50	30×40	F/32		Jeton
(I)	10	18	95	X	54	50×60	40×50	Line		Joaillier
	0	9	32	VI	35	24×30	18×24	F/12.5		Tessapipo
	1	10	46	X ^a	51	40×50	30×40	Half tones		Tessapo
Apo-chroma-tic	2	10	64	XIII ^b	71	50×60	40×50	F/18		Tessapeux
	3	10.5	84	XV ^b	82	70×80	50×60	Line		Tessaproix
	4	12.5	117	XVI	94	80×90	60×70	F/15		Tessapac
Tessar	4 bis	15	150	XVI	100	90×120	70×80	Half tones		Tessapulu
VIII	5	15	180	—	120	120×150	90×100	F/30 Line		Tessapoin

(1) As these series serve equally for general work of any other kind (see pages 12 and 19), the stated covering powers are for distant objects.

(2) In standard mounts N with iris-diaphragms.

PROCESS LENSES (Continued)



For reproductions in colours it is necessary to employ a square stop which can be rotated within its own plane at different angles up to 45°. Our objectives are therefore so arranged that they can, in addition to the iris-diaphragm, be fitted with a revolving box with sliding diaphragms. This modification, which is subject to an additional charge, comprises a set of five square diaphragms, the circumscribed circles to which, unless otherwise stated, conform to the relative apertures.

F/16 F/23 F/32 F/45 F/64.

If desired, we are prepared to supply diaphragms of special forms and apertures.

Since the distribution of light over the entire image area requires to be as uniform as possible, the use of lenses operating at a very short range, or so-called short-focus lenses, are to be avoided.

The use of screens for autotype and colour printing forbids the use of angles exceeding 30°. Hence for reproduction in full size or thereabouts it becomes necessary to employ objectives the focal distance of which is at least equal to the diagonal of the surface which is to be covered.

When the reduction is less than 5 : 4 it will be necessary to work with a longer focus.

Accessories for Process Lenses

For Objective	Supplementary Fitting for Iris-diaphragm and Sliding Diaphragm		Filter Troughs		Prisms ¹ and Mirrors ²		REVOLVING LENS FLANGES			
	Price	Code-word	Price	Code-word	Price	Code-word	To the Objective		To the Prism	
							Code-word	Code-word	Code-word	Code-word
Tes-sar II^b										
15 cm.	—		—		Printo ¹		Rolac		Roprac	
21	—		—		Primero ¹		Rolade		Roprade	
25	—		—		Primus ¹		Rolago		Roprago	
30	—		—		Prigato ¹		Rolaff		Ropraff	
36	—		—		Mirac ²		Rolaha		Roprahá	
50	—		—		Miramo ²		Rolaker		Ropraker	
60	—		—		Mirecto ²		Rolalus		Ropralus	
Pro-tar V										
32 cm.	—		Cubi		Prigoso ¹		Rolama		Roprama	
39	—		Cubalo		Prigam ¹		Rolampo		Roprampo	
46	—		Cubem		Prigallo ¹		Rolamtos		Ropramtos	
63	—		Cubus		Prigol ¹		Rolamesse		Ropramesse	
95	—		Cubell		Prigilte ¹		Rolamys		Ropramys	
Apo-Tes-sar										
32 cm.	Valaam		Cubedo		Prilap ¹		Rolanca		Ropranca	
46	Valatta		Cuboma		Prilero ¹		Roland		Roprand	
64	Valus		Cubifi		Mirima ²		Rolaneff		Ropranef	
84	Valim		Cubolto		Miroppo ²		Rolangar		Roprangar	
117	Valorb		Cubista		Mirulto ²		Rolangiso		Roprangiso	
150	Valonto		Cubiri		Mirugus ²		Rolapp		Roprappp	
180	Valorus		Cubosti		Miristo ²		Rolapico		Roprapico	

PRISMS AND MIRRORS

Prisms or Mirrors are needed in order to obtain direct photographically reversed negatives, which are indispensable in the production of electros for rapid press work, as well as for very exacting operations, such as cartographic printing, and for preparing the component colour blocks for photo-mechanical printing in three or more colours.



The prisms should satisfy the following requirements :

It should be made of a glass having an appropriate index of refraction and it should also be perfectly homogeneous throughout, without a crack or flaw, without striae and free from strain.

Its three faces should be optically plane and therefore be without any converging or diverging effect.

The faces of incidence and emergence should be exactly at right angles and should include an angle of 45° with the hypotenuse surface.

All our prisms fulfil these conditions.

When it comes to very large dimensions we replace the prisms by mirrors, since very large blocks of prism glass of a perfectly homogeneous quality are not only very difficult to obtain, but very costly if they are to fulfil the above conditions.

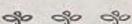
The mirrors are formed by the optically plane and polished surface of a block of a metal of a special composition, the polish of which resists in a high degree the action of the sulphurous contamination of the air of large towns.

The mount of the prisms and mirrors screws upon the sunshade of our objectives.



REVOLVING FLANGE COLLAR

For the purpose of accurately setting the hypotenuse mirror surface of the prism to a vertical plane it is well to have the lens mount fitted with a revolving collar, which ensures an exactly central motion and has a clamping screw. With the aid of this revolving collar the prism or the mirror may be accurately centred with respect to the original and also fixed in any desired position.



FILTER TROUGHS

For Spectroscopic Colour Selection.

For picking out a certain spectrum colour a trough containing the appropriate selectively coloured fluid is attached to the hood of the lens mount.

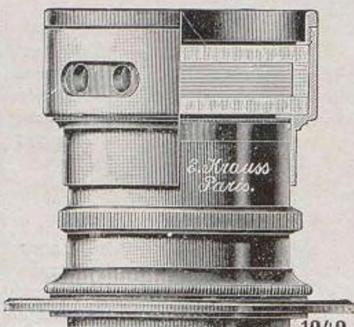
These troughs consist of two plane and parallel glass discs held a short distance apart by a ring of the same material. The trough is provided with two round openings which can be closed by rubber stoppers and is contained within a brass mount which fits the lens hood and is held in position by friction.

In order that the filter may not in any way vitiate the quality of the image the glass discs require to be worked with the same degree of precision as the lenses which compose the objective. This accounts for the somewhat high price of this adjunct.

Plate glass troughs can naturally be sold at a much lower price, but they are useless for delicate work, as they injuriously affect the defining qualities of the objective.

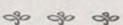
We supply our prisms and filter troughs centred with respect to the axis of the objective. In all cases where either is ordered for use with an existing lens the latter should be sent to us for adaptation, as otherwise we cannot answer for a proper central fitting.

Process work invariably necessitates the installation of a special studio and a comparatively complicated equipment. We would therefore suggest that those about to instal process apparatus should address our technical experts, who will supply all information that may be desired.



1040

TELEPHOTO LENSES



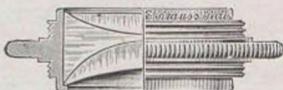
The **telephoto objective** may be regarded as a set of convertible lenses of long foci which can be varied at pleasure and which require only a short camera extension for a long resultant focus.

The **telephoto objective** combination comprises the following components :

(1) A *positive element* of focal length f_1 , formed by a highly corrected anastigmatic lens, viz.

A Tessar Ic, F/3.5 or F/4.5, or a Tessar IIb, F/6.3, or a Trianar F/4.5 or F/6.3.

(2) A *negative element* of a focal length f_2 in the form of a negative magnifying and equally well corrected lens. Experience has shown that the focal f_2 should not, if possible, be shorter than about half the positive focal length f_1 .



(3) A *telephoto tube*, which establishes the union of the positive and negative elements. The combination requires to be perfectly centred. The fixed telephoto tube is intended for cameras with fixed camera extension. It gives an invariable magnification. The focal adjustment for varying distances is effected with the aid of the helical mount of the objective.

The extensible tele-tube admits of the combination being set for various magnifications. The magnification is governed by the camera extension. The least magnification of the tele objective is not generally less than $2 \times$.

Cost of mounting and adjusting a telephoto combination... ...



AMPLIFYING MEMBERS for TELEPHOTO OBJECTIVES (Negative elements)

No.	Diameter of Lens	Focal Distance	Available for use with Tube No.	Price	Codeword
	mm.	cm.			
1	15	3	I et III		<i>Negaprimum</i>
2	24	4.5	I et III		<i>Negasecundus</i>
3	30	6	I-I ^o III		<i>Negatertius</i>
4	37	7.5	I ^o II III		<i>Negaquartus</i>
5	56	10	II et IV		<i>Negaquintus</i>
6	68	12.5	II et IV		<i>Negasixtus</i>

TELEPHOTO TUBES

No. of Tube	Adapted for			Diameter of largest screw flange	Corre- sponding to Body N.	Tube exten- sion	Price	Code- word					
	Objective		Negative lens up to f_2										
	of f_1	Type of Mount											
	cm.	(1)	cm.	mm.		mm.							
Tele Tubes for Cameras with Fixed Extension													
I	12 à 18	H	6	50	IV	0		<i>Tubun</i>					
I ^a	13 à 21	H	7.5	65	VII	0		<i>Tubis</i>					
II	18 à 25	H	12.5	65	VII	0		<i>Tudeux</i>					
Tele Tubes for Multiple Magnifications													
III	10 à 21	N	7.5	65	VII	22		<i>Tutrois</i>					
IV	16 à 30	R	12.5	75	X	30		<i>Tuquatre</i>					
		C											

(1) See table of mounts, p. 11.

We are prepared to make up **Telephoto Objectives** for special purposes as well as for ordinary requirements. We shall be pleased to submit, free of charge, all particulars that may be needed respecting any telephoto objective to suit the nature of the proposed work.

The following particulars should be supplied by the enquirer :

- (1) What are the type, plate size, longest and shortest camera extension?
Does the lens panel attach by a slide or by clamps?
What is the diameter of the hole under the panel?
- (2) Is an objective available which you propose to use as the positive element? If so, state its series, aperture, focus, diameter of flange screw?
- (3) What is the proposed work?
- (4) What is the required magnification?
- (5) Is the tele combination required to give one or several magnifications?
- (6) What is the plate size which you desire to cover?
- (7) What are the nearest and farthest distance at which you propose to operate?
- (8) What is the proposed reduction of an object?

KRAUSS-ZEISS TELE-TESSAR



The Tele Tessar is a telephoto combination of a fixed focal length and with a large relative aperture having its second principal point in front of the camera. With the telephoto objectives it shares the advantage of enabling one to employ a focal length which is considerably in excess of the camera extension.

It is specially designed for use on hand cameras, where it takes the place of the standard lens of shorter focus. In view of its large aperture of F/6.3 it is adapted for snapshots and for taking moving objects much in the same way as ordinary lenses of similar relative aperture.

It is designed for portraits, landscapes, objects and scenes at some distance, animate or otherwise. Its diminished sharpness and its smaller angle renders it well adapted for obtaining artistic effects.

The objective is focussed, to suit different distances, by setting the camera extension.

	Resultant Focal Length.....	cm.	18	25	32	40
Suitable size of plate.....	cm.	6.5×9	9×12	10×15	13×18	
Diameter of the sharp image { at infinity.....	cm.	13.5	18.5	24	30	
obtained with small stops { at 3 yds.....	cm.	14.5	20.5	27	35	
Relative size of the images obtained as compared with those furnished by the standard lens corresponding to the camera extension.....		1.5×	1.66×	1.8×	1.9×	
Standard body.....		II	IV	VI	IX	
Diameter of the flange screw.....	mm.	40	50	61	70	
Diameter of hole to be cut for the flange.....	mm.	43	53.5	64	79	
Outside diameter of the lens flange.....	mm.	57	69	82	97	
Standard Mount N	Length of { projecting outside camera.....	mm.	37	53	74	96
	Objective { — inside camera.....	mm.	20	26	27	29
	Camera extension { for infinity approx. mm.		105	145	180	220
	from flange to focusing screen { for about 3 yds.....	mm.	115	165	220	280
	Codeword.....	mm.	Tebac	Tebed	Tebif	Tebog
Sunk Mount R	Length of { projecting outside camera.....	mm.	27	35	45	—
	Objective { — inside camera.....	mm.	30	45	56	—
	Camera extension { for infinity, approx. mm.		115	165	210	—
	from flange to focusing screen { for about 3 yds.....	mm.	125	185	250	—
	Codeword.....	mm.	Tecah	Tecek	Tecil	
On Compur Shutter C	Length of { projecting outside camera.....	mm.	31	40	63	71
	Objective { — inside camera.....	mm.	26	39	38	54
	Camera extension { for infinity, approx. mm.		110	158	191	245
	from flange to focusing screen { for about 3 yds.....	mm.	120	178	231	305
	Codeword.....	mm.	Tedan	Tedep	Tedir	Tedos

In the event of the diameter of the flange of the objective and that of the Tele Tessar which are to be used alternately on the camera differing in size, the larger of the two flanges should be permanently fixed to the front of the camera. An intermediate flange should then be employed to attach the smaller lens flange of the two.

KRAUSS TELAR LENSES

When one transforms into a telephoto lens an objective of focal length 1, this focal length is at least trebled and becomes 3. The Telar Lenses have been originated to fill this wide gap between 1 and 3 and give focal lengths of $1\frac{1}{3}$, $1\frac{2}{3}$ and 2 times that of the objective employed by itself.

They do away with the necessity of going closer up to the object and thereby avoid the distorted or exaggerated perspective which results from too close a stand-point and which greatly mars the aesthetic value of the picture. They tone down the harshness of the outlines and impart to portraits and landscapes an artistic atmosphere.

 They take advantage of the camera extension, which becomes longer at the same rate as the focus. The angle embraced by the lens diminishes in the same proportions.

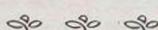
To ensure the same pictorial content one can recede to a distance which is $1\frac{1}{3}$, $1\frac{2}{3}$ or 2 times greater than that between the object and the unsupplemented objective and in this way greatly improve the perspective of the whole.

Focus of the objective alone.....	12	13.5	15	16.5	18	21 cm.
Focal length obtained by the addition of a " Telar " Lens.	1/3 ..	15	18	20	22	24
	2/3 ..	19	22.5	25	27.5	30
	3/3 ..	22.5	27	30	33	36

The " Telar " Lenses, though specially computed for our objectives can also be attached to objectives of any other make. They are centrally set in ring mounts, like our colour screens, and screw upon the hoods of our objectives.

For objectives in Mounts Nos..	II ^a	III	IV	V	VI	VII
The diameter of the " Telar "						
Lens is.....	32	36.5	42	47	51	58 mm.
Price.....						

When ordering a Telar Lens specify the objective, its focal length, its factory number, the nature of the mount (N. R. H. or C.) and camera extension, as well as the focal extension desired (1/3, 2/3 or 3/3).



COLOUR SCREENS

For the correct rendering of colour values we make colour screens of optically worked glass plates with strictly plane and parallel faces. Being thus made, they do not exercise any detrimental effect upon the course of the rays and do not detract in the slightest degree from the optical qualities of the lens. They can be employed for all manner of work, no matter how fine and exacting.



The material, whether colourless or coloured in the mass, is free from strains and flaws. The plates are ground and polished with the same precision as the photographic lenses themselves.

The selective effect obtained with the new optical glass is superior to that realisable with the ordinary coloured glass. It is equal to that resulting from the use of gelatine or other emulsions coloured with anilin dyes. These colour screens are absolutely permanent, unlike those made of gelatine or coloured emulsions. Aniline dyes are all sensitive to light, which gradually causes them to fade and to lose their selective properties sooner or later.

Our colour screens are set in metallic ring mounts and screw upon the lens hood.

We stock regularly the following screens :

Nature of photographic plate	Screen	Slowing coefficient (I) and when used
Orthochromatic plates	New optical glass coloured in the mass	<div style="display: flex; align-items: center; justify-content: space-between;"> 5 × Portraits, general work, landscapes without snow, instantaneous seascapes. </div> <div style="display: flex; align-items: center; justify-content: space-between; margin-top: 10px;"> 10 × Subjects containing reddish tints, landscapes with snow, mountains, glaciers, clouds. </div>
	Ordinary coloured glass	<div style="display: flex; align-items: center; justify-content: space-between;"> 5 × General purposes, landscapes. </div> <div style="display: flex; align-items: center; justify-content: space-between; margin-top: 10px;"> 10 × Seascapes, landscapes. </div> <div style="display: flex; align-items: center; justify-content: space-between; margin-top: 10px;"> 15 × Snow, glaciers. </div>
Lumière autochrome plates	Lumière emulsion between two optically worked colourless glass plates	These are the best colour screens for colour photography on autochrome plates.

When ordering, state the inscription on the lens mount, the nature of the mount (N. H. R. or C.) and the outside diameter of the tube which receives the ring mount (see p. 11, table of our lens mounts).

We supply also, to order, all kinds of selective colour screens.

(1) The coefficients are approximate only, for they depend not only on the region of the spectrum which they transmit but also on the colour sensitivity of the plate, and it should not be overlooked that this varies with every fresh emulsion and with the nature of the light which the object receives and radiates.

KRAUSS APODISTORTIC MAGNIFIERS

The distinctive features of these magnifiers are their bright field of view, their perfect achromatism, their absolutely flat field and the complete absence of distortion at the edges no less than at the centre. All these qualities of our apodistortic magnifiers are attained in the highest degree by the use of new optical glass material and by very exacting calculations. The working distance of these magnifiers is comparatively great. In fact, they are the best magnifiers in existence.



These magnifiers are supplied.

(1) In **focussing mounts** of black lacquered brass. This mount can be extended and shortened by a double-threaded Archimedean screw, whilst a locking collar serves to maintain the adjustment when made.

To use the magnifiers it should be placed with its base against the focussing screen or the negative. One side of the lens tube may be cut down at an angle of 45°, so that the magnifier may be inclined and its axis placed in the direction of the rays when the marginal field of a wide angle lens is to be examined.

(2) In **folding mount**, for carrying the lens in the pocket, in nickelated brass, in deer skin snap case.

Mount	No.	Purpose	Dia- meter mm.	Focal Lentgh mm.	Ma- gifi- cation	Diameter of field of view mm.	Free working distance mm.	Price	Code- word
Focuss- ing Mount	1	Portraits	27	42	4	38	48		Benu
	2	Industrial photo- graphs	22	33	6	32	34		Bedeux
	3	Photo engraving....	11	20	10	19	21		Bedois
Folding Mount	4	Botany	27	42	4	46	48		Apipo
	5	Entomology	22	33	6	35	34		Apono
Folding Mount	6	Dermatology	11	20	10	20	21		Apodo
	7	Histology	7	10	20	8	10		Apotois

KRAUSS DIOPTAT MAGNIFIER FOR CINEMATOGRAPH CAMERA WORK

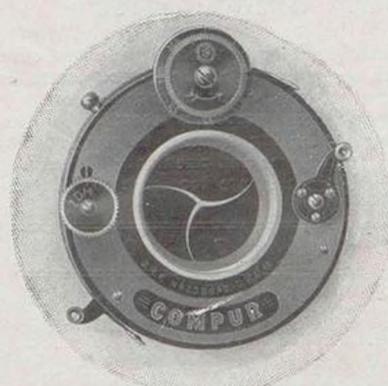


The **Krauss Dioptat** Magnifier has been devised for the purpose of focussing cinematograph camera lenses, in that it admits of the eye being placed some distance (about 27 cm. or 11 inches) from the film. This is necessary as the film taking cinematograph cameras do not admit of the eye being placed sufficiently near to the film to use for this purpose a focussing magnifier of the usual type.

The **Krauss Dioptat** Magnifier, having perfect optical correction, gives a sharply defined view of the whole picture (25 x 19 mm.) magnified 5 times, and, which is particularly important, shows the picture erected and reversed into its natural state.

Magnification : 5 x ; Length, 12 cm.; free working distance, 15 cm. Codeword : Dioptat.

COMPUR AND COMPOUND SHUTTERS

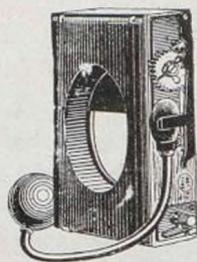


These shutters, which are now universally known, are the best and the most extensively used throughout the world. They function with absolute regularity. They are made in all sizes with iris openings from 15 to 65 mm. and can be fitted to small and large lenses.

They can be mounted on all cameras of quality.

They are supplied with flexible wire release.

Description			Diameter of				Barrel				Great- est speed	Weight	Price	Code- word
No.	Body	Lens separation	Iris, greatest	Case, outside	incl. fittings	Flange screw outside	Length	Inside diameter	Screw thread					
		mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	sec.	gr.			
Compur Shutter														
00	0 ^a	—	15	44	51	22.5	11.5	18	1/2	1/300	46	Compa		
0 I	I	—	22	57	69	30	16	25	2/3	1/250	80	Compala		
0 N	I ^b	—	22	57	69	32.7	18.5	27.4	1/2	1/250	80	Compen		
0 L	I ^b _{sp}	—	22	57	69	32.7	18.5	28.8	2/3	1/250	80	Compelar		
I N	II ^a	—	27	66	77	35	20	30.2	2/3	1/200	105	Compun		
I III	III	—	27	66	77	40	23	35	2/3	1/200	115	Computre		
2 IV ¹	IV	—	30.5	78	90	45	33	40.7	2/3	1/150	170	Compde		
2 IV ²	IV ^a	—	35	78	90	45	23	40.7	2/3	1/150	160	Compdela		
2 V	V	—	35	78	90	50	35	45	2/3	1/150	190	Compdeci		
2 VI ¹	VI	—	35	78	90	55	40	49	2/3	1/150	190	Compdeffa		
2 VI ²	VI ^a	—	35	78	90	55	30	49	2/3	1/150	180	Compdega		
Compound Shutter														
3 VII	VII	—	40	87	99	61	35	56.1	2/3	1/100	215	Comptre		
3 VIII	VIII	—	40	87	99	61	55	56.1	2/3	1/100	235	Comptreect		
4 X ^a	X ^a	—	52	106	121.5	75	45	67	2/3	1/75	365	Comqua		
5 XII ¹	XII	—	64.5	125	137	90	74	82.5	2/3	1/50	550	Compcin		
5 XII ²	XII ^a	—	64.5	125	137	90	55	82.5	2/3	1/50	515	Compcissa		
STEREOSCOPIC SHUTTERS														
00	0 ^a	63	15	107×44	109×50	23	16.6	19.2		1/250	105	Compsta		
0 N	I ^b	65	22	123×57	124×64	33	18.5	26.9		1/150	165	Compsteno		
0 N	I ^b	75	22	132×57	139×62	33	18.5	26.9		1/150	180	Competsp		
0 L	I ^b _{sp}	65	22	123×57	124×64	33	18.5	27.5		1/150	160	Compstolo		
0 L	I ^b _{sp}	75	22	132×57	134×64	33	18.5	27.5		1/150	173	Compstort		
I II	II	65	27	131×66	133×75	34	21.5	30.5		1/150	205	Compstulg		
I N	II ^a	75	24	139×64	148×68	35	20	29.3		1/150	230	Compstupp		
I III	III	85	24	149×64	151×72	40.5	23	34		1/150	240	Compstich		
2 V	V	85	34	161×75	166×84	48	35	44		1/150	355	Compstillo		



ROLLER BLIND SHUTTERS

This shutter, which is of the straight slit type, whilst it does not give such a wide opening as shutters which are mounted at the optical centre, is nevertheless excellent for being arranged in front of or behind the lens.

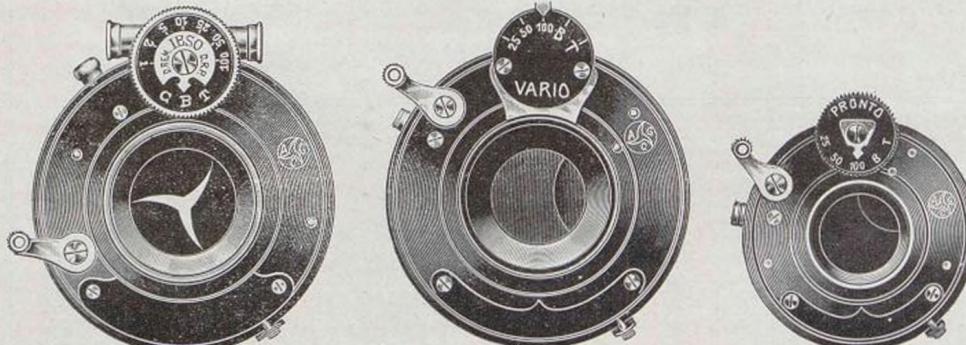
It gives at pleasure time and instantaneous exposures down to 1/15 to 1/75 second by increasing or lessening the spring tension, as shown on a graduated dial. The shutter is fitted with finger and pneumatic releases.

This shutter is best adapted for lenses which are too large to be fitted with a Compur shutter.

Number	1	2	3	4	5	6	7	8	9
Diameter mm.	41	45	55	65	80	90	100	115	127
Before-lens type for Body No.....	III	IV	V-VI	VII-IX	X-XI	XII	XIII	XIV-XV	XVI
Behind-lens type for Body No.....	II	III	IV-V	VI-VII	IX-X	XI	XII	XIII-XIV	XV
Price	<i>Aba</i>	<i>Ace</i>	<i>Adi</i>	<i>Aef</i>	<i>Afo</i>	<i>Agu</i>	<i>Ahy</i>	<i>Aik</i>	<i>Alma</i>
Codeword									

IBSO, VARIO AND PRONTO CENTRAL SHUTTERS

In order to still further reduce the prices of the "Trianar" lenses mounted on shutters we list for the first time the three well designed and well made metal shutters specified below.



The "Ibsø" Shutter, with metal case, is automatic in its action and has a sector with three blades. Exposures can be given in single or double time and instantaneous exposures of 1, 1/2, 1/5, 1/10, 1/25, 1/50 and 1/100 second. The shutter has an iris-diaphragm and is fitted with finger and flexible wire release.

The "Vario" and "Pronto" Shutters with metal case and automatic action, have sectors with two blades. Exposure can be given in single and double time and instantaneous exposures of 1/25, 1/50 and 1/100 second. The shutter has an iris-diaphragm and is fitted with finger and flexible wire release.

Model.....	" Ibsø "			" Vario "		" Pronto "	
	No	0	I	II	0	I	00
Iris opening.....	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Outside diameter of	20	21.8	27	18	21.8	21.8	11.8
shutter.....	56	60	67	55	60	43	
Diameter of the barrel							
screw	27.5	31.3	35.5	26.3	31.3	18.4	
Length of barrel.....	18.8	21.5	24	18.5	21.5	13.3	
These shutters can be	10.5			F/6.3			
fitted with the fol-	F/6.3 { 12	F/4.5 f = 10.5	F/4.5	f = 10.5-12	F/4.7	F/5	
lowing Trianar Len-	13.5	F/4.7 f = 12	f = 13.5	F/6.8	f = 12		
ses only.....	F/4.8 { 10.5			f = 13.5		F/7	
Price.....	<i>Ybo</i>	<i>Ybun</i>	<i>Ybde</i>	<i>Varo</i>	<i>Varun</i>	<i>Pronto</i>	
Codeword							

PART II

PHOTOGRAPHIC CAMERAS

A good lens cannot be expected to give the results of which it is capable unless it is attached to a photographic camera the design and workmanship of which corresponds with the relative aperture of the lens. Persuaded of the undeniable truth of this maxim, we present to our readers a series of complete cameras equipped with our lenses and of the highest quality of workmanship.

All these cameras are carefully overhauled in our testing room before delivery, but it will be readily conceded that we cannot be held responsible for cameras which are not of our own make and that in the event of an apparatus proving defective all we can do will be to transmit to the maker the complaints of the purchaser.

The very complete range of cameras here described should satisfy all general requirements. Nevertheless we shall be pleased to assist enquirers acquainting us with their wishes by recommending one of the cameras listed in our catalogue or by pointing out an apparatus which we regard as the one best adapted for their special needs.



Krauss "ACTIS" Cameras

Our "Actis" Cameras are folding cameras of the highest degree of precision. They are made entirely of light metal and have their dimensions and weight cut down to the lowest limits. They are not affected by changes of temperature and are adapted for use in moderate climates as well as in the tropics.

Thanks to the thought and time bestowed upon the elaboration of these cameras they are endowed with qualities which entitle them to be looked upon as perfect hand cameras, and hence they can be operated under the same conditions and with the same advantage as field cameras whenever the necessity arises.

All the component parts are milled and machined instead of being merely stamped and pressed. By this means perfect precision in the movements and in the adjustment have been attained. On the outside the camera body is covered with morocco leather, whilst the internal fittings are lacquered black, dull or bright, all slides being polished and operating buttons nickelated.

The "Actis" Cameras are the indispensable complement to the finest lenses of very great relative aperture which have been brought out in recent years.

The **Krauss-Zeiss Tessars** and the **Krauss Trianars** with rapidities of F/4.5 and F/6.3 mounted on "Compur" shutters furnish the best equipment for these cameras which can be obtained.

In our "Actis" Cameras the travelling base and all slides are large so as to ensure perfect rigidity. It is indeed the manner in which the travelling carriage moves upon the baseboard slides which determines the stability of the camera front with the lens attached. With lenses having large relative apertures it is absolutely necessary that the stability should be such that the axis of the lens may remain permanently at right angles to the sensitive plate, whatever may be the position of the travelling carriage on the baseboard slides. It is here where lies the weakness of most cameras of similar type.

The lens panel is interchangeable and can be placed in position or instantly removed, which affords a convenient means of using several lenses on the same camera and of quickly setting up screens for colour photography.

The **bellows** are made of leather of the best quality.

When the front of the camera is drawn towards the operator the catch sets the camera automatically to infinity. The camera is focussed for different distances by the rack and pinion motion. A focussing scale is engraved for different distances.

The lens panel can be put *out of centre* in both directions by means of a rack and pinion. The amount of the eccentricity does not vary with the diameter and hence with the aperture of the lens which happens to be attached to the apparatus.

One of the features of our "**Actis**" camera is the very considerable eccentricity of which it is capable and which even in the smallest models may be as much as 15 to 20 millimetres.

The ground glass focussing screen is furnished with a hood, and the camera has a direct sighting view finder and a spirit level.

Finally, each camera has two sockets with standard screws, by means of which it may be set up on a tripod stand in either position. The 15×10 -cm. (6 \times 4-inch) and 18×13 -cm. (7 $\frac{1}{2} \times$ 5-in.) cameras (high models) with very long extensions have a third screw socket which ensures a better balance when the bellows are completely extended.

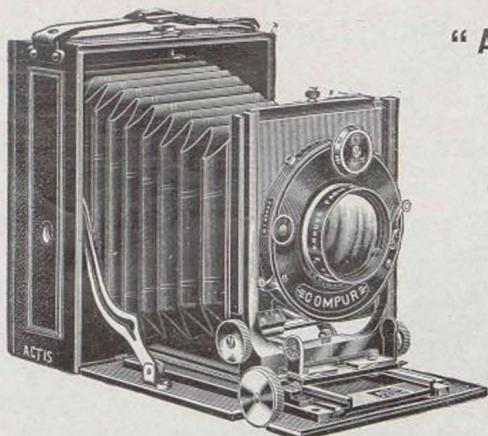
The "**Actis**" cameras are excellently adapted for colour photography.

Table of approximate Dimensions, Weights, and Camera Extensions of the Krauss "ACTIS" Camera.

ACTIS Camera Model	For Plate	DIMENSIONS			Weight excl. of lens	Camera Extension	
		Height	Width	Depth		Least	Greatest
	cm.	cm.	cm.	cm.	cm.	cm.	cm.
High oblong	6.5 \times 9	12	9	4.5	650	6	21
	8 \times 10.5	13.5	11	5.5	800	6.5	31
	9 \times 12	14.5	12	5.5	1.000	6.5	26
	10 \times 15	18	13	6.5	1.200	9	44
	12 \times 16.5	20	16	7	1.800	10	47
	13 \times 18	21.5	16.5	7	1.850	10.5	50
Square	6.5 \times 9	11	11	6	670	7	26
	8 \times 10.5	14	14	6	950	8	31
	9 \times 12	15	15	6.5	1.200	8	35
	10 \times 15	18	18	7.5	1.700	9	44
	12 \times 16.5	20	20	7.5	2.100	9	48
	13 \times 18	21.5	21.5	8	2.450	9	52
Wide Stereo	9 \times 12	12	15	6	900	7	27
	10 \times 15	13	18	6.5	1.200	7.5	31
	13 \times 18	16.5	21.5	7	1.900	8	40
Square Stereo	9 \times 12	16	16	7	1.450	8	37
	10 \times 15	18	18	7.5	1.800	9	44
	13 \times 18	21.5	21.5	8	2.500	9	52

Pamphlet P. 54 in French on Krauss Actis Cameras will be sent (free) on application.

Cameras for English plate sizes, viz. quarter-plate and half-plate (4 $\frac{1}{4} \times$ 3 $\frac{1}{4}$ in. and 6 $\frac{1}{2} \times$ 4 $\frac{3}{4}$ in.), are made to order only.

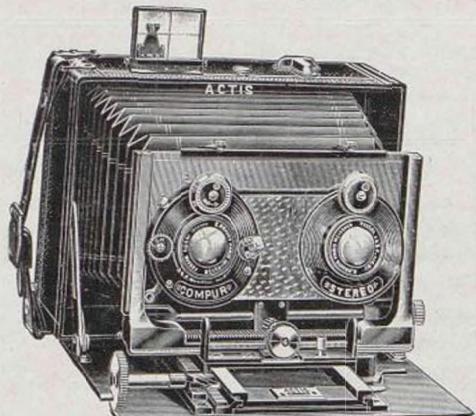
"ACTIS" CAMERA, UPRIGHT MODEL

This model is the camera *par excellence* of the amateur who wishes to be able to tackle any kind of work without having to operate too complicated a piece of apparatus. The camera front is large enough to take lenses with a great aperture of F/4.5.

The prices stated below apply to cameras with three single metal dark slides and lens mounted on Compur shutter with flexible wire release.

We are prepared, to special order, to supply the *Actis* camera as a low *transverse model*, the price being then the same as that of the upright pattern. These transverse models are also made, to order, for English plate sizes.

For Plates	No.	Equipped with lens mounted on Compur shutter			Price	Codeword
		DESCRIPTION	Aperture	Focus		
cm. 6.5×9	A	Krauss-Zeiss-Tessar.....	F/4.5	12		Acosisca
	B	— — —	F/6.3	12		Acosibe
9×12	A	Krauss-Zeiss Tesser	F/4.5	15		Aconeva
	B	— — —	F/6.3	15		Aconebe
10×15	A	Krauss-Zeiss Tesser	F/4.5	16.5		Acodiza
	B	— — —	F/6.3	16.5		Acodizeb
13×18	A	Krauss-Zeiss Tesser	F/4.5	21		Acotreca
	B	— — —	F/6.3	21		Acotrebe

"ACTIS" STEREO-PANORAMIC CAMERA, TRANSVERSE MODEL

This model has a very large lens panel capable of accommodating two stereoscopic lenses mounted on a "Compur" shutter.

With the aid of a rack actuated by a pinion situated near the base of the sliding lens panel one of the two stereoscopic lenses can be brought into alignment with the centre line of the camera when panoramic views are to be taken with a short focus lens. The stereoscopic separation can be readily widened.

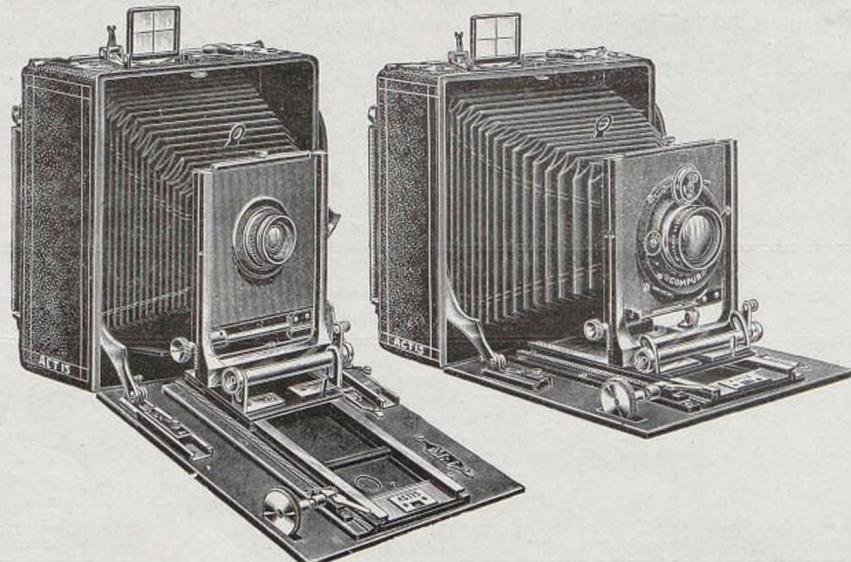
The lens panel can be removed at pleasure, so that a third lens of an appropriate focal length may be used in order to photograph in the ordinary way.

The prices stated below apply to cameras with three single metal dark slides and lenses mounted on Compur shutter with flexible wire release.

For Plates	No.	Equipped with lens mounted on Compur shutter			Price	Codeword
		DESCRIPTION	Aperture	Focus		
cm. 9×12	AA	Two Krauss-Zeiss Tessars ...	F/4.5	10.5		Aclaraa
	BB	Two — — —	F/6.3	12		Aclabebe
	B ¹	Extra panel with one Tessar ..	F/6.3	13.5		Testrecopla
	B ²	— — —	F/6.3	15		Tesmicopla
10×15	AA	Two Krauss-Zeiss Tessars ...	F/4.5	12		Acladixa
	BB	Two — — —	F/6.3	12		Acladibe
	B ¹	Extra panel with one Tessar ..	F/6.3	16.5		Testlacopla
13×18	AA	Two Krauss-Zeiss Tessars...	F/4.5	13.5		Aclatrrera
	BB	Two — — —	F/6.3	13.5		Aclatrobe
	B ¹	Extra panel with one Tessar ..	F/6.3	21		Tesbecopla

"ACTIS" CAMERA, SQUARE MODEL

The "ACTIS" Camera of square pattern has a reversible back frame which admits of transverse and upright pictures being taken without having to turn the camera as a whole. In addition, the baseboard can be dropped below the horizontal. On the other hand, the lens panel can be swung into perfect parallelism with the ground glass focussing screen and the sensitive layer. By a very simple device the baseboard and the lens panel are rigidly fixed in position. This ingenious design admits of wide angle lenses being employed with these cameras, which are therefore universal in every sense.

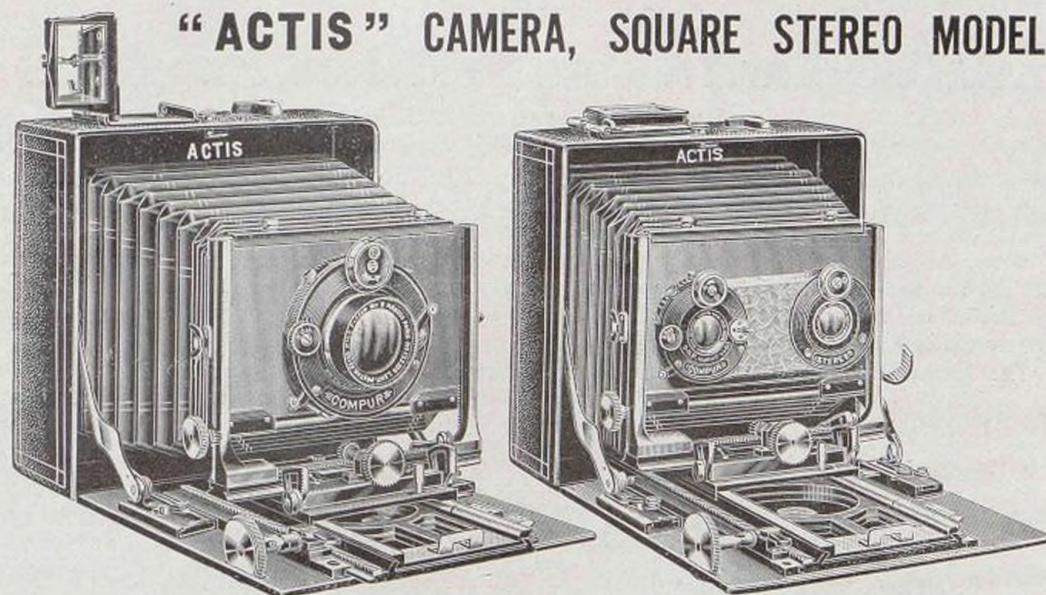


The prices stated below apply to cameras with three single metal dark slides and lenses mounted in "Compur" shutters with flexible wire release.

For Plates	No.	Equipped with lens mounted on Compur shutter			Price	Codeword
		DESCRIPTION	Aperture	Focus		
cm. 6.5×9	A	Krauss-Zeiss Tessar.....	F/4.5 F/7 F/12.5	12 11.5 22-18		Carasixa
	E	Krauss-Zeiss Double Protar composed of two Protar Lenses				
	G	Suppl. W. A. Krauss-Zeiss Protar Lens on panel, without shutter.....				
9×12	A	Krauss-Zeiss Tessar.....	F/18 F/4.5 F/7 F/12.5	6 15 14.5 29-22		Japla Caranéva Caranébe
	E	Krauss-Zeiss Double Protar composed of two Protar Lenses				
	G	Suppl. W. A. Krauss-Zeiss Protar Lens on panel, without shutter.....				
10×15	A	Krauss-Zeiss Tessar.....	F/18 F/4.5 F/7 F/12.5	8.5 16.5 18.5 35-29		Jabotpla Caradiza Caradizlé
	E	Krauss-Zeiss Double Protar composed of two Protar Lenses				
	G	Suppl. W. A. Krauss-Zeiss Protar Lens on panel, without shutter.....				
13×18	A	Krauss-Zeiss Tessar.....	F/18 F/4.5 F/7 F/12.5	8.5 or 11 21 18.5 35-29		Jacinpla Caratreza Caratrebe
	E	Krauss-Zeiss Double Protar composed of two Protar Lenses				
	G	Suppl. W. A. Krauss-Zeiss Protar Lens on panel, without shutter.....				
			F/18	11 or 14		Jadepla

English sizes to order only.

For ACCESSORIES (See page 53).

"ACTIS" CAMERA, SQUARE STEREO MODEL

This model embodies the highest degree of perfection coupled with the utmost ease in operating the apparatus b the absence of any complicated manipulations. The camera is of a **square** section and has a back frame which turn through an angle of 90° about its centre for taking transverse and upright pictures.

The baseboard has a triple carriage, which gives it a very long extension with great facilities for displacing the lens front.

The front baseboard with the travelling carriage can be dropped below the horizontal so as to completely clear the field of a lens with an extremely wide angle, whilst the lens panel swings back to restore the parallelism with the focussing screen. The camera front is large enough for the accommodation of a pair of objectives for stereoscopic work on a Compur shutter, with side motion for panoramic views. A movable division follows the horizontal and vertical displacements of the lenses. An arrangement is provided for taking two separate photographs on one plate, viz.

On a plate.....	9 × 12 cm.	10 × 15 cm.	13 × 18 cm.
Two views or portraits, high or low.....	6 × 9	7 1/2 × 10	9 × 13
Two panoramic views.....	4 1/2 × 12	5 × 15	6 1/2 × 18
Two stereoscopic views.....	4 1/2 × 12	5 × 15	6 1/2 × 18

FOR PLATES	No.	Equipped with LENS mounted on COMPUR SHUTTER			Price	Codeword
		DESCRIPTION	Aperture	Focus		
cm.	9 × 12	Krauss-Zeiss Tessar.....	F/4.5	15		Steraneva
		Krauss-Zeiss Double Protar composed of two Protar Lenses.....	F/7	14.5		Sterabene
		For panel with :	F/12.5	29-22		
		Two Krauss-Zeiss Tessars, stereoscopic, on Compur shutter.....	F/6.3	9		Stesskocpla
		One Krauss-Zeiss W. A. Protar without shutter.....	F/18	8.5		Jabotpla
	10 × 15	Krauss-Zeiss Tessar.....	F/4.5	16.5		Steradixa
		Krauss-Zeiss Double Protar composed of two Protar Lenses..	F/7	18.5		Steralbedix
		For panel with :	F/12.5	35-29		
		Two Krauss-Zeiss Tessars, stereoscopic, on Compur shutter.....	F/6.3	12		Stessincpla
		One Krauss-Zeiss W. A. Protar without shutter.....	F/18	8.5 or 11		Jacinthepla
13 × 18	A	Krauss-Zeiss Tessar.....	F/4.5	21		Steratreza
		Krauss-Zeiss Double Protar composed of two Protar Lenses.....	F/7	18.5		Steraletrez
		For panel with :	F/12.5	35-29		
		Two Krauss-Zeiss Tessars, stereoscopic, on Compur shutter.....	F/6.3	13.5		Stessacpla
	B	One Krauss-Zeiss W. A. Protar without shutter.....	F/18	11 or 14		Jadepla

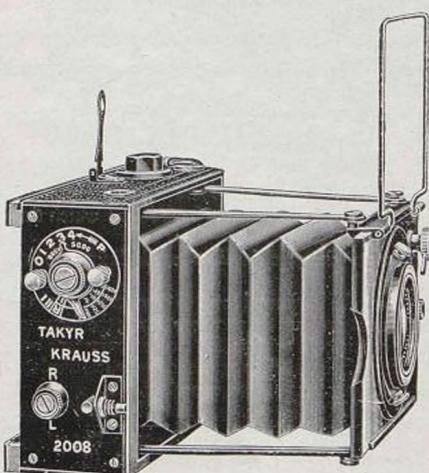
For ACCESSORIES (See page 53).

KRAUSS TAKYR Camera with Focal Plane Shutter**9 × 6.5 cm. and 12 × 9 cm.**

Shutters mounted between the lenses or in the immediate neighbourhood of the objective are adapted for very moderate speeds only. So soon as one attempts to give shorter exposures than 1/100 second with these shutters one encounters insurmountable difficulties.

With focal plane shutters alone exposures of the order of 1/1000 second may be given with modern lenses of the highest light-transmitting power, such as our **Krauss-Zeiss Tессar F/4.5**. Moreover, a focal plane shutter will transmit two to three times as much light during the exposure as a centrally opening shutter working under similar speed conditions.

The **KRAUSS TAKYR** is a compact metal camera of a high degree of precision. In design it is both substantial and elegant. The body of the camera is cast in one piece, drilled, milled, and adjusted for the attachment of the shutter. In the Krauss Takyr focal plane shutter the blind-slit passes very close to the sensitive surface, being only 4 mm. away from it, and it ensures a maximum passage of light. Moreover, its action is smooth, simple and reliable. It does not uncover in winding. By simply operating a button the shutter is made to give speeds ranging from 1/1000 to 1/40 second, and in conjunction with a slowing brake with clockwork movement the speeds can be varied from 1/40 to about one second. The time exposures are made in single or double time. The shutter has finger and wire release.



The lens panel can be displaced horizontally and vertically by double slides in the 12 × 9 cm. model and by a slide and eccentric in the 9 × 6.5 cm. model. It is connected to the back portion of the camera by four stiff metal stays, which ensure its perfect stability. The camera is focussed from infinity to two yards by the helical focussing mount of the lens.

A view finder consisting of a rigid wire frame, which folds down against the camera front, and a sighter mounted upon the rear body enables the operator to compose his picture with the best possible effect. The camera has two screw sockets with standard threads for attaching it to a tripod stand, and to set it in a strictly horizontal position it is fitted with a spirit level.

The ground glass focussing screen is fitted with a hood.

A leather handle is provided by which to carry the camera.

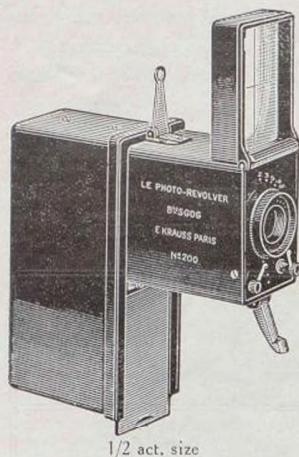
Every camera is supplied with six single metal dark slides, together with a flexible release and directions for using the apparatus. The camera may likewise be furnished with a changing box for 12 plates and a filmpack adapter.

For Plate	Di- men- sions	Weight	No.	Lens in Helical Focussing Mount H			Price	Code- word
				DESCRIPTION	Aperture	Focus		
cm. 6.5 × 9	13 9 4.5	800	A	Krauss-Zeiss Tессar	F/4.5	cm. 12		Takisixa
9 × 12	16 12.5 5	1.000	A	Krauss-Zeiss Tессар	F/4.5	15		Takineva

For **ACCESSORIES** (See page 53).

Pamphlet P. 55 in French respecting the Krauss Takyr Camera free on application.

THE "KRAUSS" PHOTO REVOLVER



1/2 act. size

Patented **S. G. D. G.**, with changing box for (48 plates 36×22 mm.) and roll film chamber with a capacity of 25, 50 and 100 exposures.

This "little wonder", as it has been called by many of its users, made its first appearance in 1921. Since then we have found occasion to improve it, and lately we have completed it by the addition of a roll film chamber, which has rendered its use still more universal than it was before.

Dimensions of the camera..... 42.5 \times 29.5 \times 50 mm.
— changing box. 90 \times 34 \times 46 mm.

Size of the useful picture 20 \times 30 mm.

Weight of the unloaded apparatus 22 oz.

DESCRIPTION

The apparatus is of pocket size. It is made of metal throughout and is a true instrument of precision. The lens is an extra rapid **Tessar** F/4.5, $f = 40$ mm. in helical focussing mount for all distances from infinity to about one yard. It is fitted with an ever-set shutter giving instantaneous exposures at four different speeds ranging from about 1/25 to 1/100 of a second.

Resembling a revolver in its external appearance, it consists of the photographic camera with a rigid metal body, which is closed by a cover in the form of a finder, and a changing box for 48 plates. The camera on the changing box can be withdrawn by a sliding motion :

- 1) To change the plates.
- 2) For being mounted on the enlarging cone.

The advantages of the apparatus are the following :

Its small size and weight, which admit of its being comfortably carried in the pocket.

The accuracy with which the instrument can be focussed by means of a patented device by which the sensitive surface is placed strictly at the focus of the lens and exactly at right angles to the axis of the lens (see *Pamphlet*, P. 53).

The fact that the apparatus is capable of holding 48 plates without recharging renders it invaluable on travels and excursions.

Only two operations are required to set the apparatus in action, all that is necessary being to draw a fastener and to pull a trigger.

There is the further possibility of operating the apparatus with one hand, so that pictures can be obtained by an operator riding on a cycle.

A direct view-finder with a concave lens with cross-lines and sighter shows accurately the composition of the picture as it will appear on the plate.

The quality and rapidity of the lens enable one to take pictures at all times, even during a winter's mist, from a going train carriage, and to snapshot fellow travellers in the same compartment.

In short, the **Photo Revolver**, thanks to its very exact performance and the advantages enumerated above, constitutes an ideal apparatus for the amateur who wishes to possess at a moderate cost a light and very compact camera which enables him to obtain a large number of pictures with a very rapid lens having an iris-diaphragm, capable of being focussed, and giving negatives of such exquisite sharpness that they bear being enlarged to a considerable extent.

Our special pamphlets P. 53 and 57 in French furnish a detailed description of the **Photo Revolver**, particulars of the manner of using it, and the advantages which render this surpassingly delightful instrument an indispensable travelling companion.

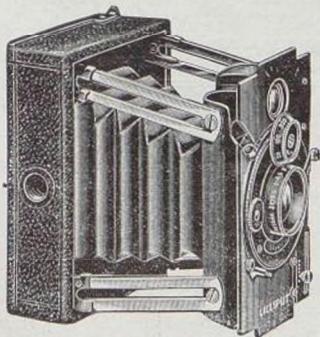
PRICE OF THE KRAUSS PHOTO REVOLVER
with changing box for 48 plates, in leather case with lock and strap.

No.	WITH LENS IN SPECIAL HELICAL FOCUSSING MOUNT			Price	Codeword
	DESCRIPTION	Aperture	Focus		
A	Krauss-Zeiss Tessar	F/4.5	40	mm.	<i>Phoreva</i>
<i>Accessories :</i>					
M	Extra changing box.....				<i>Phorem</i>
MP	— Do. for roll films.....				<i>Phorempe</i>
PP	Nickel silver plate carrier.....				<i>Phopopa</i>
CP	Steel gauge for retrimming the plate carriers.....				<i>Phopocal</i>
N	Closed trough for slow development, nickel-plated throughout, for developing 48 plates in one operation.....				<i>Phocupla</i>
NP	Circular troughs for developing, fixing and washing films.....				<i>Phocupel</i>
NOP	Metal frame for developing films.....				<i>Phocape</i>
O	Special post-card enlarging cone making use of the Tessar lens F/4.5 of the Revolver.....				<i>Phocone</i>
P	Condenser for printing with artificial light.....				<i>Phocondens</i>
Q	Enlarger of cloth-lined cardboard with achromatic lens, post-card size.....				<i>Phoplifi</i>
R	Negative filing box with 200 grooves for the accommodation of up to 400 plates, in mahogany-stained and varnished wood.....				<i>Phoboite</i>
S	Plate drain with 25 grooves, varnished wood.....				<i>Phojout</i>
Photographic plates in boxes of 4 dozens :					
S 0	— <i>Lumière</i> , special, without grain, per doz.....				<i>Pholu</i>
S 1	— <i>Jouglia</i> , mauve label, per doz.....				<i>Phojou</i>
S 2	— <i>Lumière</i> , blue label, per doz.....				<i>Pholuble</i>
S 3	— — orthochromatic without screen, per doz.....				<i>Pholusec</i>
S 4	— <i>Grieshaber</i> , violet label, per doz.....				<i>Phogrili</i>
S 5	— — Reporter, per doz.....				<i>Phogrirep</i>
Gevaert roll films :					
SP 1	No. 1 for 100 exposures				<i>Phopelum</i>
SP 2	No. 2 — 50 —				<i>Phopede</i>
SP 3	No. 3 — 25 —				<i>Phopetri</i>

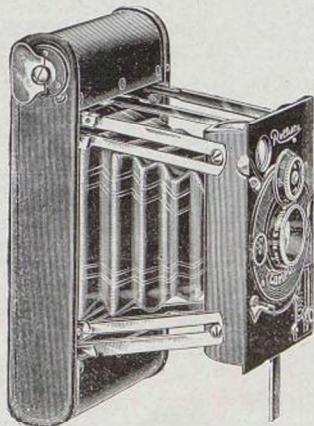
“LILLIPUT” and “ROLLETTE” Waistcoat Pocket Cameras



“LILLIPUT” Camera for 6×4.5-cm. plates and film packs
“ROLLETTE” for roll films of 6.5×4 or 8×5 cm.



Lilliput



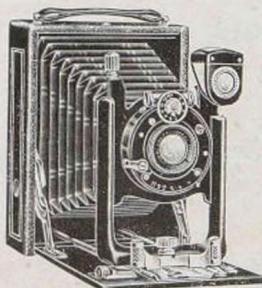
Rollette

These cameras are of the most exacting quality and finished in black lacquered metal. The body only of the **Lilliput** camera is covered with black morocco. The back and front with the lens and shutter are connected by four absolutely rigid nickel-plated slot stays. The bellows are of leather. Focussing from 5 feet to infinity is effected by shifting a button along a scale attached to the lens front and can be done equally well whether the camera is folded up or opened. Reflecting view finder, reversible for taking horizontal or vertical pictures, and additional picture finder with sighter. The **Lilliput** camera has a socket with standard screw. This camera is supplied with a ground glass focussing screen in metal frame and with three single dark slides. The equipment includes a Compur shutter No. 00 with a greatest speed of 1/300 second, or a Pronto shutter No. 00 with four speeds ranging from 1/25 to 1/100 second, B and T with flexible release. The cameras are supplied in pliable leather case with nickeled clasp.

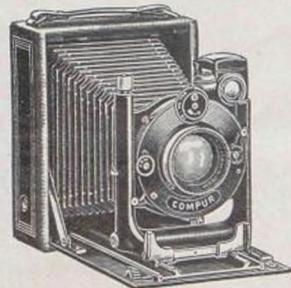
Dimensions and weight.....	Lilliput	Rollette No. I or II
Dimensions	88×67×30 mm.	128×65×25 mm.
Weight.	10 3/4 oz.	10 3/4 oz.

N.	LENS			Shutter	Lilliput 6×4.5 cm.		Rollette No. II 8×5 cm.		Rollette No. I 6.5×4 cm.	
	Description	Aperture	Focus cm.		Price	Code- word	Price	Code- word	Price	Code- word
A	Krauss-Zeiss Tessar	F/4.5	7.5	Compur		Litess		Rotess		Rodetess
D	Krauss Trianar....	F/4.5	7	Pronto		Litria		Rotria		Rodetria

THE "TYKTA" CAMERAS FOR PLATES AND FILM PACKS



Tykta Ia



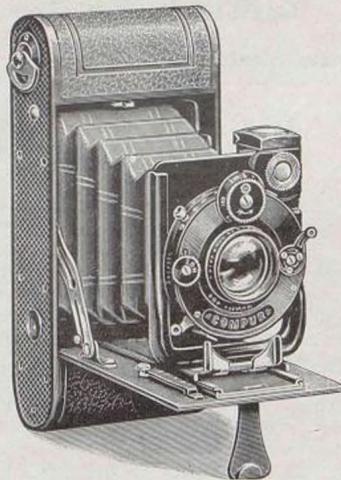
Tykta IVa

Tykta Ia. Finely finished model. The body is of wood, polished black inside and covered with imitation leather. The bellows are of black leather. The folding lens front is lacquered black. The apparatus is fitted with a large reversible brilliant view finder with spirit level, it has two screw sockets and double extension operated by a rack and pinion for focussing by the motion of the lens carrier in stirrup frame, the lens carrier being movable transversely by hand and vertically by a milled screw head. Each camera includes **three single metal dark slides**.

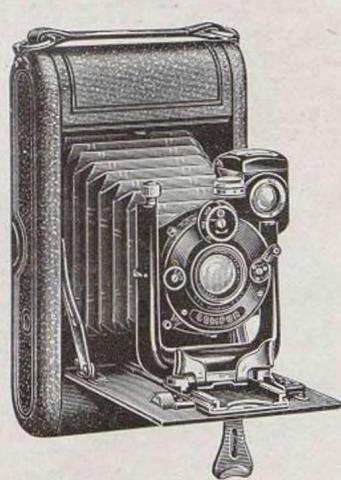
Tykta IVa. De luxe model. Identically similar to the preceding model but more elegantly finished. The camera is covered with black morocco. Both lens motions are effected by a milled screw head. The carriage is very wide and is in one piece. The equipment includes **three single metal dark slides**.

Plate and Camera Sizes	No.	DESCRIPTION	LENS		Shutter	Price	Codeword
			Aperture	Focus			
cm.			F/	cm.			
Model I^a							
6.5×9 Dim. 10×13×5	D	Krauss Trianar	6.3	10.5	Vario	0	Tipri
8.3×10.8	D	Krauss Trianar	6.3	12	Vario	0	Tripide Tidepri
11×14 ×5.5	DE	—	6.3	12	Ibso	0	
Model IV^a of wood.							
6.5×9 Dim. 10×13 ×4.5	AA	Krauss-Zeiss Tessar.	4.5	10.5	Compur	0	Tysixa
	B	— — —	6.3	12	—		Tysibe
	C	Krauss Trianar	4.5	10.5	—		Tycessix
	D	— —	6.3	10.5	Vario	0	Tydesi
8.3×10.8 Dim. 11×14 ×5.5	AA	Krauss-Zeiss Tessar.	4.5	13.5	Compur	0	Tyoce
	B	Krauss Trianar	4.5	13.5	—		Tyodet
	DE	— —	6.3	12	Ibso	0	Tyodib
	A	Krauss-Zeiss Tessar.	4.5	13.5	Compur	1	Tyneva
9×12 Dim. 12×16×5	AA	— — —	4.5	15	—	2	Tyktanev
	B	— — —	6.3	13.5	—	0	Tyneube
	C	Krauss Trianar	4.5	13.5	—	1	Tyceneuf
	CC	— —	4.5	15	—	2	Tyneufce
	D	— —	6.8	13.5	Vario	0	Tydebe
	DE	— —	6.3	13.5	Ibso	0	Tudebebe
10×15 Dim. 14×19×5	A	Krauss-Zeiss Tessar.	4.5	16.5	Compur	2	Tydiza
	B	— — —	6.3	16.5	—	1	Tydizbe
	C	Krauss Trianar	4.5	16.5	—	2	Tycediz
	D	— —	6.3	16.5	—	1	Tydedeca
13×18 Dim. 17×23×6	B	Krauss-Zeiss Tessar.	6.3	21	—	2	Tytrezbe
	D	Krauss Trianar	6.3	21	—	2	Tydetrez
Model IV of metal.							
6.5×9 Dim. 9×12×4	A	Krauss-Zeiss Tessar.	4.5	10.5	Compur	0	Tymab
	B	— — —	6.3	12	—	0	Tymec
	C	Krauss Trianar	4.5	10.5	—	0	Tymid
	D	— —	6.3	10.5	Vario	0	Tymof
9×12 Dim. 11×15 ×4.5	A	Krauss-Zeiss Tessar.	4.5	13.5	Compur	1	Tymanev
	AA	— — —	4.5	15	—	2	Tymaa
	B	— — —	6.3	13.5	—	0	Tymebenev
	C	Krauss Trianar	4.5	13.5	—	1	Tymce
	CC	— —	4.5	15	—	2	Tymcece
	D	— —	6.8	13.5	Vario	0	Tymdenev
	DE	— —	6.3	13.5	Ibso	0	Tymedev

TYKTA POCKET ROLL FILM CAMERA



Tykta No. II, 9 × 6 cm.
Camera : 16.4 × 3.2 × 7.8 cm.
Weight : 22 oz.



Tykta No. IIa, 11 × 6.5 cm.
Camera : 21.5 × 3.5 × 10 cm
Weight : 26 oz.

Tykta No. III, 10.5 × 8 cm.
Camera : 19.5 × 4 × 11.5 cm.
Weight : 34 oz.

These cameras are in great favour with tourists and cyclists both on account of their compactness and their small weight.

The **TYKTA No. III** for 10.5 × 8-cm. films is of black polished wood covered outside with black morocco. It is also available for use with 12 × 9-cm. plates without special adapter, in that the bottom of the apparatus receives directly the rebated metal dark slides or the ground glass focussing screen with hood. A rack and pinion is provided for focussing, the camera front is of the stirrup pattern and admits of the lens being displaced horizontally by hand and vertically by a milled head.

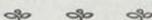
The **TYKTA CAMERAS No. II** for 9 × 6 cm. and **No. IIa** for 11 × 6.5 cm. are adapted for films only and are made of metal throughout. In both the lens is focussed by a radial lever passing over a scale. The lens front is in stirrup form and admits of displacement either way. The camera is fitted with a large reversible brilliant finder and a level, and it has two sockets with standard screw threads.

The lenses are mounted on Compur, Ibsø or Vario shutters with flexible release.

Model Plate Size	No.	LENS		Focus	Shutter	Price	Codeword
		Description	Aperture				
No II 6×9	A	Krauss-Zeiss Tessar	F/4.5	10.5	Compur	0	Fitysixa
	B	— — —	F/6.3	12	—	0	Fitysibe
	C	Krauss Trianar	F/4.5	10.5	—	0	Fitycesix
	D	—	F/6.3	10.5	Vario	0	Fidesity
	A	Krauss-Zeiss Tessar.	F/4.5	12	Compur	0	Fideba
	B	—	F/6.3	12	—	0	Fidece
IIa 6.5×11	C	Krauss Trianar	F/4.5	12	—	0	Fidedi
	D	— —	F/6.3	12	Vario	0	Fidefo
	DE	— —	F/6.3	12	Ibsø	0	Fidega
	A	Krauss-Zeiss Tessar.	F/4.5	12	Compur	0	Fityocta
	B	— — —	F/6.3	13.5	—	0	Fityboct
	C	Krauss Trianar	F/4.5	12	—	0	Ficyoctet
III (I) 8×10.5	D	— —	F/6.3	12	Vario	0	Fioctyde
	DE	— —	F/6.3	13.5	Ibsø	0	Fideocty
(I) Attachment for frame with ground glass plate and three metal 12 × 9-cm. slides.							Fipla

“MENTOR” CAMERAS

with Focal Plane Shutters



These irreproachably designed cameras are made regularly in the following models

A. REFLEX CAMERA TYPE :

- 1) Folding Reflex Camera,
- 2) Square Reflex Camera with Revolving Back Frame,
- 3) Broad Oblong Reflex Camera.

B. FOLDING CAMERA TYPE :

- 4) Folding Camera,
- 5) Universal Folding Camera.

The REFLEX CAMERAS. The exact composition of the picture on the plate and perfect focussing of the objects which are to be photographed have at all times engrossed the attention of amateurs, professional photographers, and designers.

The first named requirement is generally fulfilled sufficiently well by the use of a view-finder with sighter, as specially designed for certain cameras.

The other condition is more difficult of attainment, as it depends upon the operator's ability to estimate distances, which is often attained only after much practice, so that the picture is liable to be far from sharp.

The “**Reflex**” Cameras get over these difficulties by enabling the operator to arrange the exact disposition of the picture on the plate at the same time that he sets the focus, even while the object is in motion. At the right psychical moment he has then only to depress the release and he obtains an instantaneous photograph of the subject as he actually sees it.

The “**Reflex**” Cameras alone therefore provide the certainty of success at the moment of release. They are fitted with focal plane shutters, which admit of snapshots being taken at all speeds from 1/8 to 1/1200 of a second with a very large passage of the available light.

The **focal plane shutter**, with which the “**Mentor**” **Cameras** are equipped, is substantial and simple in design. In it the width of the slit can be set from without from 1/5 to 8 cm. The spring tension is easily adjusted for six different speeds by means of a knurled button. A table of shutter speeds (up to 1/1200 second) is fixed to each apparatus. It winds without uncovering the plate when the mirror is lowered.

The **mirrors** mounted on the “**Mentor Reflex**” **Cameras** are silvered in front and are absolutely plane, giving an undistorted image.

The lens panel detaches very readily.

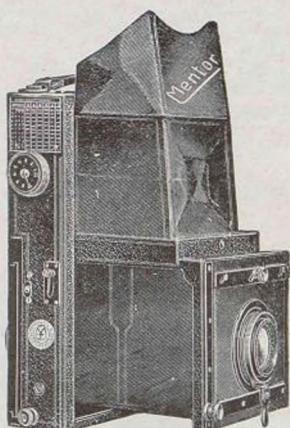
The **camera bodies** are of a very specially selected wood with metal bindings and covered with morocco leather. The back is provided with a ground glass plate focussing screen with a hood. The hood and bellows are of black leather. All mountings are part nickel-plated and part lacquered black. The camera is fitted with a handle and strap and has two sockets with standard screw threads.

"MENTOR" Reflex Folding Camera

This camera is a great favourite with amateurs and combines in a comparatively small volume the great advantages

of the "REFLEX" camera principle. The mechanism of the apparatus is of a substantial design, which ensures a perfect result from every point of view. Focussing is effected by the helical mount of the lens. Each camera is supplied with three double dark slides and flexible release.

The prices quoted below include a **Krauss-Zeiss Tessar Lens F/4.5** in helical focussing mount.



DIMENSIONS, WEIGHT (excl. of optical equipment) and PRICES.

For plates.....	9 × 6.5	8 × 10.5	9 × 12	10 × 15	12 × 16.5	13 × 18 cm.
Thickness.....	4.5 cm.	5 cm.		5.5 cm.	6 cm.	
Width.....	14.5 —	17 —		20 —	23 —	
Height.....	20 —	24 —		27 —	34 —	
Weight.....	2 3/4 lbs.	3 1/4 lbs.		4 1/2 lbs.	6 1/2 lbs.	
Extension.....	11.6 cm.	15.2 cm.		17.5 cm.	21.3 cm.	
A. Lens focus.....	12 —	15 —		16.5 —	21 —	
Price						
Codeword.....	Replisix	Replihuit	Replineuf	Replidix	Replidouze	Replitreize
	6,5 × 9	8 × 10.5 (1)	9 × 12	10 × 15	12 × 16.5	13 × 18

"MENTOR" Square Reflex Camera

with revolving back frame



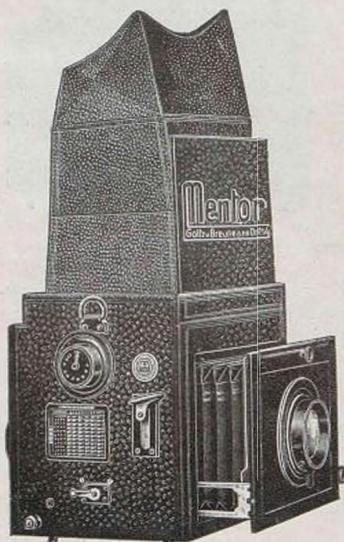
The back frame of this camera provides an easy means of taking pictures in a horizontal and vertical position. A special device changes automatically the position of the upper ground glass for high or transverse pictures to agree with that of the back frame. The eye is focussed by means of a double rack actuated by a large knurled button, by which the camera can be set quickly and accurately and which gives a sufficiently long and stable extension to admit of pictures being taken at very short distances (from infinity to about 20 inches). The lens can be displaced horizontally and vertically. The lens is contained in a sunk mount. Every camera is supplied with three double dark slides and a flexible release.

The prices quoted below include a **Krauss-Zeiss Tessar Lens F/4.5** in sunk mount.

(1) With revolving back frame.

DIMENSIONS, WEIGHTS (without optical equipment) and PRICES of the Square Model Reflex Camera.

Plate Size.....	6.5×9	8×10.5	9×12	10×15	12×16.5	13×18 cm
Length.....	13 cm.	18 cm.	18 cm.	21 cm.	21 cm.	22 cm.
Width.....	21 —	15 —	16.5 —	20 —	22 —	23 —
Height.....	16 —	19 —	20 —	24 —	26 —	27 —
Weight.....	1,600 grm.	2,500 grm.	2,600 grm.	4,000 grm.	4,500 grm.	4,800 grm.
Longest extension.....	19 cm.	26 cm.	30 cm.	35 cm.	35 cm.	36 cm
Shortest extension.....	13 —	16 —	17.5 —	20.5 —	20.5 —	20.5 —
A. Lens focus.....	13.5 —	16.5 —	18 —	21 —	21 —	21 —
Price						
Codeword.....	Recasix	Recahuil	Recaneuf	Recadix	Recadouze	Recatreize

Wide Oblong Reflex CAMERA
and Stereo Reflex Camera

This model differs from the square pattern by its reduced dimensions and weight. It is intended for use in the transverse position only, which conforms to the direction in which most objects move. The lens is focussed by means of a double rack motion. The lens, which has a shorter focus than in the square model, is supplied in a sunk mount.

The stereoscopic models are equally adapted for taking panoramic views. For this purpose an extra panel with a lens of longer focus can be used, or an extra panel with a lens flange or an extra lens mount (not in-



cluded in the price) for using one of the stereoscopic lenses with small diaphragm.

Each camera is supplied with three double dark slides and a flexible release.

The prices quoted below include a **Krauss-Zeiss Tессar F/4.5** in sunk mount R.

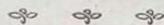
DIMENSIONS, Weight (excl. of optical equipment) and PRICES
Oblong Reflex Camera

Plate size.....	6.5×9	8×10.5	9×12	10×15	12×16.5	13×18 cm
Length.....	9.5 cm.	13.5 cm.	—	15 cm.	—	18 cm.
Width.....	12 —	16 —	—	20 —	—	22 —
Height.....	14 —	16 —	—	18 —	—	21 —
Weight.....	1,100 grm.	1,800 grm.	—	2,400 grm.	—	3,300 grm.
Longest extension.....	13.5 cm.	19.5 cm.	—	22.5 cm.	—	30 cm.
Shortest extension.....	9 —	13 —	—	14.5 —	—	17.5 —
A. Lens focus.....	12 —	15 —	—	16.5 —	—	21 —
Price						
Codeword.....	Relasix	Relahuit	Relaneuf	Reladix	Reladouze	Relatreize
	6.5×9	8×10.5	9×12	10×15	12×16.5	13×18

Stereo Reflex Camera

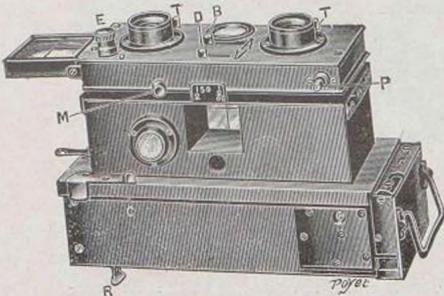
Plate size.....	6×13	10×15	9×18 cm.
Length.....	9.5 cm.	15 cm.	14 cm.
Width.....	18 —	20 —	23 —
Height.....	14 —	18 —	17 —
Weight.....	1,600 grm.	2,500 grm.	2,700 grm.
Longest extension.....	13.5 cm.	22.5 cm.	19 cm.
Shortest extension.....	9 —	14.5 —	13.5 —
A. Focus of paired lenses.....	9 —	15 —	13.5 —
Price			
Codeword.....	Restesix	Restedix	Resteneuf

Noted French Cameras equipped with Krauss-Zeiss Lenses



“CORNU” ONTOSCOPES

for 107×45 mm. and 13×6 cm. plates



Model No. IIIa, Stereoscopic Camera



Model No. IV Stereo-panoramic Camera

Metal twin bodies of silvered copper, oxidised and enamelled, well adapted for touring and the tropics. A special device admits of focussing from a yard to infinity, whilst ensuring perfect and permanent parallelism. The shutter is between the lenses, it transmits a large proportion of light and is set by a metal air piston brake giving speeds from a second to $1/100$ second. By a patented device the action of the brake can be momentarily suspended for the purpose of increasing the speed through $1/150$, $1/200$, $1/250$ to the maximum speed, which is $1/300$ second for the 13×6 -cm. and $1/400$ second for the 107×45 -mm. camera. Upward displacements of the lens are converted into downward displacements by inverting the camera. A brilliant view-finder is fitted at the side to hold the camera on the level of the eyes, an additional reflecting view-finder between the lenses to operate on a stand or on a level with the chest. The camera has an automatic changing box for twelve plates with a pliable steel blind, by means of which loading and unloading can be effected by a single movement. There is also an automatic exposure marker. The camera may also be used at the operator's option, with :

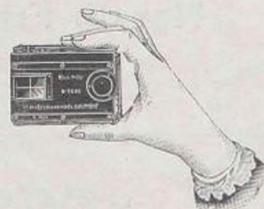
Single metal dark slides by means of an intermediate, changing box for roll films, film pack adapter, or special dark slides for autochrome plates.

Ontoscope with changing box for twelve plates and leather pouch.

Model No.	Plate Size	LENSES			Price	Codeword
		Description	Aperture	Focus		
III	10.7×4.5 cm. Stere	Krauss-Zeiss Tessar	F/4.5 F/6.3	55 mm. 55 —		Ontothéorb Ontotessun
III ^a	13×6 cm. Stere	Krauss-Zeiss Tessar	F/4.5 F/6.3	85 — 85 —		Onthorun Ontesseux
IV	13×6 cm. Stere-Panorama	Krauss-Zeiss Tessar	F/4.5 —	85 — 85 —		Onpathorit Onpatesseu

Prices of Accessories will be stated on application.

“GAUMONT” BLOCK NOTES AND STEREO BLOCK NOTES CAMERAS



These highly finished metal folding cameras can be easily concealed in the pocket, the lens being protected by a slide which covers it entirely and thereby guards it against every kind of shock. By the withdrawal of this slide the lens becomes exposed, the shutter is wound, and the view-finder is put in position, all three operations being thus performed by a single act. The sector shutters have an air piston brake which ensures a reliable and invariable action at all temperatures. It gives variable speeds and time exposures.



The metal parts are lacquered black, the four struts being nickel-plated. The bellows are of leather. The lens is provided at the user's option with an infinity or hyperfocal catch in the 6×4.5 cm. ord., 107×45 mm., and the 13×6 cm. stereo cameras. The lens is focussed in the 9×6.5 cm. ord. camera by means of a helical mount and in the 6×4.5 cm. M. P. and the 9×6.5 cm. M. P. cameras by the displacement of an internal frame which carries the dark slide.

All these models can be supplied with an A. J. G. changing box for 12 plates, with the exception of the 13×6 cm. model, and with film pack adapters with the exception of the 107×45 mm. and 13×6 cm. stereo cameras.

Model and Plate Size	Dimensions	Weight	Krauss-Zeiss Tesser Lens	Accessories included in the price	Price	Codeword
cm. 6×4.5 ord.	mm. $90 \times 65 \times 25$	grm. 320	F/6.3, $f=72$ mm.	Felt case, 6 dark slides in case		Blonosix
9×6.5 (1) ord.	$120 \times 80 \times 50$	740	F/6.3, $f=107$ —	Leather bag, 12 dark slides in case		Blononev
10.7×4.5 stereo	$135 \times 60 \times 32$	455	F/6.3, $f=55$ —	Felt case, 6 dark slides in case		Blosteca
13×6 (2) stereo	$160 \times 75 \times 35$	590	F/6.3, $f=80$ —	Felt case, 12 dark slides in case		Blosiste
6×4.5 M. P.	$100 \times 67 \times 50$	455	F/4.5, $f=72$ —	Felt case, 6 dark slides in case		Blosixem
9×6.5 (1) M. P.	$134 \times 93 \times 69$	875	F/4.5, $f=112$ —	Leather bag, 12 dark slides in case		Blonevem

Prices of Accessories, on application.

(1) Lens capable of eccentric displacement in two directions.
(2) Lenses eccentric by reason of the design.

“GAUMONT” SPIDO and STÉRÉOSPIDO CAMERAS

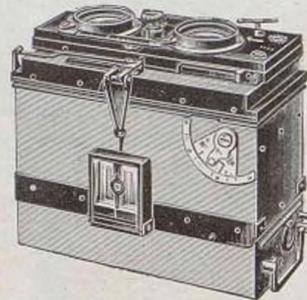
The “Photo Jumelle” is a typically French representative of high-class camera work. Though rather more bulky than the modern folding cameras, the “Spido” Cameras have appreciable advantages over the latter in the matter of optical adjustment, rapidity of action, and the hard wearing qualities of its parts.



Spido



Stereo Spido



Metal Stereo Spido

The bodies of the cameras are made of clamped wood and are covered with black morocco leather. The “Spido” Cameras have a lens panel which is capable of displacement in either direction. This displacement is communicated to a sighter, so that the sighting always agrees with the photographic image. In the case of the Stereo Spido Cameras the horizontal displacement is replaced by a panoramic displacement, which admits of instantly taking either stereoscopic or long transverse views.

The camera is fitted with a DECAUX shutter with central opening and made of metal throughout. It gives with unvarying regularity all speeds from 1/5 to 1/175 second. These cameras are always supplied with a changing box for twelve plates with automatic exposure marker. The latter can be removed in broad daylight for focussing on the ground glass or for changing the box. The user has the option of employing double dark slides with blind-shutters, single nickel dark slides in conjunction with an adapter, or a film pack slide. The lens is focussed by means of its helical mount with the aid of a metrical distance scale. In the Stereo Spidos the helical motions and the iris diaphragms are coupled by two links. The cameras are provided with two screw sockets and two levels.

THE METAL STEREO SPIDO CAMERAS, Models A and C, are two very elegant instruments made of a pure and very hard nickel which is unaffected by damp air and changes of temperature.

Model A is fitted with a panoramic displacement, like the Stereo Spidos of wood. Model C, on the other hand, by reason of the large diameter of its lenses (Tessar F/4.5), has only a vertical motion. In Model C the Decaux shutter is mounted between the lenses and the focussing is done by the displacement of the camera front parallel to itself and without any loss of motion.

In the place of the standard changing box for 12 plates of ordinary thickness the 13 × 6-cm. Stereo Spido Cameras (of metal and wood) may be used with a special changing box for 24 Eastman films.

THE GAUMONT SPIDOS AND STEREO SPIDOS are supplied with a changing box for 12 plates, automatic exposure marker, ground glass focussing screen, shutter release, and sheep skin bag. The D 13 × 6-cm. model is supplied with ground glass and six single dark slides.

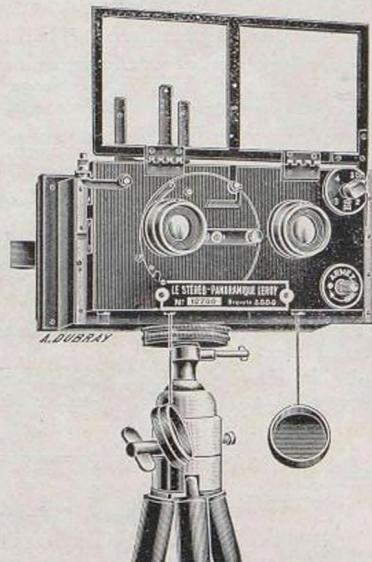
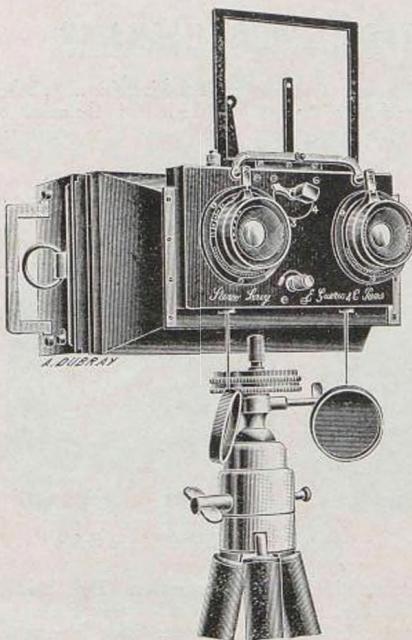
Model and Plate Size cm.	Dimensions mm.	Weight grm.	LENSES			Price	Codeword
			Description	Aperture	Focus cm.		
Wood Models							
9 × 6.5	180 × 90 × 155	1,380	Krauss-Zeiss Tessar	F/6.3	11		Spisix
12 × 9	214 × 120 × 170	1,785	—	F/6.3	13.5		Spinev
15 × 10	235 × 135 × 200	2,475	—	F/6.3	15.5		Spidiz
13 × 6 (1)	150 × 85 × 170	1,450	—	F/6.3	8.4		Stespisix
16 × 8 (1)	185 × 108 × 205	2,100	—	F/6.3	11		Stespidoct
Metal Model							
A 13 × 6 (1)	135 × 70 × 155	1,700	—	F/6.3	8.4		Mespia
C 13 × 6 (2)	135 × 70 × 155	1,700	—	F/4.5	8.4		Mestespice
D 13 × 6 (2)	100 × 80 × 165	800	Krauss-Trianar	F/6.3	8		Spistede

Prices of Accessories on application.

(1) Stereo Panorama. — (2) Stereoscopic.

LE ROY CAMERAS

(by E. GUÉRIN & Co.)

LE ROY STEREO PANORAMIC CAMERA, (Patented in France), for 13×6 -cm. plates,

which gives most excellent results with a maximum of simplicity and versatility (stereoscopic views, panoramas and portraits). The apparatus is made of metal throughout.

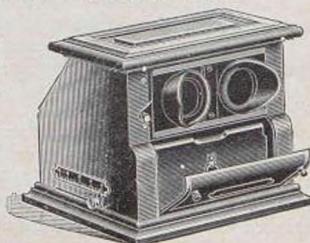
One of the lenses, which is eccentrically mounted on a revolving panel, can be brought to the centre at the same time that the stereoscope division is automatically put out of action. The camera is fitted with a Davanne view-finder, sockets with standard screws for horizontal and vertical views, level and shutter release. The design ensures a normal lens displacement. The camera is supplied in black or tan cowhide case capable of accommodating the camera together with six dark slides or with a changing box for 12 plates.

MINIMUS LEROY, (Patented) for
 13×6 cm. of metal throughout, of finest workmanship,
stereoscopic only, with variable lens displacement. The camera is supplied with a black or tan cowhide case, a stand for time exposures, and a shutter release.

LE ROY STEREO CLASSIFIER, (Patented)

for classifying, examining and projecting the stereoscopic 13×6 -cm. lantern slides. The mechanism is compact, adapted for hard wear and exact, lifting the lantern slides by gripping them at the sides. The eyepiece separation and focussing can be made with the utmost rapidity.

One handle for raising and lowering controls the whole mechanism. The Stereo Classifier is supplied with a classifying box. It may be completed by a pedestal and attachments for projection (respecting which a separate pamphlet in French may be had on application).



D. Stereo Classifier, walnut or mahogany. *Steclabo*
 E. — with metal casing... *Steclame*
 F. Pedestal of walnut or mahogany with
 six slide cases..... *Stesocle*

Model	LENSES			with six nickel dark slides		with changing box	
	Description	Aperture	Focus mm.	Price	Codeword	Price	Codeword
<i>Stereo-Panoramic 13×6-cm. Camera</i>							
A	Krauss-Zeiss Protar.	F/9	82		Stepapos		Stepama
B	Krauss-Zeiss Tessar.	F/6.3	83		Stepates		Stemales
C	Attachment for variable lens displacement			.. va		.. va	
<i>Minimus 13×6-cm. Camera</i>							
A (1)	Krauss-Zeiss Tessar.	F/6.3	75		Minifix		Minimafix
B (2)	—	F/6.3	75		Miniva		Minivama

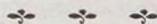
(1) Model with fixed focus

(2) Model with helical lens mount for focussing.

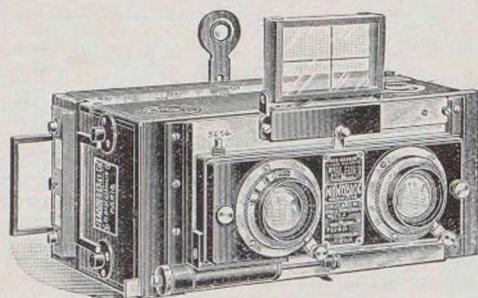
THE " MONOBLOC " CAMERA

By Messrs. JEANNERET & C^{ie}

Stereo-Panoramic Size 13×6 cm.



As the name implies, this camera is in the form of a rectangular block without tapering sides, in consequence of which the apparatus can be readily used without a stand, by simply resting it on some piece of furniture, for taking stereoscopic or panoramic views of upright portraits. The following are the principal particulars of the Monobloc.



The equipment includes a shutter of maximum efficiency with speed control ranging from 1/300 second to several seconds, changing box of smallest dimensions (thickness only 18 mm.) containing six plate carriers of pure nickel, very light and interchangeable, so that several

dark slides may be carried in the coat pockets. Film pack adapters are furnished to order. The lenses can be displaced 12 mm. upwards and 8 mm. downwards and moved out of centre for **panoramic** views, while the stereoscopic division disappears automatically.

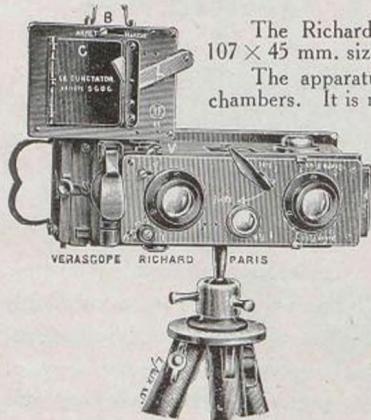
The camera has an accurate view-finder with stereoscopic and panoramic sighter, a plumbing pendulum, a spirit level, a rapid focussing arrangement with double scale with automatic setting of the lens, according to the stop in operation, so as to obtain the greatest depth in the picture with good definition from infinity to near. The autochrome screens are so arranged within the apparatus that there is no change in the focal adjustment.

The apparatus is supplied with two changing boxes for six plates each, a ground glass focussing screen, a shutter release, the whole being accommodated in a leather container with strap.

No.	LENSES			Price	Codeword
	DESCRIPTION	Aperture	Focus		
A	Krauss-Zeiss Tessar	F/4.5	8.5 cm.		Monotor
B	—	F/6.3	8.5		Monotesse
C	—	F/3.5	8.5		Monotabis

RICHARD VERASCOPE

Sizes 10.7 x 4.5 and 13 x 7 cm.



The Richard Verascope is the prototype of stereoscopic cameras of the 107 x 45 mm. size and needs no praise.

The apparatus is in the form of a fixed tapering box containing the two dark chambers. It is made of silvered and lacquered brass.

It is fitted with a changing box for 12 plates made entirely of metal and provided with an automatic exposure marker. There are two view-finders, viz. a brilliant direct view-finder with sighter for taking photographs with the camera held on a level with the eyes, and an image erecting brilliant view-finder between the two lenses for use when the camera is mounted on a stand or held on a level with the chest. The lenses can be raised 8 mm. above the centre, and by simply inverting the camera this can be utilised as an equivalent to lowering the lens. The camera is provided with two levels.

The lenses, a pair of Krauss-Zeiss Tessars F/4.5 or F/6.3, can be stopped down to F/8 and F/16. The camera has a fixed focus giving sharp pictures.

From infinity to 22 feet at full aperture F/4.5

— 16 $\frac{1}{2}$ — F/6.3

— 12 $\frac{1}{2}$ feet with first stop F/8

— 6 $\frac{1}{2}$ — second — F/16

Nearer objects can be focussed by a focussing cap.

The roller blind shutter operates between the lenses; it winds without uncovering the plate, and gives time as well as instantaneous exposures, the verified speeds being 1/10 to 1/150 of a second in the Models Nos. 6 and 7, down to 1/400 second in Model No. 8.

The 13 x 7-cm. VERASCOPE takes also 13 x 6 cm plates but is otherwise identical in construction to the preceding model.

Krauss-Zeiss Tessar lenses F/6.3 or F/4.5, f = 85 mm., iris-diaphragms coupled by linkage, vertical displacement of 11 mm., a shutter giving variable speeds ranging from 1/9 to 1/150 second, two view-finders, and a changing box for 12 plates with automatic exposure counter, and is supplied in a leather container.

The "HOMEOS" is the latest achievement of the makers of the Verasopes. The apparatus is a stereoscopic camera for cinematograph films measuring 24 x 19 mm. It is made of metal throughout. The shutter gives variable speeds from 1/15 to 1/150 second as well as time exposures. It has two view-finders, a spirit level, five stops, viz. F/4.5, F/6.3, F/8, F/10 and F/20. The focus is set for infinity and gives sharp images for distances down to 5 feet. Objects as near as 18 inches can be focussed by means of a focussing cap mounted on a slide on the apparatus. The camera is designed for daylight loading and takes a roll film 45 inches long for 27 stereoscopic views. It has a mechanical exposure marker. The apparatus is supplied with a morocco leather case. The lens is a Krauss-Zeiss Tesser F/4.5, f = 28 mm.

RICHARD VERASCOPE WITH CHANGING BOX FOR TWELVE PLATES AND LEATHER CASE

Model and Plate Size	LENSES			Price	Codeword
	Description	Aperture	Focus		
Verascopes :					
No. 6a, 107 x 45 mm.	Krauss-Zeiss Tesser	F/6.3	55		Veraxixa
No. 6b —	—	F/4.5	55		Verasibé
No. 7a — 1)	—	F/4.5	55		Verasepta
No. 8a —	—	F/4.5	55		Verocla
7 x 13 A	—	F/4.5	85		Veragrande
— B	—	F/6.3	85		Verabegran
Homeos	—	F/4.5	28		Homeos

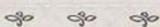
Prices of Accessories on application.

(1) Same as No. 6b, but furnished with the following improvements: "Cunctator", or automatic release, giving instantaneous and time exposures from 1 to 30 seconds (or 2 to 60 seconds); block system, preventing the changing box being opened when the twelve plates have been exposed; note holder at the bottom of the changing box for the insertion of a slip of paper for noting particulars respecting the exposed plates; index showing the state of the changing box, i. e. whether empty, loaded or exposed; special screens, and set of eight carriers for autochrome plates.

CAMERA ACCESSORIES

DESCRIPTION	FOR PLATES cm							
	4.5×6	6.5×9	9×12	10×15	13×18	4.5×10.7	6×13	9×18
For Krauss Actis Cameras :	Nº	Nº	Nº	Nº	Nº	Nº	Nº	Nº
Single dark slides, metal, black.....		401	403	404	406			
Film pack adapter.....		411	413	414	416			
Changing box, 12 plates (metal)		421	423	424	426			
Leather Case for camera with 6 dark slides and 1 film pack adapter :								
High or transverse model.....		431	433	434	435			
Square model or square stereo model.....		441	443	444	446			
For the Krauss Takyrs Cameras :								
Single dark slides, nickelized.....		451	452					
Film pack adapter.....		453	454					
Changing box, 12 plates (metal).....		455	456					
Leather case for camera with 6 dark slides and 1 film pack adapter		461	462					
For the Lilliput Cameras :								
Single dark slides in case :								
Set of three dark slides.....	471							
Set of six dark slides.....	472							
Changing box for 12 plates.....	473							
Film pack adapter.....	474							
For the Tykta Cameras :								
Single dark slides, metal, black.....		481	483	484	486			
Film pack adapter.....		491	493	494	496			
Leather case for camera with 6 dark slides and Film pack adapter.....		501	503	504	506			
Container for Tykta Cameras Nos. II and III.....		511	512					
For the Mentor Cameras :	8×10.5					12×16.5		
Double dark slide, wood.....	522	521	523	524	526	525	527	528
Filmpack adapter, wood.....	532	531	533	534	535	535	537	538
Changing box for 12 plates, wood.....	542	541	543	544	546	545	547	548
For the Ontoscopes :						4.5×10.7		
Changing box for 12 plates.....						581	582	
— for roll films.....						583	584	
Film pack adapter.....						585	586	
Ground glass screen.....						587	588	
Single dark slides, metal, black.....						589	590	
Adapter for single dark slides.....						591	592	
For Gaumont Block-notes :	4.5×6							
Set of 6 dark slides, nickelized, in case.....	601	602				603	604	
Nickel changing box for 12 plates.....	605	606				607		
Film pack adapter.....	608	609						
For the Gaumont Spido and Stereo Spido Cameras :							8×16	
Double dark slides for Spido, wood.....		611	612	613			614	615
Changing box for 12 plates.....			622	623			624	625
— for 18 plates E. M.		626						
Adapter for single dark slides, for wood camera.....		627	628				629	630
Single dark slide, nickel.....		631	632				633	634
For the Leroy Cameras :								
Filmpack adapter.....							635	
Changing box 12 plates.....							636	
For the Richard Veracope :								
Changing box for 12 plates.....						641	642	
Roll film changing box.....						643	644	
Adapter for single dark slides.....						645	646	
Single dark slide, metal.....						647	648	
For the Jeanneret Monobloc :								
Extra changing box.....							651	
2 Autochrome screens.....							652	
Set of 4 carriers for autochrome plates.....							653	
Filmpack adapter.....							654	

SQUARE FIELD CAMERAS



These cameras are made of well seasoned wood, half polished walnut and mahogany, and admit of the use of lenses of large apertures as well as of doing exact work. The front and back are always parallel, excepting when the swing back is brought in operation.

The back is mounted on a travelling carriage moving directly upon racks with oblique teeth and enabling the camera to be used with short focus lenses. The motion is provided with a clamping button.

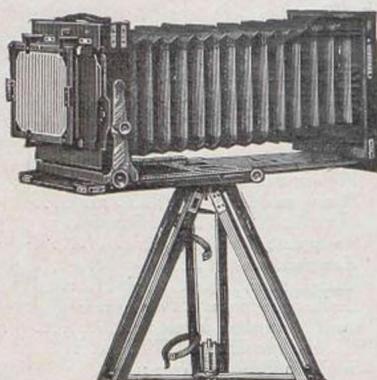
The bellows are square and made of leather. The lens panel has motions in three directions.

The frame for the slides rotates and can be set for upright and transverse pictures, without disturbing the centring and the focussing.

The No. II Camera has a vertical swing motion and the No. III both horizontal and vertical swing motions.

The camera has two sockets with standard screw threads.

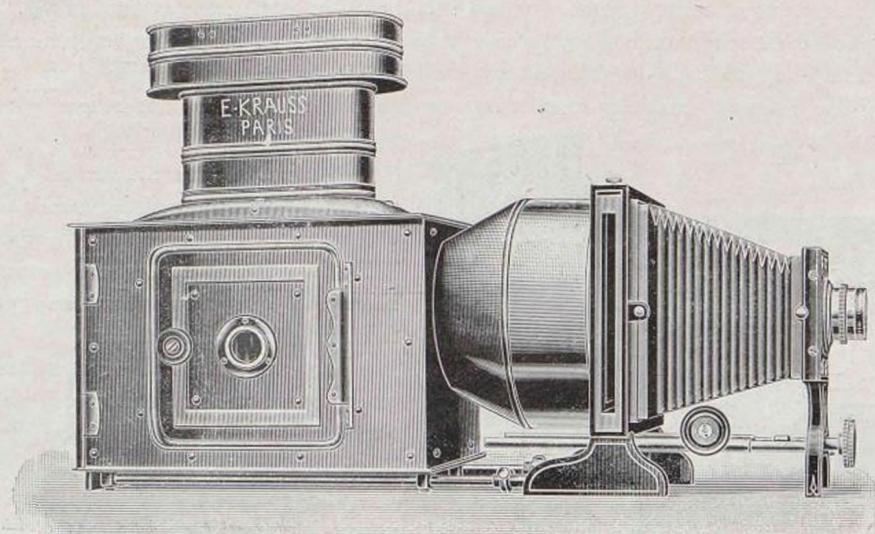
The equipment includes three double dark slides with sliding shutters, fitting the frame and locking in position.



For Plates.....	13×18	18×24	24×30	30×40 cm.
Longest extension.....	51	65	80	100 cm.
Shortest extension.....	7.5	9	12	13 —
Weight	2.700 grm.	4.600 grm.	9.000 grm.	12.000 grm.
Panel motion : upward and downward to right and left.....	5 1/2	8 4	11 5	14 cm. 6 —

Prices Camera with three double dark slides with sliding shutters	Price	Code- word	Price	Code- word	Price	Code- word	Price	Code- word
Model No. II, mahogany.		<i>Abada</i>		—		—		—
— No. II walnut dull polished		<i>Abece</i>		<i>Abidi</i>		<i>Abofo</i>		<i>Abugu</i>
— No. III, walnut dull polished.....		<i>Abeh</i>		<i>Abik</i>		<i>Abol</i>		<i>Abum</i>
<i>Accessories :</i>								
Double dark slide with sliding shutter, extra...		<i>Aca</i>		<i>Aced</i>		<i>Acif</i>		<i>Acolo</i>
Tripod stand, waxed beech		<i>Apar</i>		<i>Apel</i>		<i>Apis</i>		<i>Apog</i>
Canvas case for the came- ra and three double dark slides		<i>Asac</i>		<i>Asef</i>		<i>Aséri</i>		<i>Asoss</i>

The "HELLE" Projection and Enlarging Apparatus



The body proper of the apparatus is made of cast iron and lacquered black. The front and back portions are connected by sliding tubes of nickeled brass and leather bellows. This affords an easy means of varying the camera extension and to fix it in any position with the aid of the wooden button at the side of the apparatus. When the extension has been thus clamped the picture can be focussed with the aid of a coarse-pitched screw, which is controlled by a button at the front of the apparatus. This device enables one to use lenses in standard mounts without the necessity of providing them with a rack or helix.

The lantern case is made of blued sheet metal. At the back and on either side it has large double-sided doors, which are opened and closed by fibre buttons. Either side door is fitted with a dark red window, through which the source of light can be watched. On the inside the lamp case is completely lined with asbestos sheeting, whereby the heating of the casing is reduced to a minimum.

The whole of the apparatus can be placed farther away and even removed entirely from the lantern for the purpose of ventilating the casing or for cleaning the condenser.

The condenser is of the usual type, being made up of two plano-convex lenses.

The slide carrier is held under the pressure of two springs to ensure it in a fixed position. The slide changer of wood with its to-and-fro motion accommodates quite a series of negative carriers of different sizes. A negative changing slide can be substituted for the slide carrier for the purpose of making enlargements.

Each apparatus is supplied with a reciprocating slide changer and two negative carriers. Additional negative slide carriers are subject to an additional charge.

The "Helle" 12 x 9-cm. lantern has a condenser 16 cm. (6 3/8 in.) in diameter and a greatest extension of 32 cm. (12 3/4 in.) measured from the lens panel to the negative. The 18 x 13-cm. lantern has a condenser of 23 cm. (9 1/4 in.) in diameter and a greatest extension of 45 cm. (18 in.).

Codeword

Price of the "Helle" 12 x 9-cm. apparatus with condenser and slide changer,
but without lens and without source of light.....

Hellenar

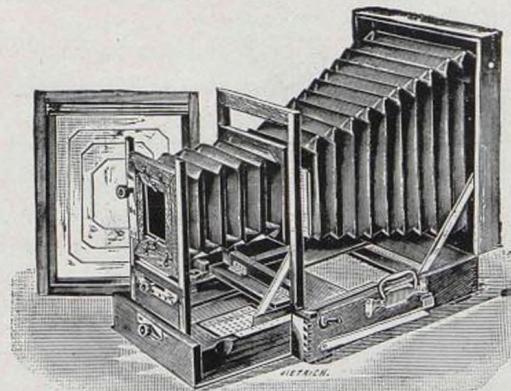
Price of the "Helle" 18 x 13-cm. apparatus with condenser and slide changer,
but without lens and without source of light.....

Helletop

EXTENSIBLE ENLARGING CAMERA



This enlarging camera is made of waxed walnut and has extra strong metal bindings. The apparatus is made up of three bodies, of which the back section takes the plate or paper, the middle section the lens with the plunge shutter, and the front section the negative. The three sections are capable of a great axial displacement and are mutually connected by two bellows with soft leather corners.



In this apparatus the vertical or horizontal motion of the negative carrier admits of any particular portion of the negative being enlarged. The negative carrier can be placed in an upright or transverse position to suit the style of the picture.

The front section is hinged and can be folded down. The enlarging section is then available for use as an ordinary camera with long extension.

The ground glass screen is movable and serves for focussing. The dark slide is provided with a sliding shutter and takes plates as well as printing papers. At the back of the lens the apparatus has an aluminium slide which serves as a shutter, and the lens panel is movable.

Every complete apparatus furnished with a lens is provided with two scales giving the enlarging ratios for the standard sizes.

In the table appended below (a) gives the extention of the ground glass screen, (b) the largest negative which can be enlarged, (c) the focus of the Krauss-Zeiss Protar lens Series V, F/18 with which the apparatus is equipped. The price quoted is for the complete apparatus with its lens.

	SIZE OF THE ENLARGING CHAMBER			
	12×24 cm.	24×30 cm.	30×40 cm.	40×50 cm.
Model No. I without rack				
Dimensions	24×31×9 cm.	30×37×10 cm.	37×47×11 cm.	—
Weight	7 3/4 lbs.	12 lbs.	16 1/2 lbs.	—
Codeword	Agramo	Agrados	Agrapa	—
Model No. II with two racks and travelling carriage with Archimedean focussing screw.				
Dimensions	24×31×10.5 cm.	30×37×11.5 cm.	37×47×12.5 cm.	48×58×14.5 cm.
Weight	10 lbs.	14 1/2 lbs.	18 3/4 lbs.	33 lbs.
Codeword	Agraltar	Agrassus	Agraffe	Agralette
Particulars of Models Nos. I and II				
(a) Length of extension...	60 cm.	72 cm.	100 cm.	150 cm.
(b) For negatives up to	9×12 —	11×15 —	13×18 —	18×24 —
(c) Focal length of lens.				
Protar F/18.....	8.5 —	11 —	11 —	18 —

PART III

BINOCULARS AND TELESCOPES



In the present catalogue we only propose to give an abridged survey of the various telescopic instruments made by us. A more detailed description of these instruments will be found in separate catalogues.

The entirely modern and highly perfected design of our instruments as well as the precision exercised in their manufacture and their superb finish have secured for them an enviable reputation. During the war our prism binoculars have given incontestable proof of their superior qualities, and in France our instruments were exclusively reserved for the use of the general staff, for the artillery and the aviation service. Our output in prism binoculars at present exceeds 125,000 instruments supplied to our private clientele and to the French Army as well as the Armies of Allies. We think we may fairly claim this to be the best proof of the quality and the established reputation of our products.

The prism binocular is now universally recognised as the only portable instrument which is adapted for serious observation from a distance and which combines the essential qualities of a large field, high magnification, and handiness.

By reason of these incontestable advantages the prism binoculars have gradually superseded the old draw binocular telescopes, and have taken their place by the side of the Galilean binoculars. It may be useful to emphasize in this connection that the prism binocular is, from its very nature a scientific instrument of precision and as such makes very exacting demands upon those engaged in its manufacture, so that none but perfectly made instruments are of any use. A prism binocular which is in the slightest degree defective in its construction or in the quality of its manufacture soon fatigues the eyes and yields worse images than a Galilean binocular of common quality. Hence where price enters rather predominantly into the question **it is better to choose a good Galilean glass than a prism binocular of inferior quality.**

Given instruments of the same optical type, the field of view varies very nearly inversely as the magnification. *Either quality can only be given its maximum value at the expense of the other.* In any instrument designed for a particular purpose the values of these two qualities require therefore to be brought into such relation that, a certain value having been attained for one quality in order to adapt the glass for a certain purpose, the other quality may still have a value which does not render the glass useless. This balance between the two leading qualities is adjusted in each class of our binoculars so as to adapt it for the particular purpose for which it is designed.

The light-transmitting quality varies inversely with the magnification, as does the size of the field of view, for an objective of a given diameter.

The Choice of a Binocular. To assist in the choice of a suitable glass the binoculars described in this catalogue may be grouped as follows, according to the various purposes for which their optical properties render them best suited : —

For **travel, excursions, racing, and use in the country in general** the glasses to be chosen from are the 6×24 mm., 7×24 mm., 8×24 mm., and 8×27 mm. binoculars.

Which of these four glasses is the one best suited to the user's requirements depends upon his particular purpose and his personal predilection.

For **hunting, use on board ship and night observations** we recommend either the 6×30 mm. or the 8×40 mm. binocular, especially in dull weather.

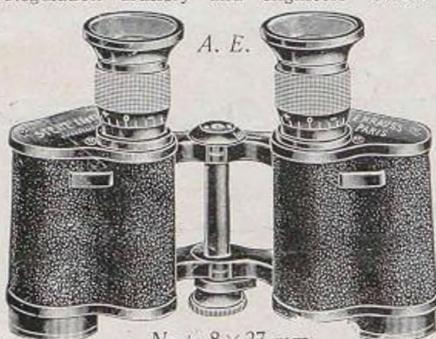
For **great distances** (at sea, on duty, or on mountains) we advocate the use of the, 12×30 mm., the 12×40 mm. or 16×40 mm. binocular.

To complete the available choice we have added a **theatre** glass of a very compact design, the field of view of which is three times larger than that of the ordinary opera glass of the old Galilean type.

KRAUSS PRISM BIMOCULARS WITH ENHANCED STEREOSCOPIC EFFECT

Field, Excursion

Regulation artillery and engineers' model



Nocto 8 × 27 mm.

Hunting, Marine.

Regulation model for marine and aviation



Nosic 6 × 30 mm.

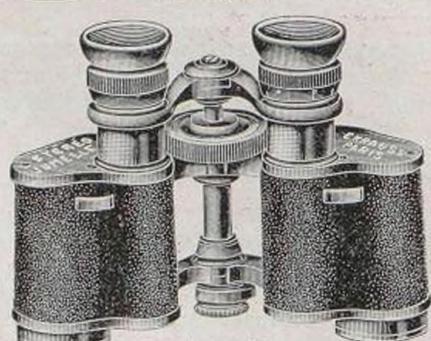
Long Distance

Marine and anti-aircraft model



Nuit-Neize
8,16 × 40 mm.

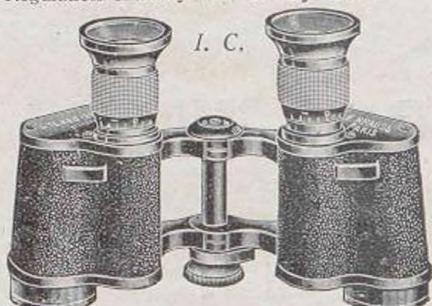
Field Excursions



Noctol 8 × 27 mm.

Racing, Field

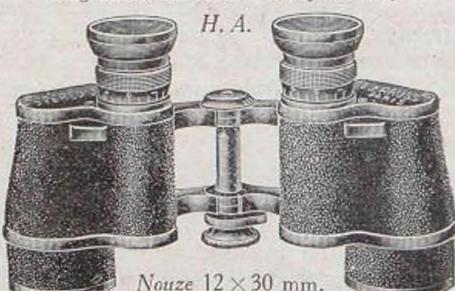
Regulation infantry and cavalry model



Noice-Noset-Novit 6 × 7 × 8 × 24 mm.

Mountain

Regulation model for heavy artillery



Nouze 12 × 30 mm.



Monocoto 8 × 27 mm.

Theatre



Teprim 3 × 13,5 mm.

Prices and Particulars of the Krauss Prism Binoculars with Enhanced Stereoscopic Effect.

The prices quoted below are for binoculars with cord, black or tan solid leather case and shoulder strap.

Magnification	Diameter of object glass	Field of view		Light transmitting capacity	Coefficient of enhanced relief	Dimensions of binocular		Weight of		Price	Codeword
		angular	in yards 1,000 yards			Height	Width	Binocular	Case		
	mm.	degrees	y.			cm.	cm.	grm.	grm.		
<i>(a) Binoculars with individually focussing eyepieces (without twin focussing wheel).</i>											
6 ×	24	7°4	130	16	1.75	10	15	470	450	Noice	
7 ×	24	7°10	124	12	1.75	10	15	470	450	Nosel	
8 ×	24	7°	120	9	1.75	9.5	15	470	450	Novit	
8 ×	27	6°7	116	12	1.75	11	15.5	570	500	Nocto	
6 ×	30	8°5	150	25	2	11	16	610	500	Nesic	
8.3 ×	40	6°3	113	23	2	16	17	800	500	Nuit	
12 ×	30	3°25	60	6.2	2	10	16	620	500	Nouze	
12 ×	30	4°	70	10.9	2	16	17	780	500	Nella	
16 ×	40	3°	53	6.2	2	16	17	790	500	Neize	
<i>(b) Binoculars with Twin Focussing Wheel.</i>											
(1) 3 ×	13.5	14°	243	20.25	—	6	9.5	200	50	Teprim	
8 ×	27	6°7	116	12	1.75	11	15.5	700	500	Noctol	
6 ×	30	8°5	150	25	2	11	16	740	550	Nosicol	

(I) In solid rigid case with folding mirror.

Prism Monoculars

Being the detached component members of prism binoculars

Magnification	6 ×	6 ×	7 ×	8 ×	8 ×	8 ×	12 ×	12 ×	16 ×
Diam. of obj. glass	24	30	24	24	27	40	30	40	40 mm.
Codeword	Monice	Monsic	Monoset	Monite	Monocto	Monuit	Monouze	Monella	Moneize

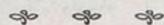
These Monoculars have all the optical qualities of our binoculars, but naturally they cannot produce any stereoscopic effect, neither can two monoculars subsequently be combined to form a binocular.

Accessories for the Krauss Prism Binoculars

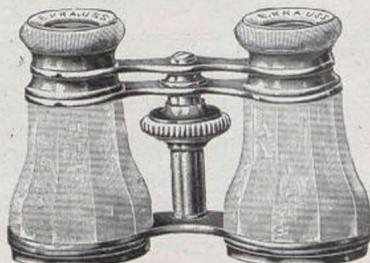
		Codeword
A. Rainguard, to protect the eyepieces from rain when the binocular is suspended from the neck.....		Parato
B. Yellow Glasses for viewing glaring objects.....		Colado
C. Clamp for attaching the binoculars to a photographic tripod.....		Pinco
D. Tripod stand, of waxed beechwood, very substantial.....		Trepado
E. Micrometer Plates	Our binoculars can be furnished with micrometers and double	
F. Range Finding Prisms	deflecting range finding attachments for military use, respecting	
	which we issue separate pamphlets.	

SUPERIOR THEATRE GLASSES

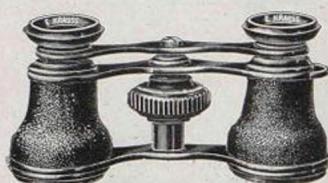
"Duchesse" and "Marquise" Models



No. 260. — 1 3/8 in. Duchesse Style



No. 274. — 1 3/8 in. Duchesse Style

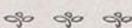


No. 280. — 1 in. Marquise Style

These glasses are manufactured with the utmost care and are furnished in two optical qualities, viz. *superior optical quality* and *extra-superior optical quality*. They are supplied in pliable morocco cases lined with satin and fitted with a snap lock and handle.

Style	No.	Description	DIAMETER OF OBJECT GLASS				
			11" = 25 mm. Codeword	13" = 29 mm. Codeword	15" = 34 mm. Codeword	17" = 38 mm. Codeword	19" = 43 mm. Codeword
Duchesse ...	260	Brass mounts, covered with morocco, stitched; slides, bridge-pieces, eyecups and rims lacquered black.....	Babil Baton	Babine Baum	Babord Batir	Bac Batac	Bachar Barque
Marquise ...	280						
Duchesse ...	274	Brass mounts, covered with white, goldfish coloured or black mother-of-pearl, gilt slides, gilt bridge-pieces, mother-of-pearl eyecups, and gilt rims...	Barbet Bellot	Barbon Bemol	Bard Bena		
Marquise ...	283						
Duchesse ...	262	Aluminium mounts, covered with stitched morocco leather, polished slides, bridge-pieces, eyecups and rims....	Bachot Bercer	Bacile Berg	Badaud Berad	Badige Berton	Badin Berou
Marquise ...	285						
Duchesse ...	269	Aluminium mounts, covered with white, goldfish coloured or black mother-of-pearl, polished slides, bridge pieces, eyecups and rims.....	Balcon Beren	Balim Berpir	Balzan Beramo		
Marquise ...	286						
		Additional cost of extra optical quality.....	Ri...	Ri...	Ri...	Ri...	Ri...

ALL-ROUND BINOCULARS



Krauss "Lilliput" Pocket Binoculars, constructed in accordance with data furnished by the Artillery Practice Commission of Bourges.

No. 305. Marine Pattern long draws, superior optical quality, with buckskin case and cord.

D. 23 mm., M. 3 \times ; LF 100/1000.

Weight of binocular with copper bodies, incl. case : 7 oz.

Krauss "Argus" Binocular with extra bright field, as supplied in over 400,000 specimens to the French army, constabulary, and customs.

No. 357. Special Pattern, optically superior quality, in pliable case with shoulder strap.

D 43 mm., M. 3.3 \times ; LF 113/1000;

Weight of the binocular with copper bodies, incl. case 21 oz.

Krauss "Diana" Hunting Glasses.

No. 360. Special pattern, tubular lens mount forming a sunshade, superior optical quality, buckskin case with snap lock and cord.

D. 29 mm., M. 3.2 \times , LF 120/1000;

Weight of binocular with copper bodies, incl. case 8 oz.

Krauss "Cavalerie" Field Glasses

No. 296. Marine Pattern long draws, solid leather case with shoulder strap and cord.

D. 29 mm., M. 3.5 \times , LF 86/1000;

Weight of binocular with copper bodies, incl. case : 13 1/2 oz.

Copper mounts, covered with morocco leather; black enamelled fittings

Code-word
Bigot

Polished aluminium body, covered with morocco leather

Code-word
Blem

Butin

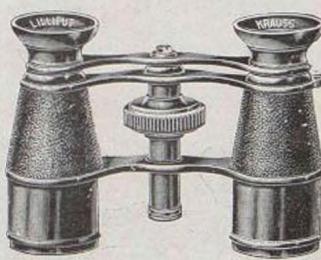
Butinal

Cadran

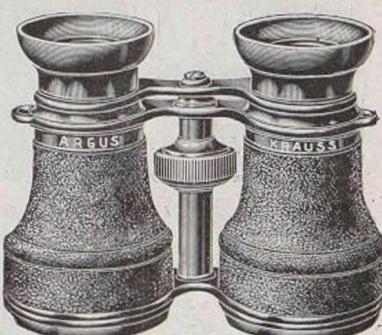
Cagot

Beton

Bien



"Lilliput" Binocular



"Argus" Binocular



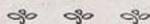
"Diana" Binocular



"Cavalerie" Binocular

Explanation D = Diameter of object glass,
M. = Magnification,
LF. = Linear field of view in yards at a distance of 1000 yards.

FIELD GLASSES



"Ordnance" Binocular



"Cosmos" Binocular

Krauss "Ordnance" Field Glasses, over 100,000 specimens of which have been supplied to the Russian army

No. 315. Marine Pattern long draws with sunshades, metal eyecups, in double sewn leather case, belt strap, shoulder strap, with swivel, D. 34 mm., superior optical quality: M. 4×; LF 80/1000.....

Extra superior optical quality, M. 4.6×; LF 70/1000.....

Copper Bodies	Aluminum Bodies
Code-word	Code-word
Bluet	Bout
Ribluet	Ribout
	Comédie

Krauss "Cosmos" Military Binocular.

No. 320. Conical Pattern, body and bridge pieces cast in one, of a high degree of rigidity. The bodies are covered with hardened and inalterable vulcanite, and the bridge pieces are hinged. The glasses are focussed by means of a central milled head. The eyecups are of a special flat-bottomed pattern. The tubular barrels are extended to form sunshades. The case is of sewn leather and fitted with belt strap and flat shoulder strap with two buttons. D. 43 mm.; M. 4×; LF 90/1000.....

The optical part of this binocular is made by our perfected methods and gives a clear and sharp image without iridescence. In order to take full advantage of the improved optical quality it was absolutely essential to provide the binocular with means for adjusting it to the distance between the eyes and to their ophthalmic anomalies. We have adopted for this purpose two well tried devices, viz. the hinge and independently focussing eyepieces, such as are used in our prism binoculars.

The "Gallus" Binocular is an excellent instrument for tourists, for hunting, racing, and can be used at night as well as in the day time. It is the binocular of the non-commissioned infantry or cavalry officer. It is covered with a species of vulcanite which does not perish or become detached. We make two models, respectively magnifying 5× and 6×, both having object glasses 39 mm. in diameter, and both are optical instruments of precision.



"Gallus" Binocular

Explanation ^a D. = Diameter of the object glass,

M. = Magnification,

LF. = Linear field in yards at a distance of 1000 yards.

Code-word

Gallice

Gallum

FIELD GLASSES

Krauss "Artillery" Field Glass, for rapid focussing. No. 323. Marine pattern long draws with tube slides affording protection from rain and direct sunlight. Metal eye cups, for high magnifications. In double sewn solid leather case with belt strap and sling with swivel. This model is much appreciated by reason of its automatic focussing device. D. 38 mm.

Sup. opt. qual. :

M. 4.5×; LF. 75/1000.....

Extra sup. opt. qual. :

M. 5.5×; LF. 60/1000...

Krauss "Federal" Field Glass for rapid focussing. No. 321. Conical pattern, with extended tube ends forming sunshades and metal eyecups; giving high magnifications; in double-sewn solid leather case with belt strap and sling with swivel. D. 43 mm.

Sup. opt. quality :

M. 5.5×; LF. 65/1000....

Extra sup. opt. quality :

M. 6.5×; LF. 50/1000....

D. 38 mm. Sup. opt. quality :

M. 4×; LF. 80/1000.....

Extra sup. opt. qual. :

M. 5×; LF. 65/1000.....

Krauss "Invincible" Battery Glass.

No. I. High Model, for high magnifications.

No. II. Low Model, for a large field of view.

Marine pattern with tube slide extensions affording protection from rain and direct sunlight; with metal eye cups; in double sewn solid leather case with belt strap with two swivels.

No. I. High Model.
D. 43 mm. No. 330.

Sup. opt. quality :

M. 4×; LF. 75/1000.....

Extra sup. opt. quality :

M. 5×; LF. 70/1000.....

No. I. High Model.
D. 47 mm.; No. 334.

Sup. opt. quality :

M. 5×; LF. 60/1000.....

Extra sup. opt. quality :

M. 6×; LF. 50/1000....

No. II. Low Model.

D. 47 mm. No. 336.

Sup. opt. quality :

M. 4.5×; LF. 80/1000....

Extra sup. opt. quality :

M. 5×; LF. 75/1000....

Brass bodies covered with morocco, black enamelled fittings	Aluminium bodies covered with morocco; polished fittings
---	--

Code-word	Code-word
-----------	-----------

Bras	Brin
------	------

Ribras	Ribrin
--------	--------

Brand	Branor
-------	--------

Ribrand	Ribrarmor
---------	-----------

Bramer	Branel
--------	--------

Ribramer	Ribranel
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"Artillery" Field Glass



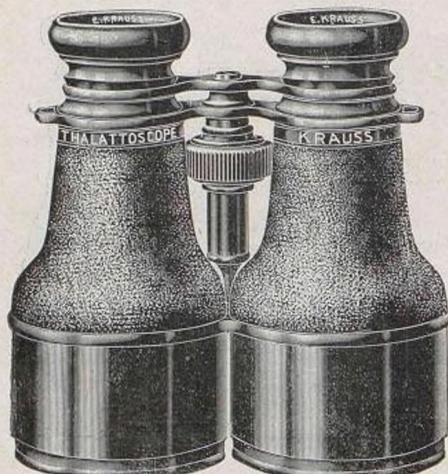
"Federal" Field Glass



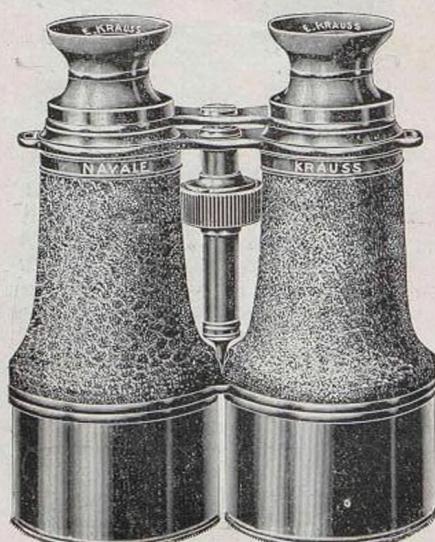
"Invincible" Field Glass

Explanation * D. = Diameter of object glass; M. = Magnification,
LF. = Linear field in yards at a distance of 1000 yards.

MARINE GLASSES



"Thalattoscope" Binocular Low Model



"Naval" Binocular, High Model



Krauss "Pilot" Binocular

Explanation: D. = Diameter of the object glass; M. = Magnification.
LF. = Linear field in yards at a distance of 1000 yards.

Krauss "Thalattoscope" Binocular.

No. I. High Model, for high magnifications:

No. II. Low Model for a large field of view.

Marine pattern with extensible tube slides affording protection from rain and direct sunlight; curved bridge pieces with eyelets for shoulder slings; metal eyecups; in double sewn solid leather case, with belt strap and sling with two swivels.

No. 345. High Model.

D. 57 mm. Sup. opt. quality :
M. 5× ; LF. 70/1000.....

Extra sup. opt. quality :

M. 5.5× ; LF. 65/1000...

No. 351. Low Model.

D. 57 mm. Sup. opt. quality :
M. 4× ; LF. 85/1000....

Extra sup. opt. quality :

M. 4.6× ; LF. 80/1000....

Brass bodies covered with morocco, black enamelled fittings

Aluminium bodies covered with morocco; polished fittings

Brair Bruit

Ribrair Ribruit

Bufet Buglos

Ribufet Ribuglos

Krauss "Naval" Binocular

No. I. High Model, for high magnifications.

No. II. Low Model, for a large field of view.

Aluminium mount, black enamelled, metal eyecups, marine pattern with tube slide affording protection from rain and direct sunlight, bridge pieces with eyelets for sling, supplied in double sewn solid leather case with belt strap and sling with two swivel fasteners.

No. 350. High Model.

D. 59 mm. Sup. opt. quality :
M. 6× ; LF. 75/1000.....

Extra sup. opt. quality :

M. 6.5× ; LF. 70/1000....

No. 354. Low Model.

D. 59 mm. Sup. opt. quality :
M. 3.6× ; LF. 105/1000....

Extra sup. opt. quality :

M. 3.7× ; LF. 100/1000..

Buch

Ribuch

Busar

Ribusar

Krauss "Pilot" Binocular.

No. 355. Low Model, with metal eyecups, tubular extended lens mounts forming sunshades, in stitched solid leather case with belt strap. D. 54 mm.

Sup. opt. quality :

M. 3× ; LF. 120/1000.....

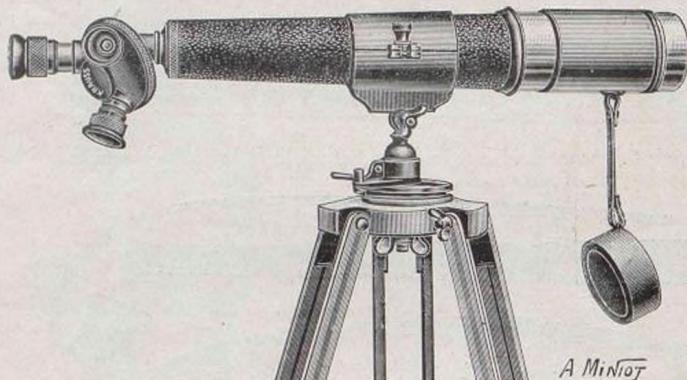
Extra sup. opt. quality :

M. 3.2× ; LF. 115/1000..

Pilot Pilotal

Ripilot Ripilotal

KRAUSS MONOCULAR PRISM TELESCOPE



with three eyepieces on a revolving changer fitted to the prism casing, by means of which the magnification, the extent of the field of view, and the brightness can be adapted to the observational requirements.

D. 75 mm.; M. 15 \times , 23 \times and 30 \times ; LF. 50/1000, 36/1000, 27/1000.

Monocular Prism Telescope with three magnifications, with leather case.....

Ditto, with one magnification.....

Tripod Stand F affording a means of moving the telescope in azimuth and altitude

Codeword

Trilob

Mobil

Pif

KRAUSS PRISM BINOCULAR TELESCOPES

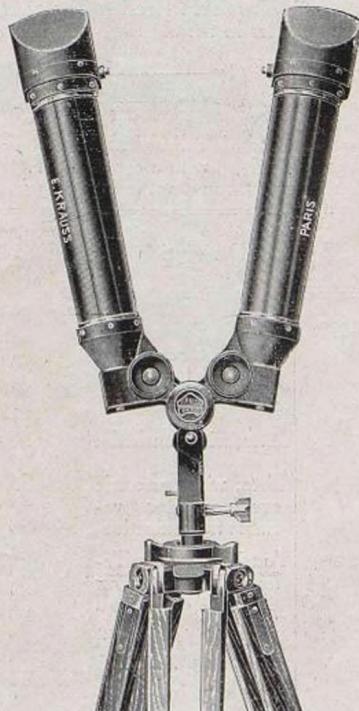
In instruments designed for observations at a distance stereoscopic vision is now fully recognised to be of immense advantage. It is obtained by placing the objectives farther apart than the eyepieces. Our binocular prism telescopes, in which the objectives are separated by a distance of 70 cm. (28 inches), when extended into their horizontal position, enable one to distinguish differences of depth with great precision and to see objects which are not disclosed by a monocular instrument or by a prism binocular of the ordinary type.

When mounted on a stand, the instrument can be swung into any position relatively to the hinge connecting the two telescopes and the vertical axis of the combined telescopes. For the later purpose the stockhead is provided with a tangent screw. The two telescopes can be turned about the hinge into a horizontal position on a level with the eyes of the observer. In this position the stereoscopic effect reaches its greatest value. On the other hand, the two telescopes may be turned in scissor fashion vertically up above the head of the observer, in which case the stereoscopic effect has its least value, but in this position of the telescope arms the observer can conceal himself behind an obstacle and observe from behind the shelter so afforded, since the objectives alone reach above the obstacle.

The two eyepieces have movable eyecups with dipter scales, by means of which they may be adjusted to suit the ophthalmic anomalies of the eyes.

Particulars

Magnification ...	12 \times .	Angular field of view	40°
Diameter of the objectives	51 mm.	Linear field of view in yds. per 1000 yds.	67
Diameter of the exit pupil....	4.25 mm.	Specific relief effect.	11
Light-transmitting capacity	18	Total relief effect..	132
		Weight, excl. of case.	11 lbs.



Codeword

Cisob

Pif

The Binocular Prism Telescope supplied in a leather case (excl. of tripod stand).....

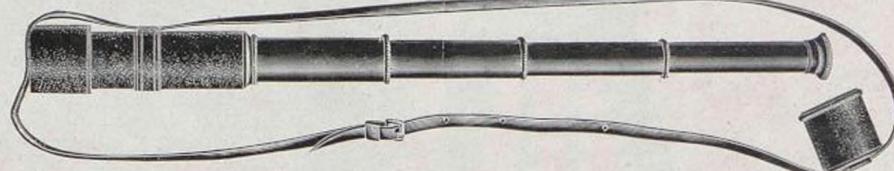
Tripod Stand, for shear-jointed binocular telescope, in canvas case.....

HAND TELESCOPES

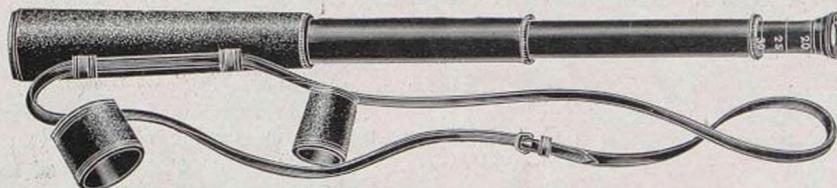
No 462 463 467. — **Achromatic Hand Telescopes**, with three draws, in polished brass, body covered with stitched leather.



No. 470 471. **Tourist's Hand Telescopes**, with four draws, in oxydised brass, body covered with morocco, end caps to cover the object glasses and eyepieces, the whole then forming a sling case.



No. 474. **Tapering Military Hand Telescope** with variable magnification.



This telescope has a tapering body covered with morocco, sewn flat down, with end caps and shoulder strap of dull leather. **Pancretic eyepiece** with small graduated draw for varying the magnification at pleasure. The telescope has two draws, in blue oxydised brass.

No 483. **Marine and Military High-grade Hand Telescope**. This model has been used with great success in the Russian, Japanese and Argentinian navies and armies.



The body is cylindrical; it has one draw and is covered with stitched morocco leather. The object glass is provided with a cap and the eyepiece is fitted with a pivoted shutter. This telescope is made of nickel-silver throughout to guard against corrosion by sea air.

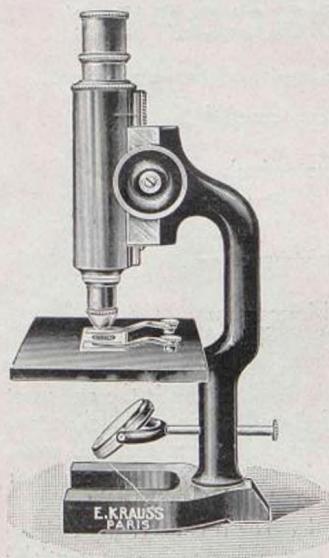
No	Description	Diameter of the object glass	Magni- fication	LENGTH		Codeword
				Closed	Extended	
462.	Achromatic Hand Te- lescope, three draws, polished brass, wi- thout sunshade....	31	15	17	44	Lacto
		36	20	22	60	Lada
		43	25	25	75	Lafu
		31	15	17	44	Relacto
463.	Ditto, with sunshade.	36	20	22	60	Relada
		43	25	25	75	Relafu
467.	Ditto, with pancreatic eyepiece (for va- riable magnification)	36	25 to 40	23	60	Palada
		43	30 to 50	25	80	Palafu
		50	35 to 60	26	95	Palaga
		31	15	17	44	Latour
470.	Tourist's Hand Te- lescope with four draws, oxydised brass	36	20	19	55	Latas
		43	25	21	70	Latef
		50	30	25	85	Latog
		56	35	29	90	Laturn
471.	Ditto, with pancreatic eyepiece (with va- riable magnification)	36	20 to 30	20	55	Palatas
		43	25 to 37	22	70	Paladef
		50	39 to 40	26	85	Palatog
		56	35 to 50	28	91	Palatum
474.	Military Hand Te- lescope pancreatic, with two draws....	54	17 to 27	32	82	Military
483.	Marine Hand Te- lescope " Cadet " Model, of nickel-sil- ver, with one draw.	32	15	42	57	Cadet

PART IV

MICROSCOPES AND ACCESSORIES

MICROSCOPE FOR TECHNICAL PURPOSES

For the examination of paper, wool and silk, etc.; for examining dust and sediments; for testing meat and foodstuffs in general.



Stand VIII

Stand VIII

With long radial overhang of the tube, the upper body being shaped to serve as a handle. The coarse movement is effected by rack and pinion. The stage is rectangular, measuring 100×90 mm. It is fitted with a wheel diaphragm and a concave mirror. The objective is a separable combination and, with eyepiece No. III, gives magnifications 30×, 100× and 230×. The instrument is supplied in a wooden case.

Codeword *Dagelomis.*

STUDENTS' MICROSCOPES

Stand VII⁵.

The coarse movement is by rack and pinion, the slow movement is produced by a lever actuated by a micrometer screw.

The upper body has been given a bold sweep, which renders it incidentally convenient as a handle. The design is novel in several respects. The instrument is provided with a plane and a concave mirror capable of giving oblique illumination. Circular stage of a diameter of 105 mm.

This instrument is specially recommended for the study of animal and vegetable anatomy and histology. It is eminently well adapted for the purposes of students of pharmacology and medicine.

The equipment includes two achromatic objectives Nos. 3 and 7⁵, a double revolving nosepiece, two Huygens eyepieces Nos. II and IV (Magnifications 40 to 650×). The whole supplied in a case. Codeword : *Septimo.*



Stand VII

Stand VII⁶

Same model, but with Abbe condenser B¹ (num. ap. 1.20) with iris-diaphragm.

The equipment includes : Three achromatic objectives Nos. 3, 7⁵, and 18⁵ (1/12" oil-immersion), triple revolving nosepiece, two eyepieces Nos. II and IV (Magnifications 40 to 1200×). The whole supplied in a wooden case.

Codeword *Septulo.*

Students' Stand VI⁶

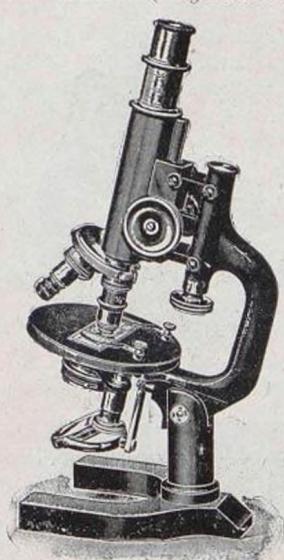
This stand can be inclined at an angle of 45°. It is focussed by rack and pinion and micrometer screw. The fixed circular stage has a diameter of 105 mm, and is fitted with a wheel diaphragm. The equipment includes two achromatic objectives Nos. 3 and 7⁵, a double nosepiece, two Huygens eyepieces Nos. II and IV, and a wooden case (Magnifications 40 to 650×).

Codeword *Senugarol.*

Stand VI⁷

Same model, but with Abbe condenser B¹ (num. ap. 1.20), with side screw and iris-diaphragm. The equipment includes three achromatic objectives Nos. 3, 7⁵ and 18⁵ (1/12" oil-immersion), triple revolving nosepiece, two Huygens eyepieces Nos. II and IV, and a wooden case (Magnifications 40 to 1200×).

Codeword : *Senora.*



Stand VI

LABORATORY MICROSCOPES

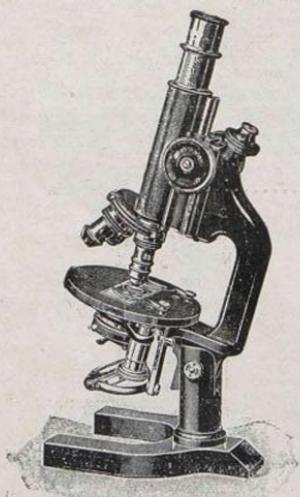
For laboratory work we recommend in preference the following two optical equipments

I. The so-called " Pasteur - Koch " Combination, consisting of —
 a revolving nosepiece for three objectives,
 three achromatic objectives Nos. 3, 7^a and 18^b (1/12" oil-immersion),
 two Huygens eyepieces Nos. II and IV. Magnifications 40 to 1200.
 Codeword *Combapko*

II. The so-called " Abbe " Combination, consisting of —
 a revolving nosepiece for four objectives,
 four apochromatic objectives of foc. l. : 16, 8, 4, 2 mm. (oil-immersion num. ap. l. 30),
 six compensating eyepieces Nos. 2, 4, 6 (with micrometer), 8, 12, and 18.
 (Magnifications 30 to 3000 ×). Codeword *Combabbe*

The " Pasteur-Koch " Combination is the one most generally to be recommended for bacteriological laboratory research, for practical medical and pharmaceutical work, etc. It is also well adapted for technical purposes, for use in breweries, for the study of ferments, etc. For certain very intricate investigations it is necessary to have recourse to the " Abbe " Combination, which is essentially made up of apochromatic objectives and compensating eyepieces.

Below we append an abridged summary of the different microscope stands which may be equipped with one or the other of the above optical combinations. We need scarcely say that we shall be pleased to advise on the selection of other combinations better adapted for special requirements. For fuller information regarding microscopes we would refer our readers to our Catalogue of Microscopes.



Stand C⁵

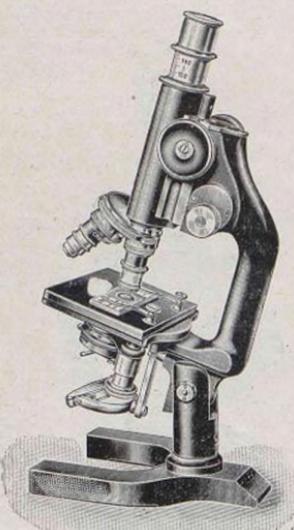
Microscopes for Bacteriological Investigations.

Stand C⁵ (small model), inclinable, coarse rack and pinion motion, micrometer screw slow motion, circular revolving stage 105 mm. in diameter capable of being centred by means of two screws, Abbe condenser B¹ (n. ap. 1.20) with side screw and iris-diaphragm. With the Pasteur-Koch optical equipment, in case.

Codeword *Cedars*.

Stand C¹, similar to the preceding microscope but with fixed circular stage, Abbe condenser B² (n. ap. 1.20) without side screw. With the Pasteur-Koch optical equipment. Codeword *Cegamis*.

Stand B II² (medium sized), inclinable, coarse rack and pinion motion, slow motion by a lateral micrometer screw, circular revolving stage capable of being centred by means of two screws, Abbe condenser B¹ (n. ap. 1.20) with side screw and iris-diaphragm. With Pasteur-Koch optical equipment and case. Codeword *Bussarol*



Stand B II²

Stand B II³. Similar to the preceding, but with a square stage with vulcanite lining. With Pasteur-Koch optical equipment.

Codeword..... *Butora.*

Stand B II⁴. Similar stand, but with fixed circular stage. Same optical equipment.

Codeword..... *Butosina.*

Stand B I¹ (Large Model), inclinable, rack and pinion coarse motion, slow motion by means of a lateral micrometer screw bearing a drum divided into 100 parts (each division reading 0.002 mm.). Its construction ensures the safety of the front lens of the objective. The revolving circular stage has a diameter of 110 mm. and can be centred by means of two screws. Large Abbe condenser A¹⁻² (n. ap. 1. 20) with iris-diaphragm with lateral motion, and cylinder diaphragm. With the Pasteur-Koch optical equipment, in case.

Codeword..... *Besana.*

Stand B I². Same model, but with Abbe condenser A¹⁻³, with additional domed iris-diaphragm, swing-out condenser. With Pasteur-Koch optical equipment.

Codeword..... *Besoni.*

With Abbe optical equipment.

Codeword..... *Besabre.*

Stand A I¹, large universal model with large tube of a

diameter of 50 mm., specially adapted for photo-micrography. Large circular revolving and centring stage 120 mm. in diameter. Transverse lateral micrometer screw with drum divided into 100 parts (1 division = 0.002 mm.). Large Abbe condenser A¹⁻³ with iris-diaphragm capable of lateral displacement, hinged condenser, additional domed iris-diaphragm. With "Abbe" optical equipment, in case.

Codeword..... *Albacabre.*

With "Pasteur-Koch" optical equipment.

Codeword..... *Albalong.*

Large Monocular Stereoscopic Stand S. A. I.

A new design, similar in size and detail to Stand A. I., to which, however, has been added a stereoscopic arrangement which admits of viewing a preparation under all magnifications either with a single eyepiece (the image then being flat) or with two eyepieces (the image then appearing in relief). The transition from either mode of observation to the other can be made instantly by means of an ingenious device and without the necessity of removing the tube in order to replace it by another. The stereoscopic device can be withdrawn and employed by itself as a stereoscopic magnifier or on another microscope, thus transforming it into a binocular microscope. This attachment is supplied with a pair of eyepieces No. IV. With Abbe optical equipment, including a stereo pair of No. 12 compensating eyepieces.

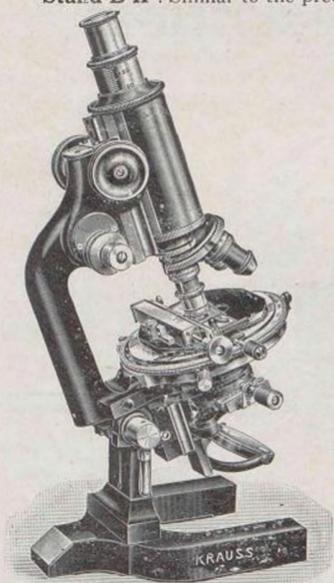
Codeword..... *Stealable.*

With Pasteur-Koch optical equipment.

Codeword..... *Stealpako.*

Mechanical stage :

No. 100 for Stands A I and S A I..... *Plataram.*
No. 101a — B I, B II, C..... *Platast.*
No. 105 for all other stands..... *Platus.*

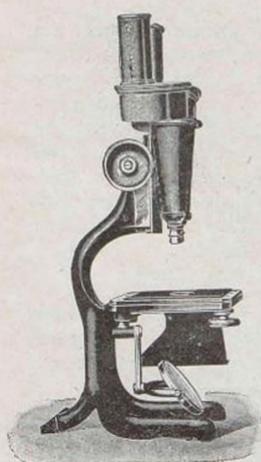
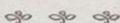


Stand S A I

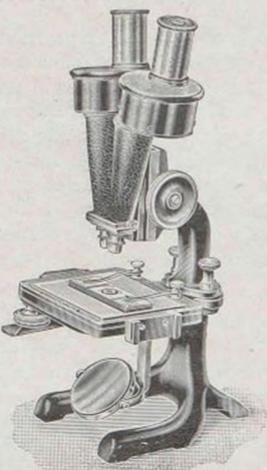


Stand A I

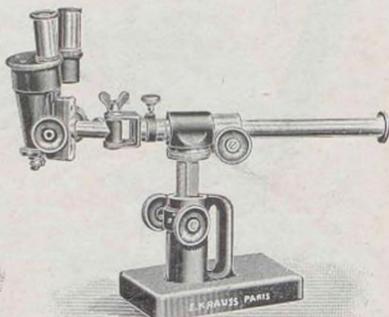
STEREO-BINOCULAR MICROSCOPES



L 150



L 155



L 175

L 150. Greenough Binocular Microscope, consisting of two microscope bodies having their axes mutually inclined and fitted with a Porro prism combination. This, in conjunction with two objectives and two paired eyepieces, produces a very pronounced stereoscopic effect. The two prism casings can be set to the distance between the eyes within a range of 55 to 77 mm.

Codeword *Sterear.*

L 155. Same Model, the upper portion being, however, so arranged that it can be removed from the foot in order to be placed directly upon large objects to be examined (Dermatoscope).

Codeword *Sterearar.*

L 175. Aquarium Microscope, consisting of the upper portion of a Greenough microscope which is mounted upon a heavy base fitted with devices by which it can be freely passed over a large surface so that objects of any shape or size can be viewed from all sides.

Codeword *Stereacar.*

Suitable Optical Equipments for the Binocular Microscopes L 150-155 and 175.

I. For Aquarium Work :

1 pair of objectives, $F = 40$ mm.

1 pair of eyepieces Nos. II, Magnification $27 \times$. Codeword *Algaba.*

II. For Dissection:

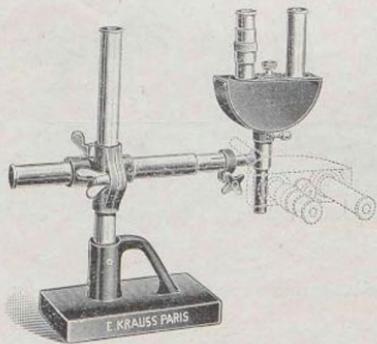
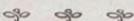
a) Two pairs of objectives 30 and 50 mm. focus,

Two pairs of eyepieces Nos. II and IV. Magnifications $18 \times 27 \times 38 \times 60 \times$.
Codeword *Algira.*

b) Two pairs of objectives 40 and 60 mm. focus,

Two pairs of eyepieces Nos. III and V. Magnifications $10 \times 19 \times 35 \times 62 \times$.
Codeword *Algusa.*

STEREOSCOPIC ATTACHMENT



This device instantly transforms an ordinary microscope into a single-objective binocular by simply removing the eyepiece in use and replacing it by this attachment. The instrument is supplied together with a pair of eyepieces No. IV, in case.

No. 208. Codeword : *Sterad*.

This device can be used as a stereoscopic lens magnifying $12 \times$ mounted on a stand with motions in all directions (see annexed figure).

Movable Stand No. 209. Codeword : *Sterunt*.

Ultra Microscopy

The dark-ground condenser furnishes an excellent illumination, given, of course, a sufficiently intense source of light, and brings into view bacteria, which may thus be studied in all their movements. The ordinary diaphragms of the immersion lenses as well as those of the high-power dry lenses require to be replaced by special conical stops.

Our flat condensers F, F^b and F^c are adaptable to any microscope stand. The conical condenser F^a is designed for use with our instruments only.

Flat Condensers :

No. 701. **Model F.** Two arms fitted with pressure screws admit of the condenser being accurately centred. In case.

Codeword : *Ultrabidal*.

No. 703. **Model F^b.** A circular wheel diaphragm contains four stops of different diameters, by means of which the intensity of the illumination can be varied to suit the objectives employed, a converging lens for illumination transparent objects, and a ground glass. A spring catch arrests the wheel in each of its six positions.

With the aid of this condenser arrangement a rapid transition can be made from observation on a dark ground to that with transmitted light. The apparatus is supplied in a case.

Codeword : *Ultrabino*.

No. 713. **Universal Model F^b.** identical with No. 703, but combined with a mechanical stage with ranges of motion of 30 mm. and 50 mm.

Codeword : *Ultrabetit*.

No. 704. **Model F^c.** Same as F^b, but with iris-diaphragm for observation with transmitted light.

Codeword : *Ultrabogar*.

No. 702. **Conical Condenser, Model F^a.** fitting the sliding sleeve of the Abbe condenser, in case.

Codeword : *Ultrabeta*.

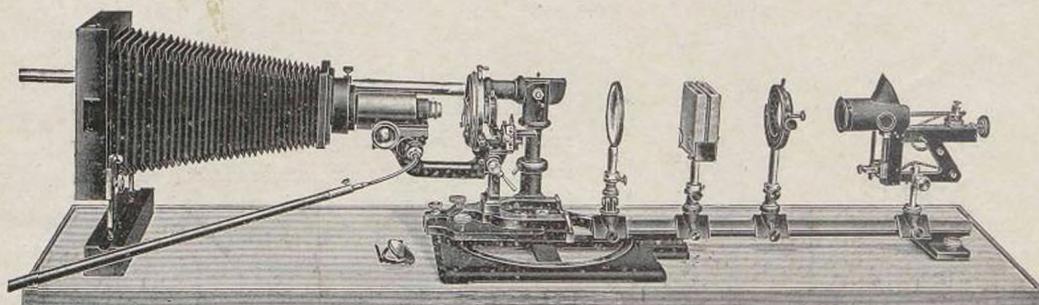
No. 716. **Electric " Starr " Lamp** with converging lens, with switch, designed for half-watt lamps.

Codeword : *Starr*.

No. 723. **" Lilliput " Arc Lamp**, with carbons set at right angles to one another, with hand feed, operating at 50 volts and 4 to 5 ampères.

Codeword : *Ultramen*.

PHOTO-MICROGRAPHIC APPARATUS



I. Horizontal and Vertical Photo-micrographic apparatus.

F. 386. Photo-micrographic Apparatus which can be used both in the horizontal and vertical position; slide bar 75 cm. (30 in.) long; ground and plain glass focussing screens; 18×13-cm. (7 1/2×5-in.) dark slides with 12×9-cm. (4 1/4×3 1/4 in.) plate carriers; Hooke's key for focussing from a distance.

Codeword

Connecting sleeve F 384 fitting Microscope AI.....	Vertusi.
or Connecting sleeve F 383 fitting the usual forms of microscopes.....	Corona.
Optical bench F 387, for the accommodation of all the accessories, which thus remain permanently centred with respect to the optic axis.....	Couro.
Converging lens with iris-diaphragm F 391 ^a on saddle stand, for use with micro objectives and eyepieces.....	Optiban
Two Troughs for coloured filter liquids, on saddle stand, F 394.....	Beliris.
Condenser F 397 for "dry" lenses (Nos. 0 to 3).....	Cuve.
Periscopic Mirror F 387 ^a for use with the vertical camera.....	Brilli.
Focussing Lens F 396 with movable arm.....	Mirperi.
Equipment No. I, complete.....	Enstellar.

Vertusi.
Corona.
Couro.
Optiban
Beliris.
Cuve.
Brilli.
Mirperi.
Enstellar.
Micrun.

II. Vertical Photo-micrographic Apparatus.

F. 385. Photo-micrographic Camera, slide bar 75 cm. (30 inches) long, mounted upon a very rigid cast iron base; with a double dark slide for 18×13 cm. and 12×9 cm. plates; a ground glass and a plain glass focussing screen

Codeword
Verticar.
Corona.
Beliris.
Brilli
Micrude

Metal connecting sleeve F 383.....	Verticar.
or Metal Connecting sleeve F 384.....	Corona.
Converging Lens with iris-diaphragm F 391 ^a , on saddle stand.....	Beliris.
Long-focus Condenser F 397.....	Brilli

Equipment No II, complete

Optional Accessories :

Mirror for observation at a distance from the ground glass focussing screen F 387 ^b	<i>Mirdep.</i>
Extra double dark slide F 391 for 18×13-cm. and 12×9-cm. plates	<i>Cassette.</i>
Condenser F 397	<i>Brillisi.</i>
Converging Lens F 392 ^a on hinged saddle stand.....	<i>Lentaste.</i>
Micro Planar F/4.5, f = 20 mm.....	<i>Pal.</i>
— F/4.5, f = 35 mm.....	<i>Paladin.</i>
Micro-Tessar F/4.5, f = 50 mm.....	<i>Therlet.</i>
— F/4.5, f = 75 mm.....	<i>These.</i>
Lilliput Arc Lamp No. 723 ^a with hand feed, with two Hooke's keys.....	<i>Ultramenes.</i>
Resistance (please state voltage).....	<i>Rheostat.</i>
No. 727 for 110 volts.	
No. 728 for 220 volts.	

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