The Next Revolution The StarMaster 22-inch GoTo Dobsonian November 1999

Earlier this year I decided it was time to get a new van, and I figured if I opted for a little smaller cargo capacity, I might restrict my ability to move some things I really shouldn't be moving anyway... So, I traded from a full-size van to a new Honda Odyssey mini van. One of my concerns was my old 20-inch f/6 Dob with its 8-foot ladder. After a lot of measuring and a long involved sales pitch to my wife, Lynne, who has always told me we (she) were going to keep the 20, we decided it would have to go. Of course I could only persuade her by agreeing to get an even larger 'scope, so I had my work cut out for me. I established the necessary criteria the new 'scope would have to meet, and we started looking. The new 'scope would have to be easy to set up, have a removable mirror/cell, would ideally be able to be loaded in and out of the van by one person (easy for two), and would all fit, including the ladder, in the 4x5-foot space behind the back seats of the new van. Convinced there was a light-weight 24 in our future, at the Chiefland Star Party in May, we opted instead for a 22-inch f/4.1 StarMaster Dobsonian, equipped with the new StarTracker alt-azimuth Go-To drive system.

Optics for the 22 are by John Hall of Pegasus Optics. I had already evaluated several Pegasus mirrors and all were consistently excellent, so that decision was easy. The diagonal mirror from Pegasus is also outstanding, certification and interferograms for both mirrors are included. The 22 StarMaster comes with a removable mirror cell assembly, but I take it a step further and remove the mirror from the cell and store it in a separate custom box. At f/4.1 a Paracorr is standard equipment, yielding an effective focal ratio of 4.7. My 8-foot ladder has been retired and a sturdy 3-step stepladder allows an average height adult to comfortably observe at the zenith, another benefit of f/4.1. A 2-speed collimatible focuser by JMI takes care of the persnickety critical focus (this type of focuser is a required accessory at this focal ratio!). SkyCommander Digital setting circles put over 9000 objects at your fingertips, and a special user list lets you load up to 59 objects that aren't in the databases (comets, Abell planetaries, whatever). The alt-az drive was added primarily for public observing sessions, but after I had the opportunity to play with it for a while, I found the go-to feature to be an incredible spoiler. To top off the high-tech accessories, I had an AstroSystems electronically controlled dew heater installed behind the diagonal mirror.

I took delivery of the 'scope at the fall Chiefland Star Party in November. Lynne and I arrived shortly after nightfall, and I was a little surprised to find a bunch of our friends hadn't set the 22 up earlier—I mean, it was there! Rick Singmaster, the owner of StarMaster Telescopes, was ready to help us set up the moment we arrived, and in about 10 minutes and 16 no-tool knobs later, the 'scope was mechanically assembled. In a few minutes the electrical was hooked up. We used my laser to set the collimation in the dark, which was already pretty close out of the box. We popped in the Paracorr and a 27mm Panoptic, did a 2-star alignment on Polaris and Fomalhaut, engaged the drive motors—and then Rick handed me the hand-controller. He suggested M27 for a first target. I punched it in on the SkyCommander and hit GoTo on the hand controller. Quietly but surely, the 'scope gained momentum as it swept across the sky, and then played a series of descending tones as it acquired M27, dead-center in the field of the 27 Panoptic. Lynne and I looked in the eyepiece, and it was like Christmas morning with extra

caffeine. For the next few hours, with lots of commentary and kibitzing from friends and hit-and-run observers, we made our new toy work hard. We would purposely pick objects halfway across the sky, just so people could see and hear a 22-inch Dob acquiring yet another deep sky favorite at the touch of a button. The digital setting circles maintained a +/-.2 degree accuracy throughout the evening, many times centering objects in the narrower field of a 13 Nagler. The next night, the first 12 volt battery finally died, so we swapped the second back-up battery and never lost our alignment—the 9-volt battery in the SkyCommander keeps the setting circles powered, too cool! Of course the real proof that we made the right decision was the view in the eyepiece. I figure conservatively the drive adds at least 2 inches of aperture by keeping the image steadily centered and eliminating the need to pull the 'scope around while viewing. I found myself switching eyepieces and filters while the 'scope was slewing to the next object (I only knocked the stepladder over once!). Some initial impressions of what a 22 can do include: M27–the Football nebula, not a Dumbbell (lots of embedded stars), NGC6543–the Cat's Eye, apple-green helix around a pearl-white central star, NGC6888–the Crescent Nebula, looks like an x-ray of a big Idaho Baked Potato, NGC6992–the Veil East, Tom Clark calls this the bubble gum nebula (like you stepped in it and dragged it all over the place), NGC7009-the Saturn Nebula, a bright blue disk with easy ansae, NGC7293–the Helix, really bright!, remember when we used to say this object was difficult??, NGC7789–an open cluster in Cassiopeia, hundreds of pin point stars and dark lanes, NGC246–a planetary bubble nebula in Cetus, looks 3D with bright embedded stars, easily better than the picture in Burnham's, NGC253–galaxy in Sculptor, just like the photo, M33–the Pinwheel Galaxy in Triangulum, with the core and most of the spiral structure and HII regions of M33 just outside of the field, the galactic halo becomes amazingly prominent, M74–looks like a mini version of M101, multiple spiral arms, HII regions, Saturn–lots of ring structure, surface markings, and creamy colors, and Jupiter–even with an 80A filter brilliant at 300x, the Red Spot is prominent as well as numerous festoons and belts, the Galilean satellites show disks. And all this with about 1-arc second seeing (we can't wait to get this baby to the Keys)! Clearly, after using this 'scope for a couple of nights, a required accessory is one heck of an observing list.

Breakdown on Sunday morning was pretty wet, we had a lot of dew on Saturday night which cut our observing time down to a few hours (or about 300 objects without breaking a sweat)! Even wet, the components are easily manageable and fit with room to spare in the back of my new mini van. At home, the mirror had its first bath, the rest of the 'scope got a thorough clean-up, and all the grass bits and dirt were dislodged from the azimuth drive wheel. I didn't get an opportunity to use the wheelbarrow handles to move the 'scope around the site (we'll do that next time, just to keep people on their toes), and I discovered even the largest Desert Storm Cover doesn't quite cover the whole telescope.

I really sweated the decision to unload my old 20, but the new 22 is just unbelievable. Back in 1988 at the Texas Star Party, Robert Suding was already talking about alt-az stepper drives. The big kicker back then was handling objects near the zenith, Dobson's Hole, and of course, there were those steps—you can't have a jumpy image. Years passed and drive platforms became popular, but to me they were still, I don't know, a gadget. Earlier this year Meade added go-to to the ETX line and created an instant best-seller. The StarTracker on a 22 is like the Dobsonian revolution meets the ETX—on steroids. It's low-tech Dob meets high-tech computer drive

capability, and the result is incredible power and serious fun. With it's altitude velcro-drive (yes, you read that right), the ability to be disengaged and reengaged at any time, multiple slew rates with arrow keys on the hand controller, and smooth stepless operation, we have entered the next revolution in amateur astronomy.

This is a powerful observing tool, with amazing toy appeal, it's just too cool...
Vic & Lynne Menard
Bradenton, FL

Postscript: I've just returned from the Winter Star Party. Unfortunately, we didn't get the quarter arc second seeing this time around, but I did get to add some new accessories for the 22. Vic McKeighan installed two new e-proms in my SkyCommander and GoTo/Drive computer. With the new chips installed, an additional com port is enabled and we were able to hook up a laptop with Guide7 planetarium software. Moments later we were selecting objects from Guide7's extensive databases and slewing the 'scope from the computer. The possibilities with 22 inches of aperture and seamless computer integration are just mind boggling. Then I met up with Al Nagler who was showing off the new 31mm Type 5 Nagler and the prototype adjustable Paracorr —good thing I had my credit card with me... The views in the 31/Paracorr combo are absolutely stunning. Stars in the Double Cluster are pinpoint to the edge. The true field is almost a full degree. Eta Carina fills the eyepiece with it's detailed nebulosity. The colors of the Orion Nebula are vivid, the entire loop and M43 are easy in this richest field combo. Andromeda's dark lanes sweep across the field of view and M32 floats comfortably nearby. A simple twist on the adjustable Paracorr optimizes it for my 9mm Type 1 Nagler, and moments later we're deep into the Trapezium with countless tiny pinpoint stars embedded throughout the central nebula. Uncle Al has outdone himself again (how does he keep doing it?). On the new 22 StarMaster, this is the ultimate richest field eyepiece combo. For you Monty Python fans, the Holy Hand Grenade is here at last—it's made by TeleVue and it fits in a 2-inch focuser!