

E. LEITZ, INC., NEW YORK, N.Y.

Notice MB

In order to prevent mistakes when ordering please use the designations and code-words employed in this catalogue.

The illustrations contained in the catalogue are not necessarily binding as regards all details of the equipment, since we endeavour at all times to keep our instruments abreast of the most recent technical advances. The weights specified are subject to small deviations.

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Cover: Leica photograph of the Zugspitz massif taken from the "Graf Zeppelin" airship

The Tourist



who has become accustomed to a pair of field glasses has experienced the added enjoyment derived from their use on his ocean, land, or air excursions. He will never want to dispense with them, but they must be of highest precision and excellent optical performance.

Can you imagine

a navigation officer attempting to carry out his duties without the aid of highly efficient marine glasses, since the safety of the vessel and its passengers depends on the quickness and certainty with which he can see anything that may be happening on the sea, or in the air?

Here only the best glasses are good enough!







What qualities distinguish really good Field-Glasses?

The qualities by which field-glasses are to be judged are the magnification, the light-transmitting power, the field of view, central and marginal resolving power, stereoscopic power and weight. In these respects binoculars must satisfy the requirements of the particular

purposes for which they are intended: and guidance on this question is fully given below.

The weight

of our prism binoculars could be reduced much below the figures given in this catalogue in fact, to the minimum possible*) by the use of special light-metal alloy, without increase in price and without affecting the optical performance in the slightest.

Section and path of rays of the 8×30 Leitz Wide Field binoculars.

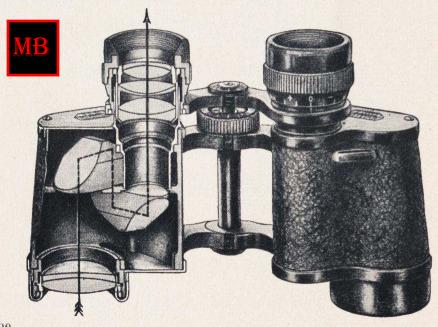


Fig. 1.

^{*)} When ordering the light-metal model the syllable "lei" is to be added to the code-word; at present, however, only the most popular models are available in this form.

What qualities distinguish really good Field-Glasses?



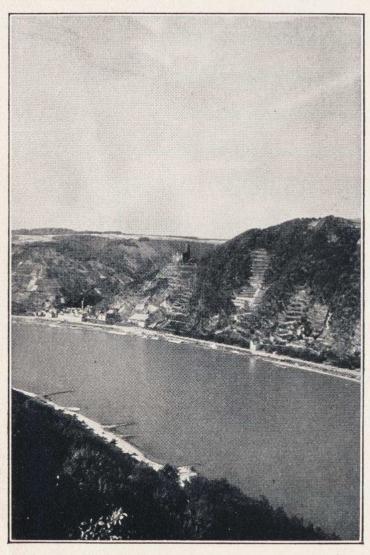
The first characteristic of good field-glasses is the absence of optical defects and the precision of mechanical construction. The reputation of the name of Leitz, which has gained world-wide esteem for quality in competition with all the world's leading makers, is itself a full guarantee that these primary requirements of modern field-glass design are satisfied. The products of the firm of Leitz embrace microscopes and precision measuring instruments which are everywhere accepted as foremost in quality, projection equipment which is acclaimed by experts as the best, and the Leica precision miniature camera which within the short space of ten years has attained an unprecedented popularity and a far wider following than any other camera of similar cost, owing to its excellent optical and mechanical qualities. A firm with such a record of achievement may be expected to produce binoculars of the finest kind. These claims are proved by experience, for the verdict of users is: Once Leitz Glasses, always Leitz Glasses.

There are Leitz Binoculars for every purpose



It is admitted that with a single model of field-glass, or even with a small number of models, the varied requirements that are likely to arise cannot fully be met. Although there are so-called universal glasses which are quite satisfactory for most purposes, these prove inadequate on occasions which call for some special quality, such as large field of view, large magnification, great light-transmitting power or small size and weight. The significance of these various qualities will be explained in the following pages: and it will be found that there are binoculars for every purpose and possessing the greatest possible efficiency for their particular use. It will be evident that the large number of Leitz binoculars is not a matter of chance, but that the range has been developed systematically.

The Magnification



Castle Maus, on the Rhine, as seen by the unaided eye.

is given by the ratio which the apparent angle of view of the object through the glasses bears to the visual angle of view without glasses.



×4 Magnification.

The magnification required depends on the purpose in view and may vary widely. For the theatre, the opera or similar occasions a magnification of $\times 3$ to $\times 4$ is quite sufficient.

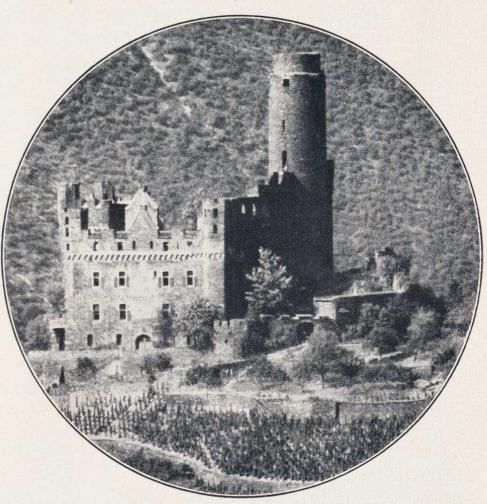
×15 Magnification.



used in the hand it is rarely desirable to

exceed ×10 magnification, as otherwise the

 $\times 12$ Magnification.



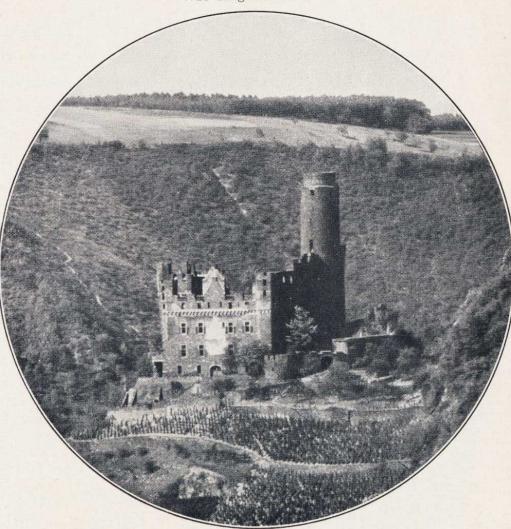
the image unsteady enough to interfere with vision. Movement of the boat is also increasingly disturbing with higher magnifications.

 $\times 10$ Magnification.

cation of $\times 10$ is also used by hunters who value especially the higher resolution of details given by the larger scale of magnifi-

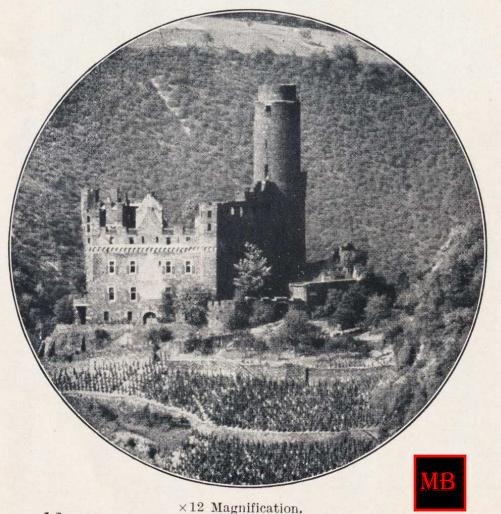


×8 Magnification.



cation: but, like the $\times 12$ and $\times 15$ magnifications, its principal use is for marine purposes and flying. Where glasses are intended to be

used in the hand it is rarely desirable to exceed $\times 10$ magnification, as otherwise the unavoidable trembling of the hands makes



×15 Magnification.



the image unsteady enough to interfere with vision. Movement of the boat is also increasingly disturbing with higher magnifications.

The Light-Transmitting Power

the magnification, or—which is the same thing—the square of the diameter of the "exit pupil", viz., that image of the object-glass aperture which is formed by the eyepiece in the vicinity of the observing eye. The size of the exit pupil can be determined directly by holding the glass, turned toward the bright sky, at a distance of about 8 ins. from the eye: the exit pupil can then be seen in the eyepiece as a bright circular area. The larger this circle is, the greater is the light-transmitting power of the glasses, since the value of the latter is given by the square of the diameter of this exit pupil. Since this diameter is equal to the object-glass diameter divided by the magnification, the light-transmitting power is therefore higher the larger the object-glass aperture and the smaller the magnification. A larger object-glass diameter involves, of course, greater weight and volume of the glasses, as well as higher price. For this reason it is evident that specially high demands in respect to magnification and light-transmitting power cannot be satisfied at the same time as a demand for small weight and volume.

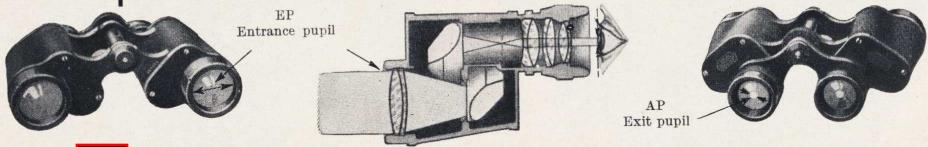


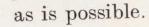
Fig. 3. The diameter of the exit pupil is a measure of the light-transmitting power of the glasses.

The Light-Transmitting Power

The amount of light reaching the eye, however, is not dependent solely on the light-transmitting power of the glasses, but also on the size of the pupil of the human eye, which usually amounts only to a few millimeters in daylight and widens to a maximum of 8 mm. in darkness, in the case of young and fully adaptable eyes. It is purposeless to increase the light-transmitting power much beyond 50, since higher values cannot be utilized by the human eye. For most purposes, in fact, considerably smaller light-transmitting powers are quite adequate and other qualities may then be of greater importance. For instance, a sportsman whose eyes have through advancing years lost their full power of adaptation will prefer

Normal light-transmitting power.

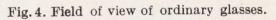
a pair of glasses of somewhat lower light-transmitting power but of correspondingly greater magnification, which appears to bring the object nearer, gives a better resolution of details and thus renders vision under poor lighting conditions as good

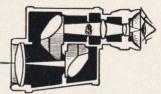


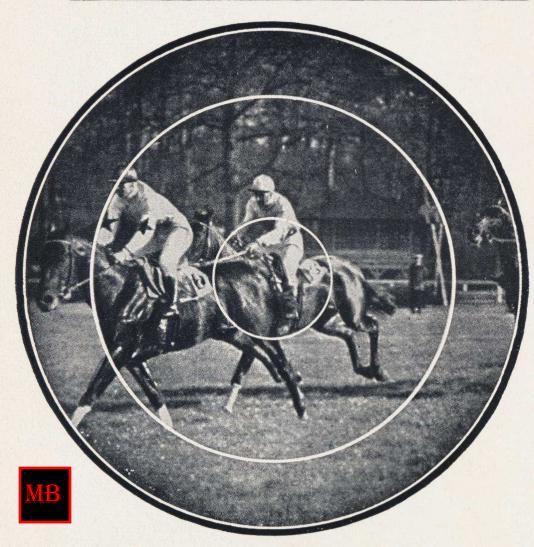


Maximum light-transmitting power.

The magnitude of the Field of View

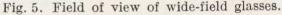


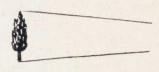




Fields of view of the old-fashioned Galilean glasses, of ordinary prism binoculars and of wide-field glasses at uniform ×8 magnification.

is also of considerable importance for many purposes. Thus, for example, a large field of view is required in opera glasses, so that it may be possible to cover the whole stage at a glance. Hence, because a large enough field cannot be obtained with the Galilean type of construction, we have avoided adopting this Galilean construction even for opera glasses, for which it would otherwise be attractive in view of the low magnification required. The magnitude of the field of view is specified either in degrees of angle or as the width of field covered at a distance of 1000 yards. The greater the magnification, the more difficult is it to obtain a wide field of view. None the less, we have met the demand for the greatest possible width of field even at the larger magnifications by means of a series of special models with wide-field eyepieces (pp. 23, 30 and 31).







The stereoscopic effect

of our field-glasses with the higher magnifications is enhanced by the fact that the separation of the objectives is larger than that of the eyepieces. It is obvious that the stereoscopic effect, which arises from two-eyed vision, must be increased by increasing the distance between the objectives: for this reason we have been at pains to keep the ratio of objective separation to ocular separation as large as possible, consistent with the demands for the smallest possible volume.

Central wheel or separate eyepiece focusing?

wheel focusing. Central wheel focusing is most used: it permits the simultaneous adjustment of both eyepieces for sharp focus. This mode of focusing adjustment is above all advantageous when the distance between the observer and the object is rapidly changing, or when the glasses pass from hand to hand. In order that the central focusing may be used even when the two eyes differ in sight, one eyepiece is still provided with a separate adjustment, in order to allow of compensation for the difference in focus between the two eyes. Separate eyepiece focusing, on the other hand, has the advantage that it alone permits the instrument to be sealed hermetically against the entry of dust or damp into the interior. It is, therefore, chiefly suitable when the glasses are required for service purposes or for use in the tropics.

Our field-glasses are supplied with either separate eyepiece focusing or central



(The models with separate eyepiece focusing are indicated in the following pages by the letters SE: those with central wheel focusing by the letters CW.)

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Review of Leitz Prism Binoculars

For the theatre

Page 18

For sport, travel and touring

Page 19—23

For hunting, marine use and aviation

Page 24—31



For monocular use

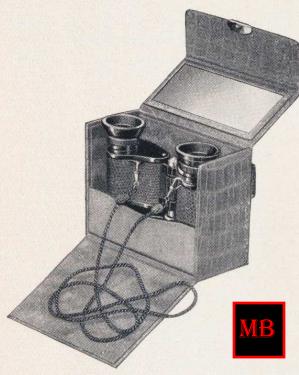


Fig. 6. ×3 "Bilustra" (one-third natural size).

For the theatre and the opera Leitz Prism Opera Glasses

The $\times 3$ magnification is the most suitable for the theatre and similar purposes. In spite of the wide field of view the definition is excellent right to the edges. In view of the weak stage lighting the light transmission is made high. The small objective separation corresponds to the requirements of an opera glass and produces a pleasant stereoscopic effect. Central wheel focusing gives convenient adjustment in use. The elegant and handy form of these glasses admirably suits their intended purpose. The following models of these prism glasses are supplied:

"Binar": Black metal parts, black leather covering, folding black

morocco leather case with mirror.

"Binarius": As "Binar", but in soft leather purse.

"Bilustra": Gilt metal parts, coloured leather covering (lizard skin),

folding case of coloured crocodile leather with mirror.

"Bilustrium": As "Bilustra", but in soft leather purse.

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field of in degrees	of View linear at 100 yards	Focusing	Weight without case (ozs.)	Price (including case)
Binar	$\times 3$	13.5	4.5	20.25	13.3	23	CW	$7^{1}/_{2}$	66.00
Binarius	$\times 3$	13.5	4.5	20.25	13.3	23	CW	$7^{1}/_{2}$	63.00
Bilustra	$\times 3$	13.5	4.5	20.25	13.3	23	CW	$7^{1}/_{2}$	73.00
Bilustrium	$\times 3$	13.5	4.5	20.25	13.3	23	CW	$7^{1}/_{2}$	66.00

Miniature Glasses for Sport, Travel and Hiking



The "Bitur" model, of ×4 magnification, is suitable for indoor and outdoor sporting occasions as well as for travel. On account of its small size it can conveniently be carried at all times. It is also highly



Fig. 7. $\times 4$ "Bitur" ($^{1}/_{3}$ actual size).

serviceable in the theatre, especially when the seats are far from the stage, and it may therefore justly be regarded as the ideal miniature universal glass. Outstanding features of the "Bitur" model are the large field of view and the high light-transmitting power, ample for use even under failing evening light.



Fig. 8. $\times 6$ "Bidal" ($^{1}/_{3}$ actual size).

The "Bidal" model, of $\times 6$ magnification, is especially favored for travelling use on account of its compact construction. It is intended primarily for use by day, when high light-transmission is not needed. It is of particular value to geologists and other scientists because it is easily convertible into a binocular magnifier by screwing in supplementary front lenses.

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power		of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Bitur Bidal	×4 ×6	20 15	5 2.5	25 6.25	10.3	180 122	CW CW	10 8	70.00 63.00

For Sport, Travel, Hiking and



of $\times 6$ magnification, and the "Bioct" and "Bioctit" models, of $\times 8$ power, are universal prism binoculars of high performance, of small weight and

The "Binol" and "Binolit" models,

Fig. 9. $\times 6$ "Binolit" ($\frac{1}{3}$ actua size).

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Binol	$\times 6$	24	4	16	8.5	150	SE	15	62.00
Binolit	$\times 6$	24	4	16	8.5	150	CW	16	68.00

Mountaineering

volume. In the case of the "Bioct" and "Bioctit" models the light-transmission and the field of view are somewhat smaller than in the "Binol" and "Binolit" models on account of the higher magnification: they fully satisfy, however, every requirement for daylight use.



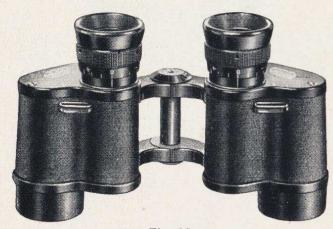


Fig. 10. $\times 8$ "Bioct" ($^{1}/_{3}$ actual size).

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field of in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Bioct	×8	24	3	9	6.3	110	SE	$13^{3}/_{4}$	68.00
Bioctit	×8	24	3	9	6.3	110	CW	15	74.00

Universal Prism Binoculars for



Fig. 11. $\times 6$ "Bidox" ($^{1}/_{3}$ actual size).

The "Bidox" and "Bidoxit" models, of \times 6 magnification, as well as the "Binux" and "Binuxit" models, differ from the models described on pages 20—21 in the greater diameter of their object glasses and their correspondingly greater light-transmitting power: they are therefore the suitable choice if glasses are to be used under poor lighting conditions. The "Binux" and "Bi-



Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field of in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Bidox	$\times 6$	30	5	25	8.5	150	SE	$19^{1}/_{2}$	69.00
Bidoxit	$\times 6$	30	5	25	8.5	150	CW	21	75.00
Bidoxitlei	$\times 6$	30	5	25	8.5	150	CW	15	84.00

Sport, Travel, Hiking and Touring

nuxit" models are a special type with a large field of view—the so-called wide-field glasses—and give the same field of view, of 150 yards at 1000 yards, as our × 6 field-glasses. This advantage of wide field is especially valuable because it makes it easier and quicker to locate specific objects in the field of view and permits a large area of the scene to be kept in view all the time.





Fig. 12. $\times 8$ "Binuxit" ($^{1}/_{3}$ actual size).

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Binux	×8	30	3.75	14	8.5	150	SE	$ \begin{array}{c} 20 \\ 20^{1}/_{2} \\ 16 \end{array} $	76.00
Binuxit	×8	30	3.75	14	8.5	150	CW		82.00
Binuxitlei	×8	30	3.75	14	8.5	150	CW		96.00

Universal Glasses for Hunting, Sea and Air Travel

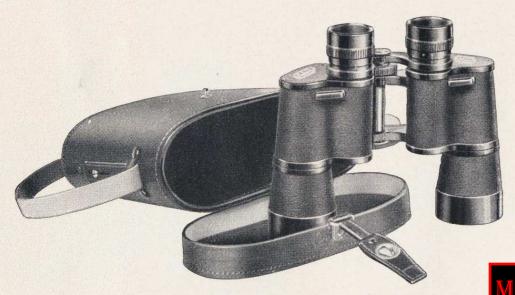


Fig. 13. $\times 6$ "Forest" ($^{1}/_{4}$ actual size).

High light-transmission combined with extremely small weight and volume is the special feature of our ×6 magnification "Foreston" and "Forest" models. They are largely used by gameshooters and foresters who need to use their field-glasses either at the butts or for stalking: they may therefore be regarded as universal hunting glasses.

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Foreston	×6	42	7	49	7	122	SE	$26^{1}/_{2}$	104.00
Forest	$\times 6$	42	7	49	7	122	CW	$28^{1}/_{2}$	110.00

High-Power Glasses for Sports Purposes

The series of field-glasses described on page 24 is supplemented by two models, the "Forstona" and "Forsta", of ×8 magnification. These should be chosen when high magnification is important. They are preferred notably by sportsmen whose eyes no longer possess their full power of adaptation and cannot for that reason derive the best advantage from a field-glass of maximum light-transmitting power.





Fig. 14. $\times 8$ "Forstona" ($^{1}/_{4}$ actual size).

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Forstona	×8	42	5.25	27.6	6.3	110	SE	26	109.00
Forsta	×8	42	5.25	27.6	6.3	110	CW	28	115.00

Night-Glasses for Shooting,



Fig. 15. $\times 7$ "Marsept" (1/4 actual size).

Our "Marsept" and "Marseptit" × 7 field-glasses and "Marocto" and "Maroctit" × 8.3 field glasses combine high magnification with extreme light-transmitting power and, despite their size, are very convenient to handle. They are, however, only recommended to those sportsmen whose eyes re-



Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Marsept	×7	50	7.14	51	7.3	128	SE	$40^{1}/_{2}$	130.00
Marseptit	×7	50	7.14	51	7.3	128	CW	$42^{1}/_{2}$	137.00
Marseptitlei	×7	50	7.14	51	7.3	128	CW	$28^{1}/_{4}$	150.00

Marine Use and Aviation

tain sufficient power of adaptation to make use of the great light-transmission of these glasses. Marine officers and airmen prefer them on account of their large exit pupil, which permit the scene to be kept in view despite the most severe movements to which the vessel may be subject.



MB

Fig. 16. ×8.3 "Maroctit" (1/4 actual size).

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	in dogmood	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Marocto Maroctitlei Maroctitlei	$\begin{array}{c} \times 8.3 \\ \times 8.3 \\ \times 8.3 \end{array}$	60 60 60	7.23 7.23 7.23	52 52 52	6 6 6	107 107 107	SE CW CW	53 55 41	165.00 175.00 185.00

Marine Use and Aviation

MB

men who prefers a higher magnification on account of the better resolution of details which it gives. They are also widely used as marine glasses, in view of the fact that great magnification combined with high light-transmitting power is of special importance at sea.



Fig. 18. \times 12 "Mardoce" ($^{1}/_{4}$ actual size).

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Mardoce	$\times 12$	60	5	25	4.3	75	SE	53	165.00
Mardocit	$\times 12$	60	5	25	4.3	75	CW	55	175.00
Mardocitlei	imes 12	60	5	25	4.3	75	CW	$40^{1}/_{2}$	185.00

Marine Use and Aviation

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Fig. 18. $\times 12$ "Mardoce" ($^{1}/_{4}$ actual size).



Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Mardoce	imes 12	60	5	25	4.3	75	SE	53	165.00
Mardocit	$\times 12$	60	5	25	4.3	75	CW	55	175.00
Mardocitlei	$\times 12$	60	5	25	4.3	75	CW	$40^{1}/_{2}$	185.00



High-Power Wide-Field Binoculars of High



Fig. 19. $\times 10$ "Campar" ($^1/_4$ actual size).

Our "Campar" and "Camparit" field-glasses, of ×10 magnification, as well as the "Campomar" and "Campomarit" models, of ×12 magnification, and the "Campo-



Fig. 20. $\times 12$ "Campomarit" ($^{1}/_{4}$ actual size).

Model and Codeword	Magnifi- cation	Diameter of objectives	Diameter of exit pupil	Light- transmitting Power	Field in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Campar	×10	40	4	16	7.3	128	SE	37	148.00
Camparit	$\times 10$	40	4	16	7.3	128	CW	39	155.00
Camparitlei	$\times 10$	40	4	16	7.3	128	CW	$25^{1}/_{4}$	165.00
Campomar	$\times 12$	50	4.17	17.4	5.75	100	SE	42	153.00
Campomarit	$\times 12$	50	4.17	17.4	5.75	100	CW	44	166 00
Campomaritlei	$\times 12$	50	4.17	17.4	5.75	100	CW	$30^{1}/_{2}$	170.00

Light-Transmitting Power for Special Purposes



fort" and "Campofortit" models, of $\times 15$ magnification, are special models for marine use and aviation. The high magnification, high light-transmission and the wide field of view render these models unsurpassed in performance.



Fig. 21. $\times 15$ "Campofort" ($^{1}/_{5}$ actual size).

Model and Codeword	Magnifi- cation		Diameter of exit pupil	Light- transmitting Power	Field of in degrees	of View linear at 1000 yards	Focusing	Weight without case (ozs.)	Price (including case)
Campofort	$\times 15$	60	4	16	4.65	81	SE	56	180.00
Campofortit	$\times 15$	60	4	16	4.65	81	CW	58	190.00
Campofortitlei	$\times 15$	60	4	16	4.65	81	CW	$41^{1}/_{2}$	200.00

Accessories MB

Carrying Cases	Our prism binoculars are supplied, without extra charge, in a brown or black rigid neat's-leather case (as shown on p. 24, fig. 13) or, alternatively, a flat brown case (as shown on p. 20, fig. 9). Failing specific instructions concerning the style or colour of the case, the brown rigid case is always supplied. If the black rigid case or the flat case is desired, please add "schwa" or "fla" respectively to the code-word for the prism glass with which the order is concerned. Carrying straps are provided both for the carrying case and the glasses themselves.
Rainguards	To protect the eyepiece when the glasses are being carried out of their case we supply leather rainguards: these are secured to the carrying strap of the binoculars Price \$ 2.10
Yellow Glasses	To improve perception of the object under unusually brilliant sunlight we supply moderating yellow glasses which slip on over the eyepieces of the binoculars Price \$ 2.80 a pair
Graticules	On request we can supply our field-glasses with graticules to enable the user to estimate the distance of objects
	The rigid neat's-leather case can be supplied with a compass, mounted in the lid of the case Extra cost, \$4.90
For wearers of spectacles	we supply our field-glasses, on request, with flat eyepiece shades without extra charge: when required, add the syllable "tie" to the code-word of the binoculars. When the faults in vision are considerable it is advisable to use correcting glasses made to slip over the eyepieces. Price on inquiry (enclose optical prescription).

Tripods, binocular magnifiers...... Prices on inquiry.

Prism binoculars are stocked in brown rigid cases only. If a different type of case is desired, this can be obtained on special order. Delivery would require approximately 8 to 10 weeks.

Any of the accessories mentioned on this page must likewise be ordered for delivery in 8 to 10 weeks.

Leitz field glasses embody the same degree of precision as the world re-nowned Leitz microscopes and the famous

