

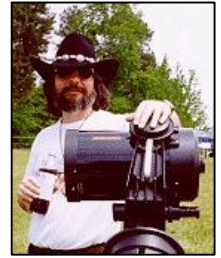
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Skywatch
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Rod Mollise's

Skywatch



TSP 2001



**Open the Pod Bay
Doors, Hal! I'm
late for TSP 2001!**

Rod Mollise

What's the best star party in the whole, wide world? Or at least in the good old U.S. of A? There's Stellafane. Skies aren't usually that hot...but the historical background and the great people definitely make the "Shrine to the Stars" a contender. How about the Winter Star Party? Not much room, but deep, far-southern skies that allow you a glimpse of Crux and steady, steady seeing make it a real winner.

But my heart belongs deep in Texas.

I've never been to a star party, either national, regional or local that didn't have a lot to recommend it, and I always have a great time just hanging out with my brother and sister amateurs anywhere. But the Texas Star Party is something special. Located in the far Western portion of the state, in Fort Davis,

Prude Ranch is on the doorstep of the Macdonald observatory and features the darkest skies in the lower 48. I'd be at Prude Ranch every year if I could (twice a year, actually—the Westex Star Party is held at Prude in November), but job pressures dictate that my wife, Dorothy, and I make this an every-other-year thing at this point. Naturally when another TSP rolls around for me, I'm rarin' to go, and this year was no exception.

This time TSP was held from 13 May (Sunday) – 20 May (Sunday), just about as perfect for us as possible. I spent Friday evening packing the car in preparation for our early Saturday morning departure. One help this year was the fact that we'd been able to reserve one of the Ranch's "motel rooms". Housing is always at a premium when upwards of 1000 amateurs descend on this dude ranch, so there've been years when we've had to make do with tent-camping while waiting for a room to open up (which almost invariably does happen). Not having to pack camping gear this year meant that it was comparatively easy to stuff our Toyota Camry with astronomy equipment and a week's luggage. I decided to bring my usual "TSP scope", a 12.5" truss tube Dobsonian. This telescope performs exceptionally well under the pitch black Texas skies, and is relatively immune to the fine dust that's just a fact of life Way Out West (a nice blend of superfine dust blowing in off the desert and the manure of several generations of horses). I also packed a wide field scope, my ETX 60 AT, just to prove that I am not entirely immune to the lure of Modern Telescope Technology! And, yes, kiddies, yer Old Uncle

Rod did indeed bring a bottle of Rebel Yell with him....Fort Davis is in a dry county (if you don't know what that means, don't ask!), and a man can get awful parched out there!

A journey of over a thousand miles is not something I care to even attempt in one day, so our goal was just to get to San Antonio on Day One. This was remarkably easy, it turned out, as road construction, usually an inevitability of travel on I-10, was strangely absent on Saturday. We made very good time, and when we reached San Antonio we were still rested enough to push-on a little farther in hopes of making Sunday's drive to Prude as short as possible. There really isn't much between Kerrville, Texas, about 40 miles West of San Antonio, and Fort Davis, so Kerrville is a natural stopping place. Surprisingly, this small Hill Country town turned out to have a good selection of motels and restaurants. After checking into a Best Western (a 60s relic with huge, impeccably clean rooms) we located a fantastic Mexican restaurant, Mamacita's. Man, those frozen Margaritas really helped clear the road dust out of my throat!

Day two's journey always seems long and arduous, since the closer you get to Prude, the more the anticipation begins to take hold of your dark-sky-starved brain! I managed to keep things together, though, and we hit the ranch at about 11am. There was already a long line of excited amateurs waiting to register, so Dorothy suggested I secure us a place on the field while she got us checked-in. TSP has several large observing fields, but the choice one is the "Upper Field," as it offers the best vista of the Southern sky, and is sometimes a little less dusty than the second choice, the Lower Field. There is another expanse of observing field near the ranch gate, but this was primarily used by the RV folks this

year. By Sunday morning, the Upper Field was already surprisingly crowded, but I was able to get us a nice spot near the Southern end. This turned out to be a good choice, since a good observing buddy, Tom Wideman from Dallas, was set up nearby.



After getting the telescopes and other gear unloaded, I had a chance to look around. Dust would not be as big a problem as usual this year. The rains, you see, have returned to West Texas. After several years of incredibly dry weather, the drought had obviously broken. This is nice for the ranchers. Not so nice for the astronomers at Macdonald—or us. Unlike the last time I was at TSP, 1999, clouds would occasionally be a problem in 2001. Luckily, though, we were really only completely clouded out on one evening...and it was nice not to have to shovel dust off your telescope's primary mirror for a change! With the equipment ready to go on the field, and Dorothy finished with Registration, we drove up to our room to settle in. Now, a "motel room" on a West Texas dude ranch like Prude ain't exactly like the Ramada Inn down the road. Clean and spacious, yes, but don't look for TVs, telephones, microwave ovens, and the other amenities of the modern motel chain. The ranch accommodations do have what observers really want, though: A bathtub in which to wash off the layers of dust and an air conditioner to keep you cool as you sleep away the morning hours after a dusk to dawn observing run!

Meals at TSP are served in the Ranch's main building which includes the Office, meeting hall and dining area. It's almost a tradition to complain about the food at any star party, but, in my opinion, the only thing you have to fear at TSP is putting on too much weight! The food is good and plentiful, and is served cafeteria-style in a quaint and pleasant dining room. After I finished stuffing myself, I had a chance to wander around a bit and renew acquaintances with the many folks that I only see in person at TSPs, The Internet makes it easy to stay in touch with your fellow amateurs, but it's also nice to see your friends face-to-face once in a while.

And you're also sure to make many new friends at TSP. This star party features some of the friendliest and most knowledgeable amateurs you'll find anywhere.

After what seemed like forever, the skies finally began to darken (Fort Davis is very far West in the Central time zone, so astronomical twilight doesn't arrive until after 10pm at this time of year!). What to look at on this first evening? Both Tom and myself pretty much stuck to the "cool" stuff on the first evening. The bright objects that look great everywhere and are simply mind-blowing from TSP. What was my most memorable observation on this evening? Probably M51. I've occasionally seen this great spiral galaxy "look like a photograph" from very dark skies, but it was in a whole other realm on Sunday night at the TSP! It really looked better than most photographs, both in my 12.5" telescope and Tom's f/6.3 LX-200. Yes, the spiral arms were easy. Yes, the bridge of stars and gas connecting the galaxy to it's companion, little NGC 5195 was visible, yes there were glimmering stars superimposed across the face of the galaxy. But, in addition, it showed great dynamic range, displaying the tremendous depth that escapes most photos!

Amateurs who've never attended TSP--or any other big national star party--often ask me what it's like observing from somewhere like Prude. Below are a few notes I recorded Sunday night:

"Sunday evening at the Texas Star Party and the Upper Field is already getting crowded with happy observers and telescopes of every size and description. As the evening begins, the air is full of excited conversation. But as the full glory of the desert skies begins to burn, talk dies away, and the cool night air is punctuated only with the sound of an occasional robotic telescope slewing to its next prize. My own telescope points to the heart of the Virgo cluster, and the marvels visible in my eyepiece are without number. I gaze open-mouthed at fields peppered with island universes. So deep is the view that I begin to lose touch with Earth, vertigo nearly overcoming me, as I seem to lift-off into the void."

'Course not every moment is as "cosmic" as this. At one point in the evening a city boy noticed a skunk crossing the edge of the field (the skunk was actually minding his own business), and decided to help: "I'll throw a rock at Mr. Skunk and make him run away!" Needless to say, some of us Wild-Eyed Southern Boys restrained him before he could bring on Mr. Skunk's terrible retribution! One evening an observer returning to his scope noticed a rattlesnake curled up around his pier, enjoying the nice, warm, sun-heated metal (this was at a spot away from one of the main observing fields)!

With the skies looking fantastic, I was eager to observe 'til dawn (or at least until moonrise, as we had an old Moon rising in the early morning). But 'twas not to be. Those dratted old clouds moved in, shutting us down some time after midnight. In truth, this was more or less OK, since the long drive had taken some of the snap out of me, and now that the adrenaline rush of

my first sight this year of dark Texas skies was wearing off, weariness was setting in. I covered the 12.5" with a Desert Storm cover (a good scope cover is a must at TSP to keep dust out), and headed back to the room for a draught or two of Rebel Yell and a good night's sleep!

When Dorothy and I awoke the next morning the first order of business was COFFEE! Since there's little or no demand for breakfast by late-sleeping observers, the first meal of the day is at 11:30am. Luckily, the vendors' hall, just a short stroll from the motel room area, always has hot, fresh coffee going. After a few swallows of the blessed liquid, I began to feel more human, and took a look around the wares. Unlike Riverside, TSP is more about observing than equipment buying, but there is always a good representation of astro vendors, and lots of goodies on display.

Present this year were Lumicon, Pocono Mountain Optics, Rex's Astrostuff, Astronomy to Go, Lymax, Sky Publications, and several other well-known dealers. I had promised myself that I'd hold my buying impulses in check this year, since with the price of gasoline so high, a TSP trip was a slightly expensive proposition. I could not, however, resist buying a copy of Kepple and Sanner's Night Sky Observer's Guide. Many amateurs are referring to this two volume set as the "new Burnham's." It's not really very similar to Burnham's in my opinion, but is a classic in its own right. The authors were kind enough to autograph our copy, and I'm sure Dorothy and I will treasure it for a long time. I also had the new experience of autographing copies of my own new book Choosing and Using a Schmidt Cassegrain Telescope. It seemed a little strange and embarrassing to be doing this at first, but the kind comments about my work had me walking on Cloud Nine before long!

Sadly, Monday night was pretty much a cloud-out, with only occasional sucker-holes available. But it was good to get a full night's sleep more or less, since this was the last evening when I'd snooze all the dark hours away.

Tuesday dawned hot, dusty and clear and stayed that way. The afternoon also brought the first assault by the notorious West Texas dust devils. As everybody knows, they grow things big in Texas, including these mini-tornadoes. Unfortunately, there was a high percentage of new attendees at TSP this year who didn't know to take precautions against the devils. As a result, scopes were toppled over on several occasions before the end of this year's star party. Luckily, there was no major damage as far as I know. If you plan to attend TSP, you simply must take pains to secure your scope. The legs of tripod mounted telescopes must be staked to the ground with rope and tent stakes. Dobsonians should be pointed to the horizon and left free to move in azimuth like weather-vanes if they are not secured down with ropes and stakes. These little windstorms are no joke—they can cause severe damage to equipment and injury to observers!

Darkness Tuesday brought those incredible desert skies we'd all come so far to experience. I'd played around Sunday night, but it was time to do some serious work on this evening. I always spend some time at TSP working though the observing lists generated by John Wagoner and Larry Mitchell. In addition to improving your locating skills "working the lists" makes sure you see some objects you've never seen before. On this evening Tom Wideman and I worked through John's "2001 Odyssey" list. In his directions John had mysteriously stated that there was a mystery associated with this year's list, and that TSP would not be held responsible for any observers "abducted by aliens!" As we worked

through the many objects, Tom and I scratched our heads trying to make sense out of it. There seemed no pattern. Early in the evening the list had us plowing through the Virgo Mainline, the galaxy-crowded heart of the Realm of the Galaxies. At other times we were sent on a snipe hunt for a dim and rarely observed planetary in northern Hercules. Then down into Aquila looking for sprawling dark nebulae. What was this all about? We tried several theories, but nothing seemed to fit. The next morning as I turned in my list to Mr. Wagoner, the secret was revealed. Objects in one field, if traced out on a large-scale chart, formed a "2"...the next field formed a "0"...the next another "0"...and the dark nebula in Aquila made a "1". The observing pin we received bore a picture of the 2001 Monolith! "Astronomical Odyssey" indeed!

When I needed a break from running down obscure list objects on Tuesday evening, I turned to my little 60mm ETX, "Snoopy." This scope can be fun as a portable instrument back home. Its computerized goto system is really quite amazing. But under the incredibly dark Texas skies, it really came into its own as a widefield (60mm f/5.8) wonder. Some of the Milky Way views it presented were indeed better than what's possible in larger scopes. Indeed, the view I had of the legendary North American Nebula, NGC 7000, with the little ETX was the best I've ever had with any scope. With a 40mm eyepiece, there was plenty of dark space around this huge nebula to make it stand out really well. The addition of an OIII filter made this normally elusive gas cloud into a genuine showpiece. Also amazing was the way the ETX could easily bring home even the "hardest" Messiers. Under dark skies, the little scope easily delivered M97, M108, M109, M101 and other normally trying M objects. And so it went, observing until dawn and the rising Moon interfered.

Midweek also brought some daytime activities. This year's TSP featured numerous excellent "daytime talks", but the standouts were Jeff Medkeff's excellent presentation on astronomy software, Larry Mitchell's deep sky program, and Tom Clark's particularly interesting talk on the development of the Dobsonian telescope. On Thursday, the evening programs began, with the first featured speaker being one of my favorite authors, Timothy Ferris (Coming of Age in the Milky Way). Mr. Ferris' latest project is a forthcoming book on amateur astronomy, Seeing in the Dark. He shared a chapter with us, and I'm eagerly awaiting its publication! Friday's keynote was by Steve O'Meara, who's an excellent speaker. Steve's talk concerned his other great interest, volcano chasing. Steve's—as always—passionate presentation and beautiful images made this subject, which I hadn't thought I was interested in, fascinating for me. Saturday's program was to have been by Sky and Telescope Magazine's new editor, Richard Fienberg. Unfortunately, due to a death in the family, Mr. Goldman had to cancel at the last moment. Steve O'Meara kindly agreed to speak again on Saturday night with little time for preparation and nothing in the way of pictures and other props. Surprisingly, Steve's talk on the green flash, was one of the best, most interesting programs I've seen him—or anyone else—present at TSP.

The evening programs also feature everybody's favorite door prize marathon, the Great Texas Giveaway. I didn't win a blasted thing this year. But whether you win or not the GTG is always a hoot, with the antics of the "prize committee" always being outrageous and side-splittingly funny. This year they got a lot of mileage out of Bob Morrow's donation of several sets of BOB'S NOBS as prizes. At first I was a little miffed at these goobers making fun

of this excellent product, but then I realized that my friend Bob was getting some of the best publicity imaginable for his Nobs! The only buffoon missing this year was Alabama's own, inimitable Ed Boutwell, usually the chief clown. We were told that Old Bob has gotten married and that, "That's the last we've seen of him!"

But back to the observing field. Thursday started off as a total downer. Almost no observing at all early in the evening due to drifting cloud banks. But Tom and I stuck with it as did most other Upper Field residents. And boy was it worth it! By about 2am the sky suddenly opened up. And I mean really opened up. Conditions swiftly became wonderful, with the Milky Way arching from horizon to horizon like a giant, burning rainbow! How good was it? I was able to complete John Wagoner's entire 2000 observing list (I'd missed that year), a globular cluster marathon, and even made progress with Larry Mitchell's killer (in more ways than one) Advanced List. How hard was Larry's List? Well, two of the objects this year were Einstein's Cross and the Double Quasar! If the word "Markarian" scares you, don't even think about starting it! The capstone for Thursday evening, though, was provided by the International Space Station. It was due to make a good pass just before dawn, and it just so happened that Tom had loaded a new program onto his laptop that allowed the LX-200 to track satellites. Not in fits and starts, moving in jerks along the track, but smoothly and continuously. He set things up and we crossed our fingers. Suddenly, there it was, in the sky and in the field of the SCT. Not just as a dot either. In the Meade scope the Solar panels were easy to make out! This beautiful sight, accompanied by the sounds of the ranch beginning to awake as dawn approached—horses snuffling and birds beginning to call—was truly unforgettable.

Friday was an OK, if not perfect evening, with the sky definitely not as good as late Thursday night. In the early morning, thick clouds began to gather again. I awoke Saturday to leaden skies and light rain. It was also time to at least begin contemplating, sadly enough, the trip home. It didn't look like we'd have any clear skies Saturday evening, so I reluctantly packed the 12.5" scope and ancillary items in the car for the return trip. I did leave the ETX set up, and pulled out my pair of 10x50 Celestron binoculars, just in case. Tom needed to leave for Dallas late Saturday night, so the LX-200 was also duly packed away.

Surprise! As sunset approached, the clouds almost magically cleared away. OK, I'd see how many objects I could do with the ETX 60, binoculars, and a star chart program running on my Palm IIIxe handheld computer (my atlas and computer generated charts were packed away). It turned out that the dark Texas night was wondrous even with small instruments. Concentrating on the Milky Way and open clusters Palm, ETX and binoculars showed me countless wonders. I also spent some time looking through the scopes of generous fellow observers. The field had cleared out a bit since its peak on Wednesday when the Upper Field was literally wall-to-wall scopes, but there were still plenty of Big Guns set up and in operation. The big question on Saturday evening was, "how late do I push it?" With skies good, but the drive home in the offing, what do you do? I'd had enough good hours this year so that I compromised, shutting down at about 2:30am and clearing what remained of my equipment off the field. This turned out to be a good choice, as the packing Sunday morning was virtually painless.

Well, not completely painless. It's always a sad moment when you drive under the "Vaya Con Dios" sign on the Prude Ranch gate at the end of another great Texas Star

Party. No, the skies were not as good as they were for the wondrous year of 1999, but I still put in many happy hours observing and saw many incredible objects. All in all, I think I probably had more fun this year than I've ever had at TSP—or any other star party! Thanks to the Houston Gang and the SWRAL for another great TSP, and I'll be back next year by hook or by crook!

Who Needs a Crayford for an SCT?!

...Maybe you do!

Rod Mollise

Crayford focusers, those no-gear super-smooth wonders so favored by the Big Dob folks, have finally started to make their presence known in the SCT community. Now, why would a Schmidt Cassegrain owner want a Crayford focuser? SCTs have built-in focusers that focus the telescope by moving the primary mirror. *Why the H – E Double Ell would anybody bolt an additional focus unit onto the back of the SCT rear cell?*

That was what Old Rod was thinking



as he read an email from Anacortes Telescope and Wild Bird's Herb York. Herb, known to many of you from his AstroMart web site (a real service to the amateur community, if

I may say so), wanted to know if I'd like the loan of one of his new William Optics (WO)/Yang SCT Crayfords. I hesitated for a moment...I mean, what would I do with this thing? I knew that Crayfords were popular among SCT-using CCD imagers. Mainly, accomplished imagers who can't stand the slightest amount of image shift during focusing. The Crayford eliminates this entirely. BUT...I'm hardly what you'd call an "accomplished" CCD imager, having only gotten my feet wet in that demanding field in the last few months. And yet...and yet...the lure of getting my hands on a new piece of telescope gear was just *too strong* to resist. I wrote Herb back agreeing to do an evaluation of the focuser, and he told me he'd get it on its way to me as soon as possible.

In due course, there was a package at my door. As always, I exercised due restraint—aw, c'mon, who am I kidding? *I tore the box open just as soon as I got it into my hot little hands!* They say that initial impressions are important. And my first impression of the WO focuser was certainly a positive one! This is an undeniably good-looking piece of equipment (see figure 1). A combination of anodized black and bare aluminum, I had no doubt that this sucker would look pretty darned impressive hanging off the rear cell of my Celestron Ultima C8. Despite an appearance of solidity, the most surprising thing about the WO focuser was its weight. It's solid, but *not* overly heavy. It was amazingly light in my hands, and I was very relieved. I had assumed that this was going to be one heavy mother, necessitating removal of guidescopes, piggyback brackets, and other accumulated goodies from the SCT. Maybe I'd even have to go on a counterweight hunt. Not the case at all. The focuser was just right, requiring only minor adjustments to my sliding counterweight (you *will*

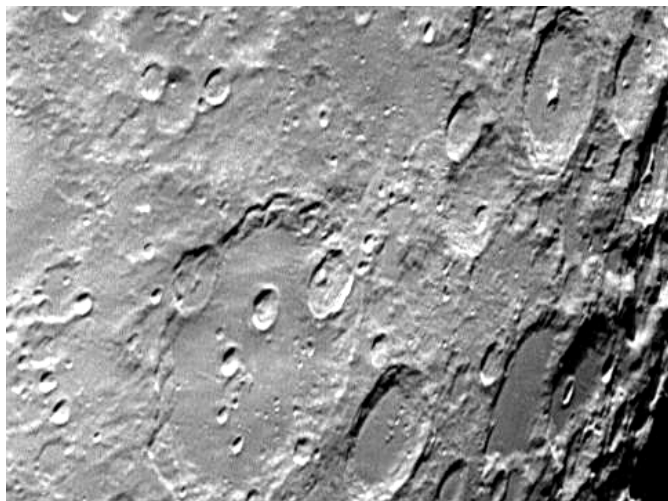
need a counterweight to achieve balance with the WO in place). Beautiful construction and machining are great. But if an accessory is so heavy that it causes constant balance problems, you just won't use it—take it from me.

But how did the WO work, indoors anyway (just as you'd expect, those nasty old clouds had moved in with a vengeance)? Very well. The unit sports two large focus knobs with rubber coverings that provide a sure and comfortable grip. I played with the WO extensively inside the house on the first evening. Like the Crayfords on my Newtonians, the WO

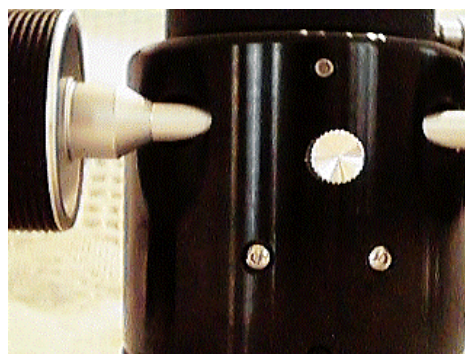
has a buttery smooth focus feel. I did note, though, that the action wasn't as positive as I like. Any Crayford, due to the gearless, roller-style mechanism, will slip if you exert too much pressure on the drawtube or come to the end of the focus travel. The WO seemed to slip with very little pressure applied, though. Just turning the knobs a little too fast seemed to bring on some mushy-feeling slippage. I tried the knurled screw used to lock the focuser drawtube in place. Uh-uh, no dice. You can either have the focuser locked or unlocked via this setscrew—that's it. Tightening or loosening it doesn't adjust focusing tension at all. A quick email to Herb verified my suspicions that the three, small allen screws (see figure 2) on the focuser underside could be used to adjust tension. I found a small allen wrench in my scope tool box and soon had the focus tension set more to my liking.

Turning the WO in my hands revealed a couple of very nice features. One that I liked very much was the rotating base. Unlock a nice, large set-screw and you can adjust the angle of a camera or diagonal without loosening said camera or diagonal's set screw or

adapter. Reflections and stray light are the bane of every observer, so I made it a point to take a flashlight and peer down the scope end of the focuser's drawtube. What I saw was a well-blackened and threaded tube



that will definitely minimize stray-light problems. It is attention to seemingly small things like this that make a piece of gear stand out from the pack. Oh, the setscrews for the focuser drawtube and the 1.25" adapter included with the focuser don't touch your lovely eyepieces...they compress brass rings that hold your accessories securely without scoring them.



All I needed was a clear night. And down here in the Deep South that can be one of the most difficult things for an astronomer to get. Finally, though, I got some good weather. Unfortunately, it coincided with a past-first-quarter Moon. But that was actually alright. Imaging and viewing the Moon would make it easy for me to see just how well the focuser did its thing. At the high

magnifications I'd use during lunar observing and imaging any flexure or stickiness would show up *immediately*.

My setup on this evening was my Ultima 8 and Starlight Xpress MX-516 CCD cam at f/20 (via barlow projection with a TeleVue Big Barlow) for imaging. For visual work, I'd use my Intes 2" diagonal and a variety of eyepieces. The minute I screwed the WO onto my rear cell (it threads onto your rear port just like any other accessory), a big smile covered my face—I just couldn't help it! Now *that looked cool!* Nothing's perfect however, least of all astronomy equipment, and I

ran into my first small hangup when I tried to insert my Intes diagonal into the drawtube. The fit was tight. Not just for the diagonal, but for my TeleVue barlow and any other 2" accessories I tried. A William Optics diagonal (more on this later) I also received from Herb for review purposes was an even tighter fit than my other stuff. I know that high-end manufacturers like to machine equipment to very close tolerances, but, hey, that's the last thing most observers need out in the dark. If you have to jerk a diagonal or a barlow out of a focuser with enough force to move the scope, you're going to get tired of using the focuser real quick. This was *not* a fatal flaw, however, and the diagonal *did* loosen up over the course of the evening.

Working with my diagonal revealed another minor irritation. In an effort to get the Intes in and out of the focuser with the least hassle, I tended to back the focuser's setscrew off a lot, and I'd occasionally turn too far, causing it to drop to the ground. Now, William Optics is certainly not the only offender here, but *when* are manufacturers going to get the message that we need *captive setscrews* on everything? Nothing is

more frustrating than having a small screw drop to the ground and hide in the grass at 2 am! Also, please be aware that the WO is a big piece of equipment. It extends quite a distance back from your rear cell. This is really only a problem (focus issues aside, see below) during polar alignment. I could not leave the Intes diagonal in place with the scope pointed at a declination of 90 degrees. The focuser is just about a ¼ inch too long to allow the diagonal body to clear the base of the fork. In practice, this is not a huge difficulty. Just insert a 1.25" diagonal if you want to look through the main scope at this point. I use a polar alignment finder for this initial pointing at the pole, so I have no real need to look through the main scope, anyway.

Yeah, sure, we all know that SCT Crayfords are mostly used by imagers, but I thought I'd see how the WO worked for visual observing while waiting for the scope to acclimate and the Moon to rise a little higher. What I discovered astounded me! I'll say it right now: *if you're a serious Lunar or planetary observer, the WO Crayford is a godsend.* Not only could I focus at very high power without any image shift, the focus is *incredibly* smooth and fine. Focusing an SCT by moving the eyepiece rather than the primary mirror just naturally results in very slow, fine focus action. It allowed me to obtain precise, and I mean *precise*, focus at magnifications of 350x and *above*. The easy action of the WO also meant that the act of focusing imparted very little vibration to the scope. My Ultima 8 has little focus shift, but I still felt that the WO gave me quite an advantage over standard focusing at high powers and long focal lengths.

How about focus travel and compatibility with various eyepieces? At f/10 I had no problems at all. Any 2" or 1.25" eyepiece came to focus easily. As I'd expected, on the other hand, I *couldn't* reach focus with *any* eyepiece when I screwed my f/6.3

reducer – corrector onto the rear cell. I didn't really expect this to work, mind you. The extra spacing added by the WO was just too much. I didn't have the opportunity to check the WO on the deep sky before it had to return to Anacortes, but I believe that it should reach focus with a camera at prime focus with the Celestron/Meade f/6.3 r/c or the Meade f/3.3 r/c.

How about imaging? Again, that's the reason most people will invest real money in a Crayford. In short, it made Lunar Imaging a JOY! As I said earlier, my Ultima 8 doesn't have much focus shift to begin with. But at f/20 – f/30, the focal lengths I usually use to "shoot the Moon," even its small amount of shift means the Lunar feature of interest may move off the edge of my relatively small CCD chip. None of that with the WO. Focusing was quick and precise, and I think my results on the grand crater Clavius speak for themselves. During my Lunar imaging run, I didn't notice *any* flexure or other problems. I do advise users to be sure to lock the focuser securely once precise focus is achieved. Bumping the camera will definitely change the focus on the WO, and you'll get to start the focusing process all over again.

Will this be a good tool for the deep sky imager? I'd have to say "yes," if you're bothered by focus shift or find it difficult to focus precisely using your scope's normal control. However, please be aware that you'll have to forego using a flip mirror when you put the WO in place. Assuming you could rig the adapters to attach the focuser to your flip mirror or vice-versa, a setup like this would place your camera too far back to achieve focus I'd guess.

I should also outline the method you use when focusing with a Crayford like the WO. The focus travel with one of these units is *very* short—this goes for any Crayford attached to an SCT. The upshot of this is that you cannot use the Crayford all the

time. When initially setting things up, you'll first find rough focus with the scope's normal focus control. When you're in the "neighborhood," you can begin using the Crayford. When you change eyepieces or cameras you'll often find you have to use the scope's "normal" focuser to get back into the focus range of the Crayford. This is not a big deal, but some people seem to think that a Crayford can completely *replace* the normal SCT focusing method. This is only true if you intend to *only* use a set of parfocal eyepiece in your telescope. In that case, the moving-mirror focuser can indeed be left alone.

Final thoughts? I was skeptical about the "need" for the William Optics SCT Crayford, but swiftly became a convert. Make no mistake, this is something of a luxury for the average sct-using amateur. But a very useful luxury. I was already aware that a focuser like this one can take a lot of the pain out of CCDing. But what surprised me was what a *nice* tool this is for planetary—or other high magnification--work. This is a quality piece of gear. And should hold up well under years and years of heavy use. Plus, as I said, this thing makes even your pedestrian Celestar or LX-10 look really cool!

A word about diagonals...

In the course of our emails concerning the William Optics Crayford, Herb York asked me if I'd also like to try his WO 2" diagonal. "Sure," sez I, "why not?" I wasn't expecting anything special when I opened the box from Anacortes. A diagonal is a diagonal right? Wrong! In appearance, anyway, the WO diagonal is different, man! Instead of being all black like my Intes, it features bare aluminum sides and a gold "William Optics" nameplate on the eyepiece end of the mirror

housing. My Intes reminds me of a good, solid T72 Tank, while the WO looks more like a Lexus! Like my Intes 2", this is a "refractor style" diagonal. You'll need a separate 2" visual back (AKA "2" adapter') to use this on your SCT. Luckily, I had the chance to try the WO diagonal on Mars, as severe a test as you can make, I suppose. Nice. Very nice.



These things are subjective, of course. And, truly, a refractor or SCT diagonal is much less critical to optical performance than a Newtonian's diagonal. *And yet...and yet...* maybe it was my imagination, but I *did* think Mars looked slightly sharper, and that there was less light scatter in the WO than in my Intes. The difference was subtle, and it may indeed have been my imagination, but this is, no doubt about it, a very nice piece of gear.

Criticisms? The diagonal was a very tight fit in any accessory I tried. It did go into my Intes 2" visual back, but it took some twisting. I was never able to get it fully seated in the (already tight) WO Crayford. On the other hand, it would no doubt loosen up with a little use. It did fit nicely into an old Celestron 2" visual back I had lying around. Verdict? Stylish to the point of being eye-popping and a very good performer optically.

The William Optics SCT Crayford and 2" diagonal are available from Anacortes Telescope and Wild Bird <http://www.buytelescopes.com> at \$135.00 and \$129.00, respectively.

RedShift 4 Rod Mollise



<http://www.maris.com>

I'm a long-time user of the RedShift series of astronomy programs. In fact, I came onboard with the original RedShift back in the Summer of '94. While RS has never been my *primary* at-the-telescope computerized observing tool (I'm using Megastar and Deepsky 2000 and Cartes du Ciel for that), I've always been pleased with the series (well, maybe except for the **notorious** RS2). RedShift3 has quite frankly been my favorite in the series up 'til now. I've found it quite usable for various tasks; especially those associated with the university astronomy labs I teach.

So, when I saw RS4 on the shelves of my local Babbage's (your average Mall Computer Store) for \$39.95, I figured I'd give it a try. I mean...how could I resist? Beautiful, full color packaging and **two** CDs (previous RedShifts occupied only one CD).

My observations:

1. **Charts.** This is probably the *best* RS for chart printing so far—RS4's printed starmaps really do look much better than the output of the earlier programs. A couple of problems, though. There **STILL** needs to be a greater range of star disk sizes—at least for printing. The fact that the star-binning (the different sizes of printed star disks for different magnitude stars) in RS consists of similarly sized dots makes the charts difficult to use at the scope. It's *much* easier to pick out star patterns when there's some appreciable difference in the disk

sizes of stars of different magnitudes.

A new addition to RedShift is **reticle patterns**. The program can now place Telrad or finder circles on the screen. Unfortunately, they do not seem to print out on my color printer. All in all, I've gotta say that RS4s onscreen and printed charts look more like the output of a "deepsky program" than any RS so far.

2. **Objects.** I really don't mind the

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magnitudes. I know that this is the way it is to make the onscreen display "pretty", BTW...but I think there is a happy medium. OH, and the Telrad circles (and other FOV

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New Series

inconsistent and limited (as compared to RS3) selection of object images (RedShift 3 and 4 can display actual *images* of deepsky objects on your charts rather than just symbols, if desired). I don't really use the pictures too much anyway, selecting "area,"—a circle representing the object size—or "icon"—one of the familiar symbols used to represent deep sky objects in computer programs and printed atlases—is usually much more practical and useful. However, the wacky object selection (M92 is represented by picture but M13 isn't) image-wise does tend to make the program seem a trifle *amateurish*.

I do wish the RS folks had given us more images of nebulae! Since the program doesn't use isophotes (nebula "outlines") to portray nebulae, this would be truly useful. As in other object types, the number of nebulae images seems to have gone *down* since the days of RS3. I don't see an image for the Horsehead (B33/IC434), for example, anymore unless I just don't have the filters set correctly...

3. Object info. I'm *not* impressed. Not at all. I'd MUCH rather have some hard object information when you click on a deep sky object or star or planet rather than the pretty rise/set charts, etc. that RS4 gives you. I'd like to be able to pull up a screen that tells me that *M-whatisit* is also known as NGC *thingamypob* and UGC *umptysquatch*. I don't see *any* object identifiers on the info screens to speak of...only on object labels! How about the Hubble Morphological Type display?! Unless I'm reading this wrong...all you get is a range, instead rather than giving the galaxy's specific type. And how about spectral types for stars? FAR TOO MANY stars are listed as being of "undefined" type when they for sure are NOT.

4. Double Star Info. RS3 gives a nice display giving separationss and position angle for *many* prominent double stars (though many doubles

in both RS 3 and RS4 are not identified as such--Rigel being an example). Where the heck did *that* go?! These screens are definitely missing in RS4.

5. Catalogs. I do think this is a *good* selection: NGC, PGC, Tycho II and Hubble Guide Star Catalog (finally, just when the GSC is getting ready to go obsolete!). Nice work, and far better than the object databases contained in earlier RedShifts.

6. User interface. I'll have to get used to it, I suppose, and it does appear to be at least slightly better than what was on RS3 (which I thought was fine, actually). I do hope Maris is *done* changing the interface design--this is the *third* distinctly different system!

7. Display. Looks pretty darned good. BUT the option of using a "real" horizon ala' Starry Night (trees, houses, etc...looks really cool) would have been nice. Oh, and I like the direction sliders, but for goodness sakes, on the next RS I hope they find a place for "N-S-E-W" buttons! Please? In any event, the display, like the program's printed outputs is far, far better than its predecessors.

8. Customization options. Ain't none. Guys, this is nowhere. It's not a huge deal, but it would have been very *nice* to be able to change colors and fonts.

9. Program mechanics. OK, but not stellar. The program prompts you to insert CD 2 (which is apparently only used for the Story of the Universe "lectures" -- which are quite nice BTW...a decent resource for an educator, anyway). BUT it does not prompt you to insert the original disk when you're done! This, predictably, results in a program *crash*.

10. Manual. Ain't one...just a fairly brief help file (with no searchable index). Get real. I don't mind a manual on disk. But it should be

thorough. This is hardly thorough. Very poor in my judgment. Also, WHY wasn't it made available as a PDF file in addition to the help file on the CD?! Poor manuals are common in most astronomy (and computer products) from telescopes to CDs. But it would be nice to see somebody do better some time! This is a real shame, actually, because RS4 is a complicated and very capable program. More complex in its own way than Microsoft Word, for example. Have you seen how thick the Word manual is these days? Maybe the Maris folks should take a look at it!

12. Program speed. Pretty darned good on my hardly state of the art Pentium 566. For optimum operation, devote as much hard drive space to the program as possible (this can be specified during installation).

I don't know if anybody at Maris is listening, but none of the above problems would be overly difficult to cure, and would certainly make this a far better app. But don't get me e wrong...I'm really enjoying 4 so far. I *will* admit to being a little disappointed. I'd hoped that this would **BUILD** on RS3, improving upon what I thought was a fine effort. Instead, 4 sheds some features and gains others. This means I'll FOR SURE be leaving RS 3 on the system. I've no doubt that some of the above criticisms are the result of my unfamiliarity with a new (and not very well documented) program. I'll report on RS4 here again once I've learned it a little better.

Do I recommend RedShift 4? Certainly. The relatively small price of admission was well worth it, I thought, as I **rode on Phobos as it orbited a high resolution, beautifully depicted Mars!**

I PLEAD INSANITY

Pat Rochford

I'll admit it right up front ... my head must not be screwed on very tight, at least when it comes to telescopes. Please read carefully the following, and let it serve as a warning.

Six years ago I built a wonderful machine to view the heavens with – a 24" Dobsonian. The primary mirror was made by John Hall (Pegasus Optics), one of if not *the* finest maker of large amateur mirrors in the world. An exquisite secondary was acquired from Galaxy Optics, which in itself cost more than a complete Meade ETX telescope. At F/4, only a three-step kitchen ladder is required to observe objects at the zenith, the views of which through Nagler eyepieces, are difficult to fully describe in words. On top of all this, movement of the telescope is buttery smooth - making the whole observing experience an absolute pleasure. No electricity? No problem. Not much time available for setting up? No problem. Point and look ... it couldn't be much simpler. It worked so well that I built a smaller version (12 ½") so that if size and weight became an issue one night, I would still have a Dob for wonderful, simple viewing. I was in NGC heaven. What more could any amateur astronomer ask for? Plenty more apparently ... and I was about to discover the price to be paid for Astro-Eden.

So when did the insanity start? About a year ago. Actually, it all began several years ago when reading a very seductive advertisement for a CCD camera. What began as mild curiosity, grew to become a nagging obsession. Day and night, images of galaxies made with small telescopes haunted me like the ghost of a long lost relative. 19th magnitude stars and spiral structure visible with a five-

minute exposure. Here was an opportunity to do some serious supernova searching. I was rapidly losing the capability of objective thinking. I had to have one.

All of this digital wizardry tends to cloud one's eyesight when it comes to really looking at the prices and ever so slowly I came to the realization that a lot of money was going to be needed for this project. There was absolutely no way I could have afforded the likes of an LX200 or equivalent as well as a camera, computer and of course a place to house the whole thing. And a place to keep all of this permanently is just about an absolute necessity when you realize what's involved to set up an operation like this.

After careful consideration and a hard look at my budget, the following equipment was purchased and placed in a small addition to my observatory. A Celestron G8 converted to goto using Lenord Stage's hardware and Mel Bartels' software, an SBIG ST237 camera and an old Pentium desktop computer from work. Construction and set up of everything took about ten months (working occasional weekends).

It was at this time that the second realization became apparent - this operation was going to be anything but simple. The task before me was daunting to say the least. I first had to learn to operate the Goto mount. This is done using an old 386 lap top computer running in DOS. Dear God, I have enough difficulty using Windows! The software, developed by Mel Bartels, has unbelievable capabilities. (I have it on good authority that a version of it was used to run the Mir space station when Mir's on board computer failed a couple of years ago.) Both Mel and Lenord, as well as everyone in the user's group have been very helpful and patient with me through my painfully slow learning curve, but it has still been hell. For instance, making a periodic error correction

file involves guiding a lengthy series of runs and then averaging them into beautiful multi-colored graphs. In theory the graphs smooth out and make for nice, tight star images. In reality, it's a crap shot as to whether you get trailing stars or not. No doubt, the error probably lies with me.

Then there's the camera software. Windows based, but still not intuitive to a digital dumb ass like myself. Sometimes I have been able to produce rather nice looking images, other times it looks as if a sick pigeon crapped on my screen. Again the error is most likely with the operator, like forgetting to activate the cooling system or forgetting to remove the cover from the end of the telescope.

Finally, the neighbors must think I've lost total control of myself. It is not uncommon to hear loud profanity coming from the back of the pecan orchard early in the evening, gradually quieting to a soft whimper by one or two in the morning. And if it weren't for my friend Rod Mollise, who has been with me on this from it's inception, I would probably have torched the whole damn thing long ago. Rod is either a true friend, or else he's just as sick as me.

So there you have it. I can not begin to explain what drives me to continue in this madness. One day I was perfectly content to gaze across the heavens with a star chart and the gentle push of my hand ... the next day an e-challenged madman frothing at the mouth and cursing everything electronic. Amateur astronomy – isn't it wonderful?

My Back Pages



Club Notes

MAS

The June MAS Members Only Star Party was a huge success, with many new faces on site. And, wonder of wonders, the weather even cooperated! As the July MAS meeting falls on the fourth, we're planning on holding the meeting on the 21st instead, informally, before the evening's July MOSP.

SCT-USER

Well, if you didn't enter this year's SCT-User Astrophoto Competition, I'm afraid you missed out! The deadline for entries was 30 June. But don't despair if you missed it...we'll kick off the Second Annual Competition next April. Look here next month for a list of this year's winners!

Don't care to see Beavis and Butthead in their Summertime swim attire (shudder)? Bury your nose in the latest...

RUMOURS

To our dismay, we've learned that the world's foremost "professional amateur," Sir Patrick Moore recently suffered a stroke. We also understand, though, that Sir Patrick is

pressing on with *The Sky at Night*, and seems to have recovered nicely.

Meade, as most of you know, is giving away a ton of eyepieces. Their recent promotion gives new LX-200 purchasers a set of *seven* Series 4000 Plossls. This is really quite a deal on very good, if not exactly premium, eyepieces. The question is why? Obviously, Meade is trying to clear out excess LX-200 inventory. But is it just to clear inventory OR to clear inventory in preparation for the introduction of a new top-of-the-line goto scope...that's what the Anonymous One wants to know!

Where is that NS11?! Celestron SWEARS that this supposedly revolutionary new telescope should be shipping by the time you read this. Hope this isn't turning into MONTHS of delay as in the poor Ultima 2000! And how about the brand new NS8 GPS? Will it ship in September as promised, or this telescope also running on Tulsa—errrr... "Celestron"—time? And how about Celestron's top of the line manual scope, the Celestar Deluxe? Does the NS8 GPs spell its doom? We understand that the Ultima 2000 is a **goner already...**

What about the much heralded Aries Chromacorrs? These special lens elements would supposedly turn your cheap Chinese refractor into a near APO. But while we hear about 'em periodically on the Internet, they still appear to be **vaporware**. Hope this happens...

The Anonymous Astronomer