

THE FLINT RIVER OBSERVER

Newsletter of the Flint River Astronomy Club
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Club Calendar. Fri.-Sat., May 2-3: Cox Field observings (at dark); **Thurs., May 8:** FRAC meeting (Beaverbrook, 7:30); **Fri., May 9:** Beaverbrook observing (at dark); **Sat., May 10:** Astronomy Day public observing (Kohl's department store, Fayetteville, 4:00 –whenever); **Fri.-Sat., May 30-31:** Cox Field observing (at dark).

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President's Message. "I've lost faith," **Bill Warren** said on Sat. morning. "I don't think the skies will hold up."

"Bill, stay. I bet it clears out. My sources have said it will," I urged.

"Naw, I'm heading out. It just doesn't look good." And he left.

Sometimes it pays to have faith.

The skies at Chiefland were pretty close to amazing on Fri. night, but clouds rolled in early Sat. morning. After getting rather nasty looking that afternoon, the skies cleared around 9:30 p.m. They were not quite up to Chiefland standards, but I didn't hear anybody complaining. Anyway, meeting friends that I only get to see down there; the overall tranquility of the place; and the feeling of camaraderie that I always get down there – all of those things make being at Chiefland worthwhile even on those rare occasions when the skies are socked in. I talked **Smitty, Bill, Felix, Doug, Joe, Curt** and **Dawn** into going this time; I hope they weren't disappointed. I wasn't.

I hope I can get more of you to go this fall for the week-long star party on Nov. 16th-23rd. You don't have to go for the whole time, but do try to go.

Astronomy Day will be on **May 10th** this year, and once again will be held at **Kohl's** in Fayetteville. We had a great turnout of members and visitors last year, and I'm excited about this year's event. We're inviting the schools again this year, along with anyone else we can get the word to. Directions to the massive Fayetteville Pavilion shopping center and Kohl's appear on p. 3, and I'm looking for a *big* FRAC turnout. The more of us show up, the better our performance will be.

On the cyber front, I want to invite those of you who aren't already on the Yahoo group to join. We have some pretty good discussions on there, plus event photos and astronomy links in the storage area. Joining us in FRAC@yahoogroups.com is a good way for you to keep up with what your fellow members are talking about between issues of the *Observer*. And since it's free with your membership, joining is a way of getting more for the money you pay us via annual dues.

Finally, I've been waiting to comment on the Feb. 1 space shuttle *Columbia* tragedy until the cause is found, but it's taken longer than any of us expected for NASA to pinpoint the cause. So I'll say this: *We lost seven brave explorers that day. Some of them were rookies to space, some were veterans, and all of*

them were heroes. They chose to work in a high-risk environment where few would dare to visit. They lived the dream of everyone who has examined the heavens with anything from naked eyes to the greatest telescopes. To the lost astronauts, we wish you godspeed and good tail winds. Your deaths were not in vain.

-Steve Knight

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Last Month's Meeting/Activities. On Mar. 26th, FRAC held an observing at Crescent Elementary School in Griffin. **Felix Luciano** reports:

"FRAC's participants were **Tom & Cathy Moore, Steve & Dawn Knight, Doug Maxwell, Bill Warren** and **me**. We had some 25 or more kids and parents at the observing.

"At first there were nothing but clouds, so we answered questions about the 'scopes we had set up. Doug gave a good description of his motor-driven Dob base and its advantages. Some of the kids were interested in my finderscope and asked, 'How far can you see with *that*?'

"Then the clouds went away just enough for us to proceed with the observing. We started with **Jupiter** and its moons. Next was **Saturn**, and everyone was impressed with the ring and the small line in the middle of it (the Cassini division). We were able to show them other things, too, such as **Orion Nebula, Sirius, Castor's** double star, **M44, M41** and **M35**.

"It was another successful observing, not just for the club but really for the parents and kids who came to see the evening sky. As always, we had a great time. (I know I did)."

Those of you who stayed home from Chiefland didn't get much observing done while we were gone, because we took all the good weather with us to Florida -- "we" being **Joe Auriemma, Smitty, Dawn & Steve, Curt Cole, Doug Maxwell, Felix Luciano** and **yr. editor**. Incidentally, Joe went down on Thursday and spent the extra evening contemplating, in four-letter-word fashion, the cosmological question that has baffled astronomers for centuries: *Why do clouds form when and where you don't want them to?*

Some of us held an impromptu observing session at Cox Field on Sat., Apr. 12th, two days after the first

quarter Moon. There was plenty of light to go around, but it didn't matter to **Dan Newcombe, Steve & Dawn, yr. editor** or **Mike Steen** (who found a bunch of Messiers anyway).

Fourteen members showed up for our April meeting: speaker **Tom Moore** and his wife **Cathy; Steve & Dawn Knight; Dr. Richard Schmude; Doug Maxwell; Felix Luciano; Curt Cole; Bill Snyder; Smitty; John Wallace; Louise Warren; Larry Fallin;** and **yr. editor**. With assistance from Dr. Schmude (who will be delivering not one, but *two* talks at this year's ALCON), Tom discussed the upcoming ALCON 2003 to be held in Nashville, Tenn., from **July 9th-12th**.

Good skies that turned cloudy around 9 p.m. brought **John Wallace, Felix Luciano, Laura & Doug Maxwell, Dawn & Steve Knight** and **yr. editor** to BB on April 18th, but no BB children or parents showed up. No matter, we showed the sky to ourselves and had a fine time.

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Membership Renewals Due in May: Rod Dougherty; David O'Keeffe; Dr. Richard Schmude, Jr.; and **Neal Wellons**. Please send your check for \$12 payable to either Steve Knight or FRAC c/o Steve's address listed in the upper left hand portion of p. 1.

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Upcoming Meetings/Activities. We'll kick off May with Cox Field observings on **Fri.-Sat., May 2nd-3rd**. (The new moon will be on May 1st.)

Our FRAC meeting will be on **Thurs., May 8th** -- honest Injun, no postponements this time -- at 7:30 in the BB media center. We'll discuss our renewed plan for hosting a star party of our own in 2004. The scheduled speaker will be Dr Richard Schmude, Jr. The following night, **Fri., May 9th**, we'll hold a BB observing behind the school at dark.

On **Sat., May 10th**, we'll celebrate Astronomy Day by traveling to Fayetteville to hold an extended day/night public observing in the parking area in front of **Kohl's** department store. The observing will begin at 4:00 and will continue until well after dark.

To get to Kohl's from Griffin, follow Ga. Hwy. 92 (McIntosh Rd.) to Fayetteville, turn right where 92

meets Ga. Hwy. 85 North in Fayetteville, and after going 3.9 miles on Hwy. 85 look for the **Fayetteville Pavilion** shopping complex on the left. Turn left onto the road through Pavilion, and Kohl's will be about ½ mi. on your left. It's the last store in that section.

The month will close with Cox Field observations on **Fri.-Sat., May 30th-31st**. (The new moon will be on May 31st.)

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This 'n That. This, from **Smitty...**: "I went to Camera Bug awhile back, and while I was there I picked up the new 2nd edition of *Seasonal Star Charts*. (See Smitty's review, pp. 5-6.)

"Actually, I went there to see their eyepieces and possibly purchase a Televue Plossl. Nope, their prices were **\$20 higher** than the prices you see in the magazines! And while they were asking the same price for Orion eyepieces as Orion's catalog (which was an okay deal), they haven't come down on the price for the Sirius Plossl like Orion has. I might as well order one of the new Orion silver-barreled Plossls as to pay Camera Bug the same amount of money for the older Sirius model.

"Don't get me wrong; I'm in small business too, so I know it's hard to compete with mail-order outlets. But every month in the major magazines Camera Bug's ads tout the fact that "We Ship Anywhere." So why would anyone purchase from them if their prices aren't competitive?

"Oh well, I usually visit Camera Bug once a year and come back disheartened at their prices. It's a shame that, with all of the astronomers in Georgia – in FRAC, AAC, MGAS, North Ga. Astronomers and others who aren't club members – Camera Bug isn't a major player in the region's retail sales of astronomy goodies."

Also from Smitty (who now has a new e-mail address, Ssaratoga@aol.com): "Just received my newest issue of *Amateur Astronomy* (#38). On p. 3, they printed my letter to **Tom & Jeannie Clark**. On p. 14, **Scott Hammond** is featured in "Star People" and he mentions FRAC. And on p. 37, there's a picture of **Steve & Dawn's** trailer with our 'scopes in front of it at last year's Chiefland Star Party."

***...And That**, from **Larry Fallin**: "Steve's Packing List for Chiefland: umbrella; 2 prs. wet/dry Nike sprinting shoes; fire suppression system for forward scope; 25 million watt generator to power anti-dew system; halon fire suppression system for aft scope and dew heater controller; 3,652 bottles of Frappuccino (wouldn't be a star party without it!); 1 pr. underwear; 2 tee shirts (a spare for Frappuccino spills); book to read (*50 Compliments Guaranteed to Win People Over and Score Ladder Time On a 36-in. Yard 'Scope*); City of Chiefland certified burn certificate; phone no., Chiefland Fire Dept.; FRAC 50 observing list; Messier Marathon list; truck; trailer; and **Dawn**.

"Dawn's Packing List for Chiefland: fire extinguisher; first aid kit; and telescope."

*Can you believe that **yr. added editor** scheduled our April meeting for a day that Beaverbrook was closed for Spring vacation? (Well, *Yes*, Bill, we can believe it. And by the way, your fly is open, too.)

*This edition of the *Observer* is considerably longer than others you've received in the past. We originally set the newsletter length at 5 pp. because 3 double-sided pages was all we could send via snail mail at the existing postal rate; adding another page would have dramatically increased our mailing expenses. And since FRAC's actual profit from annual dues always has been quite low -- \$3.50 of your \$12 payment goes to the A.L. and about \$4.00 went to mailing expenses – we simply couldn't afford a longer newsletter.

Well, times have changed. Now, with most of our members receiving the *Observer* via e-mail and only 6-8 members receiving hard copies, we can extend the length as necessary without the club treasury going into cardiac arrest. (That's not to say that we'll have longer newsletters from now on, since it requires a great deal of extra work for **yr. editor** and **Larry Fallin** (who prepares and sends out the hard copies) – but it *does* mean that we can do so whenever the situation requires such action.

Of course, the possibility exists that you may find this extended format too time-consuming for your

tastes or needs, or that the added length might cause you to forget details such as dates of upcoming events. This month's issue is a trial run, and your response to it will determine whether we try it again in the future.

One other thing: As you may or may not know, *everything* that goes into the *Observer* is edited for grammar, clarity, etc., and that takes considerable time and effort. Our goal is to make each issue an easy read that is fun, entertaining and informative. Since in May, for example, our observings start on the weekend of May 2nd-3rd, we have to get the newsletter to you in advance of those dates. That's why **the deadline for submissions of any kind is the 20th of each month**. Anything received after that date must wait another month for inclusion.

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The Sky In May. We're probably located too far S to see the end of **Mercury's** transit of the Sun on the morning of **May 7th** – and if the planet isn't visible as a tiny black dot near the Sun's upper right corner at sunrise, you won't see it at all because the solar filter that permits us to view the Sun will block Mercury's light altogether when they drift apart and appear as two separate bodies.

The **Moon**, on the other hand, will put on a show that all of us can see – and *we can enjoy it for more than five hours* on **May 15th-16th**! The **total lunar eclipse** will begin at 9:05 p.m. on the 15th and will end at 2:15 a.m. on the 16th. The best time to watch, though, will be the period of totality that begins at 11:14 p.m. and ends at 12:06 a.m.

During totality – the period when the Moon passes through the *umbra*, or dark inner portion of Earth's shadow – the Moon may take on any color ranging from bright orange to the coppery sheen of a newly minted penny, depending on the amount and type of dust in the atmosphere. Regardless of the actual colors, though, the Moon will appear radically different from what you're used to seeing.

Elsewhere, **Jupiter** (mag. -2.0) and its moons will still be high in the W sky. On **May 6th**, **Europa** will occult (pass in front of) **Callisto** from 10:36 until 10:41 p.m. Three other early morning or late evening May occultations by Jovian moons are listed in the

May issue of *Astronomy* (p. 67), or you can get the complete list at Astronomy.com.

Saturn (mag. 0), sinking in the W during May faster than the Atlanta Braves are sinking in the E, will hardly be worth bothering with by the end of the month. (So will the Braves.)

Mars (mag. 0 and growing steadily brighter) is still preparing for a spectacular July visit, and will be primarily a late evening and early morning target – but it may be worth a look-see on the mornings of **May 13th** and **14th** because it will lie just 2 degrees N of mag. 8 **Neptune**.

Venus (mag. -4.0) will be a bright morning star as usual, but in May it will rise in the E just an hour before the **Sun**. On **May 26th**, though, you can get **Venus** and **Mercury** in the same binocular field; just be sure not to get the Sun, too, or you'll be selling off your binocs and telescope to pay for a seeing-eye dog.

The foldout page of the May issue of *Sky & Tel* features – no, not an alluring photo of **Dawn** (whose stage name is “Bubbles LaVerne”) reclining on a sofa and wearing a sultry smile, curlers, a chenille bathrobe, mudpack and fuzzy slippers – it shows you where to locate the asteroid **4 Vesta**. At mag. 6.4, you can expect Vesta to be very bright, but not naked-eye bright unless your observing site is considerably darker than Cox Field. (Chiefland, anyone?)

Finally, there's the **Eta Aquarids meteor shower**, which peaks around 4 a.m. on **May 5th** but should produce meteors for several nights before and after that date. The radiant of this popular annual event is probably too low in the ESE to give us a really good show, but the Moon's absence should help some at Cox Field on May 2nd-3rd. Eta Aquarids meteors are debris left over from **Halley's Comet** (which, in turn, is debris left over from **David Ward's** last birthday party).

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People You Should Know: Doug Maxwell. It's unlikely that anyone in FRAC has been busier or more productive in the past 13 months than Doug Maxwell. Since joining us in March, 2002, Doug has: assumed the role of FRAC's event photographer, visually chronicling events such as our Astronomy Days and other public observings, FRAC at the PSSG and

FRAC at Chiefland; he's built a 13" Dob that brings the universe to his eyepieces with professional precision; built a motor-driven equatorial platform for his telescope; built his own, larger version of the Denver observing chair, complete with a padded seatcover; ventured into astrophotography; completed his Messier program and gotten a healthy start on the Caldwell's; attended virtually every FRAC event and meeting (and several star parties as well) since he joined the club; been a regular participant on the FRAC groups web site; and, because he cares about the club and its future, he is serving in our officer corps as a Board Member in 2003-04.

All that from a guy who considered himself a beginner in astronomy 13 months ago!

Says Doug, "I dabbled in astronomy as far back as high school, and built my own 6" reflector in the '80s so I could look for Halley's Comet. But I didn't really get serious about astronomy until I joined FRAC."

And believe it, folks, he's serious. Where some people talk about all the grand and majestic things they're going to do when they get around to it, Doug M. is a *doer*, who does things well. "I don't like to fail at things," he says. He pursues with fervor and intensity whatever interests him; in astronomy, that includes a love for deep-sky observing as well as a passion and talent for making things with his own hands. His goal is to "see everything there is to see at the telescope. I love the hunt as much as the finding." He enjoys "getting together with the guys, sharing what we find and being around others who can help you out."

Besides astronomy, Doug's interests include sewing and quilting – the next time you get a chance, scope out the seatcover he made for his observing chair and the quilt he made to cover his telescope at night – and flying (model planes and real ones as well: he has a commercial flying license). For one who says that "There just isn't time for everything I'd like to do," he certainly does a lot.

Doug lives in Brooks, Ga., with his wife **Laura**. They have two daughters, **Stephanie**, a senior at Starrs Mill H. S., and **Jennifer**, a graduate of West Ga. College. Doug works with Colonial Heating and Air – which reminds us of his likely next project, i.e., making a heating system to zap the dew that forms on

his mirrors and eyepieces. Two things are sure bets about that project: (1) when Doug does it, it'll be done right, and (2) he'll do it faster than you can say *The sixth sick sheik's sixth sheep's sick* six times.

Where Doug is concerned, the words of the English children's writer **James M. Barrie** (*Peter Pan*) ring true: "It's not work unless you'd rather be doing something else."

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Impressions From Chiefland

Steve K.: "Just got back, and all I have to say is, That place rocks! Two nights of observing. **M104** at 456x rocks...No marathon report, the first few were gone. That's life."

Doug M.: "WOW! Finished up the 6 Messiers I lacked, bagged 21 Caldwell's and saw **Omega Centauri** for my first time. Sleep deprivation, going to bed." (*Editor's Note: Doug has 18 photos of the weekend's activity – including a 360 degree panorama of the Chiefland site -- on his web site at www.home.bellsouth.net/personalpages/pwp-dmm .*)

Smitty: "I had a grand time. Bagged a few Caldwell's myself. Sky conditions Sat. night were somewhat better than Friday's for a time, then haze and a thick ground fog blanketed the field around 3 a.m.

"**Doug** purchased a new finderscope, **Steve** bought the most expensive item (a Pentax 7mm eyepiece), **Joe A.** got a premium eyepiece, and I think I purchased the most – 5 eyepieces (some of them used). I was also lucky (?) enough to buy a massive home-built tripod – boy, is it heavy!" (*He's right about that: **Felix** says it was originally intended to support the radio telescope at Arecibo, P. R.. –Ed.*)

Bill W.: And when she (Chiefland) was good, she was very, very good/And when she was bad, she was *still* very good. Chiefland decided to show off for us Fri. night; the seeing and transparency changed constantly during the evening, but it was still by far the best night I've seen in my 10+ years of observing.

“At a guess, I’d say I was seeing stars telescopically to mag. 15.5-16.0 some of the time, based on Steve’s and my being able to see a mag. 14.5 galaxy – UGC 6296 -- vaguely via direct vision and clearly via averted vision.

“But then I let a few Saturday morning clouds psych me out and I went home Saturday afternoon. What a wimp!”

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A Quick Overview of the “New” Seasonal Star Charts

book review by Steven “Saratoga Smitty” Smith

I have 2 different older editions of the *Celestron Sky Maps*. The new, 2nd edition is now titled *Celestron Star Charts*. While I haven’t thoroughly examined this new edition, these are some of the changes I’ve noticed.

1. My latest older edition was copyrighted 1995 and contained ISBN #0-8331-1802-1; the new edition is copyright 2000 by Hubbard Scientific Inc., and contains no ISBN. Why not?

2. Planet positions are listed from the years 2000 through 2009 in the 2nd edition.

3. Older editions gave star positions for epoch 1950 coordinates; the new edition gives epoch 2000 coordinates.

4. In the 2nd edition, the directions for using the charts still state, “If the last two numbers are bold face the declination is minus, or south of the celestial equator.” Fortunately this statement is now untrue: the new edition now lists southern declination coordinates as a negative number in parentheses (e.g., -16). That change makes the charts much less confusing at 3 a.m.!

5. All editions, new and old, have the same layout, but the page numbering is different in the new one. Whereas the old editions counted the front planisphere overleaf as page 1, the new edition does not. So the chart page for, say, the northern “Stars of Spring” that used to be p. 7 is now p. 5. (This is no big deal, unless you and a friend have different editions and one of you tells the other that a certain object or constellation is on a certain page. Somebody

will be pulling out their hair over that for a little while!)

6. In the southern “Stars of Spring” object listings in *Virgo*, older editions incorrectly listed **M48**; the new edition now correctly lists **M49**.

7. In the northern “Stars of Autumn,” the new edition still incorrectly labels two different stars in the “Bent W” as **Alpha Cassiopeia**. (Both editions correctly label the stars in question as **Gamma** and **Alpha Cas** in the northern “Stars of Winter” charts – but *Cassiopeia* is an autumn constellation, and that’s where most people look for it.)

8. Many objects’ magnitudes have been changed in the 2nd edition. And while some magnitudes that were left blank in older editions have now been added, quite a few are still blank.

9. On the last two pages, the new edition gives different specifications on “The Brightest Stars” and “The Nearest Stars” than older editions. The new edition also gives more information in “Types of Stars.”

Though the 2nd edition has been updated to give epoch 2000 coordinates, information has been added or changed and at least one major mistake has been corrected, I am somewhat baffled that some of the other quirks from the older editions are still present in the new one. However, I still feel that this is one of the best beginner star atlases a person can purchase: with its plastic-coated, waterproof pages and a retail price of \$18, it’s a bargain.

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An Addendum to Smitty’s Review

by Bill Warren

In the Dec., 1998, issue of the *Observer*, **Smitty** wrote an article, “An Addendum to the *Seasonal Star Charts*, in which he listed a number of mistakes, omissions and inaccuracies in the original *SSC* (which also was sold as *Celestron Star Maps*).

In his article (which will be reprinted in an upcoming issue of the *Observer*), Smitty carefully (and correctly) pointed out that, while errors existed in that beginners’ star atlas, they were, for the most part, minor and would have little or no negative impact on

beginners' use of the charts. For example, labeling two different stars in *Cassiopeia* as "Alpha Cassiopeia" is a major mistake – but it probably won't affect you unless you're using one of those stars to find something else. Otherwise, it's largely a moot point because, on a "need to know" basis, the names **Alpha** and **Gamma Cassiopeia** don't come up that often. Except for Smitty's alerting us to the mistake, I couldn't have told you which star was Alpha and which was Gamma if one of them fell on me.

There were, however, two mistakes in the 1st editions of *SSC* and *CSM* that *could* affect beginners: the mislabeling of the galactic duo **M81/M82** in one chart and the wrong location for open cluster **M48** in another chart. Those mistakes matter because they could adversely affect a beginner's search for (and identification of) Messier objects.

M81/M82. In the 1st edition's northern "Stars of Winter" chart (p. 19 in that edition), M82 is shown (correctly) as lying north of M81; however, in the northern "Stars of Spring" chart (p. 7) that observers are more likely to use in searching for M81/M82, M81 is incorrectly labeled as the more northerly of the two.

M48. In the 1st edition's southern "Stars of Spring" chart (p. 9), the open cluster M48 is shown lying about 8 degrees SW of the center of the head of *Hydra* (the Sea Serpent) and 4 degrees N of the open cluster **NGC 2548**. I used *SSC* (1st ed.) in finding the Messiers for the first time a decade ago, and I had the devil's own time locating M48 from *Hydra*'s head or by scanning ENE of the mag. 4 star **Zeta Hydrae** (lying about 1-1/2 degrees from where M48 was supposed to be). Years later, I still had trouble finding M48 and couldn't understand why; after all, at mag. 5.8 it should have been an easy find, almost naked-eye.

That problem remained a mystery for me until I purchased **Kepple & Sanner's** *Night Sky Observer's Guide, Vol. II*. They explained, "NGC 2548 fits the description of the missing Messier M48 and therefore is generally accepted as being the object Messier described in 1771, though *it is four degrees south of his position.*" (my emphasis)

No wonder I had trouble finding M48: its true location was a full Telrad-width south of where *Seasonal Star Charts* showed it to be! The authors of *SSC*, whomever they might be, simply included both M48 and NGC 2548 on their charts as separate objects without mentioning that they might be one and the same thing, or that no open cluster exists where **Charles Messier** (and their chart) indicated that M48 was located.

All of us hope, of course, that these and other problems (e.g., the red constellation boundary lines that vanish under red light) have been corrected in the 2nd edition. If they haven't been, it's shoddy workmanship on the authors' part, and could have been avoided in the 2nd edition if the author(s) or publishers' names had appeared in the 1st edition so we could have sent them a copy of Smitty's article.

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Putting Heat Back In Its Place

tech article by Steve Knight

(Editor's Note: This is the final installment in a 3-part series of articles on building a homemade dew zapper.)

Before I get started, I need to backtrack a bit.

Awhile back, I was observing with **Doug Maxwell** at Cox Field. I had just gotten the Frankenscope set up and the fans turned on to cool things down. I was getting the rest of my gear out when the fans shut off. The variable potentiometer had burned itself out. Was it faulty, or did I overload it? I don't know, but if you were planning to build a control box like mine it may be better for you to just put a switch on there and avoid the problem.

Now that you have the control method worked out and you've decided what to heat, I'll tell you how I mounted the system on my telescope and put it to work. I like for my installations to be nice and clean, with as few exterior wires as possible and them out of the way, and functional. And I want to be able to get to everything easily in case anything goes wrong.

Incidentally, I made one mistake that you can avoid: I mounted the control box in the wrong place, and as a result the red LEDs shone right in my eyes when I used the Telrad. A few dabs of nail polish fixed it, though.

Moving on, I fashioned a strip of scrap metal into a holder for the female ends of the RCA jacks that I mounted on the inside of the tube, with the male ends going through the tube for a connection. With the box removed, the connectors are flush and out of the way. Use short sheet metal screws to attach it to the tube.

For the power supply, I used a similar version of the above at the pivot point of the tube, with just one connector to the battery that hangs on the front of the tube. (I'm presently working on a better system, since sometimes the tube becomes unbalanced.)

The secondary was the hardest part as far as getting power supplied to the heater was concerned: you can't just run wires out from the tube since the vanes are already in the way, and the last thing you want to do is make them thicker. What I wound up doing was putting a layer of liquid electrical tape on one of the spider vanes and running two strips of copper tape, cut to size, on top of the tape. The liquid electrical tape is available at Home Depot (and actually says that on the jar), and the tape is available at music supply stores as insulating tape. It goes in electric guitars to help with sound at the controls.

I then soldered the leads to the ends of the tape at each end, with a female RCA jack drilled and installed in the arm of the spider next to the center. It's hidden there by the secondary mirror.

I then removed the secondary mirror from its holder and placed the proper length of heat rope on the backside of the mirror without the insulation so it would be in direct contact with the mirror, securing it with black silicone. I drilled a hole in the top of the holder and ran the wire through to the rope inside, put the wadding back on the mirror, and reinstalled it in the secondary. I then wrapped the correct amount of heat rope inside the focuser drawtube, leaving the insulation on since it is a metal focuser, and secured it with silicone. I used a length of test lead wire to get the power to the rope, since the focuser moves a lot and test lead is very flexible. I mounted it at the

bottom of the focuser so the aluminum would wick the heat up to the eyepiece.

It works like a champ.

The last step was to run the wires inside the tube. I put the VCR wire in the tube and made the proper connections at each end. Holding the ends with masking tape, I glued the wire down with silicone and allowed it to dry.

While it was drying, I reinstalled the secondary and primary mirrors and flipped the system ON for a dry run. At first I was disappointed, but after I got my thermometer I found that everything was about ten degrees warmer than the ambient temperature. Since all you need is 2-5 degrees difference in temperature, I was doing great.

The system has been out in varying degrees of dew, including Chiefland, and has passed the test with flying colors. Not a drop of dew has bothered me so far: even dewed-over eyepieces dry out quickly when placed in the focuser. It works so well that I'm considering building an eyepiece box with the dew zapper in place to keep things dry.

I love it when a plan comes together, and actually works.

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Smitty's Snippets

The atoms and molecules that make up matter are connected by electromagnetic fields, the very same stuff that light is made of. Both are governed by the same physical laws. That means when you try to break the speed of light, you are trying to do it with the very same forces that light consists of. So how can an object possibly travel faster than the force that makes it possible in the first place? **Einstein** said that it can't. That's why he called the speed of light "constant."

-William Shatner

Star Trek: I'm Working On That, p. 26

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We are better informed about the nature of stars and the universe (than ancient astronomers were). We no longer believe the stars to be little lamps, or shiny nails attached to the sky vault, or – as one delightful

Central American legend has it – the glowing ends of cigars which dead heroes are smoking in heaven.

-H. A. Rey

The Stars: A New Way to See Them, p. 29

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One capable amateur who felt the ragged edge of (the) dichotomy (between amateur and professional astronomers) was **John Edward Mellish**...an unpaid observer at Yerkes Observatory...

What Mellish should have gotten credit for was discovering a nebula that varies in brightness. But (Yerkes director **Edwin Brant**) **Frost**, unwilling to trust an amateur further, took Mellish off the project, assigning it instead to a young Yerkes staff astronomer named **Edwin Hubble**. **Hubble's Variable Nebula**, as it has been called ever since, became the subject of Hubble's first published paper and the springboard of his distinguished career.

-Timothy Ferris

Seeing In the Dark, p. 37

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Amateur astronomy has finally come into its own as a legitimate recreational activity, not the pastime of perceived lab-coated rocket scientists and oddballs. Indeed, it has emerged as a leisure activity with a certain prestige. Unlike some hobbies, it is not possible to buy your way into astronomy. Astronomical knowledge and experience take time to accumulate. But be forewarned: Once you gain that knowledge and experience, astronomy can be addictive.

-Terence Dickinson & Alan Dyer

The Backyard Astronomer's Guide, 2nd ed., p. 39

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Of course, there is always the frustration of being clouded out after preparing for an eclipse or other major celestial event for weeks – or even years. This is an activity with frustration minefields along with the rapture. It's not for everybody.

-Terence Dickinson & Alan Dyer

The Backyard Astronomer's Guide, 2nd ed., p. 17

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For professionals, robotic observing has distinct advantages. Night assistants like it because it gets the astronomers out of their hair. Instead of telling wicked stories about famed astronomers running telescopes into ladders, fracturing equipment they were trying to adjust, or dropping eyepieces (and, in one case, a peanut butter-and-jelly sandwich) onto the primary mirror, the night assistants can relax and watch the telescope run itself.

-Timothy Ferris

Seeing In the Dark, p. 233

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David Levy gave an impromptu lecture. He produced his ever-present copy of *Starlight Nights* and read a passage in which (**Leslie**) **Peltier**, in his mid-twenties and still living on his parents' Ohio farm, describes spotting a comet through his six-inch telescope on Friday, November 13, 1925, riding his old bicycle through the night to a railroad signal tower in town, and dispatching a telegram describing the comet to Harvard. Heading home, Peltier wonders, "What would happen to my message? Would Harvard relay it on so that the big 'scopes in California could pick it up that night? Or would it arrive at Cambridge only to hear in cultured accents: 'I say, here's a good one, some chap out in Ohio just found that comet that was reported about six weeks ago!'"

-Timothy Ferris

Seeing In the Dark, p. 158

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