Exploring the Final Frontier….

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"A Newsletter for the Truly Outbound!"

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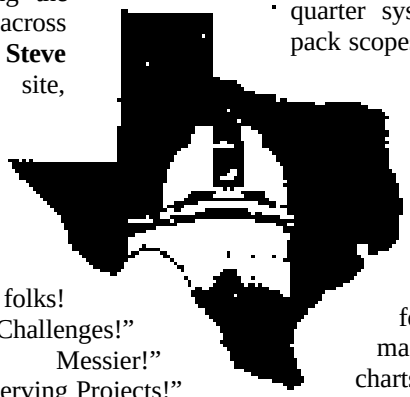
Skywatch
1207 Selma Street
Mobile, AL 36604
U.S.A.

Skywatch

A Small Scope in Deep Sky Wonderland: A 12" Dob at TSP '99

Rod Mollise

Being a confirmed Deep Sky fanatic, I'm always on the lookout for new resources to help me in both planning and executing my 'deep runs.' Not long ago, while surfing the Internet, I ran across **Jim Shields** and **Steve Gottlieb's** web site, ***Adventures in Deep Space***. And what a wonderful place it turned out to be. This is the *hard stuff*, folks! "Deep Space Challenges!" "Beyond Messier!" "Challenging Observing Projects!" Oh, how longingly I poured over these wonderful web pages! I mean, the stuff at this web site **(http://www.angelfire.com/id/jsredshift/index.html)** is just so outrageous! Forget your Ms and even your NGCs….here we have the *real deal*. Those exotic objects with designations like **Arp** *umptysquat* and **Markarian** *thus and such* and on and on.



Like most urban observers, though, I'm lucky to get out to a site which is even only 'moderately' light polluted once or twice a month or so. Couple this with the fact that at 12.5", my scope, a homebuilt truss tube Dob, is a *wee bit* small to be taking on some of these deep space critters (30 years ago, never dreamed I'd be callin' a 12" scope *small*!). So for the most part my deep, *deep* sky expeditions in recent times have involved more web browsing and reading than they have actual observing!

This year, however, the opportunity presented itself for my wife Dorothy and me to attend the Texas Star Party at Prude Ranch (the TSP was held May 9-15 this year). Normally this is difficult, since Dorothy is a full time professor here in Mobile, Alabama at the University of South Alabama (math) and I also teach part time (Astronomy Labs for the Physics Department). But the fact that USA has recently gone to the semester system (we were on the quarter system) meant that we could pack scopes and camping gear and head for the hallowed Prude and the TSP. Just a 12" scope, eh? Well, the prospect of those pristine west Texas skies made me feel ready to tackle *anything*. I printed some of the fascinating pages found at Jim and Steve's site, made up a stack of *Megastar* charts, packed my new *Herald-Bobroff Astroatlas* and headed ***west!***

And despite dust aplenty, the TSP skies did not disappoint—not by a long shot! Some of the old timers, in fact, felt that the Prude skies on a couple of evenings were as good as they'd ever seen from this location. David Levy went even further, opining that the Milky Way looked better than he'd ever seen it, from *anywhere!* I set to work on my observing list with a will, and at the top of this list were some of the objects found on the Adventures site, those intriguing beasties with the interesting names (and dim magnitudes) that had fascinated me for such a long time!

The Double Quasar and NGC 3079

I wanted a QUASAR! That was all there was to it! Sure, I've seen 3C273, but so has everybody else. I wasn't at all sure whether my trusty 12 could do this exotic object, a gravitationally lensed QUASAR, but I soon had the scope pointed at the correct field anyway. Finding this object wasn't difficult at all, since it is less than 15' NNW of the 11th magnitude galaxy NGC 3079, which was made lustrously beautiful by these dark skies. And in truth it took me

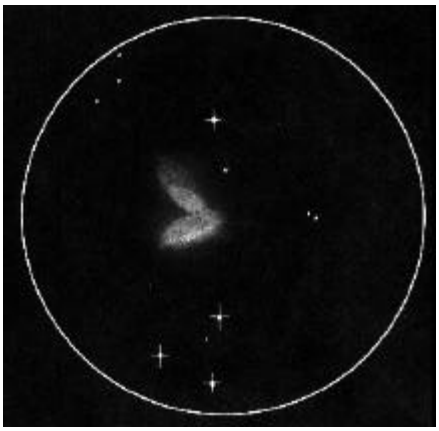


Figure 1The Antennae Galaxies

a little while to get around to actually looking for the QUASAR! Just couldn't take my eyes off this galaxy. It was detailed and lovely, and featured a strange, slightly lopsided appearance. Just goes to show what real **dark** can do for a neglected little NGC. On to the QUASAR, though. It is found near a little rectangle or dipper shaped asterism, so it's quite easy to know if you're looking in the 'right place.' And on this night I was able, after some effort, to hold it steady in a 12mm Nagler/Big Barlow combination. It does seem highly seeing-dependent, and on another night of even better transparency, but poorer seeing, I **struggled** to get it to pop into view occasionally with averted vision and even higher magnifications. Let me say right here, though, that I was *not* able to split the object and reveal its 'double' nature. At all magnifications it appeared as a single, dim, star-like point. But that was enough for me! And as if the wonderful galaxy and the mysterious QUASAR weren't enough, I satisfied a long time yen to see some of Larry Mitchell's MAC (Mitchell Anonymous Catalog) galaxies! This field has several of these dim, dim little sprites sprinkled across it (in addition to a considerably brighter little galaxy, NGC 3073, and the *somewhat* easier MCG +9-17-9). None of the formerly anonymous MACs were easy, but I was, nevertheless, able to detect a couple of these small, round and fleeting objects with averted vision at high power!

Hickson 56

Was a real surprise. From everything I'd heard I expected this to be well beyond my 12", even under TSP skies. But, nevertheless, there they were, three faint but surprisingly detectable wisps (the three I was able to see seem to have been the 'a' component, which actually showed off its edge-on character despite its dim magnitude of 15.2, 'b' which was dimmer seeming to me at 15.3 and 'c' which was pretty much a breeze at 14.8 ('bright'?!)). The two big NGC galaxies in the field, NGC 3718 and NGC 3729 were real treats, with 3718 seeming to show hints of a spiral arm occasionally.

Hickson 44

Over to Leo now. I've looked at this little group occasionally from home, and have always been impressed with the beauty of the brightest galaxies here, NGC 3190 and NGC 3193, (which are at mags 11.1 and 10.9 respectively). But from Fort Davis, Texas this was a whole 'nother experience, with the group's two fainter members, magnitude 12.2 NGC 3185 and magnitude 13.4 NGC 3187 easily coming into view. In addition, though I didn't record it in my field drawing, I felt that the 'c' component, NGC 3185, seemed to reveal hints of spiral structure once in a while! Finally, I *seemed* to occasionally pick up a *very* dim, small, round galaxy, a 5th object, a few minutes away from NGC 3185. A quick look at Megastar didn't show anything here, though, so this may have been my imagination.

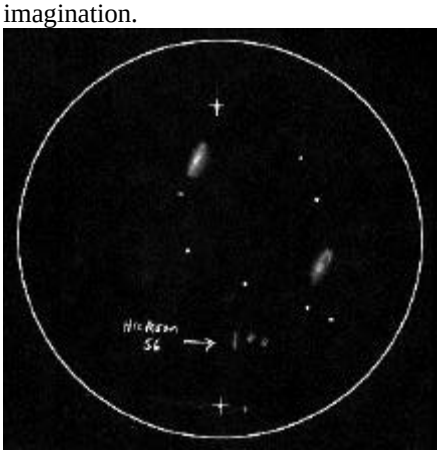


Figure 2: Hickson 56

NGC 3998 Group

I went zig-zagging back to the Bear to collect this fine group, which is centered on +55°27' and 11h57m. Here in the bowl of the dipper, incredible riches were on display. Everywhere I pointed my little scope there seemed to be galaxies! But this particular place, the domain of bright NGC 3998, is just truly amazing. At least 5 galaxies were in the field and easily visible! It looked as if I'd accidentally bumped the scope over to Virgo!

NGC 4038: The Antennae Galaxies

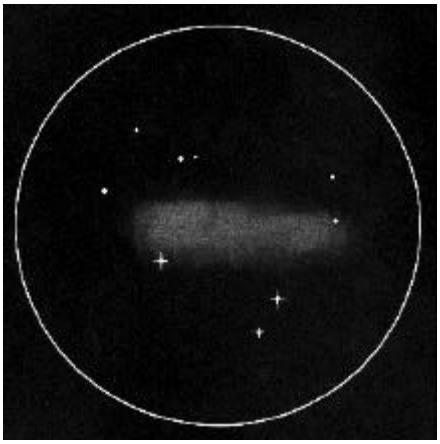


Figure 3: Coddington's Nebula

Oooops! Corvus is starting to sink…better hurry on over before it's too late. The nondescript Crow isn't an area that I visit a lot, but I was very

anxious to see what the famous interacting galaxies NGC 4038 and 4039 would look like in these crystal skies. And boy did they look good! Both 'components' were amazingly bright in the 12", with 4038 showing definite mottling along its weird body and 4039 revealing a faint haze around its southwestern end (the genesis of the 'antennae'?). Two dim MAC galaxies, 1202-1855 and 1201-1846 are nearby in this field, but I didn't see 'em (didn't really search for them, either, however).

NGC 3242 The Ghost of Jupiter

I have a confession to make. I'd never looked at this beautiful little planetary before. Why not? I'm not sure. It's not because it's difficult…it's very bright. And it's not because of my southern skies—I'm at latitude 31 degrees back home. Just overlooked it, I guess—for 30 years! But it was really wonderful. Large, bright and showing hints of an 'eye-shaped' center. Despite its brightness, I didn't really notice the blue-green color I'd have expected in a nice planetary like this one. It was gray, and did indeed remind me of, well, of the Ghost of Jupiter!

IC 2574, Coddington's Nebula

Now here, I thought, would be something that would push my beloved scope to its limits! Despite its name, IC 2574 is not a nebula at all. It is a dwarf galaxy located in the local group. At first it doesn't seem too daunting, being 'advertised' as having a nice bright magnitude of 10.8. But then you read the size statistics for this beast--13'x 5'--and you start to panic! The surface brightness is around 15.5! Locating the proper field (+68° 24'/10h28m) didn't give me any problems (things are really easy when you can see all the stars shown on your charts with a 50mm finder!). And low and behold, there it was! I mean ***there it was!*** Its cone-shaped body extended about halfway across the field of my 12mm Nagler 2, glowing dimly against faint field stars. While this object is said to show off HII regions, I certainly didn't detect any, being content just to get a good look at its rather peculiar shape!

Well, there you have it. What did this trip to the far west teach me? More than anything else, the value of dark, *dry* skies! I've always enjoyed doing deep sky observing from my heavily light polluted back yard, and have often been amazed at what I've been able to track down. But if you're used to doing this kind of observing, the kind of deep sky performance your small/moderate scope can deliver under *really* good skies does

come as a SHOCK! Me, I'm hoping, dreaming, and planning for another glorious Texas Star Party!

--Rod Mollise

One Amateur's Crusade Against Light Pollution

Pat Rochford

The Battle Begins

In the last issue of Skywatch I made a promise to join in the cause for amateur astronomy's biggest threat -**light pollution**. As it turns out, coincidentally, light pollution made its first direct assault on me just a few weeks ago. I've been, up until now, quite fortunate in that there has not been a lighting problem in the immediate vicinity of my home (on the outskirts of Fairhope, Alabama). That all changed when my wife and I discovered four very bright, unshielded dusk to dawn lights on the road in front of our home one night. These are the result of a new subdivision being built in the pecan orchard across from us. Our old neighbors the cows, secure and comfortable under the black canopy of nighttime, have now been replaced apparently, by people who live in fear of darkness. Needless to say, this has been an incentive to get very involved, very quickly.

My immediate response to the lights was a very colorful string of profanity, the likes of which has not been heard this side of the Mississippi. Oh I knew it was only a matter of time, but to actually see it happen in front of my eyes! How could this happen to me? What was I going to do? There was only one thing *to* do … go immediately to DEFCON 1.

At 8am sharp the following morning, I rang the local power company (Riviera Utilities). I asked to be put through to their lighting engineer and had his ear a few seconds later. The man could no doubt detect "postalism" in my voice and was quite attentive to my concern. It was the developer who requested the lights he said, so I would need to speak with him to work out a sollution. But, Riviera Utilities would be happy to work with both of us in finding a suitable fix. I must admit some surprise at the agreeable nature of the utility company on this issue. He gave me the phone number of the developer and said to call back if the developer and I could work something out.

I figured the developer was not going to roll over on his back on this one (I wanted to tell him to just take the damn things down), so I prepared a compromise solution. I still had two retro fit shields that I bought to cover some barn lights my ex-neighbor had (not needed now since he's moved

away). These shields, made by the Hubble Lighting Co., clip on standard dusk to dawn security lights in place of the normal lens. They are made of aluminum and only allow light to shine directly down, not up or horizontally. I reached him on the phone and we set up a time to meet, right under one of the lights. I explained my concerns and

showed him the Skycap and was again surprised at how receptive someone was to something unheard of like light pollution. He had absolutely no problem with this, stating he only wanted to illuminate the entrances of people's driveways. In addition to this, a couple who just purchased one of these houses agreed to buy two more Hubble Skycaps. Riviera Utilities will install all of these as soon as the extra ones are in hand.

What I expected to be a fight to the death, turned out to be a rather pleasant experience. I have now accomplished two things. (1) The horrible, glaring high pressure sodium lights will be altered to friendly down pointing beacons allowing my neighbors to find their driveways at night and (2) a few people who never heard of light pollution before, now know what bad lighting can take away from us.

So where do I go from here? I am now scheduled to speak before the Baldwin County Planning and Zoning Commission on September 1. This meeting was arranged by my good friend and attorney Tom Williams, who works regularly with the commission. (I met Tom a few years ago when he purchased my old Sky Designs 18" Dobsonian.) I plan to show them several examples of good and bad lighting with the CD ROM I purchased from the International Dark-Sky Association (which I joined by the way). I'll also inform them of the amount of money wasted each year on bad lighting as well. According to the IDA most outdoor lighting requires at least 30% higher wattage than necessary to illuminate the ground, due to poor design. Newer, more efficient lighting keeps light from shining up and the cost down.

How successful I will be with this first meeting? Who knows. I never expected to resolve the problem in front of my house as easy as it happened. I'm not expecting immediate results of course, but if I can get some positive response I will have made a good start. Baldwin County is presently the fastest growing county in the state of Alabama. I need to act quickly and I need a lot of luck. Stay tuned as I report my progress over the coming months.

Driftin' Along With Your SCT

Rod Mollise

"Drift Alignment" is a method of polar alignment that allows astrophotographers to very accurately point the right ascension axes of their telescope mounts at the celestial pole. The REAL celestial pole, and not just Polaris, which is actually about a degree away from the right spot. Despite its somewhat imposing name, this means of readying your scope for photography is simple, and ensures that your photos will not be ruined by **field rotation,** which will cause those dreaded trailed stars. Drift alignment is usually overkill for visual observing, luckily (don't get me wrong...it's not difficult, just a little time-consuming)!

Start out by Polar aligning your scope as accurately as you can using your method of choice. Remember, the closer you get to the pole, the quicker and easier your drift alignment will be. I personally favor the 'polar finder' finderscopes. These are 50mm finders with special illuminated reticles. They are accompanied by little circular cardboard 'slide rules'. Set this 'calculator' for the current date and time and this clever device will show you where on the finder's reticle to place Polaris. Before you undertake this, however, it is *very important* that the finder and the RA axis of your mount be concentric.

You do this using a *very simple* procedure. Start out by setting the scope to 90 degrees declination. Move the scope in RA until the fork is level with the finder on top. Adjust your finder in its rings until the crosshairs are basically vertical and horizontal. Move the scope (by adjusting the altitude and azimuth of your wedge--don't touch RA or dec) until Polaris is in the finder crosshairs. Now, undo the RA lock and turn the scope in RA until it's 90 degrees to the right of your initial position. Lock the RA lock. Look in the finder. Is Polaris still centered? Probably not. Move it back into the crosshairs in two steps. Move it half the distance back by adjusting the wedge altitude and azimuth. Move it the rest of the way by adjusting the finder's alignment screws. Now, move the scope in RA 180 degrees to the left. Look through finder. Polaris still centered in the crosshairs? If not, repeat the procedure above to move it back. Now rotate right 180 degrees and check Polairs again. Move it back using the same procedure. Continue this process of rotating 180 degrees right and left

until Polaris does not move from the center of the crosshairs. When you're done, return the scope to its original position with fork level and finder on top. Now, adjust the scope in RA 'right or left' in small increments until Polaris tracks along the vertical crosshairs when you turn the dec slow motion control. When you've got this right, return dec to 90.

You can now, with the aid of your circular slide rule 'calculator,' determine exactly where on the reticle you should place Polaris. Try to be as exacting as you can. Once you've done that, we're ready to begin drifting. Oh, don't tighten the adjustment bolts on your wedge yet, we'll still have a lot of adjusting to do.

Insert your diagonal and illuminated guiding eyepiece into the visual back of your scope (actually, before you do this, you may want to realign your finder scope on a bright star using the adjustment screws on the bracket…making it concentric with the RA axis will have made it a bit 'off'). You'll probably need to hunt up a barlow to use with your guiding eyepiece, since around 250x is about the minimum for accurate drifting.

Your next step is to locate a star which is close to the meridian (the imaginary line which runs through the north and south celestial poles and the zenith). It should be around 15-20 degrees north of the celestial equator (i.e. at a declination of about +20 or so). This is not hyper critical. Just find a nice medium-bright star near this location. With the star in the crosshairs of your guiding eyepiece at about 250x, rotate the eyepiece barrel in the diagonal until the crosshairs are algned N/S and E/W. That is, until the star moves nicely along the vertical crosshair when you turn the dec slow motion and along the horizontal one when you turn the RA slow motion.

Now let's drift. Put the star in the center of your guiding eyepiece's crosshairs and watch for movement up or down. That is, for dec drift along the N/S crosshair. Don't worry about the E/W drift of the star in RA. You can guide in RA to keep it near the center of the crosshairs. This is also a nice time to train your PEC. What you want to know is whether the star is drifting up or down in dec. If your alignment using your polar finder didn't put you dead on the celestial pole (it probably didn't, but it does happen once in a while), you'll undoubtedly detect some dec drift after about five minutes or less. If you see that the star DRIFTS UP IN THE FIELD, adjust the azimuth of your wedge to make the star MOVE RIGHT IN THE FIELD. If the star drifts DOWN, move the star LEFT in the field with your azimuth adjuster. Once you've adjusted the wedge, use the RA/dec controls to recenter the star in the guiding eyepiece. Keep doing this until you can go 5 minutes with no up/down drift.

Now we'll move on to our second star. Locate another medium bright sparkler. This time right on the celestial equator and only about 15-20 degrees from the eastern horizon. Set your eyepiece up as above, with the up-down crosshair defining dec movement and the left right crosshair defining RA. Center the subject star in the crosshairs and watch for drift. Once again we're watching for up/down drift. But our adjustment differs. If the star DRIFTS UP, adjust the wedge elevation control to move it DOWN IN THE FIELD. If the star drifts down, why, move it UP! Keep doing this (recentering the star between adjustments) until you've got things adjusted to the point where there's no visible drift *for AT LEAST five minutes.*

Once you've eliminated the drift, you're *done*. CAREFULLY, very carefully, tighten down the wedge to lock it in altitude and azimuth (you don't want to mess up your hard wonpolar alignment). You're now ready for an evening of photography. If you've followed these instructions carefully, you should be able to expose for WELL over an hour with no field rotation. The only variable will be the quality of your guiding.

This sounds overly complicated (and a pain in the butt). But after you've done it several times, the drift alignment procedure will become simple, easy, old hat, like fallin' off a log. And it really is necessary, in my judgment, for good photos if your exposures run over about 15 minutes in duration (alignment using the polar finder alone will usually suffice for 15 minute and shorter exposures).

DON'T, as poor old Rod has been known to do, bump into the scope's tripod clumsily enough to move it after you finish drifting! If you do, or somebody else does, go back to the first star!

My Back Pages

Astropoem

Stolen Stars

Where once diamond studded velvet reigned,
Now is an orange void built by greed.
“We have to steal your stars,” they say.
“That’s the way the system works.”
“What are you, some kind of SUBVERSIVE?”
And on they go, snatching the Milky Way
From our children.
Orange halo of nothingness
Extending ever further
So our neighbors
Can proudly sell
Cheap junk to people who don’t need it.
“After all,” they say,
“What are stars good for, anyway!”
And I see, all too sadly, that they’ll never know.

Editor’s Musings: Once Upon a Midnight Dreary

Thanks to all the members of the MAS for a wonderful four months. I enjoy teaching my astronomy labs at USA, but this means that I miss the regular MAS meetings during the academic year. What a treat to be back with you guys again even if it was only for a while. The large number of new faces I saw at the Summer meetings was a sign for me that the future of the MAS is bright and assured. Keep up the good work guys, and I’ll see you again in May! I will, of course, continue with the MOSPs on the Saturdays nearest the New Moon each month, so I hope I’ll be seeing many of you there!

And I also hope to see most of you at the upcoming Deep South Regional Star Gaze (DSRSG) at Percy Quin State Park near McComb, Mississippi (October 6-10 this year). Star party organizer Barry Simon emailed me a set of registration materials, and I’m forwarding these to Pat Rochford to distribute at the next meeting. Dorothy and I will be joining you on Friday afternoon and are looking forward to a great star party and wonderful skies!

My late afternoon nap at the end of one busy September day was rudely interrupted by the sound of a bus screeching to a halt in front of ‘Chaos Manor South.’ I peeped outside and saw that the bus in question happened to be a big yellow school bus. This was odd, since there’s no school bus stop on our part of Selma St. The reason for the bus’ screeching and unscheduled stop was evident, however, when those two disreputable youths, BEAVIS and BUTTHEAD were suddenly ejected from the vehicle by a highly irate and stressed-out driver. Luckily for the stranded boys, old kind hearted me volunteered to drive them to their destination (conveniently getting the two little troublemakers out of the neighborhood), which turned out to be the local EZ-Mart. The Two were quite

grateful, actually, and in return for the ride Beavis handed over a somewhat worse for wear mayo jar containing the latest installment of….

RUMOURS

Ah, the battle of the small goto scopes has been joined in earnest. Just as Meade was ready to apply the *coup de grace* with the followup to it's astonishingly popular ETX 90 EC, the 5 inch ETX 125, Celestron--for once--snookered 'em, coming to market with a goto version of the venerable C5, the **Nexstar 5**. This scope, unlike the ETX, is made largely of aluminum rather than plastic, and is garnering rave reviews early in the game. **Meade, unfortunately, has had nothing but trouble** with its 5 inch. Early reports by users indicate that there are problems with focus shift, contrast (the scope uses a large secondary baffle tube which gives it a huge 40% central obstruction), and a variety of faults related to its plastic construction. Meade will undoubtedly cure these ills, but Celestron now has a jump on 'em. And, according to one of the anonymous one's sources, the Torrance boys, may be preparing to let Meade have the 'other barrel.' The *rumor* is that Celestron is preparing to release **a NexStar 11**. True? It would seem to make sense…Celestron needs a scope to compete with the Meade 10" LX-200, which has long been a best seller. That Celestron's been preparing a NexStar 11 would also explain why the long waited for 11" Ultima 2000 never appeared. Remember, **you heard it here first.**

What else does the suddenly active Celestron have in store for us? How about a 6" refractor and mount for just a smidgen over a thousand dollars? Yes, you read that right, **I said reFRACTOR, not reFLECTOR!** This Chinese import could interest a lot of folks if Celestron comes up with a better mount than its current medium GEM, the somewhat flimsy CG 5, to place this big, honkin' (sources say f10 or f8) refractor on. Early reports say that the 6" achromats (which is what this scope will have) coming out of the Chinese factories are pretty darned good.

Celestron's still capable of missteps, though. Witness their placing of a 9.25" SCT OTA on a CG 5. The 9.25 was nice on the Losmandy GM8, but is simply too much for the CG 5, which is somewhat stressed-out even with an 8" OTA. This move by Celestron makes me wonder if they're discontinuing the 9.25, and are selling it on the CG 5 just to clear the inventory (*price* sure is right). **Shame**, as this was a nice scope when Celestron sold it with Scott Losmandy's mount.

Not much new to report out of Meade. Maybe they're off licking their wounds following the ETX 125 debacle? And trying to figure out what to *do* about it. One rumor had it that Meade was to stop shipping 125s for 5 months, leading me to speculate as to whether they were redesigning it. This appears to *not* be the case, though, as I've been told that these 5" MCTs are again rolling into **Nature Company** and other outlets after Meade took steps to rectify some of the scope's most egregious problems (focus shift caused by poor mechanics, and shipping damage caused by poor packaging).

That's all for now troops…time for the anonymous one to **zen out**, once again, with that time-honored mantra of his: **MEADE OR CELESTRON? MEADE OR CELESTRON? MEADE OR CELESTRON?!**

The Anonymous Astronomer

Were you lucky enough to see the last eclipse of the millenium? Rod's editor at Springer-London, John Watson, was. He and his wife planned to travel southwest to see it, but when clouds covered that part of England, he stayed home and took this Beautiful shot from his back garden with his trusty ETX 90!

DSRSG Time is HERE!!

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Skywatch
C/O Rod Mollise
1207 Selma St.
Mobile, AL 36604
(334)432-7071

E-mail: RMOLLISE@aol.com

Visit the MAS World Wide Web (WWW) Site at:
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