

CARL ZEISS, JENA

Optische Werkstaette.

Photographic Objectives.

~

Palmos Hand Cameras.

November, 1902.

E. B. Meyrowitz
Optician,

Sole Agent for
Carl Zeiss Photo Lenses
and Agent for Palmos Cameras,

104 East 23d Street, New York.



NEW YORK,
104 EAST 23D ST
176 WEST 4TH ST
180 MADISON AVE.

MINNEAPOLIS,
108 NICOLLET AVE.

ST. PAUL,
120 ST. PETER ST.

MADE IN GERMANY.

This reprint of the 1902 Photographic Lenses catalog by the firm of Carl Zeiss is presented by The Zeiss Historica Society of America in conjunction with our stated objective to study and exchange information on the significant products and innovations of that firm.

This catalog shows the first version of the Tessar lens in its F6.3 form, the Protar lenses which had evolved from the Zeiss Anastigmats, as well as, the Planar, Unar and Protar C & D lens sets. It also shows the Palmos cameras which were made at the Carl Zeiss Works in Jena prior to the founding of the International Camera Aktiengesellschaft (Ica) located in Dresden in 1909.

Zeiss had long since been manufacturing its own lenses and they were imported by a New York Optical firm, E.B. Meyrowitz. In addition, their formulas were also being manufactured under license by Bausch and Lomb. Kodak was manufacturing under license a Zeiss Kodak Anastigmat for its own cameras. This catalog also shows a number of shutters and accessories from Valentin Linhof and Bausch and Lomb among others.

Address inquiries to: The Zeiss Historica Society, P.O. Box 631, Clifton, New Jersey 07012, U.S.A.

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CARL ZEISS, JENA

Optische Werkstaette

Telegraphic Address: Zeisswerk Jena.

Berlin NW 7, Dorotheenstrasse 29^{II}. London W, 29 Margaret Street, Regent Street.

Frankfurt a. M., Kaiserstrasse 16. Wien IX³, Ferstelgasse 1, Ecke Maximilianplatz.

Hamburg, Rathausmarkt 8.

Photographic Department.

Photographic Objectives.



Palmos Hand Cameras.



November, 1902.

CARL ZEISS, Optische Werkstaette, JENA.

Our prices are strictly net cash, delivered duty paid **New York**. Payment, which must be prompt and without any deduction whatever, may be made in Cash, or by cheque, or by short negotiable English, French or German Bills of Exchange.

As regards both payment and delivery, all transactions are considered completed on consignment of goods in Jena.

Sale either direct or through the agency of any recognised dealer in photographic supplies.

Branch Establishments for the purpose of sale and minor repairs:

Carl Zeiss, **Berlin NW**, Dorotheenstrasse 29 II,

Carl Zeiss, **Frankfort o. M.**, Kaiserstrasse 16,

Carl Zeiss, **Vienna IX, 3**, Ferstelgasse 1, Corner of Maximilian Place,

Carl Zeiss, **London W**, 29 Margaret Street, Regent Street,

Carl Zeiss, **Hamburg**, Rathausmarkt 8.

The following firms have acquired the right of making any of the photographic objectives covered by our patents:

Bausch & Lomb Optical Co., Rochester, N. Y., U. S. A.,
and New York City, U. S. A.;

F. Koristka, Milan, Via G. Revere, No. 2;

E. Krauss & Cie., Paris, 21 et 23, Rue Albouy;

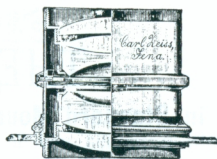
Ross Ltd., London W. 111, New Bond Street.

These firms are supplied by us with all the data applied in our own manufacture (curvatures, thicknesses and distances of lenses, and description of glasses used), and are thus placed in a position enabling them to produce ZEISS-Objectives of exactly the same quality as made by ourselves.

Series I^a.

The Planar

in Standard Mount with Iris-Diaphragm.



The Planar, as per list below, is produced with a relative aperture of from 1:3.6 to 1:5. The available angle of view varies with the aperture and extends from 62° to 72°.

The smaller sizes are specially suitable for the preparation of **animated pictures**, for **enlargements**, minute **reductions**, and also for **projections**; the larger sizes for all classes of **reproductions** (**Autotype** and **Photo-gravure**) as well as for individual portraits and for groups containing one or two rows.

Series and No.	The Planar in Standard Mount		Diameter of Lenses		Equivalent Focus		Largest relative aperture	Most suitable Size of Plate	
	Code-Word	Price \$							
			mm	in.	mm	in.		cm × cm	in. × in.
a, 1	<i>Ablabera</i>	35.—	5	$\frac{3}{16}$	20	$\frac{3}{4}$	1:4.5	1.3 × 1.3	$\frac{1}{2}$ × $\frac{1}{2}$
a, 2	<i>Ablacion</i>	35.—	8	$\frac{5}{16}$	35	$1\frac{3}{8}$	1:4.5	2.2 × 2.2	$\frac{1}{8}$ × $\frac{1}{8}$
a, 3	<i>Ablactabas</i>	35.—	12	$\frac{1}{2}$	50	2	1:4.5	3 × 3	$1\frac{3}{16}$ × $1\frac{3}{16}$
a, 4	<i>Ablactando</i>	42.—	18	$\frac{11}{16}$	75	3	1:4.5	4 × 4	$1\frac{5}{8}$ × $1\frac{5}{8}$
a, 5	<i>Ablactemur</i>	42.—	25	1	100	4	1:4.5	6 × 6	$2\frac{3}{8}$ × $2\frac{3}{8}$
a, 6	<i>Ablactory</i>	35.—	12	$\frac{1}{2}$	40	$1\frac{9}{16}$	1:3.6	2.6 × 2.6	1 × 1
a, 7	<i>Ablandador</i>	35.—	17	$\frac{11}{16}$	60	$2\frac{3}{8}$	1:3.6	3.5 × 3.5	$1\frac{3}{8}$ × $1\frac{3}{8}$
a, 8	<i>Ablania</i>	42.—	23	$\frac{15}{16}$	83	$3\frac{1}{4}$	1:3.6	5 × 5	2 × 2
a, 9	<i>Ablaque</i>	52.50	31	$1\frac{1}{4}$	110	$4\frac{1}{4}$	1:3.6	6 × 9	$2\frac{3}{8}$ × $3\frac{1}{2}$
a, 10	<i>Ablaquate</i>	63.—	36	$1\frac{1}{2}$	130	$5\frac{1}{8}$	1:3.8	8 × 9	$3\frac{1}{8}$ × $3\frac{1}{2}$
a, 11	<i>Ablateur</i>	77.—	42	$1\frac{5}{8}$	160	$6\frac{1}{4}$	1:3.8	9 × 12	$3\frac{1}{2}$ × $4\frac{3}{4}$
a, 12	<i>Ablativus</i>	108.—	51	2	205	8	1:4.0	12 × 16	$4\frac{3}{4}$ × $6\frac{1}{2}$
a, 13	<i>Ablaturi</i>	150.—	61	$2\frac{3}{8}$	250	9	1:4.0	13 × 18	$5\frac{1}{8}$ × 7
a, 14	<i>Ablavius</i>	192.—	71	$2\frac{3}{4}$	300	$9\frac{13}{16}$	1:4.2	16 × 21	$6\frac{1}{2}$ × $8\frac{1}{4}$
a, 15	<i>Ablecteris</i>	241.—	82	$3\frac{1}{4}$	370	$14\frac{1}{2}$	1:4.5	18 × 24	7 × $9\frac{1}{2}$
a, 16	<i>Ablefaros</i>	300.—	94	$3\frac{3}{4}$	423	$16\frac{5}{8}$	1:4.5	21 × 26	$8\frac{1}{4}$ × $10\frac{1}{4}$
a, 17	<i>Ablegant</i>	349.—	94	$3\frac{3}{4}$	470	$18\frac{1}{2}$	1:5.0	24 × 30	$9\frac{1}{2}$ × $11\frac{3}{4}$
a, 18	<i>Ablegatio</i>	697.—	120	$4\frac{3}{4}$	610	24	1:5.0	30 × 40	$11\frac{3}{4}$ × $15\frac{3}{4}$

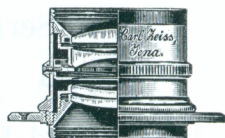
When ordering by wire it is sufficient to quote the Code-word.

For Three Colour Printing and Line Reproductions we recommend our **Planars with reduced secondary spectrum**, for prices of these see the special lists.

In view of the French Patent Laws the Planars may not be introduced into France by way of trade.

Series I^b. THE UNAR

in Standard Mount with Iris-Diaphragm.



The Unar is made with relative aperture of from 1:4.5 to 1:5.6 and 1:6.3, the available angle of view being above 65°.

The Unar, though primarily designed for the most **rapid instantaneous photography**, for **portraits** and for **groups**, yields also most excellent results in landscape photography and in the preparation of panoramic views, so long as an angle exceeding about 70° is not required. The smaller sizes can be specially recommended for **Hand Cameras**.

Series and No.	The Unar in Standard Mount		Diameter of Lenses		Equi- valent Focus		Largest relative apert.	Most suitable Size of Plate	
	Code-Word	Price \$	mm	in.	mm	in.		cm × cm	in. × in.

Unare 1:4.5 — 1:5.6

Ib, 3	<i>Abubus</i>	31.50	25	1	112	$4\frac{3}{8}$	1:4.5	6 × 9	$2\frac{3}{8} \times 3\frac{1}{2}$
Ib, 4	<i>Abucate</i>	38 50	31	$1\frac{1}{4}$	136	$5\frac{3}{8}$	1:4.5	8 × 10	$3\frac{1}{8} \times 4$
Ib, 4a	<i>Abuelos</i>	42.—	31	$1\frac{1}{4}$	145	$5\frac{3}{4}$	1:4.7	9 × 12	$3\frac{1}{2} \times 4\frac{3}{4}$
Ib, 5	<i>Abuizen</i>	42.—	31	$1\frac{1}{4}$	155	6	1:5	10 × 13	$4 \times 5\frac{1}{8}$
Ib, 6	<i>Abulenses</i>	63.—	42	$1\frac{5}{8}$	210	$8\frac{1}{4}$	1:5	12 × 16	$4\frac{3}{4} \times 6\frac{1}{2}$
Ib, 7	<i>Abulie</i>	91.—	51	2	255	10	1:5	13 × 18	$5\frac{1}{8} \times 7$
Ib, 8	<i>Abultabais</i>	125.50	61	$2\frac{3}{8}$	305	12	1:5	16 × 21	$6\frac{1}{2} \times 8\frac{1}{4}$
Ib, 9	<i>Abultando</i>	164.—	71	$2\frac{3}{4}$	375	$14\frac{3}{4}$	1:5.3	18 × 24	$7 \times 9\frac{1}{2}$
Ib, 10	<i>Abultaron</i>	209.—	82	$3\frac{1}{4}$	460	18	1:5.6	21 × 26	$8\frac{1}{4} \times 10\frac{1}{4}$

Unare 1:6.3

Ib, 13	<i>Aburar</i>	28.—	19	$\frac{3}{4}$	112	$4\frac{3}{8}$	1:6.3	6 × 9	$2\frac{3}{8} \times 3\frac{1}{2}$
Ib, 14	<i>Aburrados</i>	30.—	22.5	$\frac{15}{16}$	136	$5\frac{3}{8}$	1:6.3	9 × 12	$3\frac{1}{2} \times 4\frac{3}{4}$
Ib, 14a	<i>Aburres</i>	31.50	22.5	$\frac{15}{16}$	145	$5\frac{3}{4}$	1:6.3	9 × 12	$3\frac{1}{4} \times 4\frac{3}{4}$
Ib, 15	<i>Aburrias</i>	37.—	25	1	155	6	1:6.3	10 × 13	$4 \times 5\frac{1}{8}$
Ib, 15 ^a	<i>Aburujono</i>	44.—	31	$1\frac{1}{4}$	180	7	1:6.3	12 × 16	$4\frac{3}{4} \times 6\frac{1}{2}$
Ib, 16	<i>Abusaccio</i>	54.—	35	$1\frac{3}{8}$	210	$8\frac{1}{4}$	1:6.3	13 × 18	$5\frac{1}{8} \times 7$
Ib, 17	<i>Abusames</i>	70.—	42	$1\frac{5}{8}$	255	10	1:6.3	13 × 21	$5\frac{1}{8} \times 8\frac{1}{4}$
Ib, 18	<i>Abusando</i>	105.—	51	2	305	12	1:6.3	16 × 21	$6\frac{1}{2} \times 8\frac{1}{4}$

The halves of the Unar (front and back lens respectively) are not corrected to be used separately as objectives.

For the adjustment of a set of two objectives for stereoscopic work an extra charge of Dollar 3.— is made.

In view of the French Patent Laws objectives of Series I^b may not be introduced into France by way of trade.

For Hand Cameras

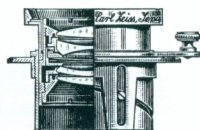
with fixed extension,

in which the shutter works directly in front of the sensitive plate or immediately in front of or behind the objective, we recommend the **smaller sizes of**

THE UNAR

in Special Mount A with

Iris-Diaphragm and Focusing Attachment.



Series and No.	The Unar in Special Mount A		Diameter of Lenses		Equivalent Focus		Extension		Most suitable Size of Plate	
	Code-word	Price Doll.	mm	in.	mm	in.	mm	in.	cm × cm	in. × in.

Unars 1:4.5 — 1:5.0

Ib, 3	<i>Abusato</i>	35.—	25	1	112	4 ³ / ₈	119	4 ³ / ₄	6 × 9	2 ³ / ₈ × 3 ¹ / ₂
Ib, 4	<i>Abusatrice</i>	42.50	31	1 ¹ / ₄	136	5 ³ / ₈	142	5 ¹ / ₂	8 × 10	3 ¹ / ₈ × 4
Ib, 4a	<i>Abusavamo</i>	46.—	31	1 ¹ / ₄	145	5 ³ / ₄	151	6	9 × 12	3 ¹ / ₂ × 4 ³ / ₄
Ib, 5	<i>Abuserai</i>	46.—	31	1 ¹ / ₄	155	6	161	6 ³ / ₈	10 × 13	4 × 5 ¹ / ₈

Unars 1:6.3

Ib, 13	<i>Abusif</i>	31.50	19	3/4	112	4 ³ / ₈	114	4 ¹ / ₂	6 × 9	2 ³ / ₈ × 3 ¹ / ₂
Ib, 14	<i>Abusionum</i>	33.—	22.5	15/16	136	5 ³ / ₈	141	5 ¹ / ₂	9 × 12	3 ¹ / ₂ × 4 ³ / ₄
Ib, 14a	<i>Abusivos</i>	35.—	22.5	15/16	145	5 ³ / ₄	150	6	9 × 12	3 ¹ / ₂ × 4 ³ / ₄
Ib, 15	<i>Abusorum</i>	40.—	25	2	155	6	160	6 ¹ / ₄	10 × 13	4 × 5 ¹ / ₈
Ib, 15a	<i>Abusseau</i>	49.—	31	1 ¹ / ₄	180	7	191	7 ¹ / ₂	12 × 16	4 ³ / ₄ × 6 ¹ / ₂
Ib, 16	<i>Abusuræ</i>	59.50	35	1 ¹ / ₂	210	8 ¹ / ₄	223	8 ³ / ₄	13 × 18	5 ¹ / ₈ × 7

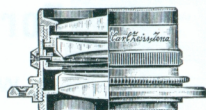
By "Extension" is understood the distance of the sharp picture from the face of the camera front when focused for very distant objects.

Objectives in Special Mount A cannot be used in conjunction with Hand Cameras where the shutter works between the lenses of the objective.

Series II^b.

The Tessar 1:6.3

in Standard Mount with
Iris-Diaphragm.



The 1903 Novelty.

The Tessar is specially noteworthy for its sharp and brilliant definition, combined with a covering power of great angular extent. It is equally suitable for **snapshots**, **portraiture** and **groups**, as well as for **landscapes**, **enlargements** and **projection**, and is always preferable to the similarly rapid Unar 1 : 6.3 whenever the negative obtained is to be subsequently enlarged. The relative aperture is 1:6.3 and the available angle is one of about 70°.

Series and No.	The Tessar 1:6.3 in Standard Mount Code-word	Price \$	Diameter of Lenses		Equivalent Focus		Most suitable Size of Plate	
			mm	in.	mm	in.	cm × cm	in. × in.
			IIb, 0	<i>Adescabit</i>	24.50	7	1/4	40
IIb, 1	<i>Adescammo</i>	26.50	9.5	3/8	56	2 3/16	4 × 4	1 5/8 × 1 5/8
IIb, 2	<i>Adescantis</i>	28.—	14	1/2	84	3 1/4	6 × 8	2 3/8 × 3 1/8
IIb, 3	<i>Adescarent</i>	31.50	19	3/4	112	4 3/8	6 × 9	2 3/8 × 3 1/2
IIb, 4	<i>Adescassi</i>	33.50	22.5	15/16	136	5 3/8	9 × 12	3 1/2 × 4 3/4
IIb, 4 ^a	<i>Adescaturo</i>	35.—	22.5	15/16	145	5 3/4	9 × 12	3 1/2 × 4 3/4
IIb, 5	<i>Adescavamo</i>	40.—	25	1	155	6	10 × 13	4 × 5 1/8
IIb, 5 ^a	<i>Adeschero</i>	49.—	31	1 1/4	180	7	12 × 16	4 3/4 × 6 1/2
IIb, 6	<i>Adesco</i>	59.50	35	1 1/2	210	8 1/4	13 × 18	5 1/8 × 7
IIb, 7	<i>Adesivo</i>	80.50	42	1 5/8	255	10	13 × 21	5 1/8 × 8 1/4
IIb, 8	<i>Adesmie</i>	118.50	51	2	305	12	18 × 24	7 × 9 1/2
IIb, 9	<i>Adesuræ</i>	154.—	61	2 3/8	365	14 1/4	22 × 26	8 5/8 × 10 1/4
IIb, 10	<i>Adesururum</i>	244.—	82	3 1/4	490	19 1/4	24 × 30	9 1/2 × 11 3/4
IIb, 11	<i>Adesuries</i>	314.—	94		590	23 3/8	30 × 40	11 3/4 × 15 3/4

For the adjustment of a set of two objectives for stereoscopic work an extra charge of **Dollar 3.—** is made.

The halves of the Tessar (front and back lens respectively) are not corrected to be used separately as objectives.

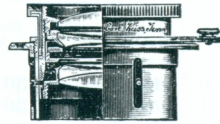
In view of the French Patent Laws objectives of Series II^b may not be introduced into France by way of trade.

For Hand Cameras

with fixed extension,

in which the shutter works directly in front of the sensitive plate, or immediately in front of or behind the objective, and which are to serve for the production of very sharp negatives suitable for considerable enlargement we recommend **the smaller sizes of Series II^b**, viz:

The Tessar 1:6.3 in Special Mount A with Iris-Diaphragm and Focusing Attachment.



Series and No.	Tessar 1:6.3 in Special Mount A		Diameter of Lenses		Equivalent Focus		Extension		Most suitable Size of Plate	
	Code-word	Price \$	mm	in.	mm	in.	mm	in.	cm × cm	in. × in.
II ^b , 2	<i>Adiabatic</i>	31.50	14	1/2	84	3 1/4	87	3 3/8	6 × 6	2 3/8 × 2 3/8
II ^b , 3	<i>Adiabenos</i>	35.—	19	3/4	112	4 3/8	115	4 1/2	6 × 9	2 3/8 × 3 1/2
II ^b , 4	<i>Adiacente</i>	37.—	22.5	15/16	136	5 3/8	141	5 1/2	9 × 12	3 1/2 × 4 3/4
II ^b , 4a	<i>Adiactinic</i>	38.50	22.5	15/16	145	5 3/4	148	5 7/8	9 × 12	3 1/2 × 4 3/4
II ^b , 5	<i>Adiafano</i>	44.—	25	1	155	6	157	6 1/8	10 × 13	4 × 5 1/8
II ^b , 5a	<i>Adiaforia</i>	53.—	31	1 1/4	180	7	183	7 1/4	12 × 16	4 3/4 × 6 1/2
II ^b , 6	<i>Adiafrosis</i>	64.50	35	1 1/2	210	8 1/4	214	8 3/8	13 × 18	5 1/8 × 7

By "Extension" is understood the distance of the sharp picture from the face of the camera front when focused for very distant objects.

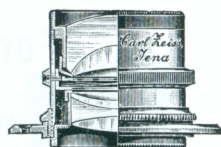
Objectives in Special Mount A cannot be used in conjunction with Hand Cameras where the shutter works between the lenses of the objective.

CARL ZEISS, Optische Werkstaette, JENA.

Series II^a.

Protar 1:8

in Standard Mount with Iris-Diaphragm.



The angle of the field extends over about 75° and this objective is primarily adapted for **instantaneous photography** in the open. Nos. 1 and 2 have found a very extensive sale in conjunction with Detective Cameras covering plates from 6 × 9 to 9 × 12 cm ($2\frac{3}{8} \times 3\frac{1}{2}$ to $3\frac{1}{2} \times 4\frac{3}{4}$ in.). Nos. 7 and 8 are special favourites for groups, portraiture and reproduction.

Series and No.	Protar 1:8 in Special Mount		Diameter of Lenses		Equivalent Focus		Most suitable Size of Plate	
	Codeword	Price \$	mm	in.	mm	in.	cm × cm	in. × in.
II ^a , 0	<i>Aerobios</i>	30.—	13	$\frac{1}{2}$	90	$3\frac{1}{2}$	6 × 6	$2\frac{3}{8} \times 2\frac{3}{8}$
II ^a , 1	<i>Aerofago</i>	30.—	16	$\frac{5}{8}$	110	$4\frac{1}{4}$	6 × 8	$2\frac{3}{8} \times 3\frac{1}{8}$
II ^a , 2	<i>Aerofanas</i>	33.50	19.5	$\frac{3}{4}$	136	$8\frac{3}{8}$	9 × 12	$3\frac{1}{2} \times 4\frac{3}{4}$
II ^a , 3	<i>Aerofsas</i>	44.—	25	1	167	$6\frac{1}{2}$	12 × 15	$4\frac{3}{4} \times 6$
II ^a , 4	<i>Aerofobia</i>	54.—	31	$1\frac{1}{4}$	205	8	13 × 18	$5\frac{1}{8} \times 7$
II ^a , 5	<i>Aerogastro</i>	64.50	36	$1\frac{1}{2}$	244	$9\frac{5}{8}$	13 × 21	$5\frac{1}{8} \times 8\frac{1}{4}$
II ^a , 6	<i>Aerografia</i>	85.50	42	$1\frac{5}{8}$	295	$11\frac{1}{2}$	18 × 24	$7 \times 9\frac{1}{2}$
II ^a , 7	<i>Aerohidros</i>	125.50	51.5	2	350	$13\frac{3}{4}$	21 × 27	$8\frac{1}{4} \times 10\frac{3}{8}$
II ^a , 8	<i>Aeroidem</i>	160.50	61	$2\frac{3}{8}$	433	17	24 × 30	$9\frac{1}{2} \times 11\frac{3}{4}$

For Hand Cameras we recommend Protar 1:8 in Special Mount:

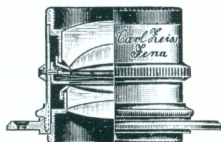
Series and No.	Protar 1:8 in Special Mount A		Diameter of Lenses		Equivalent Focus		Extension		Most suitable Size of Plate	
	Code-word	Price \$	mm	in.	mm	in.	mm	in.	cm × cm	in. × in.
II ^a , 0	<i>Aeromele</i>	33.50	13	$\frac{1}{2}$	90	$3\frac{1}{2}$	91	$3\frac{1}{2}$	6 × 6	$2\frac{3}{8} \times 2\frac{3}{8}$
II ^a , 1	<i>Aerometry</i>	33.50	16	$\frac{5}{8}$	110	$4\frac{1}{4}$	109	$4\frac{1}{4}$	6 × 9	$2\frac{3}{8} \times 3\frac{1}{2}$
II ^a , 2	<i>Aeronautic</i>	37.—	19.5	$\frac{3}{4}$	136	$5\frac{3}{8}$	133	$5\frac{1}{4}$	9 × 12	$3\frac{1}{2} \times 4\frac{3}{4}$
II ^a , 3	<i>Aeropam</i>	47.—	25	1	167	$6\frac{1}{2}$	167	$6\frac{1}{2}$	10 × 13	$4 \times 5\frac{1}{8}$
II ^a , 4	<i>Aerophobia</i>	59.50	31	$1\frac{1}{4}$	205	8	210	$8\frac{1}{4}$	13 × 18	$5\frac{1}{8} \times 7$
II ^a , 5	<i>Aeropus</i>	70.—	36	$1\frac{1}{2}$	244	$9\frac{5}{8}$	248	$9\frac{3}{4}$	13 × 18	$5\frac{1}{8} \times 7$

For adjusting a set of two objectives for stereoscopic work an extra charge of Dollar 3.— is made.

Series III^a.

Protar 1:9

in Standard Mount with Iris-Diaphragm.



The angle of the field is one of about 97°. Protar 1:9 forms thus a combination of an instantaneous and a wide-angle objective. For Detective Cameras 6 × 9 cm ($2\frac{3}{8} \times 3\frac{1}{2}$ in.) No. 00 can be recommended, Nos. 1 or 2 for plates measuring 9 × 12 cm ($3\frac{1}{2} \times 4\frac{3}{4}$ in.); for Stand Cameras 13 × 18 cm ($5\frac{1}{8} \times 7$ in.) Nos. 3 or 4, and Nos. 6 or 7 for 18 × 24 cm ($7 \times 9\frac{1}{2}$ in.) plates.

The larger sizes are generally preferred for large portraits, groups and reproductions (Autotype).

Series and No.	Protar 1:9 in Standard Mount		Diameter of Lenses		Equivalent Focus		Most suitable Size of Plate		
	Code-word	Price \$	mm	in.	mm	in.	cm × cm	in. × in.	
III a, 0	<i>Afrodina</i>	21.—	10.5	$\frac{3}{8}$	75	3	6 × 6	$2\frac{3}{8} \times 2\frac{3}{8}$	
III a, 00	<i>Afroepen</i>	21.—	13	$\frac{1}{2}$	95	$3\frac{3}{4}$	8 × 8	$3\frac{1}{8} \times 3\frac{1}{8}$	
III a, 1	<i>Afrofelen</i>	23.—	16	$\frac{5}{8}$	120	$4\frac{3}{4}$	8 × 10	$3\frac{1}{8} \times 4$	
III a, 2	<i>Afrogala</i>	26.50	19.5	$\frac{3}{4}$	150	6	9 × 12	$3\frac{1}{2} \times 4\frac{3}{4}$	
III a, 3	<i>Afrollende</i>	31.50	22.5	$\frac{7}{8}$	172	$6\frac{3}{4}$	12 × 15	$4\frac{3}{4} \times 6$	
III a, 4	<i>Afronatro</i>	35.—	25	1	196	$7\frac{3}{4}$	13 × 18	$5\frac{1}{8} \times 7$	
III a, 5	<i>Afronding</i>	45.50	31	$1\frac{1}{4}$	230	$8\frac{1}{2}$	13 × 21	$5\frac{1}{8} \times 8\frac{1}{4}$	
III a, 6	<i>Afrontaban</i>	56.—	36	$1\frac{1}{2}$	272	$10\frac{3}{4}$	16 × 21	$6\frac{1}{2} \times 8\frac{1}{4}$	
III a, 7	<i>Afrontar</i>	70.—	42	$1\frac{5}{8}$	317	$12\frac{1}{16}$	18 × 24	$7 \times 9\frac{1}{2}$	
III a, 8	<i>Afrontemos</i>	105.—	51.5	2	407	16	21 × 27	$8\frac{1}{4} \times 10\frac{5}{8}$	
III a, 9	<i>Afrooming</i>	139.50	61	$2\frac{3}{8}$	505	$19\frac{3}{4}$	24 × 30	$9\frac{1}{2} \times 11\frac{3}{4}$	
III a, 10	<i>Afrosos</i>	174.50	71	$2\frac{3}{4}$	600	$23\frac{1}{2}$	27 × 34	$10\frac{5}{8} \times 13\frac{3}{8}$	
III a, 11	<i>Afrosinia</i>	227.—	82	$3\frac{1}{4}$	690	27	30 × 40	$11\frac{3}{4} \times 15\frac{3}{4}$	
III a, 12	<i>Afrottende</i>	279.—	94	$3\frac{5}{8}$	820	$32\frac{1}{4}$	34 × 45	$13\frac{3}{8} \times 17\frac{5}{8}$	

Series V.

Protar 1:18

in Standard Mount with Rotating Diaphragm.



The smaller sizes embrace an angle of view exceeding 110° , the larger (from No. 8 downward) one of about 90° . The former are therefore particularly adapted for architecture, interiors and panoramic views, while the latter are usually preferred for landscapes, reproductions (Half-tone, Autotype, Line), and also for large portraits.

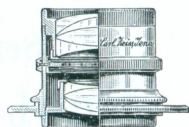
Series and No.	Protar 1:18 in Standard Mount		Diameter of Lenses		Equivalent Focus		Most suitable Size of Plate		
	Code-word	Price \$	mm	in.	mm	in.	cm × cm	in. × in.	
V, 0	<i>Agrodromo</i>	22.50	3.5	$\frac{1}{8}$	40	$1\frac{9}{16}$	4.5 × 6	$1\frac{3}{4} \times 2\frac{3}{8}$	
V, 00	<i>Agrolle</i>	22.50	5	$\frac{3}{16}$	62	$2\frac{7}{16}$	6 × 8	$2\frac{3}{8} \times 3\frac{1}{8}$	
V, 1	<i>Agrologo</i>	22.50	7.5	$\frac{5}{16}$	86	$3\frac{3}{8}$	9 × 12	$3\frac{1}{2} \times 4\frac{3}{4}$	
V, 2	<i>Agromane</i>	22.50	9.5	$\frac{3}{8}$	112	$4\frac{7}{16}$	12 × 15	$4\frac{3}{4} \times 6$	
V, 3	<i>Agromyze</i>	28.—	12	$\frac{1}{2}$	141	$5\frac{1}{2}$	13 × 18	$5\frac{1}{8} \times 7$	
V, 4	<i>Agronomico</i>	35.—	14.5	$\frac{9}{16}$	182	$7\frac{3}{8}$	16 × 21	$6\frac{1}{2} \times 8\frac{1}{4}$	
V, 5	<i>Agronomo</i>	44.—	17.5	$\frac{11}{16}$	212	$8\frac{3}{16}$	20 × 26	$8 \times 10\frac{1}{4}$	
V, 6	<i>Agropyron</i>	54.—	20.5	$\frac{13}{16}$	265	$10\frac{1}{2}$	24 × 30	$9\frac{1}{2} \times 11\frac{3}{4}$	
V, 7	<i>Agrosae</i>	64.50	23.5	$\frac{15}{16}$	315	$12\frac{3}{8}$	26 × 35	$10\frac{1}{4} \times 13\frac{3}{4}$	
V, 7 a	<i>Agrosos</i>	85.50	26	1	390	$15\frac{3}{8}$	30 × 40	$11\frac{3}{4} \times 15\frac{3}{4}$	
V, 8	<i>Agrostemma</i>	85.50	26	1	460	18	30 × 40	$11\frac{3}{4} \times 15\frac{3}{4}$	
V, 9	<i>Agrostideo</i>	125.50	35	$1\frac{3}{8}$	632	$24\frac{3}{4}$	40 × 50	$15\frac{3}{4} \times 19\frac{5}{8}$	
V, 10	<i>Agroteva</i>	247.50	54	$2\frac{1}{8}$	947	$37\frac{1}{4}$	50 × 60	$19\frac{5}{8} \times 23\frac{1}{2}$	

For adjusting a set of two objectives for stereoscopic work an extra charge of Dollar 3.— is made.

Series VII. Protar-Lens.

The smallest sizes of Series VII embrace an angle of about 75°, the larger ones (from No. 1 upward) one of about 85°. Under favourable conditions of light these objectives are well adapted for wide-angle instantaneous photography, outdoor, as also for landscape views, large portraits and groups. Any two Protar-lenses, whether of similar or dissimilar focus, can be fitted into the same tube-mount so as to form a double objective (see Series VII^a) of remarkable rapidity. The Protar-lens thus serves in an eminently satisfactory manner as a component element for a set of objectives for universal application. (See Table on next page.)

Series VII^a. The Double-Protar in Standard Mount with Iris-Diaphragm.



The Double-Protar is composed of a pair of Protar-lenses of Series VII, combined in the same tube-mount to form a double objective. Nos. 0, 00 and 000, as also Nos. 25, 28 and 30, embrace an angle of about 70°, all others one about 80°. Their anastigmatic flatness is of great perfection.

The Double-Protars accordingly are rapid anastigmatic universal objectives, suitable for all branches of instantaneous photography (from single figures to wide-angle street scenes), for groups, architecture, interiors, panoramic landscape views, also for reproductions, photogrammetry and enlarging.

The stereoscopic adjustment of a pair of objectives of Series VII^a, in such a manner that the single lenses can also be used for stereoscopic work, entails an additional charge of **Dollar 6.**—

Protar-Sets.

With the aid of the adjoining Tables VII and VII^a sets of objectives, composed of single lenses of Series VII and suitable for given requirements, may be readily selected and, **though consisting of but a small number of elements, they provide rapid objectives possessing a considerable range of foci.**

For table relating to the 13 × 18 and 18 × 24 Sets see p. 14.

Series VII and VII^a.

Protar-Lenses and Double-Protars.

Series and No.	Objective in Standard Mount with Iris		Dia- meter of Lenses mm	Equi- valent Focus mm	Largest relative aperture	Most suitable Size of Plate cm × cm	Combination of Series VII	
	Code-word	Price \$					Front Lens Focus mm	Back Lens Focus mm
VII, 0	<i>Aprobata</i>	31.50	11	100	11	6 × 9	—	100
VII, 00	<i>Aprobando</i>	31.50	14	135	11	7 × 10	—	135
VII, 000	<i>Aprobare</i>	31.50	18	170	11	9 × 12	—	170
VII, 1	<i>Aproches</i>	26.50	16	183	12.5	12 × 15	—	183
VII, 2	<i>Aproctome</i>	30.—	20	224	12.5	13 × 18	—	224
VII, 3	<i>Aprontamos</i>	35.—	25	285	12.5	16 × 21	—	285
VII, 4	<i>Aprontas</i>	42.—	31	350	12.5	21 × 27	—	350
VII, 5	<i>Apronto</i>	54.—	36	412	12.5	24 × 30	—	412
VII, 6	<i>Apropadio</i>	75.—	42	480	12.5	29 × 34	—	480
VII, 7	<i>Apropiar</i>	96.—	51	590	12.5	30 × 40	—	590
VII, 8	<i>Apropieis</i>	125.50	61	690	12.5	34 × 39	—	690
VII, 9	<i>Apropio</i>	174.50	71	782	12.5	39 × 47	—	782
VII, 10	<i>Aprovechar</i>	227.—	82	862	12.5	40 × 50	—	862
VII, 11	<i>Aproximar</i>	296.50	94	1000	12.5	47 × 57	—	1000
VII ^a , 0	<i>Appoderava</i>	61.—	11	61	6.3	4 × 4	100	100
VII ^a , 00	<i>Appodiando</i>	61.—	14	82	6.3	5 × 5	135	135
VII ^a , 000	<i>Appodierai</i>	61.—	18	102	6.3	6 × 6	170	170
VII ^a , 1	<i>Appogiare</i>	51.—	16	105	6.3	7 × 10	183	183
VII ^a , 2	<i>Appoggio</i>	54.—	20	115	7.0	9 × 12	224	183
VII ^a , 3	<i>Appointing</i>	59.50	25	127	7.7	10 × 13	285	183
VII ^a , 4	<i>Appollaia</i>	57.50	20	128	6.3	10 × 13	224	224
VII ^a , 5	<i>Appomicio</i>	63.—	25	143	7.0	12 × 15	285	224
VII ^a , 6	<i>Apponendo</i>	70.—	31	156	7.7	13 × 15	350	224
VII ^a , 7	<i>Apponeva</i>	68.—	25	163	6.3	13 × 16	285	285
VII ^a , 8	<i>Appongo</i>	75.—	31	179	7.0	13 × 18	350	285
VII ^a , 9	<i>Apponitur</i>	87.50	36	192	7.7	13 × 21	412	285
VII ^a , 10	<i>Appoppando</i>	82.—	31	200	6.3	13 × 21	350	350
VII ^a , 11	<i>Appoppassi</i>	94.50	36	216	7.0	16 × 21	412	350
VII ^a , 12	<i>Appoppava</i>	115.—	42	232	7.7	16 × 21	480	350
VII ^a , 13	<i>Apporre</i>	106.50	36	235	6.3	16 × 21	412	412
VII ^a , 14	<i>Apporrekti</i>	127.50	42	254	7.0	18 × 24	480	412
VII ^a , 15	<i>Apporrommi</i>	148.50	51	277	7.7	18 × 24	590	412
VII ^a , 16	<i>Apportais</i>	146.50	42	275	6.3	18 × 24	480	480
VII ^a , 17	<i>Apportanda</i>	167.50	51	303	7.0	21 × 26	590	480
VII ^a , 18	<i>Apportava</i>	197.—	61	324	7.7	21 × 26	690	480
VII ^a , 19	<i>Apportes</i>	188.50	51	337	6.3	21 × 26	590	590
VII ^a , 20	<i>Apportollo</i>	218.—	61	364	7.0	24 × 30	690	590
VII ^a , 22	<i>Apposable</i>	247.50	61	395	6.3	24 × 30	690	690
VII ^a , 25	<i>Apposcit</i>	315.—	71	465	6.3	24 × 30	782	782
VII ^a , 28	<i>Appositivo</i>	450.—	82	515	6.3	28 × 34	862	862
VII ^a , 30	<i>Apposolo</i>	589.50	94	595	6.3	30 × 40	1000	1000

In view of the French Patent Laws the objectives of Series VII and VII^a may not be introduced into France by way of trade.

For Hand Cameras

without adjustable bellows extension we supply

The Double Protar

in Special Mount A

with Iris-Diaphragm and Focusing Movement.

Series and No.	Double-Protar in Special Mount A		Dia- meter of Lenses		Equi- valent Focus		Exten- sion		Most suitable Size of Plate	
			Code-word	Price \$	mm	in.	mm	in.	mm	in.
	cm × cm	in. × in.								
VIIa, 0	<i>Approbate</i>	64.50	11	$\frac{7}{16}$	61	$2\frac{3}{8}$	66	$2\frac{3}{4}$	4 × 4	$1\frac{5}{8} \times 1\frac{5}{8}$
VIIa, 00	<i>Approccio</i>	64.50	14	$\frac{9}{16}$	82	$3\frac{1}{4}$	87	$3\frac{3}{8}$	6 × 6	$2\frac{3}{8} \times 2\frac{3}{8}$
VIIa, 000	<i>Approchant</i>	64.50	18	$\frac{11}{16}$	102	4	107	$4\frac{1}{4}$	6 × 9	$2\frac{3}{8} \times 3\frac{1}{2}$
VIIa, 1	<i>Approdammo</i>	54.—	16	$\frac{5}{8}$	105	$4\frac{1}{8}$	110	$4\frac{3}{8}$	6 × 9	$2\frac{3}{8} \times 3\frac{1}{2}$
VIIa, 4	<i>Approdassi</i>	61.—	20	$\frac{3}{4}$	128	$5\frac{1}{16}$	132	$5\frac{1}{8}$	8 × 10	$3\frac{1}{4} \times 4$
VIIa, 5	<i>Approdo</i>	66.50	25	1	143	$5\frac{5}{8}$	151	6	9 × 12	$3\frac{1}{2} \times 4\frac{3}{4}$
VIIa, 7	<i>Apprompt</i>	71.50	25	1	163	$6\frac{3}{8}$	171	$6\frac{5}{8}$	10 × 13	$4 \times 5\frac{1}{8}$
VIIa, 8	<i>Appronamur</i>	80.50	31	$1\frac{1}{4}$	179	7	188	$7\frac{1}{4}$	12 × 16	$4\frac{3}{4} \times 6\frac{1}{2}$
VIIa, 10	<i>Approof</i>	87.50	31	$1\frac{1}{4}$	200	$7\frac{7}{8}$	214	$8\frac{3}{8}$	13 × 18	$5\frac{1}{8} \times 7$

Protar-Set C for 13 × 18 cm ($5\frac{1}{8} \times 7$ in.) Plates.

This objective set is composed of Protar-lenses, Series VII, Nos. 2, 3 and 4, providing a range of six foci, viz: 350 mm ($13\frac{3}{4}$ in.), 285 mm ($11\frac{3}{16}$ in.), 224 mm ($8\frac{3}{4}$ in.) of Series VII, and 179 mm (7 in.), 156 mm ($6\frac{1}{8}$ in.), 143 mm ($5\frac{5}{8}$ in.) of Series VII^a.

Code-word: *Azobenzol*. Price: **Dollar 103.—** (incl. Case).

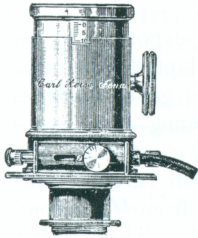
Protar-Set D for 18 × 24 cm ($7 \times 9\frac{1}{2}$ in.) Plates.

This set includes Protar-lenses, Series VII, Nos. 3, 4, 5 and 6, supplying nine foci, viz: 480 mm ($18\frac{7}{8}$ in.), 412 mm (16 in.), 350 mm ($13\frac{3}{4}$ in.), 285 mm ($11\frac{3}{16}$ in.) of Series VII, and 254 mm (10 in.), 232 mm (9 in.), 216 mm ($8\frac{1}{2}$ in.), 192 mm ($7\frac{1}{2}$ in.), 179 mm (7 in.) of Series VII^a.

Code-word: *Azogabas*. Price: **Dollar 200.50** (incl. Case).

CARL ZEISS, Optische Werkstaette, JENA.

Tele-photographic Objectives.



We make two regular sizes, III and IV, of tele-photographic tube-mounts, which are fitted with automatic iris-shutters or, if specially ordered, with the ordinary iris-diaphragm. Their construction admits of a free choice, within certain limits, of the positive and negative optical elements. If existing parts are to be used, it is absolutely necessary to forward them to us for adaptation.

No. in our Principal Catalogue 1899	Tele-objective with automatic Iris-shutter		Positive Element		Negative Element	Size of Plate covered with camera extension of between 30 and 40 cm (11 ³ / ₄ and 15 ³ / ₄ in.)	Nature of Work
	Code-word	Price \$	Focus mm	Focus mm	Focus mm		
A, 2	<i>Atelene</i>	106.50	Tele-positive	135	58	13 × 18	} Landscapes and large portraits (short exposure)
B, 2	<i>Atelopodi</i>	251.50	„	225	100	18 × 24	
A, 3	<i>Atelestina</i>	115.—	II ^a , 4	205	58	13 × 18	} Architectural details and landscapes (prolonged exposure)
A, 6	<i>Atelineas</i>	153.50	VII ^a , 10	200	75	13 × 18	
B, 3	<i>Atellane</i>	244.—	II ^a , 7	350	100	16 × 21	
B, 6	<i>Atellanos</i>	307.—	VII ^a , 19	337	100	16 × 21	

Coloured Screens for Landscape Photography.

These screens are made of yellow plate-glass in three tints, viz: light, medium and dark, and are mounted in a velvet-lined brass ring, by means of which they can be securely slipped over the front of the lens mount. They are recommended for landscapes composed of light buildings and dark masses of foliage, for landscapes with distant background, for mountain scenery showing snow-clad summits, and for winter landscapes, i. e. snow-scenes. The price varies, according to size, from **Dollar 1.—** to **Dollar 3.50.**

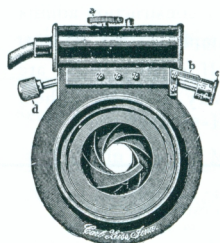
Focusing Glass.

Our focusing glass is primarily intended for use by **transmitted light** for sharply focusing the picture upon the screen of the camera, or for testing negatives for copying processes as to their precision and quality.

No.	Focusing Glass		Diameter of Lenses		Magnification at distance of 250 mm (10 in.)
	Code-word	Price \$	mm	in.	
1	<i>Atoladico</i>	9.—	21	7/8	6
2	<i>Atoleimado</i>	9.—	11	1/2	10
3	<i>Atoleiro</i>	9.—	9	3/8	16

Automatic Iris-Shutter.

The automatic shutter returns after each exposure to its original position, and is therefore particularly adapted for rapid successive exposures, while giving facilities for interrupting and continuing time exposures at will. The speed cannot be mechanically adjusted, but with careful manipulation any desired speed from $\frac{1}{40}$ second upwards may be attained. The shutter can only be released pneumatically.

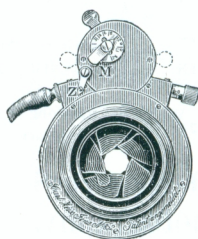


Adjustable Iris-Shutter.

Modell 1899.

The speed can be varied mechanically within a margin of from $\frac{1}{150}$ to about 2 seconds. Beyond this point any desired exposure may be attained by an appropriate double release. The shutter may be released either pneumatically or by finger pressure.

A more detailed description and directions for use are sent gratis on application.



No.	A. Automatic Iris-Shutter			B. Adjustable Iris-Shutter		
	Code-word	Price \$	Diameter of Iris opening mm	Code-word	Price \$	Diameter of Iris opening mm
1	<i>Attolunt</i>	16.—	17	<i>Attono</i>	35.—	20
2	<i>Attonabo</i>	17.50	27	<i>Attopato</i>	36.50	28
3	—	—	—	<i>Attornia</i>	38.50	33
4	<i>Attonandos</i>	19.50	42	<i>Atorqueo</i>	40.—	42

For the adaptation of iris-shutters to existing objectives it is absolutely necessary that the latter should be forwarded to our Works. For adaptations to objectives of other makers we make an extra charge of from **Dollar 3.50** to **Dollar 5.50**.

Iris-shutters are invariably mounted in the plane of the lens stops, hence in the case of double objectives between the lenses.

The Unicum Shutter.

This **Iris-shutter**, made by the BAUSCH and LOMB OPTICAL Co., of ROCHESTER, N. Y., is fitted between the lenses. It excels by its noiseless and reliable action and is adapted for both instantaneous and time exposures.

The Unicum-Shutter			Adaptation to ZEISS-Objectives extra \$	Largest diameter of Iris-opening mm
No.	Code-word	Price \$		
1	<i>Aushau</i>	9.—	4.50	22
2	<i>Aushecken</i>	13.—	5.50	28
3	<i>Aushieb</i>	17.50	7.—	35

Leaf Shutter by VALENTIN LINHOF of Munich.

This shutter is produced in the Works of VALENTIN LINHOF, of Munich and we are prepared to fit it either in front of or behind the objective, as well as between the lenses. The speed is mechanically adjustable and it admits of both instantaneous and time exposures of any desired duration.

No.	LINHOF - Shutter made in				Dia- meter of shutter opening mm	Careful Adaptation	
	Brass		Aluminium			To slip on lens mount Price: \$	In plane of stops with addition of an Iris Price: \$
	Code-word	Price \$	Code-word	Price \$			
1	<i>Axial</i>	14.—	<i>Axileo</i>	15.—	25	1.50	7.—
2	<i>Axicorne</i>	14.—	<i>Axillary</i>	15.—	33	1.50	9.—
3	<i>Axiculo</i>	15.—	<i>Axinite</i>	16.—	39	2.—	10.50
4	<i>Axieros</i>	15.—	<i>Axinopalpe</i>	16.—	45	2.—	—.—
5	<i>Axifere</i>	17.—	<i>Axinotome</i>	18.—	52	—.—	12.50
6	<i>Axifugo</i>	17.—	<i>Axiochus</i>	18.—	60	2.—	14.—

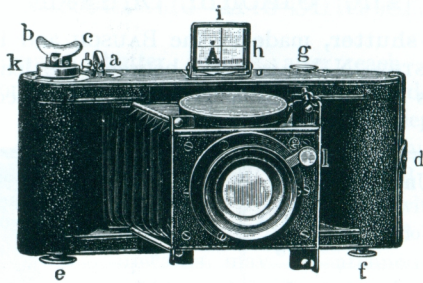
Stereoscopic Shutter by VALENTIN LINHOF.

This shutter is fitted between the lenses of the objectives, its speed is mechanically adjustable and it has two rotating diaphragms, which are simultaneously adjustable by a turning movement.

Price: **Dollar 24.50.** Cost of Adaptation: **Dollar 9.—.**

Code-word: *Axiome.*

This stereoscopic shutter is also made to slip on the lens mount, in which case the rotating diaphragms are dispensed with and the price, incl. adaptation, will be **Dollar 23.—.** Code-word: *Axionicus.*



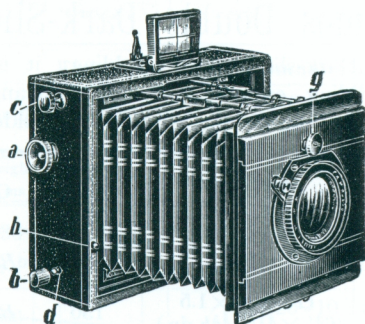
The Film-Palmos 6 x 9.

Designed exclusively
for using daylight-changing
roll-films.

The unwound section
of the film is not exposed
in the act of winding the focal-
plane shutter.

There are now upon the market daylight-changing roll-films which satisfy all legitimate requirements and expectations. The negatives obtainable on these new roll-films—which we keep in stock—are quite as good as those obtained by using the best dry plates. It may therefore be stated with the greatest confidence that the doubts hitherto frequently expressed as to the **advantages and convenience of using such daylight-changing roll-films** have been completely removed and that apparatus constructed for using films will now meet with the universal appreciation of amateurs.

Film-Palmos Size of Plate cm × cm	Dimensions of the Camera folded cm × cm × cm	Optical Equipment	Weight of the Camera about grms	Code-word	Price incl. Leather Case \$
6 × 9 (2 ³ / ₄ × 3 ¹ / ₂ in.)	Camera Front not adjustable 21 × 9.5 × 5.5 (8 ¹ / ₄ × 3 ³ / ₄ × 2 ¹ / ₈ in.)	Unar 1/4.5, f = 112 mm (4 ³ / ₈ in.)	940 (33 ozs.)	<i>Bafam</i>	75.—
		Unar 1/6.3, f = 112 mm (4 ³ / ₈ in.)	910 (32 ozs.)	<i>Bafejador</i>	71.50
		Without objective	800 (28 ozs.)	<i>Bafejo</i>	40.—
	Camera Front adjustable 21 × 9.5 × 5.5 (8 ¹ / ₄ × 3 ³ / ₄ × 2 ¹ / ₈ in.)	Unar 1/4.5, f = 112 mm (4 ³ / ₈ in.)	960 (34 ozs.)	<i>Bafling</i>	80.50
		Unar 1/6.3, f = 112 mm (4 ³ / ₈ in.)	930 (33 ozs.)	<i>Baflingly</i>	77.—
		Without objective	820 (29 ozs.)	<i>Bafordo</i>	45.50



The Minimum-Palmos is compact and light.

The Minimum-Palmos is a hand camera with folding front, focal-plane shutter, and focusing attachment on the objective. Our own apparatus excels other similar models of "folding cameras" in the following features.

The width of the slit of the focal-plane shutter can be conveniently adjusted and read off from the outside.

Without producing focal differences the Minimum-Palmos may be used alternately with a double dark-slide or a roll-holder.

The camera front is adjustable and can be rigidly clamped as required.

Size of Plate cm × cm	Dimensions of the Camera folded cm × cm × cm	Optical Equipment	Weight of Camera complete about grms	Code-word	Price excl. Plate-holder \$
6 × 9	13 × 10 × 4.5	Unar $\frac{1}{6.3}$, $f = 112$ mm	600	<i>Binaire</i>	59.50
		Unar $\frac{1}{4.5}$, $f = 112$ mm	620	<i>Binarios</i>	63.—
		Without objective	480	<i>Bindebank</i>	28.—
9 × 12	1	Model 1904 of light metal see special prospectus, dated May 1903.			0 0 0
9 × 18 Stereo 9 × 9 + 9 × 9	22 × 13 × 6	2 Unars $\frac{1}{6.3}$, $f = 136$ mm	1180	<i>Bindsalade</i>	107.50
		2 Protars $\frac{1}{8}$, $f = 136$ mm	1120	<i>Bindsel</i>	114.50
		Without objective	970	<i>Binervate</i>	38.50
13 × 18	22 × 17 × 7	Unar $\frac{1}{6.3}$, $f = 210$ mm	1670	<i>Binionis</i>	99.50
		Without objective	1450	<i>Binnendyk</i>	40.—

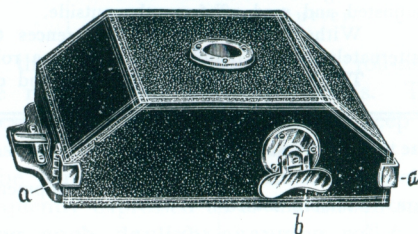
If an existing objective is sent to us for adaptation, or if objectives other than those shown in the list are to be fitted, a charge of Dollar 3.— will be made. — Plate-holders and leather cases charged separately; for prices see pp. 22 and 23.

Palmos Double Dark-Slide.

Our Double Dark-slide is non-folding; it is made of black wood and has a sliding, entirely removable, vulcanite shutter. The focus corresponds to that of the Palmos-Roll-holder.

Size of Plates cm × cm	Dimensions cm × cm × cm	Approx. Weight grms	Code-word	Price \$
6×9 ($2\frac{3}{8} \times 3\frac{1}{2}$ in.)	14×8.2×1.5 ($5\frac{1}{2} \times 3\frac{1}{4} \times \frac{5}{8}$ in.)	85	<i>Basaltite</i>	3.50
9×12 ($3\frac{1}{2} \times 4\frac{3}{4}$ in.)	17.5×11×1.5 ($6\frac{3}{4} \times 4\frac{1}{4} \times \frac{5}{8}$ in.)	130	<i>Basaltos</i>	4.50
9×18 ($3\frac{1}{2} \times 7$ in.)	23×11.5×1.8 ($9 \times 4\frac{1}{2} \times \frac{3}{4}$ in.)	205	<i>Basaltzuil</i>	5.50
Stereo				
13×18 ($5\frac{1}{8} \times 7$ in.)	24×15.5×1.8 ($9\frac{1}{2} \times 6 \times \frac{3}{4}$ in.)	320	<i>Basaniste</i>	5.50
$3\frac{1}{4} \times 4\frac{1}{4}$ in.	11.0×15.5×1.4 ($4\frac{1}{4} \times 6 \times \frac{1}{2}$ in.)	140	<i>Basiator</i>	5.—
4×5 in.			<i>Basiavimus</i>	5.—

The Palmos Roll-Holder



is made of wood covered with keratol. Its action is perfectly reliable, it is easily handled, and it is light as well as compact.

	Size of Plates			
	6×9 cm $2\frac{3}{8} \times 3\frac{1}{2}$ in.	8.5×12 cm $3\frac{3}{8} \times 4\frac{3}{4}$ in.	9×12 cm $3\frac{1}{2} \times 4\frac{3}{4}$ in.	9×18 cm $3\frac{1}{2} \times 7$ in.
Required length } mm of spool } in.	63 $2\frac{1}{2}$	88 $3\frac{1}{2}$	94 $3\frac{3}{4}$	94 $3\frac{3}{4}$
Dimensions } cm×cm×cm } in.×in.×in.	14×7.8×4.5 $5\frac{1}{2} \times 3 \times 1\frac{3}{4}$	17×11×5 $6\frac{3}{4} \times 4\frac{1}{4} \times 2$	17×11×5 $6\frac{3}{4} \times 4\frac{1}{4} \times 2$	23×11.4×5.5 $9 \times 4\frac{1}{2} \times 2\frac{1}{8}$
Approx. } grms Weight } ozs.	280 10	345 $12\frac{1}{4}$	340 12	480 17
Code-word	<i>Bollava</i>	<i>Bollebole</i>	<i>Bolleboos</i>	<i>Bolletrie</i>
Price \$	11.50	13.50	13.50	19.50

Leather Cases.

Size of Plate	Fitted for the Minimum-Palmos							
	with 3 Double Dark Slides				with 6 Double Dark Slides or 3 Double Dark Slides and 1 Roll-holder			
cm × cm in. × in.	Dimensions cm × cm × cm in. × in. × in.	Approx. Weight grms	Code-word	Price \$	Dimensions cm × cm × cm in. × in. × in.	Approx. Weight grms	Code-word	Price \$
6 × 9 ³ / ₈ × 3 ¹ / ₂	21 × 15 × .5 8 ¹ / ₄ × 5 ¹ / ₈ × 2 ¹ / ₂	330 (11 ¹ / ₂ ozs.)	<i>Bitetduras</i>	3.—	21 × 15 × 7.5 8 ¹ / ₄ × 5 ⁷ / ₈ × 3	400 (14 ozs.)	<i>Biternate</i>	4.50
9 × 12 ¹ / ₂ × 4 ³ / ₄	27 × 19 × 9 10 ⁵ / ₈ × 7 ¹ / ₂ × 3 ¹ / ₂	700 (25 ozs.)	<i>Bitangent</i>	3.50	27 × 20 × 10 10 ⁵ / ₈ × 7 ⁷ / ₈ × 4	800 (28 ozs.)	<i>Bithus</i>	5.50
9 × 18 Stereo ¹ / ₂ × 7	27 × 25 × 8.5 10 ⁵ / ₈ × 9 ³ / ₄ × 3 ³ / ₈	700 (25 ozs.)	<i>Bitemporis</i>	5.50	27 × 25 × 9.5 10 ⁵ / ₈ × 9 ¹ / ₄ × 3 ⁵ / ₈	820 (29 ozs.)	<i>Bithynis</i>	6.50
13 × 18 ¹ / ₈ × 7	36 × 26 × 10 14 ¹ / ₂ × 10 ¹ / ₄ × 4	1100 (39 ozs.)	<i>Biteonk</i>	5.50	—	—	—	—

Our Stand,

made of aluminium rods, is light, compact and practical.

Dollar 7.—. Code-word: *Bustaccio*.

Objective Shutters.

All Palmos Hand Cameras are fitted with focal-plane shutters for instantaneous photography. If desired, time exposures may be made with these cameras, on stands, when a simple time and instantaneous shutter to slip on the lens mount should be employed. We supply these at the following prices.

No.	Special-Shutter		Largest aperture		Adapted to
	Code-word	Price incl. adaptation \$	mm	in.	
1	<i>Bufoalinas</i>	6.—	30	1 ¹ / ₄	Unar ¹ / _{6.3} 112 mm
1 a	<i>Bufoanda</i>	16.—	30	1 ¹ / ₄	Stereo Protar ¹ / ₈ 136 mm
2	<i>Bufoaleos</i>	7.—	40	1 ⁹ / ₁₆	Unar ¹ / _{4.5} 112 up to ¹ / _{4.7} 145 mm
2 a	<i>Bufoasse</i>	16.—	40	1 ⁹ / ₁₆	Stereo up to Unar ¹ / _{4.5} 136 mm
3	<i>Bufoekalf</i>	7.—	50	2	Unar ¹ / _{6.3} 210 mm
4	<i>Bufoeremo</i>	8.—	60	2 ³ / ₈	Unar ¹ / ₅ 210 mm

Roll-Films for Daylight Changing.

The roll-films here brought to notice have fully proved their exceptional merit. The negatives obtained on them are well defined, the layer of gelatine does not part from the film, and the spools are so carefully wound that, whether used in connection with our Film-Palmos or our Palmos Roll-holder, the film band passes to the winding spool without tearing or creasing at the edges, providing the operator has taken due care to stretch the end of the protecting paper strip in a straight line towards the winding spool.

The film spools adapted for the Film-Palmos wind to the right, i. e., the combined film and paper strips are received by the winding spool in the sequence: spool, emulsion, film, paper (serial numbers of film sections outwards). Films intended for the roll-holder are, on the other hand, left-winding (spool, serial numbers, paper, film, emulsion).

Our roll-films keep in a serviceable condition for about one year.

Roll-Films Size of Plate	Length of Spool (outside measure- ment)	Num- ber of Ex- posures	Code-word for a film spool wound for the		Price ₯
			Film-Palmos	Palmos Roll-holder	
6 × 9 cm	63 mm	6	<i>Bifarius</i>	<i>Bifolco</i>	0.35
$2\frac{3}{8}$ × $3\frac{1}{2}$ in.	$2\frac{1}{2}$ in.	12	<i>Bifendido</i>	<i>Bifoliaceo</i>	0.65
Stereo 9 × 18 cm	94 mm	6	—	<i>Biforcato</i>	0.90
$3\frac{1}{2}$ × 7 in.	$3\frac{3}{4}$ in.				
9 × 12 cm	94 mm	6	—	<i>Biformati</i>	0.65
$3\frac{1}{2}$ × $4\frac{3}{4}$ in.	$3\frac{3}{4}$ in.	12	—	<i>Biformatos</i>	1.25

Dry Plates

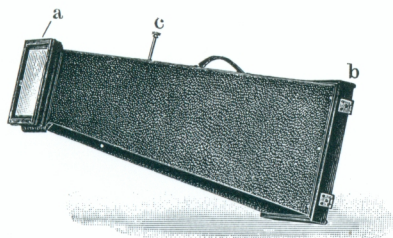
and

other photographic requisites

and

complete outfits

at special quotations.



Portable Enlarging Apparatus, Model I.

The Enlarging Apparatus, Model I, consists of an elongated conical wooden box, covered with keratol. The negative or dia-positive to be enlarged must be inserted, at the smaller and the positive paper or dry-plate on which the enlargement is to be made placed in the larger opening. Between the two a photographic objective is fitted to a board, which divides the interior into two light-tight compartments. The arrangement is such that a sharply defined enlarged image of the original negative is projected upon the positive paper or the dry plate respectively.

The scale of enlargement cannot be varied, the length of the apparatus being a constant quantity. If the apparatus be constructed for twofold enlargement of a 9×12 cm plate, it is possible, for instance, to enlarge 4×5 cm to 8×10 cm, 6×9 to 12×18 , 9×12 to 18×24 .

Constructed for Negatives not exceeding cm \times cm	Maximum size enlarged to cm \times cm	Scale of enlargement	Optical Equipment	Code-word	Price <i>S</i>
6 \times 8 (will take 6 \times 9)	18 \times 24	3-fold	Aplanat	<i>Bergader</i>	26.50
			Protar $\frac{1}{9}$, <i>f</i> = 95 mm ($3\frac{3}{4}$ in.)	<i>Bergamota</i>	36.50
			Without objective	<i>Bergauf</i>	16.—
9 \times 12	18 \times 24	2-fold	Aplanat	<i>Bergbild</i>	30.—
			Protar $\frac{1}{9}$, <i>f</i> = 120 mm ($4\frac{3}{4}$ in.)	<i>Bergbote</i>	42.—
			Without objective	<i>Bergdorp</i>	19.50
9 \times 12	30 \times 40	3.3-fold	Aplanat	<i>Bergeisen</i>	33.50
			Protar $\frac{1}{9}$, <i>f</i> = 120 mm ($4\frac{3}{4}$ in.)	<i>Bergeron</i>	45.50
			Without objective	<i>Bergfels</i>	23.—

The adaptation of any other objectives of the focus **required** is charged for at reasonable rates.

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