

# Tele Vue 21mm Ethos King of the Hill

By Erik Wilcox

As an avid observer, I enjoy hunting down faint fuzzies as much as anyone. However, one of my favorite astronomical activities is to just mindlessly sweep the sky with a low power, wide-field eyepiece. Part of what I really enjoy about doing this is “discovering” objects, and then looking at my star charts to determine what I’m looking at (rather than the other way around). In this way, I’ve observed a lot of objects that, based on their specifications (magnitude, size, etc.), might not have been things I’d otherwise have picked to see that night. Many times I’ve found some real underrated gems in this manner, and it’s become something of a guilty and perhaps lazy pleasure of mine.

I bring this up because when choosing an eyepiece for this sort of endeavor

(or when searching for specific objects that aren’t visible through a finderscope), I probably use the same criteria that many other amateur astronomers look for; a wide TFOV, good correction across the entire field, and a magnification that enables the user to make out non-stellar objects. Long ago, I often sacrificed magnification for that wider TFOV.

At a certain point, I decided a good 2-inch low-power, wide-field eyepiece was a priority, and I began purchasing Tele Vue eyepieces. I owned a 35-mm Panoptic (as well as numerous 1.25-inch Tele Vue eyepieces) before finding what I thought was the ultimate eyepiece, the legendary 31-mm Nagler (or “The TerminiNagler”, as many refer to it). I figured that was about as good as it could get, but then my eyes



started getting older. I found that exit pupil became a concern in my fast  $f/4.5$  Dob (effectively  $f/5.2$  with Tele Vue Paracorr); especially when I viewed under brighter skies, and I started using eyepieces in the 24mm- 28mm in faster scopes. Many times I’d end up just staying in the 1.25-inch format altogether and using my 24mm Panoptic as my “finder” eyepiece. While the 24mm Panoptic is an incredible eyepiece in its own right, I’ve found that  $3/4$  of a degree of TFOV in my 16-inch Dob is a bit tight for those “mindless sweeps” that I enjoy so much. But with the 21mm Ethos, everything has changed.

Utilizing a wider AFOV enables the observer to use more magnification and still have a wide TFOV. For example, the

## TELE VUE 21MM ETHOS



Shown is the complete line of Ethos's eyepieces.

21mm Ethos, with its 100 degree AFOV, provides a magnification of 100X in my 16-inch Dob with the Paracorr installed. Despite this high magnification, the TFOV is a full degree. In order to get that same full degree of TFOV in a 50° plossl, a 2-inch 40mm would have to be used. Not only would the magnification only be 52X in the plossl, but the exit pupil would be a nearly unusable 7.7mm in my Dobsonian! Even compared to the 31mm Nagler, which provides a very nice 68X in my Dob, along with a 1.14 degree TFOV and a 6.0mm exit pupil, the 21mm Ethos still has much more magnification, 50% wider AFOV area, nearly as much TFOV, and an exit pupil of just 4.0mm. So it becomes obvious why the Ethos is such an extraordinary and groundbreaking eyepiece; it gives a darker background with higher magnification than any eyepiece showing the same TFOV.

Now that I've expressed some of the excitement I first had when crunching the numbers, let me speak about some of my actual experiences with the 21mm Ethos. I found that whatever scope I paired it with, it performed extremely well. The Ethos is a very user friendly eyepiece. It weighs a scant 2.25 lbs, so it doesn't cause the balance problems that many other heavier 2-inch eyepieces do. With a big

truss Dob, that's always an important factor for me. I'd rather spend my nights observing than constantly adjusting a sliding counterweight for the eyepiece and altitude my Dob is pointed at.

The 15mm of eye relief that the 21mm Ethos provides was comfortable for me. I didn't feel as though I had to press my eye against the glass to see the field, nor did I have to hold my eye away from the glass to avoid blackouts. The eye relief allowed me to make contact with the eyeguard, providing an intimate observing experience. For those that wear eyeglasses, the Ethos uses the standard, soft fold down eyeguard similar to that used on the 31mm Nagler and other Tele Vue eyepieces. The 21mm Ethos, like the rest of the Ethos line, has exceptional coatings, which give off a slight violet/greenish tint when viewed at an angle. Like the other Ethos eyepieces, the coatings are slightly different than those used on Naglers and older Tele Vue eyepieces. The views are a bit colder overall through the Ethos, with whites being more prominent. Yet, at the same time, star color is true. The cooler views are a small difference, but it does make seeing many objects on the cusp of visibility a bit easier.

Under the dark, pristine sky of my backyard in Hawaii, I found that using the

21mm Ethos in my 16-inch Dob gave me some of the best observing in my life. The AFOV is SO wide it seems to go on forever. When I compared it with my other 2-inch wide-field eyepieces, it became obvious that the Ethos provided a completely different experience. I'd liken it to looking through binoculars with one eye closed, then popping the Ethos in and "opening the other eye". The difference was indeed that dramatic.

Showpiece objects like M42 felt revitalized and new, as the expansive view and high magnification allowed me to see more of the object at once, and in more detail.

Framing multiple objects like M81/82 became more enjoyable, as I was no longer looking at a couple of dim smudges; I was suddenly viewing both in extraordinary detail. Starfields take on a whole new dimension with the 21mm Ethos; cruising through the Milky Way from horizon to horizon at my low N Latitude was simply mesmerizing. Even when casually viewing small, tight objects like M57, I didn't feel it necessary to change eyepieces. As I mentioned in my review of the 17, 13, 10, 8, and 6mm Ethos in the last issue of *ATT*, these eyepieces allow the observer to own fewer eyepieces if they choose. I could see owning the 21mm, 13mm, and 8mm

Ethos for use in my 16-inch Dob and likely be happy with just those three in my case indefinitely. Of course, which Ethos you'd choose to own depends on the scope(s) you own, and the magnifications you use. But the Ethos can be much more versatile than other eyepieces.

As far as edge correction goes, I've noticed that as I've gotten older, my eyes cannot adapt for field curvature as well as they did when I was in my 20's and early 30's. Yet, even with the monstrous 100 degree AFOV that the 21mm Ethos provides, I saw very little field curvature. It was slightly noticeable in my 80mm  $f/6$  refractor (which is due to the scope's short 480mm  $f$ /length, not the eyepiece), but only showed a touch of it at the extreme edge of field in my 16-inch Dob. There was no astigmatism in either scope, and the amount of pincushion distortion was surprisingly small as well. A bit of lateral color was seen on bright stars beginning about 20% from the field stop, but it was no more than I've typically seen in the 31mm Nagler. There was no glare, scatter, or ghosting in the 21mm at all; not even when a bright star was placed just outside the FOV. Stars are very tight in the 21mm Ethos, and the eyepiece allows the scope to snap into focus easily. I've often thought that the mark of a good eyepiece is when it just gets out of the way and allows the user to observe. It's different with the 21mm Ethos; it really enhances the observing experience to the point where I was asking myself how it could possibly be any better.

The field stop is listed at 36.2mm, which is actually wider than the 26mm Nagler, and only a couple of millimeters less than the 35mm Panoptic. The 21mm Ethos is also parfocal with the 31mm Nagler and 17mm Ethos. Additionally, the 21mm, like the rest of the Ethos line, accepts the Tele Vue Dioptrx for those that suffer from eyesight astigmatism.

Not only is the 21mm Ethos a complete joy to look through, it's a joy to look at. Like all Tele Vue eyepieces, the build

quality and workmanship is exceptional. The chrome 2-inch barrel has a safety undercut to prevent the eyepiece from inadvertently coming out of the focuser, and a rubberized grip keeps it steady in your hands, even when wearing gloves. It's also not so physically large that it's difficult to hold. I have large hands, and I always found using two hands to be necessary with the 31mm Nagler; not so with the 21mm Ethos, which is much narrower in physical size.

To summarize, I'd have to say that the 21mm Ethos is essentially perfect. I truly cannot imagine how Tele Vue could push the limits much more than they've done with this eyepiece. It is without question the best 2-inch wide-field eyepiece I've used in my life. It makes other 2-inch eyepieces which I've previously thought of as exceptional as now just "good". The 21mm Ethos raises the bar so high that I don't feel that any words can adequately describe it. It's just an eyepiece that you have to look through to believe. But be forewarned; if you look through it, you'll almost certainly purchase it. 

