

THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT
RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

Vol. 18, No. 5 **July, 2014**

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Club mailing address: 1212 Everee Inn Rd., Griffin, GA 30224. FRAC web site: www.flintriverastronomy.org.

Please notify **Bill Warren** promptly if you have a change of home address, telephone no. or e-mail address, or if you fail to receive your monthly *Observer* or quarterly *Reflector* from the A. L.

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Club Calendar. Fri.-Sat., June 27-28: Joe Kurz observings (at dark); **Thurs., July 10:** FRAC meeting/lunar observing (7-10 p.m., The Garden in Griffin); **Fri.-Sat., July 25-26:** Joe Kurz observings (at dark).

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President's Message. Here's a question for you: *Which would you rather do, see a supernova in your telescope, read about it or see it in a photograph?*

For me, the answer is easy. Seeing the recent supernova in my telescope at Joe Kurz was something I'll never forget. Seeing it for myself made it real to me in ways that reading about it or looking at someone's photograph could never do.

That's why we do public observings: to give visitors the chance to see some of the things – **Saturn's** rings, for example – that we get to enjoy regularly in our telescopes. We want them to know how it feels to look at the universe in such a different and exciting way.

And that's why I'd like for more of you to be a regular part of our observings. We always have fun, and there's always something interesting going on in the night sky.

No matter how large or small your telescope is – or how long you've been in astronomy – you'll never run out of things to see. Things like the planets, meteors, double stars, nebulas, planetary nebulas, globular clusters and open clusters. But sometimes we also see things like fireballs, iridium flares and comets. Rarer still are things like weather balloons, UFOs – and, of course, the recent supernova. Every observing is an adventure and a learning experience. I've learned more about astronomy at our observings than everywhere else combined.

Sure, it's a long way to Joe Kurz – but astronomy is like fishing. If you want to catch fish, you have to go where the fish are. If you want dark skies, you have to get away from the city lights.

A long-time friend of FRAC, **Mr. Loyd Cox** of Williamson, Ga., passed away on May 20th. We didn't learn of his passing until two weeks after his death.

I didn't know Mr. Cox as long as some of you knew him, but you didn't have to know him long to appreciate what a very special person he was. I always looked forward to his visits in his golf cart while we were observing. He was fun to talk to, and he always treated us and what we were doing with great respect. Mr. Cox was a good man, a God-fearing, Christian gentleman, and we are better for having known him. Our loss is heaven's gain.

On behalf of everyone in FRAC, I want to extend our sympathies to Mrs. Cox; to her to her sons, **Keith** and **Randy;** and to her daughter, **Gail Godley;** in the loss of her husband and their father.

-Dwight Harness

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Last Month's Meeting/Activities. On June 5th, **Dwight Harness** gave a daytime solo powerpoint presentation on the solar system to 60 children and parents involved in the summer reading program at the J. Joel Edwards Public Library in Zebulon, Ga.

A week later, two visitors -- **Teresa Watson** and **Chuck Trimble** -- joined members **Steve Bentley, Dwight Harness, Truman Boyle, Tom Moore, Alan Pryor, Felix Luciano, Sarah & David O'Keeffe, Dawn Chappell, Frank Hiller, Steven "Smitty" Smith, Erik Erikson, Carlos Flores** and **yr. editor** at our meeting on June 12th. The lunar observings were clouded out.

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This 'n That. In Memoriam: Loyd Cox. After FRAC was formed in Jan., 1997, we held our first two club observings in Sunnyside, a small community about 3 mi. north of Griffin.

During that period, one of our charter members, **Keith Cox**, mentioned that his parents owned some land near Williamson that would be a perfect site for our dark-sky observings. We tried it out, found that it was every bit as good as he said it would be, and Keith asked his dad if we could use it on a regular basis. Mr. Cox agreed, and we used the site that we called Cox Field for the next 15 years.

Anyone who ever knew **Loyd** and **Beulah Cox** will tell you that they were a wonderful couple. They were married for 68 years. Mr. Cox's passing at age 90 was not entirely unexpected, but it was devastating to those of us in FRAC who knew him.

During our observing years at Cox Field, the Coxses treated us as if they were the visitors and we were the owners of the land they let us observe on. We loved them like family, and we will not forget the many kindnesses they extended to us over the years.

*At the June meeting, the members present voted unanimously to approve repairs or replacement of the club telescope's defective tracking system, up to but not exceeding \$250.

*From our "**Better Late Than Never**" Dept.: As everyone knows, **Felix Luciano** is a splendid

astrophotographer whose deep-sky images appear regularly in the *Observer*.

When Felix joined FRAC in Jan., 2002, however, there weren't nearly as many astrophotographers as there are today. The equipment was both expensive and primitive by today's standards, so like most beginning astronomers Felix started out as a visual observer. He was an avid, quick learner, and before long he was as good as anyone in the club at finding and observing deep-sky objects.

Recognizing Felix's skills at the telescope, **yr. editor** nagged him unmercifully to pursue A.L. observing pins. Felix finally relented and, unknown to any of us, he began working on the Messier and Lunar Programs. But then two things happened.

First, he got interested in astrophotography. His interest soon became an all-consuming passion, since Felix doesn't do anything half-heartedly.

Second, he completed both observing programs -- but in his newfound enthusiasm for photography, he either misplaced his Messier and Lunar observing logs or set them aside and forgot about them. But he never turned them in.

Fast forward to the present.

Felix brought both sets of observing logs to the June meeting. As a result, he will be receiving his Messier and Lunar certificates and pins in the near future.

Incidentally, Felix doesn't hold the record for **Longest Time Span Between Starting an Observing Program and Receiving a Pin**: a member of the Atlanta Astronomy Club took 17 years to complete his Messier search.

Not to be outdone, FRAC's intrepid **Tom Moore** began working on his Lunar Club requirements in Jan. 1997 and hasn't finished it yet. (The good news is, he's already observed 65 targets, and he only has 35 to go. At his present rate of progress, Tom will complete his Lunar Program sometime in January, 2032.)

*While we're on the subject of **Tom Moore**: several years ago he suggested that, instead of using red-beam flashlights while observing, we should use regular white-beam flashlights and wear red-tinted goggles.

Well, someone was listening, Tom. Orion's red-tinted *AstroGoggles* (\$19.99) will "help you become dark-adapted before you start viewing. No more waiting around to get dark-adapted. Wear

them while you set up your telescope and you'll be ready!"

*Long-time club members will be pleased to know that **Rich Jakiel**, who was briefly a member of FRAC about 15 years ago, has another article in the June issue of *Astronomy* (pp. 50-53). Entitled "How to Observe Variable Nebulae," Rich's article beautifully describes six variable reflection nebulae, some of which change in brightness over periods as short as days or weeks. One of them -- **NGC 2261, Hubble's Variable Nebula** -- is a personal favorite of yr. editor. Besides looking like **Comet Hale-Bopp**, the little nebula in *Monoceros* holds the distinction of being the first object ever photographed by the 220-in. Hale Telescope on Mt. Palomar in California.

Over the years, Rich Jakiel has had at least 20 articles published in *Astronomy*. He also co-authored a book, *Galaxies and How to Observe Them*, with German astronomer **Wolfgang Steinecke** (\$11.25 used from amazon.com). The portion that Rich wrote on observing galaxies is the most interesting part of the book. (That's hardly surprising, since Rich is one of the finest visual observers in the world.)

*The July, 2014 issue of *Sky & Telescope* contains an interesting and highly informative article, "Are Observing Programs For You?" (pp. 38-41). In it, author **Ted Forte** describes the benefits and pleasures he gets from pursuing certificates and pins in the A. L.'s 40+ observing programs. It's a wonderful article, and well worth your taking the time to read it.

Also, on p. 15 of the June 2014 issue of the A. L.'s quarterly newsletter, *The Reflector*, Master Observer **Bill Bogardus** tells you "Why and How to Get Involved in Observing Programs."

Two other articles on observing merit your attention.

First, in the July issue of *Sky & Tel* (pp. 34-37), **Tristan J. Schwartz** presents "The Case for Structured Observing." Schwartz describes himself as having been a "free-form observer" who for years hauled out his telescope when the mood struck him. He didn't set particular observing goals and didn't adhere to a specific schedule or plan.

Two years ago, however, Schwartz decided to set concrete observing goals and adopt detailed plans for accomplishing them. "As a result," he writes, "I have gotten more out of my observing

sessions in the last two years than I did during the previous decade."

Second, in the June *Reflector* (p. 14) **Mike Hotka** (who, incidentally, has earned an incredible 37 A. L. observing pins!) recommends that we "Set Some New Observing Goals This Year." The Messiers are old favorites of his, of course, but he likes the other A. L. observing programs because they offer new experiences and challenges that keep his observing from becoming stale. His suggestion: While hunting down the Messiers, note which ones you like the best. Then make it your goal "to see more of these kinds of objects... Observing programs exist for every kind of object in the Messier list: bright nebulae, planetary nebulae, globular clusters and open clusters." The A. L.'s observing programs will help you achieve your goals.

*If you're interested in telescopes and accessories, you might want to contact Orion Telescopes at www.orientelesopes.com; at 1-800-447-1001; or write them c/o Orion Telescopes & Binoculars, 89 Hangar Way, Watsonville, CA 95076-2465; and ask them to send you one of their catalogs. Orion doesn't sell mirror blanks or replacement parts for their telescopes any more -- alas! -- but the only other items we can think of that they don't sell are astronomy books and image-stabilizing binoculars. Their catalog displays their full line of 'scopes of all kinds and more accessories than you could imagine. It makes a great wish book to browse through, regardless of whether you intend to purchase anything.

Two Orion products to steer clear of are their *Dynamo Pro 17* 12v field battery (\$99.95) and *Collimating Eyepiece* (\$49.99). The battery is rechargeable but undependable, and their collimating eyepiece doesn't fit snugly in the eyepiece holder. But two low-quality products out of hundreds of accessories is acceptable, esp. since you've been warned about them. (On the other hand, Orion's Customer Service Dept. is the best in the business.)

At any rate, you might want to discuss potential purchases with your clubmates before purchasing anything from any manufacturer. Any of our experienced observers can offer suggestions about what works and what doesn't; where to find items for the cheapest price without sacrificing quality; and what you might need to maximize your enjoyment of your telescope and observing.

Beyond that, if you're new to astronomy you should remember that, when you see other members with large arrays of eyepieces and accessories, we didn't buy them all at once but prioritized our purchases over several years. We started with the basics and added to them as our needs dictated and our finances permitted.

*Are you ready for the next leap forward in telescope technology? Celestron's *NexStar Evolution* series of 6", 8" and 9.25" Schmidt-Cassegrain telescopes feature their own internal WiFi network that allows you to slew the 'scope, not with a hand control but with a tap of your smartphone or tablet. You don't have to wait for E. T. to phone home: with a NexStar Evolution 'scope you can call him yourself.

The 'scopes range in price from \$1,199.95 for the 6" to \$1,599.95 for the 8" to \$2,099.95 for the 9.25".

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Frank Hiller: Prof. Stargazer, where are the planets when they're not up at night?

Prof. Stargazer: Oh, they're up at night. You'll find them at Planet Hollywood, hitting on aspiring starlets and soaking up martinis.

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It has always seemed to the author that **J. R. R. Tolkien**, in his delightful fantasy *The Hobbit*, unwittingly created an exquisite description of (the globular cluster) **M22** when he spoke of the fabulous jewel called "The Arkenstone of Thrain": "It was as if a globe had been filled with moonlight and hung before them in a net woven of the glint of frosty stars."

-Robert Burnham Jr.

Burnham's Celestial Handbook
Vol. 3, p. 1596

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Upcoming Meetings/Activities. We'll conduct Joe Kurz club observings on **Fri.-Sat., June 27th-28th.**

On **Wed., July 9th**, **Dwight Harness** and **Truman Boyle** will accompany a busload of boy scouts to Columbus, Ga. for a day trip to the Coca-Cola Space Science Center. On the way there and back, Dwight & Truman will talk with the boys

about astronomy, NASA and the U. S. space program.

Our club meeting/lunar observing will be held at The Garden in Griffin from 7-10 p.m. on **Thurs., July 10th**. Our program will be Part 7, "The Northern Sky and the North Celestial Pole," from the *Our Night Sky* cd.

Finally, we'll wind up the month with Joe Kurz observings on **Fri.-Sat., July 25th-26th**.

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The Sky This Month: Close Encounters. At sundown on **July 5th**, a slightly gibbous **Mars** (mag. 0.0) will lie within 1° of a slightly gibbous **Moon** in the SW sky.

Two days later, **Saturn** (mag. 0.4) will be nearly as close to an even fatter Moon on **July 7th** at sundown.

On **July 16th**, **Venus** (mag. -3.8) will be just to the upper right of **Mercury** in the NNE sky an hour before sunrise.

Comet PANSTARRS (C/2012 K1), a newcomer from the **Oort Cloud**, will pass through *Leo's* mane in early July; at mag. 7 or 8, it should be visible during the first week of July in all but the smallest telescopes, sporting a blue ion tail and a brown dust tail. On **July 5th**, it will form an equilateral right triangle to the upper right of 4th-mag. **Mu Leo** and 3rd-mag. **Epsilon Leo**.

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Observing With Eyeglasses

article by **Bill Warren**

For now we see through a glass, darkly.

-I Corinthians 13:12

A telescope is an instrument that gathers light from distant objects and, through a series of lenses or mirrors, directs it to an eyepiece that forms a magnified image of what the telescope is aimed at. That circular image is known as the *field of view*.

In order to see images, the pupil of your eye – the part that receives light – must be close enough to the eyepiece for you to see the entire field. Normally, that's not a problem except when you're using a high-power eyepiece because the diameter of the eyepiece aperture is larger than the diameter of your pupil.

The dark-adapted pupils of a person with normal 20/20 vision are about 8mm in diameter. A low-power eyepiece of, say, 25mm makes it easy for such a person to see the entire field of that eyepiece. However, if he switches to a 6mm (high-power) eyepiece, his pupil will be larger than the eyepiece aperture. In order to see the image, his pupil must be extremely close to the eyepiece.

Wearing eyeglasses creates a problem for the observer because the glasses move his pupil far from the eyepiece, making it difficult to see the field of view at any magnification. (The term *eye relief* is used to describe the distance from the eyepiece at which you can see the entire field of view.) People who wear glasses while observing need larger eye relief than those who don't wear them.

The obvious solution – taking off your glasses and focusing the image to your unaided eye – is impractical. Every time you take your eye away from the eyepiece, whether to consult the finderscope view or a star chart, etc., you'll have to put your glasses back on and then take them off again when you return to the eyepiece. It doesn't take long for that to become *very* tiresome.

So what else can you do if you need to wear your glasses while observing?

***Use a Barlow Lens.** A Barlow lens is a concave lens that, when fitted into the eyepiece barrel of a telescope, will double (2x) or triple (3x) the magnifying power of any eyepiece that is attached to it. The most popular model is Orion's 2x *Shorty Barlow* that sells for \$46.99.

Let's say that you own just one eyepiece, a 25mm for finding objects at low magnification. If you were to buy a 2x Shorty Barlow, you'd own two eyepieces: the 25mm, and a 12.5mm (medium-power) when the 25mm is attached to the Barlow.

Why would you want to do that? For greater eye relief. If you can use the 25mm while wearing glasses, you can get twice the magnifying power with the same eyepiece by using the Barlow with it. (Of course, the same principle applies to every other eyepiece you own.)

Barlows also are far less expensive than most eyepieces.

In order to avoid having to switch the Barlow in and out and attach/unattach the eyepiece for different magnifications, I'd use the 25mm without the Barlow, use a 20mm eyepiece *with* the Barlow

to give me 10mm medium power, and forget about high magnification. It's over-rated, anyway. (See Tip #4 below.)

***Use Eyepieces With Built-In Eye Relief.**

Eyepieces that offer increased eye relief for people who need to wear glasses while observing used to be frightfully expensive. (They still are if you buy top-of-the-line eyepieces such as Televue or Pentax, which sell for \$350-\$900 apiece, depending on the magnification.) But there are other, far less expensive, quality eyepieces available nowadays that offer substantial eye relief.

Orion Telescope's *Expanse Wide Field* series of 20mm, 15mm, 9mm and 6mm eyepieces offer 13mm to 17mm of eye relief for observing while wearing glasses. Their lenses are fully coated (with a multi-coated outer lens) and sell for \$69.95 apiece. (Incidentally, fully multi-coated lenses are better than fully-coated lenses, and all of the eyepieces in this section are standard 1-1/4" diameter. [See Tip #2].)

Another dependable eyepiece manufacturer, Meade Instruments, offers six very good *Series 5000* Plossl eyepieces with fully multi-coated lenses and long eye relief at \$79.95 apiece. (Meade also offers an 8mm-24mm zoom eyepiece with fully multi-coated lenses and long eye relief for \$79.95.)

If you need more eye relief – well, Orion's *Stratus Wide-Field* series features five eyepieces with 20mm of eye relief for \$149.99 apiece, and Vixen's new *SLV Lanthanum* eyepiece series offers ten eyepieces with 20mm of eye relief for \$169 apiece. All of the eyepieces in both sets have fully multi-coated lenses.

Tips on Buying Eyepieces

1. I won't insult your intelligence by warning you not to buy any telescope that uses .965" eyepieces. You already know that they're junk. If they weren't, the reputable manufacturers would offer a line of .965" eyepieces, and none of them do.

2. Don't buy 2" eyepieces. While they are generally better than 1-1/4" eyepieces, they also tend to be far more expensive. But there are other problems.

Orion sells three 2" *Deep View* eyepieces at low cost -- \$79.99 to \$89.99 apiece. They provide 20mm of eye relief, but their aperture diameters – 28mm, 35mm and 42mm – are for low-power

observing only. You don't need three low-power eyepieces, so if you were to buy, say, the 28mm for low-power observing, you'd also have to buy a 2" adapter in order to use the 2" eyepiece, then switch back to your regular 1-1/4" focuser to use a medium- or high-power eyepiece. (And if you wanted to use a filter or a Barlow lens with the 2" eyepiece, they would have to be 2", too.)

In the long run, you're better off using nothing but 1-1/4" eyepieces and accessories.

3. You don't need a full set of eyepieces in a given series. All you need is one low-power (20mm to 26mm) eyepiece to find what you're looking for, and a medium-power (9mm to 15mm) and/or high-power (6mm to 7.5mm) for more detailed observing. You need more than one eyepiece to be sure of getting the best view of what you're observing, but two is acceptable and more than three is overkill.

4. Regarding low- and high-power eyepieces: the farther you go beyond 25mm at the low-power end and 6mm at the high-power end, the more likely you are to have unforeseen observing problems with them. For example, a 40mm eyepiece will give you a wider field of view than a 25mm, which should make things easier to find. But that's not always the case. The 40mm's extremely low magnification will make it difficult for you to distinguish between stars and small galaxies, especially the faint ones. And even when you find them you won't see much if any detail in them.

On the other hand, a 4mm eyepiece will give you so much magnification that you'll spend more time keeping objects in your field of view than you'll spend observing them. (Not to mention that a 4mm long eye relief eyepiece is likely to cost more than your telescope.)

For years I used Meade's excellent *Series 4000 Super Plossl* 26mm, 9.7mm and 6.4mm eyepieces. (They have since been downgraded by Meade in favor of the Series 5000 eyepieces, which offer greater eye relief. You can buy the 4000s now for about \$30-\$35 apiece, if eye relief isn't a problem for you.) I didn't use the 6.4mm much, though: too much wasted time spent re-centering objects in the fast-moving field of view. Too, the high magnification "exploded" objects like large, face-on galaxies, spreading their light so much that I often couldn't tell what I was looking at. (Think: holding a photograph half an inch from your nose.)

My 9.7mm medium-power eyepiece gave me a better view of most of the roughly 1,800 deep-sky objects I observed.

5. Buy all of your eyepieces (except the Barlow) from the same manufacturer and the same series. That will ensure that all of them are parfocal. (*Parfocal* means that you can switch from one eyepiece to another without having to refocus every time.)

I use three Pentax eyepieces now: 21mm, 10mm and 7mm. They offer outstanding eye relief, but I seldom use the 10mm: it's from a different eyepiece series than the other two, and therefore it's not parfocal with them.

6. If you don't know much about eyepieces, talk to your fellow club members before deciding what to buy. For example, **Dwight Harness** has a zoom eyepiece; he can tell you whether its advantage – combining several eyepieces into one at a low price – outweighs its disadvantage (reduced contrast and detail compared to individual eyepieces).

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Above: M51 (Whirlpool Nebula) and its satellite galaxy, NGC 5195. (Photo by Alan Pryor.)

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