

BARR & STROUD Limited have been famed for sixty years among Naval and Military Authorities throughout the world as pioneers in the design and construction of optical and mechanical instruments of the highest precision.

They are leading makers of Rangefinders for Battleships, Submarine Periscopes, Heightfinders for Anti-Aircraft Gunnery, Gunnery Control Installations for Warships and Fortresses, Aerial Survey Instruments, etc.

They have applied successfully their wide experience and great resources to the problem of developing new types of Prismatic Binoculars which represent an important departure in design and manufacture.

These Binoculars are unsurpassed mechanically and optically. They are strongly made but light in weight with a beautiful black finish that cannot wear off.

J. R. HEBDITCH
F.S.M.C., F.B.O.A.

Consulting Optician

44 Hallgate, DONCASTER

Telephone : Doncaster 2126

TRADE



MARK

Printed in Scotland by Robert MacLehose & Co. Ltd Glasgow

Leaflet B.51
May 1951

**EXTREMELY LIGHT &
BEAUTIFULLY FINISHED**

MB

**BARR & STROUD
BINOCULARS**

**WITH 'COATED' LENSES AND PRISMS
INCREASING THE LIGHT TRANSMISSION**

Anti-Reflection Films

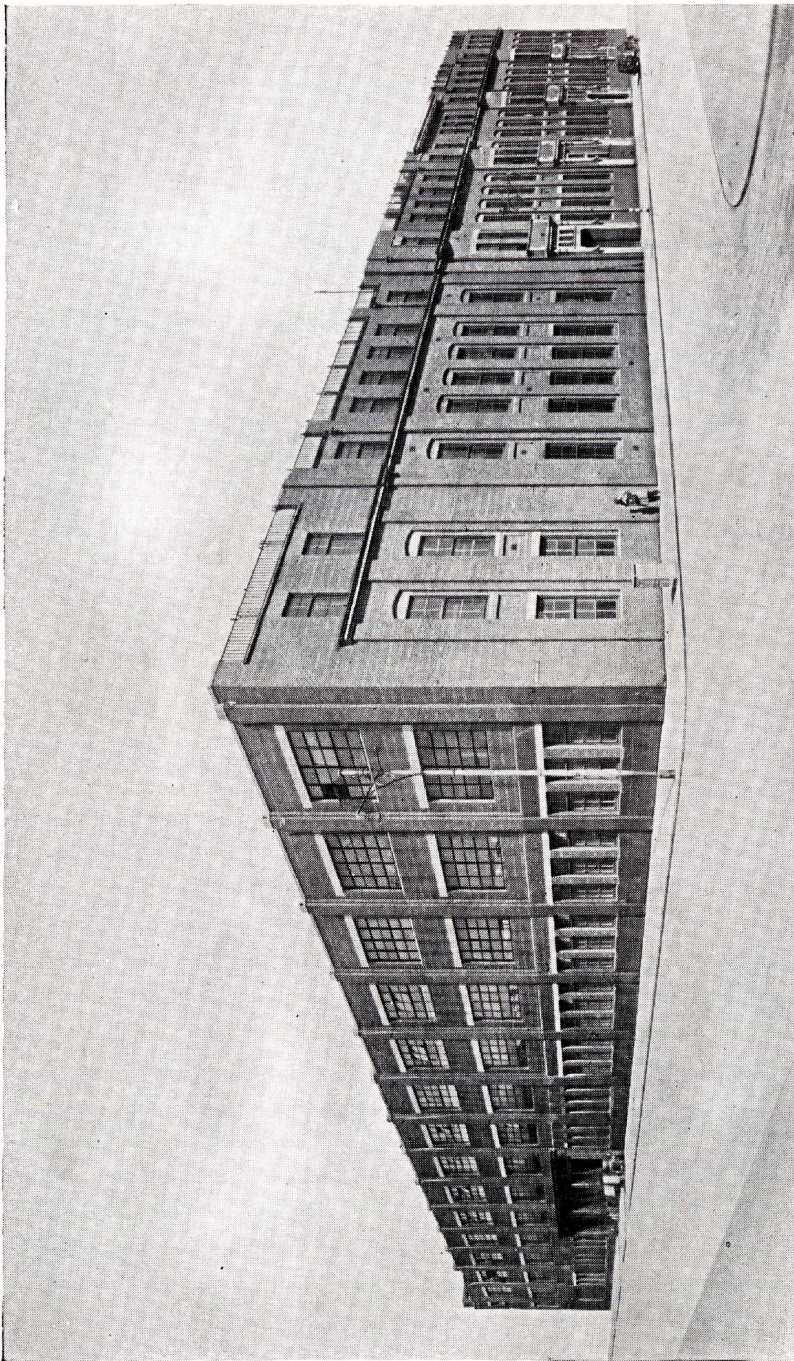
THE brightness of the field of view of a Binocular depends, and to an important extent, on the light transmission, that is, on the percentage of light that ultimately reaches the eye. In any optical instrument, when light passes from air into glass, or vice versa, i.e. when passing into or out of a lens or prism, a portion of the light, about $4\frac{1}{2}$ per cent., is reflected at each surface and is thereby lost. When all the surfaces are taken into account the total loss of light may be considerable, since the loss at each optical part, lens or prism, may approach, or even exceed, 10 per cent., being the sum of the losses at its two surfaces plus the loss in passing through the glass itself.

It has been found, however, that the surface losses can be reduced enormously by depositing on each glass surface an exceedingly thin film, usually a fluoride. When light enters or leaves a surface properly thus treated, much less of it is reflected, more is transmitted, and a brighter image is seen. Further, the object is more sharply defined, due largely to the elimination of the "ghost image" arising from the reflection of $4\frac{1}{2}$ per cent. of the light from an uncoated surface.

The fluoride used, and the actual thickness that the film must be, depend on the optical characteristics of both the fluoride itself and the glass on which it is deposited, and also on the average wave length of the light available. It is only when the principles underlying those facts are properly appreciated and applied that effective and efficient "coating" will result. Not only so, but it is essential that the film must adhere strongly to the glass; this entails a complex technical process. The method that is generally employed includes depositing the film in an exceedingly high vacuum. Unless all the details of the whole process are carried out with clear understanding and meticulous care the "coating" or "blooming" (as it is sometimes termed) of optical lenses and prisms may do more harm than good. It may be added, as a matter of interest, that the film is only about five millionths of an inch in thickness.

Messrs. Barr & Stroud Ltd. have had many years of experience in the production of these anti-reflection films and were one of the few pioneers in this work. They are fully equipped for carrying it out successfully, and the process is applied, not only to their important Naval and Military products such as Rangefinders, Submarine Periscopes, Naval Binoculars, etc., but also to all the Binoculars that they make for the civilian market.

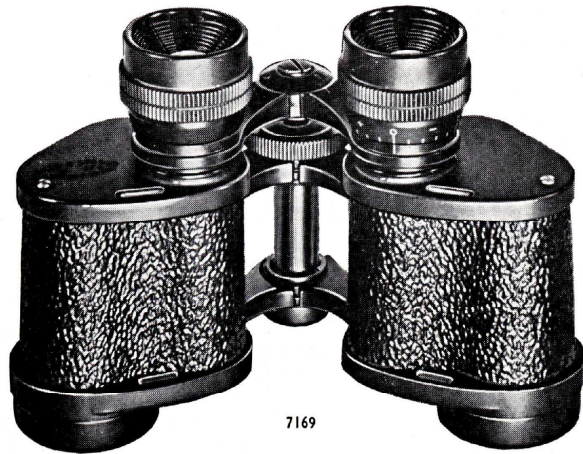
BARR & STROUD BINOCULARS



Administrative Offices
Anniesland, Glasgow, W. 3

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BARR & STROUD BINOCULARS



7169

Type C.F.5
HALF
ACTUAL SIZE

6×24 mm.

Magnification	-	-	-	-	6	Field of view in degrees	-	-	8°
Diameter of objectives	-	25.4 mm.	Field of view in yards at 1000	138 yds					
Aperture of objectives	-	24 mm.	Exit pupil	-	-	-	-	4 mm.	

The small size and light weight of these 6×24 glasses make them very suitable for Tourists and for general use.

TYPE C.F. 19 - - - Separate Focussing

Weight of binocular only	-	15½ ozs.	£17 0 0
Weight complete in case	-	29½ ozs.	

TYPE C.F. 5 - - - Central Focussing

Weight of binocular only	-	16 ozs.	£19 0 0
Weight complete in case	-	30 ozs.	

Prices include leather case, strap and lanyard.

BARR & STROUD BINOCULARS



7170

Type C.F.10
HALF
ACTUAL SIZE

6×30.5 mm.

Magnification	-	-	-	-	6	Field of view in degrees	-	-	8°
Diameter of objectives	-	32 mm.	Field of view in yards at 1000	138 yds.					
Aperture of objectives	-	30.5 mm.	Exit pupil	-	-	-	-	5.1 mm.	

Designed with large objectives to give great light-gathering power. These glasses have a large flat brilliant field of view, with sharp definition up to the edge. They give splendid results even under conditions of poor visibility and are ideal for Hunting, Navigation and all Sports.

TYPE C.F. 20 - - - Separate Focussing

Weight of binocular only	-	20 ozs.	£21 0 0
Weight complete in case	-	36½ ozs.	

TYPE C.F. 10 - - - Central Focussing

Weight of binocular only	-	21 ozs.	£23 0 0
Weight complete in case	-	37½ ozs.	

Prices include leather case, strap and lanyard.

MB

BARR & STROUD BINOCULARS



Type C.F. 18
HALF
ACTUAL SIZE

7171

8 x 30.5 mm. Wide Angle

Magnification	- - - - 8	Field of view in degrees	- - 7 $\frac{1}{4}$ °
Diameter of objectives	- 32 mm.	Field of view in yards at 1000	127 yds.
Aperture of objectives	- 30.5 mm.	Exit pupil	- - - 3.8 mm.

An ideal prismatic binocular for Hunters, Sportsmen, Tourists and Bird-lovers who often prefer an 8 magnification glass with great light-gathering power. The definition is sharp and free from distortion. The illumination of the whole field of view is brilliant. The stereoscopic effect is very striking.

TYPE C.F. 38 - - - Separate Focussing

Weight of binocular only	- 20 ozs.	£23 0 0
Weight complete in case	- 36 $\frac{1}{2}$ ozs.	

TYPE C.F. 18 - - - Central Focussing

Weight of binocular only	- 21 ozs.	£25 0 0
Weight complete in case	- 37 $\frac{1}{2}$ ozs.	

Prices include leather case, strap and lanyard.

CENTRAL FOCUSING BINOCULARS are those in which both eyepieces are focussed simultaneously by means of a central wheel. The right eyepiece is adjustable to suit any difference in focus of the user's eyes. They are invariably preferred for civilian use.

SEPARATE FOCUSING BINOCULARS are those in which each eyepiece is focussed separately. There is no central wheel focussing device. The smaller number of moving parts makes them particularly suitable for use under moist, tropical or sandy conditions. They are therefore favoured by Naval and Military Officers.

MB

BARR & STROUD BINOCULARS



Type C.F. 24
HALF
ACTUAL SIZE

8691

8 x 30.5 mm. Extra Wide Angle

Magnification	- - - - 8	Field of view in degrees	- - 8 $\frac{1}{2}$ °
Diameter of objectives	- 32 mm.	Field of view in yards at 1000	150 yds.
Aperture of objectives	- 30.5 mm.	Exit pupil	- - - 3.8 mm.

This binocular has been introduced to meet the demand for a high-powered binocular, with an extra large field of view for sporting events, such as Racing, Cricket, Yachting, Speed Trials, etc., and for viewing rapidly-moving Aircraft. In order to obtain the extra wide field of view, combined with high optical efficiency, a special optical system is embodied in the design.

TYPE C.F. 27 - - - Separate Focussing

Weight of binocular only	- 21 $\frac{1}{2}$ ozs.	£28 0 0
Weight complete in case	- 37 ozs.	

TYPE C.F. 24 - - - Central Focussing

Weight of binocular only	- 22 ozs.	£30 0 0
Weight complete in case	- 37 $\frac{1}{2}$ ozs.	

Prices include leather case, strap and lanyard.



Type C.F. 28
Weight 25½ ozs.

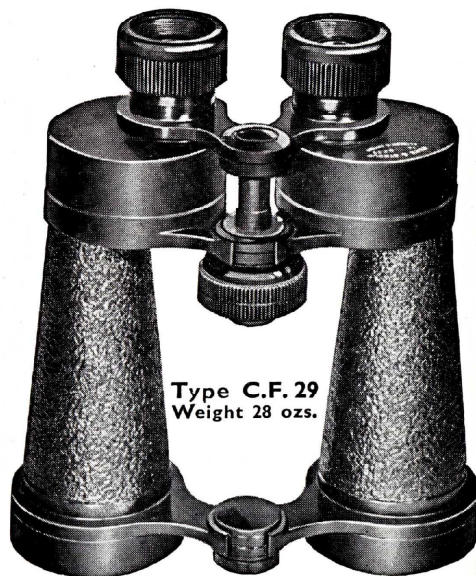
4153

Separate Focussing
£37 0 0

7 x 42 mm.

For general purposes. Specially suitable in poor light.

A binocular of average magnification for general purposes. Its high light transmission, due to an original optical design (first used in Type C.F. 30), together with high light-gathering power, makes it particularly suitable for use under conditions of poor visibility.



Type C.F. 29
Weight 28 ozs.

4154

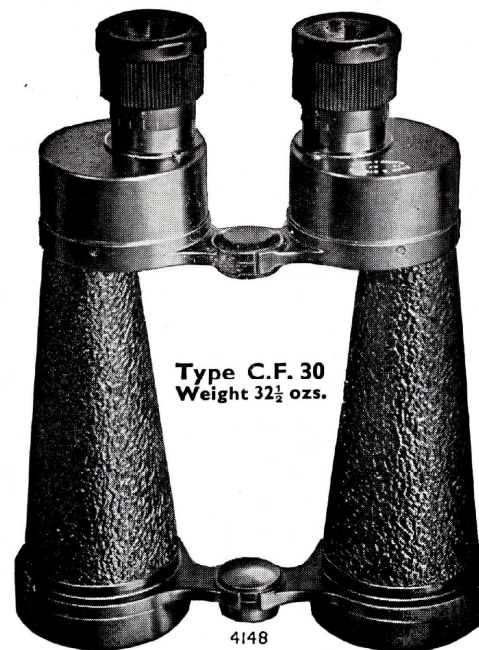
Central Focussing £40 0 0

DATA FOR BOTH TYPES

Magnification	- - -	7
Diameter of objectives	43.7 mm.	
Aperture of objectives	42 mm.	
Diameter of exit pupil	6 mm.	
Field of view in degrees	7° 18'	
Field of view in yards at 1000	- - -	127 yds.
Height	- - -	7.7 ins.
Width	- - -	6.7 ins.
Weight of case	- - -	16½ ozs.

Prices include leather case, strap and lanyard.

MB



Type C.F. 30
Weight 32½ ozs.

4148

Separate Focussing
£42 0 0

7 x 50 mm.

For Day and Night use. Brilliant Field of View.

The great light-gathering power of this binocular, together with its high light transmission, results in a brilliant field of view and makes it ideal for use in all conditions of visibility.

C.F. 30 has been adopted by the Admiralty for general use in the British Navy.



Type C.F. 31
Weight 36 ozs.

7706

Central Focussing £45 0 0

DATA FOR BOTH TYPES

Magnification	- - -	7
Diameter of objectives	50.8 mm.	
Aperture of objectives	49 mm.	
Diameter of exit pupil	7 mm.	
Field of view in degrees	7°	
Field of view in yards at 1000	- - -	121 yds.
Height	- - -	9 ins.
Width	- - -	7 ins.
Weight of case	- - -	20 ozs.

Prices include leather case, strap and lanyard.



Type C.F. 47
Weight 37 ozs.

10x50 mm.

Particularly useful for observing fine detail, under all conditions of visibility.

A high-powered binocular of large apparent field and great light-gathering power. The high magnification is specially useful for the appreciation of fine detail. As in the 7x50 mm. type, its shape, balance and lightness of weight enable it to be used in perfect comfort for long periods without fatigue.

Separate Focussing
£45 0 0

DATA FOR BOTH TYPES

Magnification - - -	10
Diameter of objectives - - -	50.8 mm.
Aperture of objectives	49 mm.
Diameter of exit pupil	5 mm.
Field of view in degrees	6½°
Field of view in yards at 1000 - - -	112 yds.
Height - - -	9.6 ins.
Width - - -	7 ins.
Weight of case - - -	23 ozs.

Prices include leather case, strap and lanyard.



Type C.F. 37
Weight 41 ozs.

Central Focussing £48 0 0

MB



Type C.F. 49
Weight 34 ozs.

12x50 mm.

Specially suitable for long distance use, under all conditions of visibility.

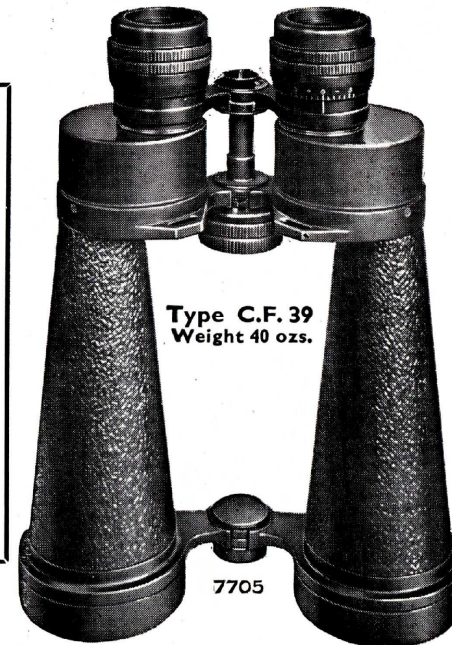
The outstanding features of this binocular are its specially high magnification and exceptionally large apparent field. These make it particularly suitable for use at long distances. It has also great light-gathering power, enabling it to be used under conditions of poor visibility.

Separate Focussing
£47 0 0

DATA FOR BOTH TYPES

Magnification - - -	12
Diameter of objectives	50.8 mm.
Aperture of objectives	49 mm.
Diameter of exit pupil -	4.1 mm.
Field of view in degrees	6°
Field of view in yards at 1000 - - -	104 yds.
Height - - -	9.2 ins.
Width - - -	7 ins.
Weight of case - - -	22 ozs.

Prices include leather case, strap and lanyard.



Type C.F. 39
Weight 40 ozs.

Central Focussing £50 0 0



7646

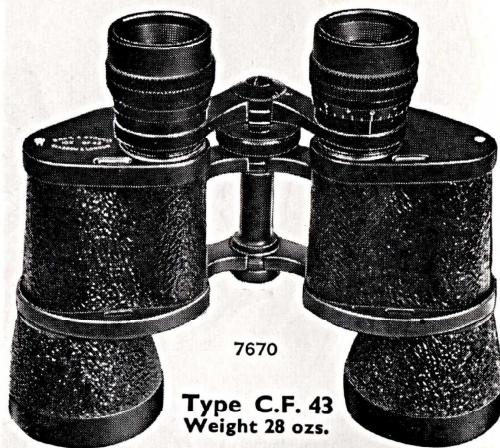
Type C.F. 53
Weight 27 ozs.

Separate Focussing
£38 0 0

10×42 mm.

Particularly useful for observing fine detail. Specially compact in shape.

A high-powered binocular of very large apparent field and high light-gathering power. The high magnification is specially useful for the appreciation of fine detail. It is specially compact in shape for a glass of this type and can be used in perfect comfort for long periods without fatigue.



7670

Type C.F. 43
Weight 28 ozs.

Central Focussing
£40 0 0

DATA FOR BOTH TYPES

Magnification	-	-	-	10
Diameter of objectives	43.7 mm.			
Aperture of objectives	42 mm.			
Diameter of exit pupil	4.2 mm.			
Field of view in degrees				7°
Field of view in yards at 1000	-	-	-	121 yds.
Height	-	-	-	5.9 ins.
Width	-	-	-	7.35 ins.
Weight of case	-	-	-	20 ozs.

Prices include leather case, strap and lanyard.

Monoculars



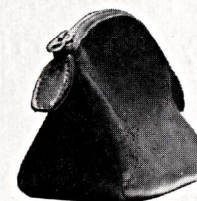
50 mm. and C.F. 28A types



C.F. 53A type.



24 and 30 mm. types



MB

Type	Magnification	Aperture of objective	Field of view	Weight of Monocular only	Price including purse bag or stiff case
C.F. 19A	6	24 mm.	8°	6½ ozs.	£8 0 0
C.F. 20A	6	30.5 mm.	8°	9 ozs.	9 0 0
C.F. 38A	8	30.5 mm.	7¼°	9 ozs.	10 0 0
C.F. 27A	8	30.5 mm.	8½°	10 ozs.	12 0 0
C.F. 28A	7	42 mm.	7° 18'	12 ozs.	14 0 0
C.F. 53A	10	42 mm.	7°	13 ozs.	15 0 0
C.F. 30A	7	49 mm.	7°	15 ozs.	17 0 0
C.F. 47A	10	49 mm.	6½°	18 ozs.	19 0 0
C.F. 49A	12	49 mm.	6°	16 ozs.	20 0 0

Monoculars with 42 and 50 mm. objective apertures are supplied with stiff leather case only. The 24 and 30 mm. sizes can be supplied with either soft leather bag or stiff case, as desired.

ACCESSORIES

Graticule. When ordered with Binocular or Monocular:

For Binocular of 24 or 30 mm. Objective aperture **£3 15 0**

For Binocular of 42 or 50 mm. Objective aperture **4 5 0**

When ordered for existing Binocular or Monocular
24 or 30 mm. not already fitted with Graticule **4 10 0**

Rainguard **0 12 0**

Lanyard with Studs **0 6 0**

Light Filters
Separate caps—per pair **2 0 0**

Sight Correcting Lenses
Separate caps - By quotation according to prescription.

GENERAL NOTE

In addition to its type symbol, each glass has a distinguishing reference such as 6×24 mm. or 10×42 mm. The first figure denotes the magnification, and the second the effective diameter of the objectives (the large lenses at the ends remote from the eyepieces). Thus a 10×42 mm. binocular has a magnification of 10 and an effective objective diameter of 42 mm. (25.4 mm. = one inch).

The greater the magnification, the larger an object appears; the larger the objectives, the more light enters the binocular and the brighter the image that is seen. Magnification and objective diameter are thus important features and are therefore chosen as a useful means of classifying binoculars.

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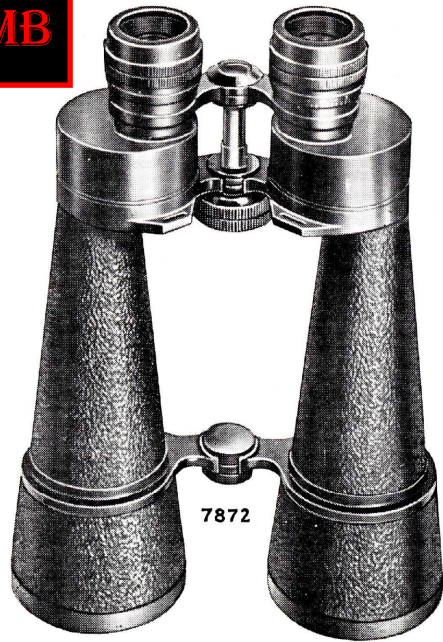
PRICES AND PURCHASE TAX

Tax applicable to Great Britain and Northern Ireland only, as an additional nett charge on leather cases and leather bags

<u>Binoculars</u>	Type	Price	Tax as from 15th April, 1953
24 mm.	C.F. 19	£17 0 0	8/-
	C.F. 5	£19 0 0	
30 mm.	C.F. 20	£21 0 0	10/6
	C.F. 10	£23 0 0	
	C.F. 38	£23 0 0	
	C.F. 18	£25 0 0	
	C.F. 27	£28 0 0	
	C.F. 24	£30 0 0	
42 mm.	C.F. 28	£37 0 0	13/-
	C.F. 29	£40 0 0	
	C.F. 53	£38 0 0	
	C.F. 43	£40 0 0	
50 mm.	C.F. 30	£42 0 0	15/-
	C.F. 31	£45 0 0	
	C.F. 47	£45 0 0	
	C.F. 37	£48 0 0	
	C.F. 49	£47 0 0	
	C.F. 39	£50 0 0	
<u>Monoculars</u>	Type	Price	
24 mm.	C.F. 19A	£8 0 0	6/-
	C.F. 20A	£9 0 0	
30 mm.	C.F. 38A	£10 0 0	7/6
	C.F. 27A	£12 0 0	
42 mm.	C.F. 28A	£14 0 0	8/-
	C.F. 53A	£15 0 0	
50 mm.	C.F. 30A	£17 0 0	10/6
	C.F. 47A	£19 0 0	
	C.F. 49A	£20 0 0	

BARR AND STROUD

BINOCULARS



15 × 60 mm.

**DATA FOR BOTH
TYPES**

Magnification	- - -	15
Diameter of objectives	62 mm.	
Aperture of objectives	60 mm.	
Diameter of exit pupil	4 mm.	
Field of view in degrees	4½°	
Field of view in yards at 1000	- - -	79 yds.
Height	- - -	11 in.
Width	- - -	7½ in.

Magnifying 15 times, these glasses make an object at 1500 yards appear to be only 100 yards distant. They are splendid for Hunting, Yachting, Navigation, Natural History study and all pursuits involving long distances.

TYPE C.F. 56 - - -

Weight of binocular only - 44 oz.
Weight complete in case - 68 oz.

Separate Focussing

£57 + 20/- Purchase Tax
on leather case

TYPE C.F. 46 - - -

Weight of binocular only - 50 oz.
Weight complete in case - 74 oz.

Central Focussing

£60 + 20/- Purchase Tax
on leather case

MONOCULAR C.F. 56A

£23 + 13/6 Purchase Tax
on leather case

Prices include leather case, strap and lanyard