

WRAY

(OPTICAL WORKS)
Ltd

BROMLEY
KENT



C. BAKER OF HOLBORN LTD.
244, HIGH HOLBORN,
LONDON, W.C.1.

MB

WRAY

LONDON



BINOCULARS

ON CHOOSING A BINOCULAR

A prism binocular is a modern form of telescope enabling a distant object to be viewed distinctly on a larger scale. The qualities one looks for, therefore, when choosing a glass are, magnification, illumination, definition, field of view and light weight.

The most favoured binocular for general purposes is the 8 x 30 model; that is one having a linear magnification of 8 times (64 times superficial size) with object lenses having a clear aperture of 30 mm. This is in general use for all sporting events, winter sports, cruising, bird-watching, etc.

When a glass is to be used in dull light, extra illumination is given by the 6 x 30 model and it is interesting to note that this magnification and object glass diameter is the standard combination for Army use.

For use in particularly poor light, especially preferred for coastguard and nautical use, a large object glass diameter with a comparatively low magnification gives the maximum light under such circumstances. The factor derived by dividing the degree of magnification into the object glass diameter gives the figure termed the binocular's "exit pupil" and this is usually chosen around 7 mm for these purposes; the Brystar 7 x 50 or 8 x 60 fulfils these requirements.

MB

Where a power much greater than 8 times is under consideration, attention should be given to the fact that higher power binoculars are more difficult to hold steady for long periods. It is often an advantage, in such cases, to support the arms on some steady object or to make use of a stand. It must also be borne in mind that the field of view and illumination decrease as the power increases.

In special circumstances, however, in a fair light, a glass of high magnification has all the advantages of a telescope of similar power, together with a most pleasing stereoscopic effect. This applies particularly to the "Brystar" 10 x 50, a model well suited to the racing man; as a Monocular the glass forms a most compact and light telescope.

A large field of view is a very great asset in a binocular as it enables distant objects to be picked up easily and gives the opportunity of seeing a larger area of view without changing the viewpoint. The extra wide angle of the Raylite 8 x 30 and Brystar 8 x 40 glasses particularly recommends them in this connection.

Light weight is a most decided advantage in a prism binocular as it makes possible long periods of usage with a minimum of fatigue and the movement due to arm strain. Wray binoculars are noted for their lightness in comparison with their power and performance.

Focusing generally is effected by a central wheel together with separate adjustment to the right hand eyepiece to allow for differences between the observer's two eyes, and this model is the usual choice for tourist and sporting purposes. For use at sea or in hot climates, the eyepiece focusing pattern with no central screw should be chosen as this type is rendered air and water tight thus avoiding filming on the inside when used continuously in a humid atmosphere.

All Wray binoculars have bodies diecast in a particularly suitable aluminium alloy which is unaffected by the action of humidity or sea water. The hinges about which partial rotation takes place are cast in one piece with the bodies thus producing great strength and freedom from maladjustment due to screws working loose. The prisms are held rigidly into accurately cut seatings by strong springs and breakage due to jolting is almost impossible.

Lenses are carefully worked and centred while each unit undergoes stringent tests for definition before mounting. With but few exceptions, lenses and prisms are "bloomed" or coated with an anti-reflection film imparting a higher degree of efficiency than known hitherto. By saving the majority of light loss due to back reflections this modern process greatly enhances the brightness and contrast of the image.

MB

DIAGRAMS SHOWING THE RELATIVE FIELDS OF VIEW AT VARYING MAGNIFICATION

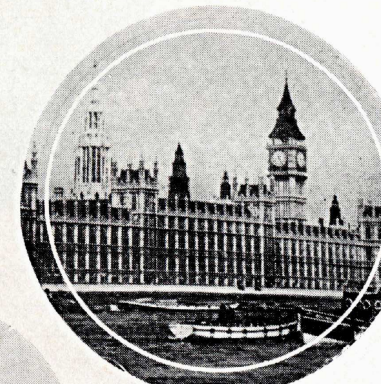


10 x 50
BRYSTAR

Note the increased magnification has the effect of lessening the field of view

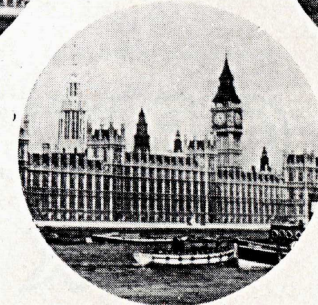


As seen with the naked eye in same proportion



8 x 30

The Wide Angle (Raylite) is seen as the outside area, the inner circle representing the Magnivu



6 x 30 CRYSTAR



CRYSTAR 6 x 30

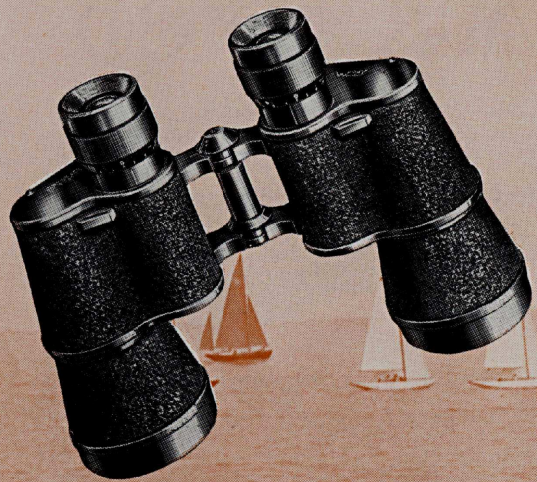
MB

CRYSTAR 6 x 30

The optical specification of these binoculars is identical with that of those supplied by us to the Service Departments during the last War, but the weight has been considerably decreased to render the glasses more acceptable for general use.

The eye-piece focusing model is completely sealed, making it water-tight and dustproof. The large exit pupil makes this a fine night glass.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil(mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
6x	30	142	8.1°	5	35	17	4½



BRYSTAR 7 x 50

MB

BRYSTAR 7 x 50

This is the ideal "night glass," having an exit pupil far greater than most binoculars. Available with either central focusing or with separate eye-piece focusing, the latter model being in general use for nautical purposes. There are no cemented prisms, a factor which increases the extremely robust character of this binocular.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
7x	50	126	7.3°	7.1	70.5	30	6



RAYLITE 8 x 30

MB

RAYLITE 8 x 30

Owing to the unique design of the eyepieces incorporating five lens elements on each side, this binocular has an unusually wide angle of field giving brilliant definition and great luminosity to the extreme margin. With a weight of less than 16 ozs. it can be held for protracted viewing without fatigue and with absolute steadiness.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
8x	30	148	8.6°	3.75	19.6	15½	4¼

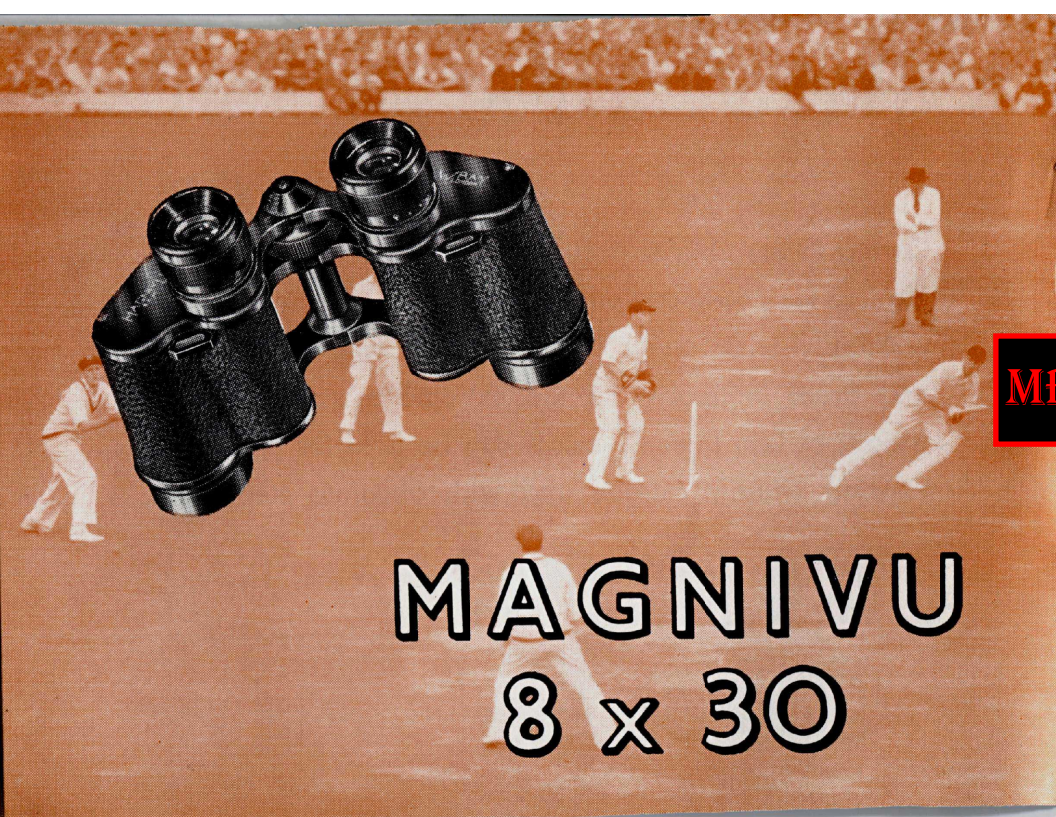
MAGNIVU 8 x 30

This binocular has withstood the test of time and is probably the most popular prism binocular in existence today. The latest model retains all the best features of the earlier ones, but has been improved both optically and mechanically as new materials and methods have become available. It is covered in ebonite, vulcanised in position, and the optical surfaces are bloomed to improve the light-gathering power and image contrast.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
8x	30	126	7.3°	3.75	19.6	1	4½

MB

MAGNIVU 8 x 30





CLEARVU 8 x 30

MB

CLEARVU 8 x 30

Although this is the lowest priced binocular in the Wray range, neither definition nor mechanical precision has been sacrificed. Economy has been achieved by a new simple but efficient optical system combined with organisation for quantity production.

This glass will be found most suitable for all general purposes where a wide angle is not particularly required. It is a handsome instrument, well made in light alloy, and the body is covered with an insulating mottled finish which will wear indefinitely. It is available, if required, with bloomed surfaces at a small extra cost.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
8x	30	110	6.3°	3.75	14	21	4½



BRYSTAR 8 x 40

MB

BRYSTAR 8 x 40

The relatively small dimensions and low weight of this glass have only been made possible by a newly-designed optical system giving an aperture ratio never before achieved by any maker in the World. The light gathering power and beautiful balance combined with its unique optical system makes this the ideal binocular for the sportsman.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil(mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
8x	40	148	8.6°	5	35	25	4 $\frac{3}{8}$



BRYSTAR 8 x 60

MB

BRYSTAR 8 x 60

The binocular for the Bridge; the naval man's choice. Its high value exit pupil exceeds any other Wray glass, while its light-gathering power makes this the finest hand-held binocular for use in mist and at night ever designed. Its unusual optical design keeps it within reasonable proportions.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
8x	60	148	8.6°	7.5	7.9	40	7



FLIGHT 9 x 35

MB

FLIGHT 9 x 35

Never before has a binocular of comparable power and efficiency been combined with such a light weight, making this a favoured glass of the sportsman and most suitable for the ladies. The increased light transmission gives a brilliant performance when skies are dull or when the light is fading.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
9x	35	132	7.5°	4	21.29	18½	5¼

DEFIANT 10 x 35

For those who seek a well-made British binocular of high power at a moderate price, this model has its own particular appeal. It may be described as the Magnivu's big brother, and retains the main features of that glass. It has a vulcanised ebonite finish and is available with "bloomed" optical surfaces at a small additional cost if required.

MB



DEFIANT 10 x 35

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
10x	35	104	6.0°	3.5	12.25	23	6



FARVU 10 x 40

MB

FARVU 10 x 40

Here we have a really high-powered binocular giving a superficial magnification half as great again as the x8 models, yet with a compactness and absence of weight which is truly remarkable. The optical system has been most carefully computed to give extremely fine definition combined with brilliant illumination.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
10x	40	115	6.6°	4	22.5	20½	6



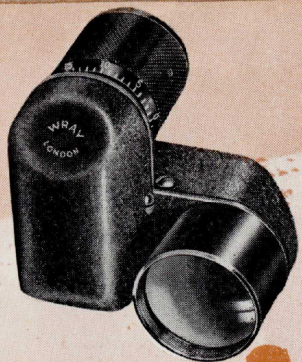
MB

BRYSTAR 10 x 50

BRYSTAR 10 x 50

The large object glasses of this model make its light-gathering power very high indeed, while its extremely large magnification combines to make it an instrument of superlative value to the sportsman. There are no cemented prisms and the binoculars are exceptionally robust.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil(mm.)	Relative Brightness	Weight (ozs.)	Height (inches)
10x	50	112	6.6°	5	35	30½	6



MB

PANORA 8 x 21

PANORA 8 x 21

This delightful folding monocular telescope, so small and light that it can be carried conveniently in the waistcoat pocket, is optically of the highest grade. It has a specification and performance equal to instruments where size and weight have been disregarded as important factors. Folds flat for fitting into its case.

Magnification	Effective Aperture	Yards at 1000	Angular Field	Exit Pupil (mm.)	Relative Brightness	Weight (ozs.)	Size
8x	21	96	5.5°	2.6	9.5	3½	2¾" x 1¾"

WRAY (Optical Works) Ltd.

BROMLEY, KENT

BINOCULARS

			PRICE			PURCHASE TAX	
			£	s.	d.	s.	d.
*Clearvu	8 x 30	(Fibre Case)	13	9	3	3	9
Clearvu	8 x 30	" "	15	11	3	3	9
Magnivu	8 x 30	(Leather Case)	18	0	0	8	7
*Defiant	10 x 35	" "	19	0	0	8	7
Defiant	10 x 35	" "	21	10	0	8	7
Crystar (E.F.)	6 x 30	" "	19	2	6	10	2
Crystar (C.F.)	6 x 30	" "	21	15	0	10	2
Raylite	8 x 30	" "	25	0	0	10	2
Flight	9 x 35	" "	25	0	0	10	2
Farvu	10 x 40	" "	30	0	0	15	5
Brystar	8 x 40	" "	37	10	0	11	7
Brystar	7 x 50	" "	40	0	0	13	11
Brystar	10 x 50	" "	44	10	0	13	11
Brystar	8 x 60	" "	47	10	0	20	4

MONOCULARS

			£	s.	d.	s.	d.
Panora	8 x 21	" "	9	10	0	1	8
Crystar	6 x 30	" "	9	0	0	6	1
Raylite	8 x 30	" "	12	0	0	6	1
Farvu	10 x 40	" "	13	15	0	8	5
Brystar	10 x 50	" "	21	10	0	8	0

All models "Bloomed" excepting those marked *
 Prices inclusive of Case, Strap and Lanyard