



PRODUCT REVIEW

by Terence Dickinson



Celestial Icons: Horsehead Nebula in Orion (left), Lagoon Nebula in Sagittarius (above) and Andromeda Galaxy (below).

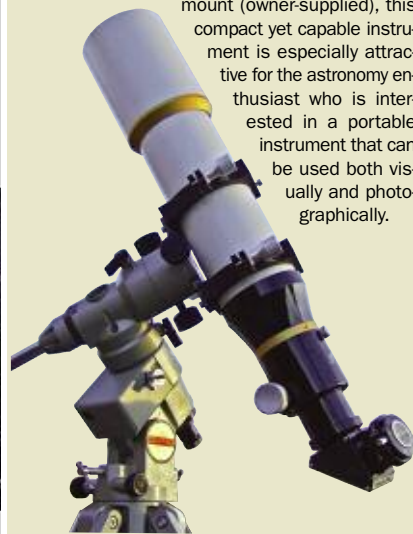
PROBING THE DEEP SKY

This trio of favourite targets were all 8-minute single exposures imaged through the Megrez 110mm by a Hutech-modified Canon 40D digital SLR camera set at ISO 1600 and processed with Photoshop CS3 and Noise Ninja. Coupling a modern DSLR with this scope on an accurately tracking equatorial mount provides the backyard astronomer with a formidable astrographic package.

ALL PHOTOS: TERENCE DICKINSON

COMPACT APO REFRACTOR

Not too many years ago, 4-inch refractors were unwieldy five-foot-long monsters perched atop huge tripods. Rarely seen today, the behemoths of yesteryear have been replaced with far more versatile apo refractors—in this case, the William Optics Megrez 110mm model, at just over two feet long with dewcap fully extended. Seen here on a solid equatorial mount (owner-supplied), this compact yet capable instrument is especially attractive for the astronomy enthusiast who is interested in a portable instrument that can be used both visually and photographically.



New 4.3-inch Photo/Visual Refractor

The William Optics Megrez 110mm apochromatic refractor is intended for double duty as a visual and as a photographic instrument. We put it to the test.

THE FIRST DECADE OF THE 21ST CENTURY is proving to be the golden age of apochromatic, or apo, refractors. Apos are regarded by many backyard astronomers as the most versatile of all telescopes, equally suited to wide-field deep-sky viewing, high-resolution planetary inspection and detailed astrophotography.

Although apo refractors have been available since the 1980s, it is only in the past few years that prices for the most popular apertures—3 to 5 inches (80mm–130mm)—have descended from astronomical levels, making them accessible to a much wider base of enthusiasts. And there are now many models available from a wide selection of manufacturers.

I'll confess up front to a quarter-century infatuation with apos. I've owned more than a dozen over that span, from 60mm to 7-inch aperture, and they remain my instruments of choice for observing and astro-imaging. The only exception is when I need the brute force of aperture to pull in those faint deep-sky fuzzies. Then I'll turn to one of my large Newtonian reflectors.

The apo under review here is the William Optics Megrez 110mm f/6 ED doublet. (Actually, the scope's focal ratio is rated by the manufacturer at f/5.95, but I've rounded it off here, as focal ratios are not conventionally given to two decimal places in amateur astronomy.) This is the kid brother to the William Optics

FLT 110mm f/7 ED triplet apo, reviewed in *SkyNews*, Nov./Dec. 2006. According to the manufacturer, the new scope is intended more as a photo/visual instrument designed for both applications, and that is how I tested it.

I could go on at length about the subtle differences between apos with doublet and those with triplet objective lenses, but the important point is that with proper attention to the optical design and types of glass used, both doublets and triplets can produce excellent apo telescopes—that is, in-focus images virtually free of false colour arising from the chromatic aberration found in ordinary achromatic refractors.

Our test unit of the Megrez 110mm (4.3-inch) apo, supplied from stock by the manufacturer, is an elegantly handsome white tube sporting gold and black trim, with superb attention to detail in every respect. This is a truly beautiful telescope. Because it is available only as a tube assembly, the new owner must supply an appropriate mount. (A good choice would be the Vixen Sphinx or GP mount or the Sky-Watcher HEQ-5 mount.)

The focuser is silky smooth yet solid, with no slippage even when a heavy camera is installed. The fine-focus knob makes precise focus a breeze and has quickly become such an essential feature on this class of instrument that I now wonder how I ever managed without it. Ditto for the focuser's rotation feature, which allows quick adjustment of an eyepiece's diagonal position or easy framing through a camera.

The ultimate test, of course, is the visual image. Jupiter was low in early October, but I managed a glimpse of the now pallid Great Red Spot. A better test was Mars in mid-November, at 13 arc seconds in diameter. At 234x, even though the seeing was mediocre, the desert planet displayed an easily visible north polar hood along with several distinct dark areas—the regions once thought to be tracts of vegetation but now known to be arid zones of darker dirt and gravel.

My first stellar target was the spectacular Almach (alpha Andromedae), a gold and blue double star. Trying a more difficult double, I turned to Alnitak (zeta Orionis), an uneven duo at magnitudes 2 and 4, just 2.6 seconds apart. The Megrez handled it at 234x with textbook Airy discs and concentric diffraction rings.

Passing back and forth through focus, false colour presents itself as a greenish halo on one side of focus and a mauve halo on the other. But the important point is that in good seeing at sharp focus—the only position where you will do your critical observing—the false colour is suppressed to within a hair of invisibility. This is the performance expected from an FPL-51 apo doublet objective at f/6. Of course, you could eliminate any sign of chromatic aberration both in and out of focus by paying three to four times as much for a telescope of this aperture or by selecting one with a significantly longer tube (focal ratio f/9 or longer). But for the majority of backyard astronomers interested in an entry-level apo refractor with photographic capabilities, the Megrez 110mm provides excellent overall value, especially considering that the tube mounting rings and a solid travel case are standard equipment.

Which brings me to the attribute that lifts this telescope from the ordinary to the noteworthy: its dual photo/visual capability. My greatest delight in testing this scope was using it with a new Hutech-

modified Canon 40D digital SLR camera. This proved to be a super combination—a state-of-the-art DSLR coupled with a fine astrographic telescope that has enough aperture to deliver detail at f/6, an ideal f-ratio for DSLR astrophotography. The accompanying photos and captions tell this side of the story.

There is a lot to like about this telescope, especially its price. An apo refractor of this aperture and focal ratio at this price didn't exist as recently as a year ago. If you are interested in adding the world of DSLR astro-imaging to visual observing, this scope is a serious contender. ■

PRODUCT SPECIFICATIONS

William Optics Megrez 110mm apochromatic refractor

Objective: 2-element air-spaced; FPL-51 ED glass

Focal Ratio: f/5.95 (655mm focal length)

Focuser: 10-to-1 dual-speed 2-inch with 1.25-inch adapter; 360-degree rotation

Mounting rings and aluminum case included as standard equipment

Tube Weight: 10 lb. without rings and case

Optional Accessories: diagonal, finderscope, eyepieces (owner supplies mount)

Price: \$1,398 (U.S.); available from William Optics (www.williamoptics.com) and select Canadian dealers