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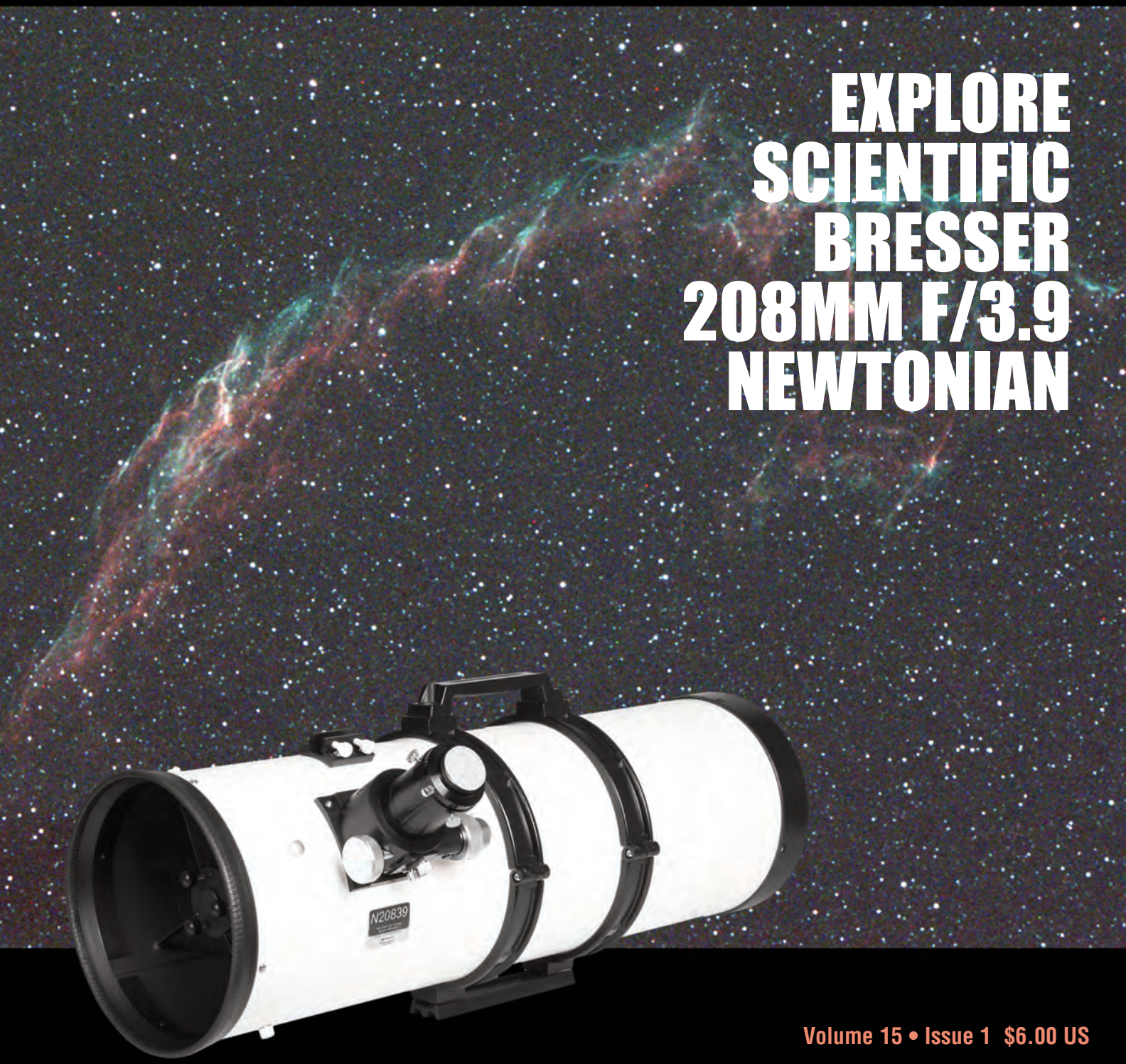

EXPLORE SCIENTIFIC BRESSER 208MM F/3.9 NEWTONIAN

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Shown on the cover is the Explore Scientific Bresser 208mm f/3.9 Newtonian which is featured in Dr. James Dire's review. The background astro image is one of several reference images used in Jim Thompson's article where he tests a number of Optolong's light pollution filters.

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Industry News/New Products

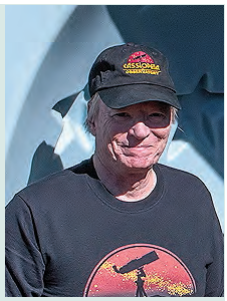
ATT Contributing Writers

James Dire has an M.S. degree in physics from the University of Central Florida and M.A. and Ph.D. degrees from The Johns Hopkins University, both in planetary science. He has been a professor of physics astronomy at several colleges and universities. He is the president of Methodist College in Peoria, Illinois. He has played a key role in several observatory projects including the Powell Observatory in Louisburg, KS, which houses a 30-inch (0.75-m) Newtonian; the Naval Academy observatory with an 8-inch (0.20-m) Alvin Clark refractor; and he built the Coast Guard Academy Astronomical Observatory in Stonington, CT, which houses a 20-inch (0.51-m) Ritchey Chrétien Cassegrain.

Stuart Parkerson has been the publisher of Astronomy Technology Today since its inception in 2006. While working primarily in the background of the company's magazine and website business operations, he has recently taken a more active role in contributing content covering industry news and other company centric topics.

Jim Thompson is an Aerospace Engineer in Canada who hosts the Abby Road Observatory website where he documents his journey with amateur astronomy. He got involved in video astronomy in part to share his passion for astronomy with his son and family. Here he documents his thought process on the how to getting started in astro video and the benefits of this emerging technology.

Mike Weasner started in astronomy at the age of six when his older brother, Paul, would show him the stars from their southern Indiana home. As a Christmas present in 1961, Mike's mother gave him an Edmund Scientific 3" Newtonian Telescope which he still uses today. When Mike was 14 Paul got him a subscription to Sky & Telescope which continues uninterrupted through today. He has a B.S. in Astrophysics from Indiana University and following college, he entered into the US Air Force, where he served as a fighter pilot, instructor, and a manager in the Air Force's Space Shuttle Program Office. He hosts the website "Cassiopeia Observatory" - www.weasner.com - where you can see reports of his sessions in his observatory, his astrophotography, and product reviews.



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Industry News/New Products

THE EXPLORE SCIENTIFIC BRESSER 208MM F/3.9 NEWTONIAN

Image 1

By Dr. James R. Dire

I love to view the universe through Newtonian telescopes better than any other design. Most Newtonians come with equatorial mounts or are fabricated into Dobsonian telescopes. Dobs are great because they are easy to use, low cost per inch of aperture, and the eyepiece is usually easy to reach. On equatorial mounts, the tube has to be rotated to get the eyepiece to an easy viewing position when pointing to different parts of the sky. This can be annoying unless high cost, easy to rotate tube rings are used.

I recently sold my 14-inch f/6 Dob. I hated doing this because this was the finest telescope I have ever owned and the views were phenomenal. The primary mirror was 1/25 wave (Strehl number 0.993) and the motion around both axes was very smooth. With a focal ratio of 6, eyepiece views were coma free!

But I found that I wasn't using the scope often because it was too heavy to haul out and set up. My back is not what it used to be. With its 84 inch focal length, a ladder was required to reach the eyepiece when viewing high altitude objects. In addition, I constantly had to adjust counter weights to balance the scope when moving it around the altitude axis.

Another telescope I own that has splendid views is a 132mm f/7 apochromatic refractor. I use an observing chair with this telescope. The optical tube assembly (OTA) is nearly a meter long, which requires me to adjust the height of the seat whenever I slew it to a new object. I also have to pick up the chair and move it when I slew the telescope to a different azimuth. All this moving around in the dark presents trip hazards.

So in searching for a replacement for my Newtonian, my criteria were: a smaller Newtonian, but at least 8-inches; lightweight; a telescope I could use standing up regardless of the altitude it was pointed; a tube that I did not have to rotate to get to the eyepiece; no ladder required; no seat for viewing low altitude objects, and a scope that I could quickly slew in azimuth.

Image 1 shows what I found that meets all of the above criteria. The telescope is the Explore Scientific Bresser 208mm (8-inch) f/3.9 Newtonian on an Explore Scientific Twilight II alt-azimuth mount!

The telescope's aperture is plenty to see detail in a multitude of deep space objects. The OTA weighs a mere 22 pounds, and is still less than 25 pounds with a heavy 2-inch eyepiece, tube rings, a Telrad, and a 9x50 finder scope. Twenty-five pounds is the maximum recommended payload when using only one side of the Twilight II mount. When balanced the mount

smoothly slews around the altitude axis and holds its position (with the right tension on the altitude lock) and it rotates smoothly around the declination axis.

Unlike a longer focal length Dob, this scope's short focal length (812 mm) means there isn't much variation in the height of the eyepiece in pointing from horizontal to vertical. Like a Dob, the eyepiece is always in a comfortable position to reach without rotating the tube. Most Dobs do not afford tube rotations. But on the 208 mm Bresser, the tube can be rotated if needed. I have never found the need to do such in the field after setup.

The telescope attaches to the mount using a Vixen style dovetail bar. Everything is very easy to set up. When I set up the equipment to take the images in this article, my right and dominant hand was in a brace due to a recent surgery. I essentially put everything together using only one hand. It

was that simple.

The OTA comes with the tube rings, dovetail plate and a nice soft carrying case (**Image 2**) to stow everything. When I purchased it, I already owned the finder scope, eyepieces, Telrad and Twilight II mount.

A closer view of the OTA appears in **Image 3**. The tube is aluminum to keep the weight down and has a nice white finish. The tube ring locking bolts are not hinged and have easy-to-grip, large serrated knobs. They can be loosened sufficiently to balance the scope and/or rotate the tube without the rings coming all the way open.

The focuser is displayed in **Image 4**. It is a stock 2-inch focuser with course knobs on each side and a 10:1 fine focus knob on the right. I would suspect that many people purchase this fast Newtonian for imaging. Were that my purpose, I would probably upgrade to a high quality motorized focuser. For visual use, the stock focuser works great. The telescope comes with a 2-inch to 1.25-inch adapter for use with either size eyepieces.

The bottom of the OTA appears in **Image 5**. The three larger knobs are used for the primary mirror collimation, while the smaller knobs lock the mirror in place. The telescope uses a six-point mirror cell, sufficient for this 8-inch mirror. There is ample airflow through the circular slot here which, along with the short tube length after the tube cover is removed, allows for optics to quickly reach thermal equilibrium.

The secondary assembly and tube interior are shown in **Image 6**. Collimating the secondary is done with the three thumbscrews. I like the fact that no tools are needed to adjust either mirror! Everything is painted flat

Image 3

Image 4

Image 5

black on the inside except the mirrors, of course. The primary mirror has a center mark (red triangle) to assist in collimation. I use a laser collimation tool to align the mirrors every time I set it up. The collimation only takes a couple of minutes.

This is a rich field telescope. So for seeing extended objects, I'll use my 1.25-inch 82° 24 mm (34x) eyepiece or my 2-inch 82° 26 mm (31x) eyepiece. Most of the time I use either my 1.25-inch 82° 14 mm (58x) eyepiece or my 2-inch 100° 13 mm (62x) eyepiece. For higher powers, especially when looking at close double stars, planets or planetary nebulae, I'll use either a 1.25-inch 82° 8.8 mm (92x), 1.25-inch 82° 6.7 mm (121x), or a 1.25-inch 82° 5 mm (162x) eyepiece. I could go higher in magnification with a Barlow. But with manual tracking it is not easy to keep an object in the eyepiece.

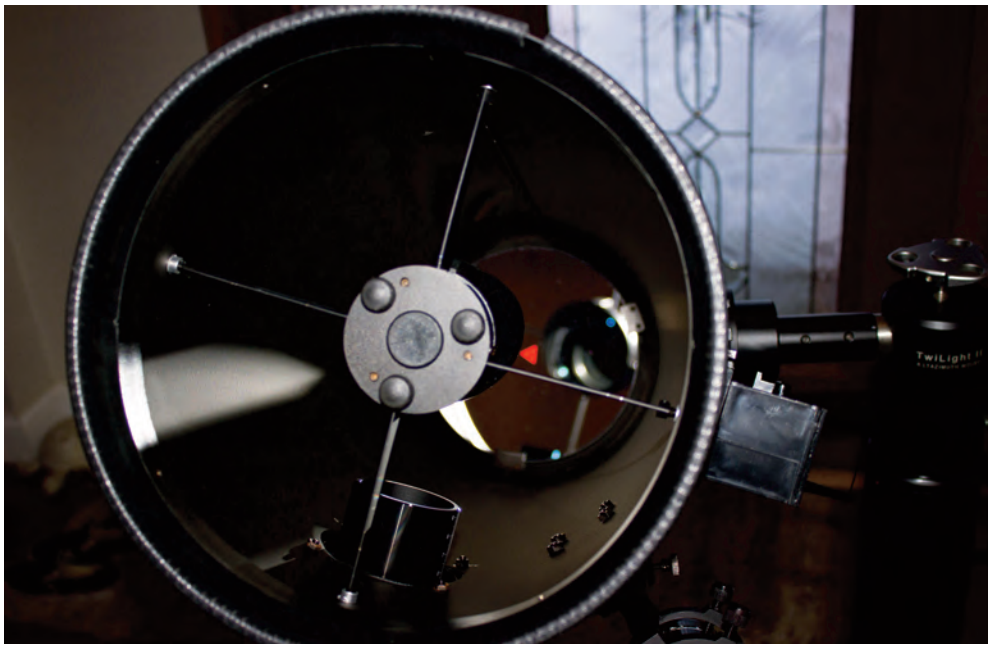

Image 6

Having previously only owned F/6 and f/7 Newtonians, I was concerned about coma in this fast f/3.9 scope. And the coma does exist. Since I wanted a shorter focal length scope for ease of use, I knew I would not enjoy the views though the telescope without a coma corrector.

Image 7

So I also purchased the Explore Scientific HR Coma Corrector (**Image 7**). This coma corrector is outstanding. Even with my longer focal length eyepieces, I see no hint of coma when using this corrector. This coma corrector has a built-in helical focuser. My eyepieces are not all parafocal, but I can lock the telescope focuser using my long focal length eyepieces and use the helical focuser on the coma corrector to focus when swapping to my shorter focal length eyepieces!

Explore Scientific correctly figured that visual users and imagers would want the coma corrector for this telescope as they designed a slot for it inside the foam in the soft case (Image 2).

Image 8 shows the coma corrector installed with a 2-inch eyepiece. The focuser is cranked all the way in. I have zoomed in on this in **Image 9**. The large extension of this assembly away from the OTA means I don't have to bend over very far when viewing near the horizon. I find that I never have to extend the mount's tripod legs when using this telescope (I do have the optional pier extension on my mount), which keeps the system's center of mass lower.

The views though this telescope system are as good as possible though an 8-inch reflector. The entire setup is easy to use, allows me to view objects at any altitude while standing, with minimal leaning over for the lower altitude objects. It doesn't strain my back to load and unload the OTA case and mount. It requires no tools or electricity and can be assembled or torn down in fewer than 10 minutes. This one is a keeper!

Image 8

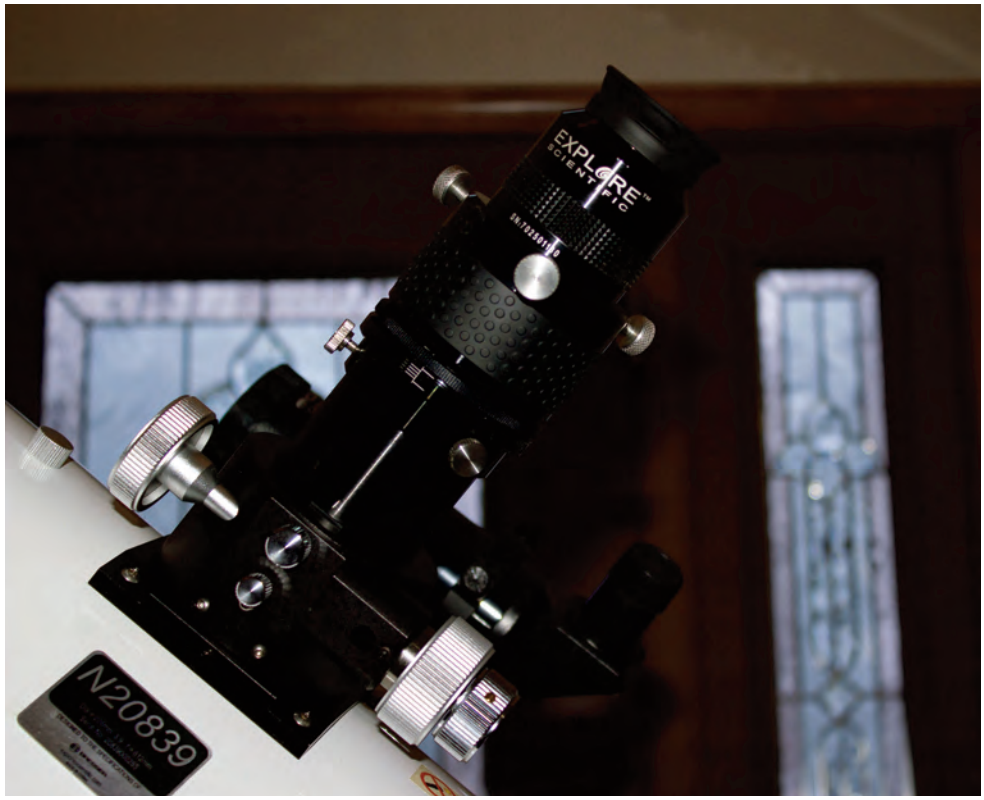

Image 9