THE FLINT RIVER OBSERVER

Newsletter of the FLINT RIVER ASTRONOMY CLUB, an Astronomical League affiliate

Vol. 13, No. 2 April, 2009

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Club Calendar. Fri.-Sat., Mar. 27-28: Cox Field observing (at dark); **Thurs., Apr. 2-Sun., Apr. 5:** 100 Hrs. of Astronomy with **Steve Bentley** (Forsyth, Ga.); **Sat., Apr. 4:** KFC observing (6:30-10:30 p.m., downtown Griffin); **Thurs., Apr. 9:** FRAC meeting (7:30 p.m., Stuckey Hall on the UGa-Griffin campus); **Sat., Apr. 11;** FRAC booth at the Bluebirds & Bluegrass A&C Festival (10 a.m.-6 p.m., Dauset Trail); **Fri.-Sat., Apr. 17-18:** Cox Field observings (at dark); **Thurs.-Sun., Apr. 23-26:** FRAC's **Georgia Sky View 2009** weekend star party (Camp McIntosh).

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President's Message. First, let me thank **Larry Higgins** for subbing for me as both moderator and guest speaker at the March meeting. I was temporarily indisposed after surgery. All went well, both in the surgery and during its aftermath, and I'm happy and proud to say that I'm back, and as disgusting and gross as ever. (Did I tell you the one about the guy with three eyes, no arms and one leg who was hitchhiking in Britain? Car stops, the driver looks at him standing there hopping on one leg on the roadside and says, "Aye, aye, aye! You look 'armless! 'Op in!")

That has nothing to do with astronomy, of course – but it shows how far I'll go to get a laugh. (Here's another example: Guy tells his psychiatrist, "I think I'm loony." Doc says, "What's the matter?" Guy says, "Half the time I think I'm a wigwam, and the rest of the time I think I'm a teepee." Doc says, "There's your problem: you're too tense!")

Anyway, I'm sure that Larry did a great job of telling you how it all started in FRAC a dozen years ago. We not only survived that incredible first year, but we've *thrived* in the intervening years, a small club operating in the shadow of the largest astronomy club in the southeast, 60 mi. to the north. Our many accomplishments in the past 12 years have far exceeded what might be expected from a little club that began with such modest expectations.

One of those accomplishments, **Georgia Sky View 2009**, is rapidly drawing nigh, and I hope you'll do everything in your power to support FRAC and GSV with your funds and your presence at Camp McIntosh on **April 23rd-26th.**

Steve Bentley, our secretary-treasurer and GSV coordinator, says that at writing we have 21 registrants. We'll doubtless add significantly to that total as the event draws ever closer, but it's important for you to understand that *success* can't be spelled without **U.**

Steve has lined up a stellar array of speakers, and we've gone back to the 4-day, 3-night format that we used in the past but couldn't afford last year. Beyond that, though, there's the fact that your many friends in FRAC are looking forward to seeing you and sharing

with you the many fun experiences and good times that GSVs always bring.

If you haven't had time to register yet, you can find everything you need to know about star parties and GSV (including a downloadable registration form) on our website. Send the completed registration form with your check made out FRAC to: **Steve Bentley, 950 Boxankle Rd., Forsyth, GA 31029;** or to me at: **Bill Warren 1212 Everee Inn Road, Griffin, GA 30224.**

If you've never attended a star party before and don't know what they're like, there's an article on our GSV link entitled "Why GSV Should Be Your First Star Party," and a special section on star party rules and guidelines within a larger article, "FRAC Observing Rules and Guidelines," on our Downloads link. Those two articles cover virtually everything a first-timer should know about star parties.

Yeah, our economy is doing things that are decidedly unfunny. The way I see it, though, GSV will give us a 4-day weekend of blessed relief from all that -- and it will remind us once again of how much fun it is to laugh and talk with friends who genuinely enjoy our presence. (Remind me while we're there, and I'll tell you the world's greatest joke, the one about Frank and Charlie.)

Star parties are about having fun with friends in an astronomy setting. They are also about making new friends, learning from experts, seeing incredible telescopes and equipment, and observing as late as you want to every night. But most of all, they're about having fun. It's as simple as that.

(Speaking of simple: This couple is out parking, and the girl says, "Do you want to get in the back seat?" The guy says, "No, I'd rather stay up here in the front seat with you.")

-Bill Warren

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Put three grains of sand inside a vast cathedral, and the cathedral will be more closely packed with sand than space is with stars.

-Sir James Jeans

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Last Month's Meeting/Activities. Bad weather cancelled most of our late Feb. Cox Field observing, but nine stalwarts – **Charles Boils &** his nephew, **Tony Gubbels; Alan & Vicky Pryor; Larry Higgins; Felix Luciano; Carlos Flores; Dwight Harness;** and **yr. editor** – braved the cold on Feb. 20th for a few hours of observing under clear skies. **Comet Lulin** was an indistinct haze in binocs, like a faint globular cluster that couldn't quite resolve into individual stars along its borders. The telescopic view was better, of course, showing a small, starlike head wreathed in a slightly-out-of-round halo of gases called the *coma.*

Larry showed off his new 20x100 binoculars, and the effect was like using a 4-in. telescope equipped with binocular viewers. Felix and Carlos spent considerable time showing Tony their telescopes and how they work; and Charles found three more Messiers, thereby exhausting the observable winter M-objects. Hey, Chuck, it didn't seem like it that night, but by the time you read this, spring will be just around the corner, bringing with it about 40 more Messiers!

About 40 Jackson Road Elementary School students, parents and teachers showed up on Mar. 3rd for our JRE observing. The weather was cold – but not unbearably so – and the sky cooperated nicely after dark. **Larry Higgins, Dwight Harness, Tom Moore, Tom Danei, yr. editor** and **Charles & Shiphrah Boils** showed up to represent FRAC, and the evening was a huge success all around. **Sandra Sanders,** the JRE teacher who coordinated the event at their end, presented us with a Thank You card that contained $40 in cash, the proceeds of their sale of hot chocolate.

Classy people, those JRE folks. We didn't ask them for money -- but we can sure put it to good use!

We had 11 members – **Larry Higgins, Irene & Curt Cole, Betty & Steve Bentley, Joel Simmons, Felix Luciano, Dwight Harness, Tom Moore, Dan "the Man" Pillatzki** and **Charles Turner** -- at our March meeting, which features Larry's recap of "1997-98: FRAC's First Year."

On Mar. 19th, **Larry Higgins, Tom Moore, Dwight & Laura Harness, Mike Stuart** and **yrs. truly** showed 14 Orrs Elem. PreK students and about twice as many parents and family members such celestial sights as **Venus, Saturn, Orion Nebula** and a surprisingly large number of other deep-sky treasures for such a light-polluted area.

Yr. editor visited the school the next day on unrelated business, and encountered that class in the media center, listening to a story. We asked if anyone remembered what they did last night, and one little boy shouted, "We saw the sky in telescopes!" A girl said, "I saw a planet (Saturn) that had a stick in it!," and another girl said she had seen baby stars.

And *that's* why we do it, folks.

Seven members – **Charles Turner, Sally & Alan & Pryor, Larry Higgins, Mike Stuart, Dwight Harness** and **yr. editor** – attended our Mar. 20th Cox Field observing. The sky cooperated nicely, and we had a great time.

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The stars are the jewels of the night, and perchance surpass anything which day has to offer.

-Henry David Thoreau

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This 'n That. Steve Bentley went out on the snowy evening of Mar. 2nd to do a little observing. He reports that "Conditions were favorable, as I could see the Snowdrift Nebula naked-eye. Its size was immense; it seemed to fill my field of view wherever I looked."

That same evening, **yr. editor** went outside to watch the Eartheids Meteor Shower, a rare (in our area, anyway) and highly unusual event in which billions of large, slow-moving meteors constantly drifted upward across his telescopic field of view. (Reflecting telescopes invert images.)

*As cold as it has been this winter -- it snowed in Baghdad, Iraq for the first time in recorded history – **yr. editor** is ready for a little global warming, at least, in the Flint River area.

***Larry Higgins** is reading **Leslie Peltier's** marvelous book, *STARLIGHT NIGHTS: The Adventures of a Stargazer,* for the fifth time. (**David Levy,** himself a prolific and very talented author, wrote of *Starlight Nights: Many books will tell you how to observe the night sky; this book explains why.)*

Anyway, Larry said that Peltier notes that it's no wonder that the Messier objects looked so much like comets to **Charles Messier:** he was using a 2-in. telescope with 5x magnification!

Other sources have Messier using a 3- or 4-in. 'scope, but regardless it was a magnificent feat, given the relatively poorer quality of optics available during the mid- to late-1700s. (Did we mention that Messier also discovered 13 comets?) Those facts certainly qualify Messier as being one of astronomy's all-time great visual observers.

*Congratulations to **Charles Turner** and **Dwight Harness** for being the 13th and 14th FRAC members, respectively, to qualify for an Outreach Club certificate and pin. They've found – as you will if you give it a try – that there are few natural highs as intense and lasting as hearing the excited responses of people (especially children) who have never before seen the wonders of the solar system or universe through a telescope.

Given the erratic nature of delivery of pins in that club, Charles and Dwight, it's anybody's guess as to when you'll be receiving your awards, fellas; all we can say is, they *have* been ordered!

*Question: Apart from being FRAC members, what do the following FRACsters -- **Joe Auriemma, Betty Bentley, Steve Bentley, Curt Cole, Tom Danei, Dwight Harness, Larry Higgins, Felix Luciano, Doug Maxwell, Katie Moore, Tom Moore, Dan Pillatzki, Phil Sacco, Richard Schmude, Joel Simmons, Mike Stuart, Charles Turner, John Wallace** and **Bill Warren** -- have in common?

Answer: All of them have earned one or more

A. L. observing pins. Bill leads the way with 15, followed by fellow Master Phil Sacco with 11; Curt & Larry are next with six apiece; John W. has four; Doug has three; Joe and Mike, two; and Betty, Steve B., Tom D., Dwight, Katie, Tom M., Dan P., Richard S. and Joel S., one apiece.

In FRAC's first 12 years, members have earned a total of 85 observing pins.

*If you bought an **Astronomy 2009** calendar when **Steve Bentley** was selling them last year – isn't the April photo of **Saturn** stunning? It was taken by NSAS's Cassini spacecraft from 1.3 million mi. away, and shows detail the like of which we may never see again.

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For what could be more beautiful than the heavens which contain all beautiful things?...If the worth of the arts were measured by the matter with which they deal, this art – which some call astronomy – would be by far the most outstanding.

-Nicolas Copernicus
On the Revolution of the Celestial Spheres
Book I (1543)

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Upcoming Meetings/Activities. We have a very busy month ahead of us, starting with Cox Field observings scheduled for **Fri.-Sat., Mar. 27th-28th.**

On the evenings of **Thurs., Apr. 2nd –Sun., Apr, 5th, Steve & Betty Bentley** will conduct "100 Hours of Astronomy" public observing in their front yard. Steve has announced the events in the Jackson and Forsyth newspapers and sent out fliers to area schools. He writes, "I'd love to have some help down here with my "100 Hrs." project. I have no idea of what to expect. I may have the field full of people, or I may have none. But I look at it this way: If people come, we'll have a good time showing them stuff. If nobody shows, we'll have a good time observing from a different site."

Steve's yard is in fact a very good observing site with plenty of sky and plenty of darkness. Since some of you have indicated that you'd like to attend one or more of those observing, here's how to get to Steve's house:

Take I-75 S to Exit 193 (Johnstonville Rd.). Turn left, cross the bridge over I-75 and continue for about 3 mi. Turn right onto Boxankle Rd., go about 1 mi. and look for a concrete driveway on your right. His mailbox has "950" on it, and his front yard is very large.

Steve warns, "*Use these directions. Do NOT use Google maps, Yahoo maps, Mapquest or any other mapping project. They have my location incorrect.* My GPS coordinates are Latitude 33.10279, Longitude -83.96787."

On **Sat., Apr. 4th,** a separate 100 Hrs. of Astronomy observing will be held at the downtown Griffin KFC between the hours of 6:30-10:30 p.m. If you'd like to join us, here's how to get there:

Take U. S. Hwy. 19/41 toward Griffin, and get off the 4-lane at Ga. Hwy 16, the Griffin-Newnan exit. Go east toward Griffin, and stay on that road (Hwy. 16) for 1.8 mi. The KFC will be on the far right corner at a stoplight, with First Baptist Church on the near right corner.

Our April club meeting will be held at **7:30 p.m.** on **Thurs., Apr. 9th,** on the 2nd floor of the Stuckey Bldg. on the UGa-Griffin campus. Our program will consist of **Steve Bentley** going over the arrangements for the **GSV '09** weekend, including passing around signup sheets for handling the many small tasks that must be attended to before, during and after the star party.

Two days later, on **Sat., Apr. 11th,** FRAC will operate a booth at the "Bluebirds & "Bluegrass Arts & Crafts Festival" at Dauset Trail, which is located near Camp McIntosh and Indian Springs State Park. The event, which features live bluegrass music throughout and crafts for sale, draws large crowds every year, so we hope you'll be able to join us to talk with passersby about astronomy and FRAC. We'll show them the **Sun** through a variety of filters. Our booth will be open from 10 a.m.-6 p.m.

To get to Dauset Trail, go S on I-75 to Exit 205 (Ga. Hwy. 16, the Griffin-Jackson exit). Turn E

toward Jackson, 10 mi. ahead. Stay on 16 through Jackson, and go straight on U. S. Hwy. 23/Ga. Hwy. 42 where Hwy. 16 turns left. Then, a couple of miles ahead, bear right on Hwy. 42 where 23 goes straight.

Go past both Indian Springs State Park entrances at Flovilla on Hwy. 42. About 100 yds. beyond the 2nd entrance, turn right at the flashing light at Mount Vernon Church Road. That road goes to Camp McIntosh a mile ahead, but instead of bearing right to get to the camp, stay on Mt. Vernon Church Rd. as it curves to the left, and Dauset Trail will be on your right a mile or so ahead.

Georgia Sky View 2009 – A Stellar Experience will run from **Thurs., Apr. 23rd** through **Sun., Apr. 26th.,** at Camp McIntosh near ISSP. If you're coming from the N or W, use the previous directions to Dauset Trail, or look for directions on our website.

Rather than repeat ourselves at length, we'll merely point out that FRAC needs your presence and participation. GSV is a first-rate star party, and we need your help in making it all that it can be.

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I would be very ashamed of my civilization if we did not try to find out if there is life in outer space.

-Carl Sagan

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People You Should Know: Joel Simmons. Soft-spoken and unassuming, Joel has quietly become a very important part of FRAC since joining the club more than two years ago. When a position on the board of directors opened recently, Joel's name was at the top of our wish list. Now, as FRAC's newest board member, he's the one we'll blame when anything goes wrong.

Joel and his wife **Anne** live in McDonough. They have four grown children – **Michael, Eric, Julie & Cheri** – and ten grandchildren ranging in age from 12 years to six months old. That's a lot of crayon marks over the years on the walls of the Simmons' home.

Joel's main interest in astronomy is astrophotography, "using my DSLR. I am interested in observing anything that will make a pretty picture." He's not likely to run out of photogenic targets any time soon. The night sky is very good about that.

His equipment includes a Williams Optics Megrez 90mm refractor, a Losmandy G-11 equatorial mount, an Astrotech Voyager altazimuth mount, a Meade ETX 125 'scope, 10x50 binoculars and a Canon 40D camera that he modified for astrophotography.

"I also enjoy studying astronomy," he adds, "with particular interest in cosmology, the solar system and evolution of the universe. I have benefited tremendously both from what I have learned from the members and from the friendships I have been privileged to make. I am very much a novice astronomer, but will continue to learn through my relationship with FRAC."

A "novice astronomer"? Maybe. But by the simple expedient of keeping quiet when he has nothing to say, Joel appears wise beyond his years in astronomy – unlike, say, **yr. president,** who is always ready to proclaim his ignorance at 180 decibels to anyone he thinks he can fool into regarding him as intelligent.

Joel Simmons: A good man, and a good friend to all who know him. A regular attendee at FRAC functions, and a wonderful asset for FRAC.

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The Sky in April. There's good news and bad news about **Jupiter, Venus, Mars, Neptune** and **Uranus** in April. The good news: they're up. The bad news: all of them are "morning stars" that rise sometime during the early pre-dawn hours.

There's no such problem with mag. 0.7 **Saturn:** it's up all night. The rings' relative absence offers the opportunity to see if you can spot the planets' light and dark bands. They aren't surface features, of course: as with Jupiter, all we can see of Saturn are elongated atmospheric bands. In Saturn's case, normally the bands are lost in the rings' brightness, but with the rings nearly edge-on to us now, the planet itself is far more observable than usual.

Mercury is up after twilight on evenings during the last half of April; just don't look for it in your 'scope or binoculars until after sunset. On Apr. 26th,

Mercury will be 5^o – that's 3 finger-widths held at arm's length toward the sky – below a thin crescent **Moon;** the bright, Dipper-like **Pleiades (M45,** the **"Seven Sisters")** will lie 2^o below the Moon and 3^o above Mercury. All three will fit into a 10x50 binocular field of view.

A so-so meteor shower, the **Lyrids** (see the following article by **Phil Sacco**) will peak at maybe 20 meteors per hour during the pre-dawn hours of Apr. 20th.

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The Lyrids Meteor Shower

article by Phil Sacco

(Editor's Note: This article first appeared in the April, 1999 issue of The Observer.*)*

Meteors are small, solid particles in orbit around the **Sun.** In many cases, they are thought to be debris left by passing comets. Thus, meteors tend to be grouped together in comet-like orbits and often have been linked to known comets. When the Earth passes through one of these streams, a meteor shower occurs as the particles burn up in our atmosphere.

On any given night, the average observer should be able to see about five stray meteors per hour. The typical shower will generally triple that rate, while the best ones (such as the **Perseids** of August and **Geminids** of December) may have 50 or more per hour.

The distribution of meteors along their orbits is not uniform. Therefore, what may have been a bland shower one year might be a memorable event the next. The most notable of this sort of meteor shower is the **Leonids** of November. Usually, the Leonids produce about 15-20 streaks per hour, but early one morning in November, 1966, along the western coast of the U. S. rates approaching 150,000 per hour were reported. This was a repeat of the famous 1833 shower that prompted one 19th-century writer to exclaim, "Never did rain fall much thicker than the meteors fell to earth!"

Occasionally, meteors the size of small rocks will join the fray, producing what is called a *fireball.* Some of the bigger ones may even be seen breaking apart and forming two or more fiery trails. The biggest of these might survive their entry and strike the Earth. These meteors are then called *meteorites.* Barringer Crater in Arizona is a dramatic example of such an impact.

The names of meteor showers are derived from the area of sky from which the meteors appear to radiate -- hence the term *radiant* – like spokes on a wheel. Thus, the **Lyrids** meteors would appear to be coming from *Lyra,* a summer constellation that is low in the east at the time of the Lyrids shower.

The best time to observe a shower is from about 2:00 a.m. until dawn. Since meteors can appear in any part of the sky, using a telescope or binoculars is likely to hinder your viewing.

The date of the peak will fluctuate a day or so, so you may want to Google that particular shower and find out the best time for observing. A moonless night is also recommended, since a bright **Moon** will both destroy your night vision and wash out the dimmer meteors.

So if you care to watch the Lyrids, find yourself a comfortable place to lie down, a backyard with a lounge chair, perhaps – or better yet, a Jacuzzi. Turn on some music, munch some popcorn and watch as the stars slowly wheel above your head. And with a little luck you just might see some bits of interplanetary dust that just happened to encounter the third planet from the **Sun,** and just happened to meet their fiery demise after billions of years of peaceful existence somewhere over your neighborhood.

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When men are calling names and making faces,
And all the world's a-jangle and ajar,
I meditate on interstellar spaces
And smoke a mild seegar.

-Bert Leston Taylor

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Space Place Partner ---------- April 2009

Apollo Upgrade

The flight computer onboard the Lunar Excursion Module, which landed on the Moon during the Apollo program, had a whopping 4 kilobytes of RAM and a 74-kilobyte "hard drive." In places, the craft's outer skin was as thin as two sheets of aluminum foil.

It worked well enough for Apollo. Back then, astronauts needed to stay on the Moon for only a few days at a time. But when NASA once again sends people to the Moon starting around 2020, the plan will be much more ambitious—and the hardware is going to need a major upgrade.

"Doing all the things we want to do using systems from Apollo would be very risky and perhaps not even possible," says Frank Peri, director of NASA's Exploration Technology Development Program.

So the program is designing new, more capable hardware and software to meet the demands of NASA's plan to return humans to the moon. Instead of staying for just a few days, astronauts will be living on the Moon's surface for months on end. Protecting astronauts from harsh radiation at the Moon's surface for such a long time will require much better radiation shielding than just a few layers of foil. And rather than relying on food and water brought from Earth and jettisoning urine and other wastes, new life support systems will be needed that can recycle as much water as possible, scrub carbon dioxide from the air without depending on disposable filters, and perhaps grow a steady supply of food—far more than Apollo life-support systems could handle.

Next-generation lunar explorers will perform a much wider variety of scientific research, so they'll need vehicles that can carry them farther across the lunar surface. ETDP is building a new lunar rover that outclasses the Apollo-era moon buggy by carrying two astronauts in a pressurized cabin. "This vehicle is like our SUV for the Moon," Peri says.

The Exploration Technology Development Program is also designing robots to help astronauts maintain their lunar outpost and perform science reconnaissance. Making the robots smart enough to take simple verbal orders from the astronauts and carry out their tasks semi-autonomously requires vastly more powerful computer brains than those on Apollo; four kilobytes of RAM just won't cut it.

The list goes on: New rockets to carry a larger lunar lander, spacesuits that can cope with abrasive moon dust, techniques for converting lunar soil into building materials or breathable oxygen. NASA's ambitions for the Moon have been upgraded. By tapping into 21st century technology, this program will ensure that astronauts have the tools they need to turn those ambitions into reality.

Learn more about the Exploration Technology Development Program at www.nasa.gov/directorates/esmd/aboutesmd/acd/technology_ dev.html. Kids can build their own Moon habitat at spaceplace.nasa.gov/en/kids/exploration/habitat.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Caption:
The Chariot Lunar Truck is one idea for a vehicle equal to the lunar terrain. Each of the six wheels pivot in any direction, and two turrets allow the astronauts to rotate 360°.