

APM 100-90 ED APO BINS

These apochromatic 100mm binoculars are essentially Siamese twin f/5.5 telescopes, primary optics being double-element air-spaced ED glasses. 1.25" eyepiece ports offer user-determined magnifications, with those supplied (SWA 20mm) providing a magnification of 27.5x. Simon Bennet (Widescreen Centre) most generously loaned two pairs of DeLite eyepieces providing me with additional powers of 50x (11mm) and 78.6x (7mm). Astrograph also provided a fine Berlebach UNI-28AG tripod surmounted by Binoptic's heavy duty alt-az fork mount (Mk II). The mount was given additional height via mediation of a Tecnosky Half Pier; not essential to the setup, but providing useful additional tripod clearance.

Although on the costly side, **Steve Ringwood** discovers that this is one pair of binoculars that justify their their price tag.

Receipt of these binoculars initiated almost three autumnal months of unbroken cloud (yes, that was my fault). But January at last brought a welcome crack in that leaden lid – and what a wealth of wonder spilled from it. That first good night was an exceptionally fine one. As the evening fell, the barest breath of a cool breeze kept the dew at bay and there was not the faintest trace of the clouds that had thus far bedevilled me.

These bins are large (520mm long by 270mm wide); but the lightweight magnesium body can be manhandled with ease via the integral handle situated between the optical axes. I found that even with (counterweighting) eyepieces in place, this handle is slightly behind the centre of gravity, but this did not impair a careful descent onto the mounting plate between the Binoptic's fork tines.

It was not long before I had my sights (and those of the optional reflex finder) on Orion's Bellatrix to adjust the binoculars to my eyes. The eyepiece turrets are independent focus, with inter-pupillary distance adjustable via a pair of thumb lugs. Focusing was delightfully smooth and positive via knurled rings on the turrets. With both the bins and the night ready for action, my exploration began.

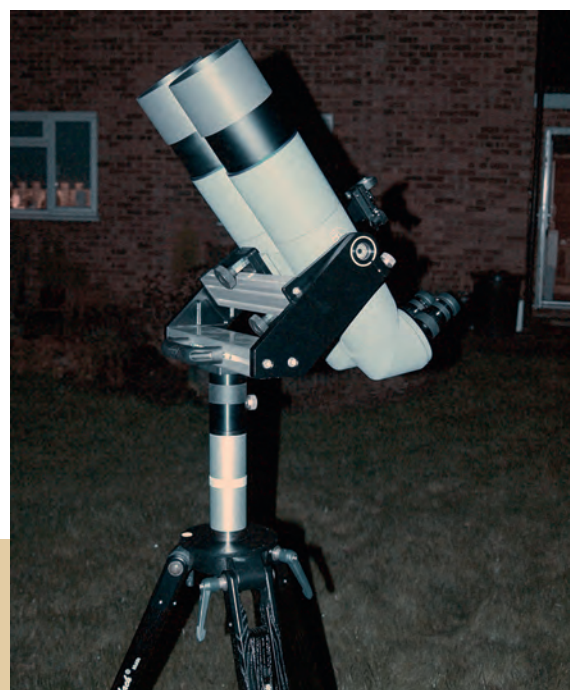
Orion

On a chill winter's night, an observer's natural first target is the Orion Nebula, M42. Simply astounding. The 100mm objectives simply drank up the light from



APM binoculars sitting atop the Binoptic Mk. II mount, Tecnosky Half Pier and Berlebach tripod. Seen deployed with 7mm DeLite eyepieces and reflex finder.

High-elevation observations holds no fear for the Binoptic mount and right-angle eyepieces.





Eyepiece turrets, showing (from bottom up) the thumb-driven inter-ocular adjustment, knurled focusing rings and ridged eyepiece clamps.

The added provision of the DeLiteful 7mm and 11mm eyepieces gave the bins truly telescopic credentials.



Close up of the optional reflex finder. There are three reticles and eight illumination levels to choose from.

this star-specked nebulosity. The SWA 20mm eyepieces afforded me a two-and-a-half-degree vista, encompassing the north and south elements of Orion's sword.

Surrounding the clearly resolved stellar quartet of the Trapezium at its core, the intense heart of the billowing nebular glowed a smoky grey. But surrounding it I could perceive the faintest hint of a rusty red. The hue was so very delicate, but unmistakable. Observers do report coloration within M42, but it was certainly my first non-monochrome observation – and my wife's, who not unreasonably pronounced it her best ever view of M42. Using the 7mm eyepieces for a power of 78×, the Trapezium was so expansively defined that I could easily have parked a juggernaut within it.

Pleiades

I was soon eagerly rising to the higher altitude of the Pleiades cluster, returning to the wider skyscape of the 20mm eyepieces. As I guided the bins into the area, the Pleiades slowly entered the field like a hoard of dazzling bees. The binoculars' gaze of five lunar diameters swallowed the cluster whole in a dramatic view. The primary stars gleamed tack sharp, but were almost lost in a busy scene of lesser stars all jostling for attention. Skipping to the 50× 11mm DeLites (still affording a field of one-and-a-quarter degrees), the view was an explosion of stars – all tight and bright throughout the field, even those at the periphery.

Drawing back to the two-and-a-half-degree 20mm eyepieces, the great nebula in Andromeda (M31) brought another fresh discovery. What is commonly observed as 'the galaxy' is actually just the brighter centre of a much larger and fainter ellipse. The APM bins made the core easily discernible. But stretching off across the diameter of the eyepiece field were the distinct traces of the normally imperceptible wings of the galaxy's outer areas. Even with the galaxy's centre out of field, I could see these extended apses without using averted vision: a great demonstration not only of the provided light grasp but also of just how mighty in the sky this three-degree beast is.

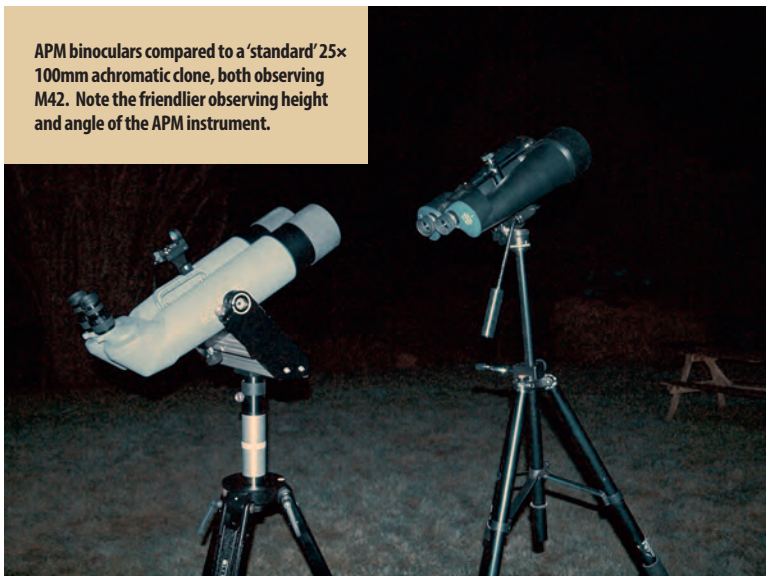
Even with the 0.8° field of the 7mm eyepieces, I had no trouble finding my way around using the optional red dot reflex finder perched high on the binocular's handle. Three reticle choices and a range of intensities makes this tool a fine companion.

Using the yawning 2.4° field of the 20mm SWAs, I selected that other wintry tourist spot, the Double Cluster. Even with Perseus hanging almost overhead, the 90° turrets and the smooth motion of the Binoptic fork mount facilitated observation near the zenith with no discomfort at all. No visits to the chiropractor after using this set-up.

The field was strewn by a 3D explosion of stars, looking like diamond dust tossed upon black velvet. The deeper contrast supplied by the 11mm eyepieces brought to my notice another visual delight. Even the dense stellar splash of the Double Cluster has voids of absence. But I discerned that even within these small pockets of darkness, I could make out speckles of dim starlight. I was enjoying the coy light that eventually burns out the heart of these clusters in long-duration imaging. Wonderful!

The binoculars ability to illicit the faintest light from the depths showed itself in a quite unexpected fashion.

APM binoculars compared to a 'standard' 25x 100mm achromatic clone, both observing M42. Note the friendlier observing height and angle of the APM instrument.



100mm 'four-posted' Euro EMC solar filters slide easily on to the exterior of the binoculars' dew tubes.

For everywhere I looked, it was never long before the wayward 'sunbeam' of a satellite slowly drifted across the field.

Mechanically, the binoculars behaved well. The knurled independent focusers are backlash-free, smooth and positive – although the contiguous proximity of the ridged eyepiece clamps sometimes had me fingering the wrong ring. The dew tubes slide out without resistance and do not return to base unbidden when elevated to the zenith. I would certainly prefer less resistance on the inter-pupillary adjustment. This does make it stable and less prone to accidental movement, but it may not lend itself well to multi-use observing sessions.

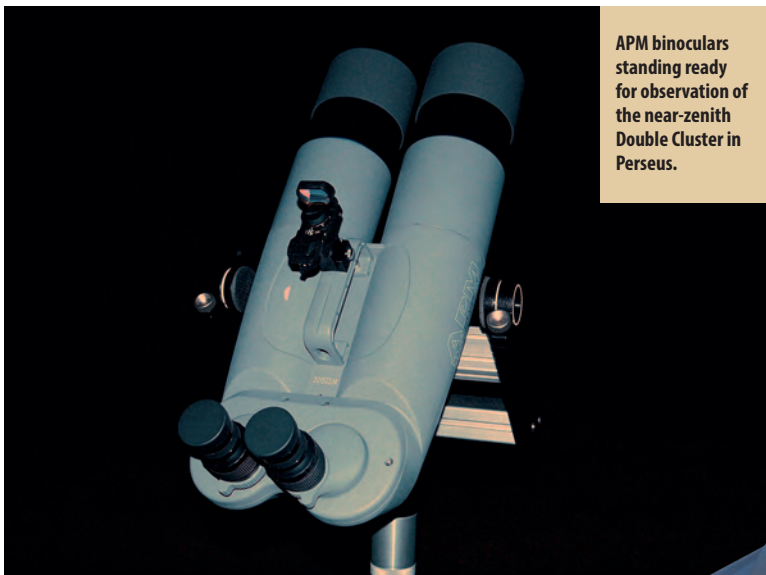
Much later in the evening I spotted Jupiter hanging lazily below Leo in the south-eastern sky. At 28x the disk was as crisply defined as in any telescope – except that in these bins both it and the three visible moons seemed lifted off the sky towards me. The deployment of the 78x 7mm eyepieces brought me the rich detail expected of a top-quality 4" refractor. These binoculars are bench-aligned to 100x before shipment to the UK, whereupon they are star-tested before onward shipment. This zealous collimation shows in the results I was enjoying.

Despite the Jovian brilliance there was no ghosting of its disk and against a pitch-black sky its well-contrasted belts stood out like skid marks. Pondering that essentially what I had here was a pair of telescopes, I presumed that neither would object if I briefly treated one conventionally and

the other as a finder.

I swapped out the starboard 20mm with a newly acquired 2.5mm type 6 Nagler, leaving the port side as a 'finder'. Although forcing the optics' power until the photons squeaked, there floated the disk dressed in belt detail. Moments later, in a phenomenon seemingly arranged for the delight of the binoculars, the 'absent' moon Io began an egress from the planet's western limb. The speed with which its dark separation from the brilliant disk became visible is as finer testament to the optics as I could have asked for.

A week later, another freak break in an unfriendly ceiling bestowed on me a fine evening's crescent Moon. The 20mm eyepieces gave me the impression that I was gazing through the porthole of an Apollo capsule halfway to the Moon. The five-day old phase was thin and craggy, but it was the intensity of the 'dark' side that astounded me. I could make out even small features on the Earth-lit



APM binoculars standing ready for observation of the near-zenith Double Cluster in Perseus.



Close-up of the integral carry handle and piggybacking reflex finder.



Infinitesimal adjustment of elevation friction can be applied by clamps in the Binoptic's fork arms

surface, all caressed within the arms of lunar horns that were as sharp as scimitars.

If the 20mm eyepieces had me halfway to the Moon, I had arrived with the 7mm. The disk almost filled the field, the Earth-lit surface still competing for attention. Enjoying a fresh sunrise just a few degrees from the terminator, Tycho was starkly defined, its peak erupting star like from a shadow-flooded crater floor.

Yet the brightest feature of the Moon by far was a startling flare of light from the very tip of the southern cusp. A perfect reflection from the sun-facing wall of the crater Scott was tethered to the lunar crescent by the merest sliver of light. Yet despite being silhouetted between the darkened lunar night and the fathomless space beyond, this moment of accidental glory betrayed not a trace of false colour.

Comet Catalina

Comet 2013 US10 (Catalina) put in a useful guest appearance in its mid-January northbound journey



Looking into the mouth of the 100mm ED APO objectives.

through Ursa Major. Low in the north-east between Alkaid and Mizar, I found it easily with the AN finder chart and the binocular's impressive light grasp. The contrast of this low-surface-brightness object was very pleasing, clearly showing the spark-like centre of the coma.

Sun

To complete the binoculars' credentials as a comprehensive astronomical instrument, Astrograph kindly loaned a pair of Euro EMC SF100 solar filters. These slide easily onto the objectives' dew tubes. Despite a low mid-winter Sun, sunspot structure, faculae and granulation were all seen with ease, even at low power – with definition not lost at all at 78x.

I freely admit to relishing even poorly reporting reviews, but rarely have I enjoyed such sights as were delivered here. Cost may give pause, particularly when there are clones aplenty of the 25x 100mm standard achromatic variety – which can be had for less than 1/10th of this price. But what I can say is that the reward is ten times the observational experience.

Steve Ringwood is Astronomy Now's Equipment Consultant.

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APM ED APO 100mm binoculars

Aperture: 100mm
Focal ratio: f/5.5
Focal length: 550mm
Supplied eyepieces: 20mm SWA (x27.5)
Weight: 6.6kg /14.5 lb
Length: 520mm
Width: 270mm
Maximum FOV: 2.8°
Interpupillary distance: 54–75mm
Price: £2,649

Binoptic II Fork Mount

Alt-az fork mount
Weight: 5.3kg/11.7 lb
Tripod attachment: 3/8ths or M10 photo thread
Adjustable tension in both axes
Optional encoders available
Price: £699

Tecnosky Half Pier

Price £69

Berlebach Tripod

Weight: 9kg/19.84 lb
Min height: 100cm/39in
Max height: 163cm/64in
Load capacity: 50kg/110.23 lb
Price: £399