"Field Glasses & prismatic binoculars suitable for astronomy"

I'm not a fan of modern binoculars, although I have to confess to owning a small roof prism bino, 8x21, for hiking. However it wasn't too long before they got knocked out of collimation, and at £12 you may as well buy another, or use it as a monocular!

I prefer solidly made binoculars, and have amassed a modest little collection of prized specimens, mostly acquired off eBayUK, but also charity shops and car boot fairs.

THE COLLECTION SO FAR

These field glasses and binoculars are all hand holdable, and suitable for astronomy. I used to own a pair of 11x80's bought off Leo Henzl Jnr in 1979, but I sold them 10 years later. They were too heavy to hold for more than a couple of minutes, and on a photographic tripod, too awkward to point near the zenith. You really need a parallelogram mount for binoculars that size and larger. I prefer a binocular you can carry with you to a star party, for casual star gazing. But I like good clean optics, and many modern binoculars are woefully deficient in optical quality, unless you shell out a grand or more for a top notch pair.

It is easy to buy very high quality vintage binoculars on eBayUK, but you have to make sure the optics are clean, free of dust, dirt, insects, and fungus. You also have to make sure they're collimated, and since most sellers do not understand what collimated means, you have to explain to them what to look for in a decollimated pair. (For a typical example of what can happen when buying a vintage binocular on eBay, see end of article).

Field glasses are less of a problem in this respect because even if the barrels are not exactly aligned parallel to one another, you can still fuse the images, and field glasses are so low power, astigmatism is not an issue.

Field glasses can be acquired that have negative achromatic eyepieces, and they offer a wide real field, even if the apparent field is narrow. For instance I have a pair of 3.5x50's with a 8º.5 field of view (fov); the snag is the exit pupil (virtual) is 14mm, so the OG's are effectively stopped down at least 50% (7mm eye pupil), with a consequent 75% light loss. They do however give spectacular views of the Milky Way.

For clarity of image though you need a good pair of prisms. In my little collection I have some real gems, luminaries of the binocular firmament.

PRISMATIC BINOCULARS

Starting with the oldest, a pair of Carl Zeiss Jena, Nedinsko Venlo, 8x30's made for the Swiss Army in 1934. Got them from Surplus Shed. Nedinsko was a German front company set up in the Netherlands in 1921 in order to
The answer is the Ross No.5 Mk.IV O.S.735G.A. 7x50.

I bought my pair off a fellow amateur astronomer, Noel Dunmow for £70 I think. It's the best £70 I've ever spent on a binocular. They are the best 7x50 I've ever used. Jupiter's Galilean satellites for instance are clearly resolved as pin pricks of light. The field background is dark and there is no scatter or ghosting. The only snag is their weight. They are a tad on the heavy side at about 3lbsf.

The answer is the Ross No.5 Mk.IV O.S.735G.A. 7x50.

Apart from general sales of binoculars, Ross supplied the military during WW 1 and WW 2, manufactured at their London plants in Clapham, Camberwell & Bittacy Hill. The most well known of the military binoculars are the British Army's 7x50 Prismatic No.5. They were derived from the Ross Stepnite, which was introduced in 1930. According to T. Wayland's chronology of Ross, this model was adopted in July 1935 as the No. 5 and intended for coastwatching. The military No.5 Mk.IV version of 1944 was filled with dry nitrogen to stop condensation and fungus growth. 

Cited from Frank Lagorio <http://www.flickr.com/photos/binocwpg/6944369803/>:

"According to the 1941 British Army Manual, "Notes on Repairs to Fire Control Instruments - Prismatic Binoculars and Monoculars" the Bino Prism No.5 was to be used by "Coast Watching and A.A. Searchlight Units".

The Mk IV was introduced November 1941 and differed from the Mk II in having the Mk III type object glass assembly plus a modified prism mount which made manufacturing easier. There are also small differences in IPD plate and front hinge cap design. This binocular has a crackle finish which was introduced in 1942. The marking "O.S.735G.A." refers to General Arrangement drawing 735 on the Optical Stores list showing a modification of an earlier model. Usually only optical instruments made for the Army showed OS numbers followed by an MA or GA suffix. There is a horizontal graticule in the right eyepiece with its graduations marked on the right prism plate. (Removed by Admiralty prior to war surplus on-sale - c/jrl).

The Ross emblem on prism plate is a little unusual. Although the stylized "RL" abbreviation is not a rare marking, the words "Ross London" are more often seen. BinoPrism No.5's were also manufactured by a company displaying an identically styled "NIL" on the right prism plate. Although there has been some disagreement among researchers about the meaning of NIL, a recent study by Terence Wayland of British National Archive files has found that in 1941 the Ministry of Supply created a shadow company named Nottingham Instruments Ltd. (located in the premises of a Player's cigarette factory) with Ross Ltd. having majority control. Thereafter, NIL is indirectly referenced on Ross' annual reports and appears to have been dissolved in 1946."

They are much lighter, only 2lb:4oz. The eyepieces are triplet Orthoscopics cemented directly to the porro-prisms. The Bausch & Lomb 7x50's are crisper towards the edge of the field of view, but the Ross No.5 Mk.IV 7x50's have a darker field. Newton & Ellis repaired, cleaned and serviced my pair in 2011. I truly rate these binos for astronomy. I found them on eBayUK with a winning bid of only £25. Newton Ellis charged me £114. When bidding on a pair ask the vendor if the lightpath is clear. The balsam used to cement the prisms and the field lens easily shatters if the binocular is dropped. The tell tale signs are cream coloured patches and flakes of balsam.

Another Ross binocular I really like is the Stepmur wide angle, 10x50x7º. They weigh only 2lb:3oz.

Cited from Frank Lagorio <http://www.flickr.com/photos/binocwpg/6944369803/>:

"Ross introduced the individual focusing Stepsak 10X50 PorroII binocular in 1934 with the center focus version Stepmur appearing in their 1939 catalogue. The Stepmur was manufactured until 1965 when both it and the 12X50 Stepsun were replaced by the 11X50 Stepeleven, a binocular of lesser build and optical quality. Ross bloomed their lenses after 1945. Originally the Stepmur had cemented PorroII prisms, but during the mid 1950's (probably 1954) Ross began air-spacing them in order to offer a more robust binocular (cemented PorroII prisms were prone to separation) and most likely to reduce production costs as well. Neither version of the Stepmur had the ocular field lens cemented to the prism assembly as did the 7X50 Steplux. Although both
versions appear externally identical, the cemented prism version seems to have had a wider field of view (7° according to the 1939 catalogue) than the air-spaced one (6°: 36' according to an April 1957 catalogue).

The view is nicely color neutral and its sharpness to the edge is very good particularly given its wide 7° field of view."

An even lighter wide angle is the Ross 9x35 Solaross binocular. I bought my pair at UKAstroFest 2012 for £50. Originally intended for ornithologists, and weighing in at a modest 26ozs and a compact height of 6 1/2 inches I find this binocular very easy to hold. The construction is less robust, the prism covers are plastic, but the optics are excellent. The Spectaross and Solaross series was developed from the 8x35 Spectacle Solaross, patented in November 1950 and exhibited at the Festival of Britain, 1951, and marketed from 1957 thru’ 1966 when the firm went into receivership. ROSS OPTICAL Ltd. continued supplying binoculars until 1974.

All these binoculars have good low light performance, except the CZJ 8x30's. The Bausch & Lomb Mk.28's despite being a 1941 model, have bloomed lenses. The Ross No.5 Mk.IV's are uncoated, but light losses are minimized because the field lens first surface of the three element eyepiece is cemented to the prisms.

The Bausch & Lomb 1950 booklet refers to low light performance and uses a qualitative index referred to as the 'Twilight Factor' (the square of the exit pupil in millimetres). The relative performance of binoculars in low light is also described by another qualitative index, the 'Relative Light Efficiency' or RLE (1.5 times the square of the exit pupil). These indices have no basis in optical theory, but they have been widely adopted for so long (back to the late 1940's) that it is pointless trying to get them dropped. However what actually governs low light performance is the exit pupil being matched to the fully dilated eye pupil, plus the transmission efficiency of the optical train.

In this sense modern binoculars undoubtedly have the edge of WWII bino's thru’ 70's bino's if only because of developments in broad band anti-reflection coating technology. But, the differences are marginal in the case of BBAR vs MgF2 bloomed lenses. Uncoated lenses will loose 4% at every air-glass surface, bloomed lenses about 1/4% & BBAR less than 0.1%. However, bear in mind, the prisms rely on total internal reflection and have very little transmission losses, whereas modern wide angle eyepieces with multiple air-glass lens surfaces, are intrinsically less efficient.

In the 1960's Charles Frank retailed their NIPOLE range, characterised by relatively low weight, high quality optics, and bloomed lenses. I have two in my collection, SIMOR (Singapore Manufacturing Organisation) 10x40x7º.1 skeleton weighing only 1lb: 2 3/4ozs, & NIPOLE 10x50x5º, weighing 2lb: 4oz. The skeleton 10x40's are compact, only 5" wide x 5" tall, and useful for hiking. However they loose collimation all too readily, although it is not difficult recollimating them, you do not need a collimation bench. The 10x50 NIPOLE are comparable to east zone CZJ of the same era.

The most efficient binocular in my collection is the Asahi Pentax 7x35x11º, which I bought new in Santa Monica, 1979 for $125. It's the most I've ever paid for a binocular in real terms, and despite their modest aperture, they are superb low light performers. Manufactured by Asahi Kogaku Kogyo Co. The BBAR coatings are so effective all you see when looking into the barrels from either end is your own reflection! They are very compact, only 7" wide x 5" tall, and weigh 2lb: 2oz.

My smallest binocular is a Kershaw 7x30x9º.4 Renown, which was given to me by my late father-in-law. A.KERSHAW AND SONS LTD., 76 Woodhouse Lane, Leeds, moved to large site in Harehills Lane, Leeds in 1916. Founded by Abraham Kershaw (1861-1929) in Leeds in 1888, manufacturing and repairing scientific equipment. During the Great War they were appointed to manufacture prismatic binoculars. They recruited three key workers from Carl Zeiss (London) Ltd. at Mill Hill. One of the sons attended an intensive course on lens design at Imperial College.

On 15 June 1916 the Company received an order for 25000 No 3 Mk I binoculars.

The prisms were supplied by Barr and Stroud and the lens sets by Thomas Cooke and Son Ltd and Taylor, Taylor Hobson Ltd. Later Kershaw started manufacturing its own lenses. The Ministry considered they were generally better than those supplied by the other companies.

By 29 December 1917, 5798 had been delivered. From 4 February 1918 not less than 50% of production was to be of Mk.II specification. Kershaw made binoculars of both Ross and Zeiss pattern construction.

After the War Kershaw continued to manufacture binoculars for occasional military orders and for the commercial market. By 1930 their catalogue listed 26 models. The Renown model was manufactured probably from the late 1940's thru’ 1950's, same as their Vanguard 10x50. They are remarkably similar to Ross Stepnada of the same vintage.

They are a squat little bino owing to the use of Porro I prisms, weighing only 1lb: 5 1/2ozs, 6 1/2" wide x 3 3/4" tall. The centre wheel focus in between the objectives. They are optically excellent, and compact enough for hiking. The optics are bloomed.
A Kershaw binocular made in the 1950's is the Vanguard 7x50, fov 7º.4, weight 2lbs:11ozs. Kershaw manufactured this model from 1947 thru' 1958 when the company was liquidated.

This from Frank Lagorio:

"They not common, and if the number of Kershaw binoculars produced during this time period is at all similar to Barr & Stroud numbers, then probably not more than 10,000 Vanguards were made. According to William Reid's "'We're certainly not afraid of Zeiss' Barr & Stroud Binoculars and the Royal Navy" between 1947-1958 Barr & Stroud's binocular production averaged about 2,500 per year, a low number mostly attributable to the influx of Japanese binoculars (pages 150-152). Even in the unlikelihood that Kershaw's binocular production exceeded that of Barr & Stroud and 25% of their annual production were Vanguards (again unlikely because the costly-to-make Vanguard would not have been a top seller due to price and competition from other English Porro II manufacturers such as Ross and Barr & Stroud), at the most 10,000 would have been manufactured. For comparative prices to other British binocular or this time period see:
1) www.flickr.com/photos/binocwpg/5806552443/in/set-72157623...
2) www.flickr.com/photos/binocwpg/5807102234/in/set-72157623....

For a binocular which was not produced in great numbers they do, nonetheless, appear frequently in media: i.e. in contemporary magazine advertisements and in the 1957 J. Arthur Rank film, Campbell's Kingdom (the fact that Kershaw had been a Rank subsidiary since 1947 may account for their use as a prop). They also saw service with the Swedish navy (Forslund shows a Vanguard 7X50 used by the Swedish navy marked with 3 crowns as well a 1949 dated picture of the commander of the cruiser 'Kronor holding one).

Optics are coated, and build quality is exceptionally high. It is of Porro II configuration but without the ocular field lens cemented to prism. The eyepieces are not connected to a bridge as on conventional center focus designs, but instead, the Vanguard has a unique internal center focus mechanism (See: www.flickr.com/photos/binocwpg/5076400742/in/set-72157623...) The objective cell design and collimation system are so similar to that of the Ross No. 5 Mk II Bino.Prism that one wonders if surplus parts were used in construction. However, a comparison to the collection's Bino.Prism shows this isn't the case although the Bino.Prism undoubtedly influenced design.

Compared to the collection's post-war made Ross Steplux 7X50 and Barr & Stroud CF30 7X49 both having coated optics: 1) The Steplux's view is ever so slightly brighter than the Vanguard's while the CF30's is slightly dimmer; 2) The Vanguard has better sharpness to the edge than the two others; 3) Although the Vanguard is specified as having the widest FOV (7.4 degrees versus 7 degrees for both others), in use it seems about the same as the Steplux's albeit wider than the CF30's; 4) The Vanguard's and Steplux's views are equally color neutral while the CF 30 has a slightly amber one; 5) Both competitors are at least 275 grams lighter weight than the Vanguard; 6) All are well-made but I would say the Vanguard has sturdiest build in part because its ocular field lens is not cemented to the prism cluster as on both others and thus not liable to separate."
They are better braced than a SARD 7x50 BU AERO U.S. NAVY MARK 21, product of SQUARE D COMPANY, FLUSHING, NEW YORK. Square D is still in existence but it is not an optical firm. It’s history dates back to 1902, and it made electrical equipment, and still does under the banner of Schneider Electric. <http://www.schneider-electric.co.uk/sites/uk/en/company/brands/square-d.page>

During WWII Square D assembled two models for the U.S.Navy, the 7x50x7º & 6x42x12º.5. The SARD 7x50 weighs slightly more than the Kershaw Vanguard 7x50, at 2lbs:15.5ozs. Performance-wise optically, they are remarkably similar, although the Vanguard has better light transmission because the optics are bloomed.

Similar to the Bausch & Lomb 7x50 is the REL 7x50, weight 3lbs:2ozs. I won a pair with case on eBayUK for £45, dated 1944, all blacked up and used on Juno beach on D Day +1 by RM 46 Commando.
In July 1940 The Canadian Government established Research Enterprises Limited - A Crown Company. A factory was set up in Leaside in Toronto. REL was government owned and supported. REL was also supported by the U.S Bureau of Standards and the British Admiralty.

REL made 6 x 30 and 7 x 50 Binoculars. These Binoculars were tested by being water sprayed, attached to a cord and dropped into a box of sand from 6 feet.

In 1945 almost 50,000 pairs of 6 x 30 Binoculars were produced and 25,000 pairs of 7 x 50 Binoculars. There was also some experimental pairs of 20 x 72 Binoculars made.

REL also produced Tank Periscopes, Sighting Telescopes and Predictors.

The binoculars produced were all given identification markings, "CGB 40 MA" is the Canadian Ordnance Catalogue Number and identifies them as Binocular, Prismatic and the Number. The “MA” means that these binoculars were issued without a case and “Ga” means they would have been issued with a case. This coding was later dropped as cases were always being added or lost.

PRISMATIC BINOCULAR DESIGN

Prismatic binoculars fall into two quite distinct categories, Roof Prism & Porro Prism. Porro prism binoculars come in two distinct styles.

Above is a schematic culled from Wiki, depicting a type 1 Porro prism lightpath. Porro-prism binoculars will inherently produce a brighter image than roof-prism binoculars of the same magnification, objective size, and optical quality, because the roof-prism design employs silvered surfaces that reduce light transmission by 12% to 15%. Roof-prism designs also require tighter tolerances as far as alignment of their optical elements (collimation). This adds to their expense since the design requires them to use fixed elements that need to be set at a high degree of collimation at the factory. Porro prism binoculars occasionally need their prism sets to be re-aligned to bring them into collimation. The fixed alignment in roof-prism designs means the binoculars normally won't need re-collimation. However if they do need re-collimating the procedure is more time consuming and costly.

HOW THE PORRO PRISM SYSTEM WORKS
Porro Prism

The "Porro prism system" uses prisms invented by Italian optician Ignazio Porro who patented his image erecting system in 1854, later refined by makers like the Carl Zeiss company in the 1890s. In the Porro prism system, two triangular prisms are placed at right angles to each other to reverse the image.

The image-erecting design of the "Roof prism system" comprises wedge & penta prisms. Since light can travel along a straight path from the objective lens to the eyepiece, the roof prism system can be more compact than the Porro prism system. Its problem, however, is that the right angle of the roof edge must be manufactured with impeccable precision; otherwise, the resolution of the image will be visibly impaired. High-precision machining technology is thus required in the manufacture of the roof prism system.

A far more compact variant of the Porro prism is the Porro-Abbé prism. This is a description culled from Wiki:

A Porro–Abbe prism (sometimes called a Abbe–Porro prism), named for Ignazio Porro and Ernst Abbé, is a type of reflection prism used in some optical instruments to alter the orientation of an image. It is a variant of the more common type I double Porro prism configuration.

It is made from a piece of glass shaped like four right-angled reflecting prisms joined face-to-face in a twisted fashion. Light enters one flat face, is internally reflected four times from the sloping faces of the prism, and exits the second flat face offset from, but in the same direction as the entrance beam. The image is rotated 180° in the process, and for this reason the prism is used as an image erecting system.

The prism is not dispersive since light enters and exits the prism only at normal incidence. Since the light is reflected an even number of times, the image's handedness is not changed.

For ease of manufacture, the prism is often made as a pair of double-right-angled prisms and the two halves cemented together. A single half of the assembly is sometimes also called a Porro–Abbe prism.

Type II Abbé-Porro prisms were used by Ross in their No.5 Mk.IV 7x50, & 10x50 STEPMUR, and by Kershaw in their 10x50 Vanguards. Because there are only a pair of air-glass surfaces in the prism train, they are more efficient, than the type I Porro prism. This is the reason why the Ross No.5 Mk.IV, despite being uncoated, has excellent light transmission. The eyepiece is cemented directly to the Porro-Abbé prism, and has only three elements, a 1-2 Orthoscopic design similar to the RKE. The total number of air-glass surfaces, including the OGS's is only 6. Being a more compact design, the entire prism assembly including cell, clamps and collimation screws, is much lighter. The prism unit was made of a pair of cemented right angle prisms, and the prism-eyepiece system unfortunately had a tendency to separate. One of the tasks undertaken by Newton-Ellis was to re-cement the prisms and prism eyepiece system.

Reflection occurs by total internal reflection, which depends on the refractive index of the glass.
Normal BK7 glass has a lower refractive index than the optically denser BaK4 glass that is used in better binoculars. A higher refractive index results in a smaller critical angle, $40^\circ.05$ in BaK4 as compared to $41^\circ.2$ in BK7 (555nm), so there is less light likely to be lost because of non-total internal reflection in the prisms. The critical angle varies with wavelength, BaK4 C-line: $40^\circ.2$ F-line: $39^\circ.9$; BK7 C-line: $41^\circ.4$ F-line: $41^\circ.1$.

The difference is more noticeable in wide angle binoculars whose objective lenses have a focal ratio of f/5 or less. BaK4 becomes critical at f/3.5, BK7 at f/5. The non-total internal reflection of the peripheral rays of light from the objective results in vignetting of the image. This effect can easily be seen by holding the binocular up to a light sky or other light surface and examining the exit pupil. The exit pupil of a binocular with BaK4 prisms will be perfectly round, whilst that of a binocular with BK7 prisms will have tell-tale blue-grey segments around it.

The BK7 image was taken from a slight angle in order to show the nature of the vignetted segments. Viewed from directly behind the exit pupil, there is a square central region with vignetted segments on four sides.

BUYING VINTAGE BINOCULARS

I find it much less hassle buying vintage binoculars at antique fairs and car boots, because you can handle and inspect them. Unfortunately most of the worthwhile collectable models are scarcely encountered at such venues. Unless you are a collector, avoid pre WWII binoculars, especially Galilean field glasses or Opera glasses.

What you need to look out for are the classic binoculars I've described, including their civilian spin-offs. Barr & Stroud CF series, especially the CF41 & CF43, 7x50 with the patented splash guards, issued to submarine commanders are also well worth acquiring. But even those without splash guards are fine binoculars. Square 'D' 7x50 SARD are also well worth having, and the 6x42 SARD is a dream, if you can afford one.
When handling and inspecting the binocular (or what you need to ask an eBayUK seller), make sure the eyepiece focusing mechanism works. If the binocular is a centre focus type, make sure the mechanism is free, but not badly worn or loose (make sure grub screws aren’t missing). If individual eyepiece focus, make sure the eyepieces are free to turn. Look through them at a distant object and make sure you can focus each barrel. This is the time to check collimation. If they give a double image, forget it, unless you’re determined to have them, because Newton Ellis now have a minimum service charge of £75+VAT+p&p. I have never paid more than £115 for a pair of vintage 7x50’s. If you are expected to shell out well over £50 for a vintage bino that needs collimating and perhaps cleaning, you have to ask yourself the question, “Is it worth it?”

Next, hold the binocular up to a bright light and look through it from the OG end, and check the clarity of vision, and for scratches, dust, dirt, insects, fungus, or prism blackout. If the prisms have become de-cemented, sometimes the field becomes blacked out. Obviously such binos are junk. Also make sure paint is not flaking off the inside of the barrels. Also check the case. Most vintage bino’s were supplied with a high quality hide case and strap. I hardly ever buy vintage bino’s without their case. Finally check in the case for provenance.

Ideally what you’re after is a pair which are undamaged, the external & internal finish is good, even if there is wear and tear commensurate with their age and usage, the optics are clean and the image lucid. Most vintage bino’s show some sign of wear and tear, and have dusty or dirty optics. Providing the optical surfaces are not etched with fungal growth (a spidery filigree lacework), then they maybe worth cleaning. But check the screws and fittings to ensure there is minimal corrosion. The Ross No.5 Mk.IV’s I took to Newton Ellis, in Liverpool, looked ok, but being aluminium alloy barrels, the steel grub screws were so corroded into their threads, that the binocular had to be soaked for almost a year before the technician could dismantle them. And finally herein lies a word of warning to the uninitiated. If you don’t know how the binocular was constructed, never attempt to dismantle it yourself, because a screwdriver in the wrong hands causes a world of woe.

Happy vintage binocular hunting.

POSTSCRIPT

I have a Carl Zeiss Jena DDR JENOPTEM 10x50W 7° wide angle binocular which I picked up for £40 in 1993 at a camera fayre. Unfortunately one of the prisms cracked during a house move, and I wanted Newton Ellis to repair them, but was advised to find another pair, even if it was only for spares. I have watched in amazement this binocular in good condition fetch between £120- and £250 on eBayUK, consistently over the past couple of years. Recently I managed to acquire this binocular for £70 including delivery. They were in good (not perfect) collimation, and sound mechanically. The optics needed a clean. However the bridge end caps were both
missing. Newton Ellis cleaned them and replaced the bridge end caps with those from my damaged binocular. I did a deal with them, donating the damaged binocular as part payment.

Carl Zeiss Jena were one of the few DDR industries able to compete internationally. Their binoculars are quite good, the Jenoptem is a little soft at the edge, the Dekarem are better, but more expensive generally. The coatings slightly orange (T3M) indicating they were made post 1978. They have BaK4 Porro type I prisms, and a 7º.3 fov. They are also light for a wide angle x10 bino, only 2lbs:4oz.

ZENITH, a Japanese manufacturer of binoculars and cameras made a fair copy of the CZJ Jenoptem. The 7x50x7º.1 is almost identical mechanically. Optically it is fair, bloomed lenses, the BK7 prisms vignette, but otherwise they are extremely good value. This binocular was bought on eBayUK for £14 + £6 delivery.

BARR & STROUD CF41 7x50x7º, AP 1900A, night binocular, serial no.25860, fitted with splash guards and filter wheels, with pale grey, pale yellow and deep green filters operated by an index mechanism within the PorroII prism housing. From "We're certainly not afraid of Zeiss" (ISBN 1-901663-66-3, 2001, by William Reid) the Barr
& Stroud CF41 7x50 was a developed CF40 with internal colour filters set in front of the prism system, adopted in 1935 as the second type of Admiralty Pattern 1900A; it underwent many modifications. Earlier models had click stops on the oculars and many also extending splash guards. Dessicator vent unions and less permeable oculars were later incorporated. The Royal Navy’s standard binocular for day and night use, c.70,000 were made during 50 years it was in service. Serial no. information is limited: 33135= pre1941; 70119= 1945. From 17th August 1942 a chamois leather washer, smeared with Bermoline grease, was fitted to CF41 variants AP1900A, AP1907A and AP1948, improving watertightness. The book acknowledges the plethora of Admiralty Pattern numbers and Barr & Stroud product codes: AP1900A-colour filters, no graticule; AP1907A-cross lines graticule; AP1948-clockface graticule. As to why the ports were plugged after the war, the book reveals many dessicator connections were removed and the vents sealed during renovation prior to sale, then thousands of naval binoculars inundated the civilian market, no longer likely to suffer as seriously from the effects of damp as when they were at sea. William Reid's book is informative and entertaining, albeit necessarily very detailed. This binocular was bought on eBayUK for £225 + £15 delivery.

This is a large, heavy binocular, 9 3/8 tall x 6 3/4 wide x 3 1/2 breadth, weight 3lbs:7ozs. With the splash guards extended the overall height is 11 3/8.

According to the NAHSTE project Barr & Stroud, Glasgow, was established by Archibald Barr and William Stroud in 1888 and became a limited company in 1913 and produced their first binoculars in 1919. During the 1930s the company became the preferred supplier of binoculars to the Admiralty, a position it maintained until the mid-1950s. Increased competition from the Far East during the 1960s, coupled with the failure to win any significant new military contracts, led to Barr and Stroud ceasing binocular production in early 1972.

Despite asking the seller specifically if they were collimated, they were decollimated. It is nigh impossible to get the seller to co-operate when this happens. They insist the binocular was collimated when it left their premises. They try to imply decollimation took place in transit, despite also stating their policy is to always pack every item securely.

This is the eBayUK listing and messages relating to this acquisition:

WW2 Period Royal Navy Issue CF 41 x7 Binoculars by Barr & Stroud of Glasgow & London  Serial No 25860 circa 1940

This is a good pair of type CF41 binoculars, carried by the British Royal Naval. They were mainly used in Naval reconnaissance use during WW2 also in the immediate post war period. They were of particular use in Low Light conditions, because of the configuration of the Porro 11 Prisms. This fine pair, are in good condition, with standard twin turrets, the left shoulder inscribed Barr & Stroud 7X CF41 Glasgow & London, and the right inscribed AP No 1900/Serial No 25880. The magnification is 7 X. The pattern AP No 1900A, was made from 1934. The black finish is unblemished, the 4 Way filters index correctly, and the optics are clear. There are the standard extending Shower shrouds, clear, originally yellow painted, Admiralty arrows to the main body, and individual eye focusing. The original fine quality, brown leather carrying case sound leather hinged lid, with carrying handle, and an original leather shoulder strap.

Don't miss out on this superb piece of Naval history to use or as a wonderful collectors item. We have included multiple pictures which form an integral and largest part of our description, please study them carefully and feel free to ask any questions you may feel relevant. All our items are antique or collectable with wear commensurate with age and use, please take this into account when purchasing.

Overseas buyers please contact for shipping costs prior to bidding. Shipping policy is insured and tracked I will not despatch by cheaper unprotected methods as it is not worth the heartache should an item go astray. I estimate the cost at order stage then once item has been received any difference between payment and cost plus £5.00 packing is refunded to purchaser. All items are securely packed to protect them from transit damage.

From: ariscopapo
To: collector-jo
Subject: Other: ariscopapo sent a message about WW2 Vintage Royal Navy Issue Leather Cased Barr & Stroud CF41 Binoculars C1940 #321101758188
Sent Date: 01-May-13 14:59:48 BST

Dear collector-jo,
Are they collimated?
Chris Lord
- ariscopapo

Dear ariscopapo,
Yes Chris regards Jess Nelson
- collector-jo

From: ariscopapo
To: collector-jo
Subject: Other: ariscopapo sent a message about WW2 Vintage Royal Navy Issue Leather Cased Barr & Stroud CF41 Binoculars C1940 #321101758188
Sent Date: 10-May-13 14:11:50 BST

Dear collector-jo,

Joanne,

Received the binocular today. You may recollect my asking you if they were collimated. Your affirmative response led me to understand you knew what to look for. Unfortunately they are decollimated, which I have to say is not uncommon in WW2 binoculars. They give a double image in other words.
Had I known they require recollimation I would have made an offer £75 less your sale price, because that is how much it will cost to do the job.

The left hand filter wheel is also filterless. I am willing to accept them as described, but I am hoping you will share the recollimation cost, say £40.

Chris Lord
- ariscopapo
Dear ariscopapo,

Dear Chris,
I am very sorry you are not pleased with the binoculars, Joanne checked and shipped them for me as I was away sailing. Please return them to her and we will make a full refund
Kind regards
Jess Nelson
- collector-jo

From: ariscopapo
To: collector-jo
Subject: Re: Other: ariscopapo sent a message about WW2 Vintage Royal Navy Issue Leather Cased Barr & Stroud CF41 Binoculars C1940 #321101758188
Sent Date: 10-May-13 20:02:35 BST

Dear collector-jo,

Jess,

Please do not misunderstand, I am satisfied with their overall condition. They're hard to come by in anything like usable condition nowadays. I wish to keep them, but if you are willing, it would be appreciated if you made a contribution to the recollimation costs. I use a reputable firm, Newton & Ellis in Liverpool, who have been in business since 1947. I use them regularly. They charge £75. If you do not wish to contribute something towards the collimation costs, fine, but it will have some effect on my feedback, because I did ask if they were collimated, prior to paying the full asking price.

Chris Lord
- ariscopapo
Dear ariscopapo,

The reason I have asked you to return the optics is because I checked them very carefully before purchasing them at quite a high price so unless something happened to them during transportation I am at a loss as to why they are no longer aligned. I also checked the colour filters which were all intact and operational. I have traded many pairs of these binoculars so do not very often make such basic mistakes. If you decide to keep them I feel it extremely unreasonable of you to leave bad feedback. So either return them or be fair and leave no feedback.

regards
Jess nelson
- collector-jo

Dear collector-jo,

The reason they're decollimated is because the prisms are beginning to separate - something very common in Porro II binoculars of the era. Decollimation will not have occurred during transit - they were satisfactorily packaged.

I'm not prepared to argue the toss with you about this matter. They were not as described – end of.

I have left neutral feedback.

Chris Lord
- ariscopapo

Notice how the seller contradicts herself. Her initial response is to claim an associate checked them because she was otherwise occupied, then she insists she checked them very carefully herself. She reveals she purchased them recently and they seemed to be in good condition.

Other than combing antique shops and fayres, and wasting an awful lot of time and fuel, this type of WWII binocular can only be found on-line, and whether it is eBay, or another auction site, this sort of thing is inevitable.

It's also no use returning them because the seller can still claim they were decollimated in transit. And no matter how securely you package them, and even if you return it in their package, they can and probably will insist they were collimated when they shipped them.

The only thing you can do is smile, and pay for their repair. In this case the total cost was £300. A considerable sum you might think, and poor value. But, given that once they have been professionally cleaned, recemented and recollimated, you will have a superb binocular, better than anything made nowadays, perhaps not so poor value after all.

This completes my collection except for a SARD 6x42x12°.5. But that will have to wait. They are too expensive for my pocket.