

THE FLINT RIVER OBSERVER

Newsletter of the Flint River
Astronomy Club

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Officers: President, **Curt Cole:** (770)946-3405, 24e29d55c@speedfactory.net; Vice President/Newsletter Editor: **Bill Warren:** (770)229-6108, warren7804@bellsouth.net; Secretary-Treasurer, **Irene Cole:** (770)946-3405, 24e29d55c@speedfactory.net;

Board of Directors: **Larry Higgins:** (770)233-6933, higgm01@yahoo.com; **Tom Danei:** (770)320-8802, daneil00@hotmail.com; and **Felix Luciano:** (770)471-4160, <montb02@yahoo.com>.

Webmaster, **David Ward:** (770)898-5201, dward51@bellsouth.net; Alcor, **Steven "Smitty" Smith:** (770)583-2200, sara60@bellsouth.net; Ga. Sky View/Astronomy Day Coordinator, **Steve Knight:** (770)616-2676, saknight1@comcast.net; Observing Chairman/Public Observing Coordinator, **Larry Higgins**; Program Co-Chairmen: **Larry Higgins** and **Bill Warren**; Publicity: **Curt Cole**; Night Sky Coordinators: **Smitty** and **Steve Knight**; NASA contact: **Felix Luciano**; Event Photographer, **Tom Danei**.

Club mailing address: 190 West James Circle, Hampton, GA 30228,. Web page: www.flintriverastronomy.org; discussion group at <FRAC@yahoogroups.com>.

Please notify **Bill Warren** or **Curt Cole** if you have a change of home address, telephone no. or e-mail address.

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Club Calendar. Fri.-Sat., July 6-7: Cox Field observings (at dark); **Thurs., July 12:** FRAC meeting (7:30 p.m., Stuckey Bldg., UGa Griffin Campus); **Fri.-Sat., July 13-14:** Cox Field observings (at dark).

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Vice President's Message. Are you enjoying your FRAC membership? If not, why not?

Within rather broad limits, we'll do whatever it takes to have fun and try go get you involved. Aside from mate-swapping, pot parties or staging dog fights, there isn't much that we won't try in order to fulfill our vow, made back before you joined FRAC, to help you make your time spent with us enjoyable and informative.

The reason that a small club like FRAC has hung on for more than a decade is simple: we've managed to attract members who are good people and enjoy each other's company.

During my 19 years of coaching (primarily at the high school level), I always preached that "People who follow a dream and care about each other can accomplish miracles." How else to explain FRAC's survival for more than a decade while existing in the massive shadow cast by the Atlanta Astronomy Club? Or earning, as FRAC did in 2004, 1st prize nationally in the A.L.'s Astronomy Day competition in the category of "Most (Activities) For Its Size"? Or, for that matter, FRAC's star party, Georgia Sky View?

Admittedly, **Steve Knight** has been, and is, the driving force behind GSV – but Steve, like any good quarterback, will tell you that good leaders are only as effective as the troops behind them.

So let's return to my original question: Are you having fun in FRAC? And if not, why not?

Of course, all of us have other responsibilities and other priorities beyond FRAC. What FRAC is *supposed* to be for all of us, though, from the most inexperienced newcomer to the most seasoned veteran, is an enjoyable pastime where we can occasionally spend a few hours doing things we like to do, and with people we enjoy being around.

For those who want to learn about astronomy – well, **Larry Higgins** is supplying a steady stream of excellent speakers and fun, informative program activities at our monthly meetings.

For those who enjoy being out under the night sky with kindred spirits who are willing and able to help out if and when we need help in any way, we offer, whenever possible, *two* observing weekends – four nights – a month. We also have stepped up our public observing program in recent months, with many more to come in the fall when vacations are over and the schools reopen.

Beyond that, we also conduct occasional social (i.e., family-oriented) events such as picnics and our annual Christmas party, and in August we'll have a family-friendly **Perseids meteor shower** observing party. (We'll have more to say about that particular event in next month's newsletter.)

As I've said many times, *you only get out of FRAC (or anything else) what you put into it.* If you want to have more fun in FRAC,

the way to do it is to put more of yourself into it and see what happens.

In all honesty (for once), the only thing I *don't* enjoy about FRAC is your absence when you aren't with us, because YOU are one of the good people I referred to earlier. You are, whether you choose to believe it or not, a large part of why FRAC is such a good club; and when you can't be with us at our meetings or activities, everyone else's enjoyment and sense of fun is diminished accordingly.

If you don't believe that – if you think that these are just words I'm using to fill space in this month's newsletter – well, you're wrong, because I could have used this space to do what I enjoy most, i.e., poking fun at myself and others in FRAC who so graciously allow me to do so. I just felt that you need to know, if you aren't already aware of it, that you *are* important to the club in ways that go far beyond the paltry \$15 annual dues you pay. Like a family reunion with members missing, our meetings and activities still go on in your absence, but not without regret at what we – and you -- are missing.

-Bill Warren

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Last Month's Meeting/Activities. On June 5th, eight of us – **Tom Danei, Betty & Steve Bentley, Larry Higgins, Joel Simmons, Irene & Curt Cole** and yr. editor – conducted a delightful observing for 17 boy scouts and three scoutmasters. The observing was scheduled for Pioneer Camp at Indian Springs, but when that site was found to be in a heavily wooded area it was decided to move 12 mi. away to the broad and open front yard of Steve & Betty.

The observing thus got off to a late start, with the kids arriving in three carloads at 10 p.m. and staying until midnight. They were extremely well behaved and interested, and under clear skies we were able to show them many of the wonders that make summertime observing so much fun.

After they left, we stayed around for 2-3 hours more, talking, observing and admiring each other's high-priced toys. Thanks, Steve & Betty, for helping out in such a meaningful way.

Fifteen members – **Betty & Steve Bentley, Aimee & Steve Mann, Charles, Erica & Jeffrey Anstey, Mike Polk, Joel Simmons, Tom Danei, Felix Luciano, Larry Higgins, Steve Knight, Curt Cole** and yr. editor – and two guests (**Heather Sherbourne** of Hamilton, GA and **Brenda Kremple** of Zebulon, GA) attended our June meeting. Curt used a globe and golf ball to demonstrate the solstices and equinoxes, after which we watched Tom's promotional video for FRAC and the slide presentation Steve B. has prepared for use at indoor programs such as the one that FRAC conducted in June for the UGa Griffin Campus youth group.

Thanks to all three of the above-mentioned gentlemen and one other as well: **Curt**, for preparing monthly features on various aspects of astronomy; **Steve B.** and **Tom** for their hard work (and excellent results) in preparing first-rate audiovisual aids that will benefit the club now and on a long-range basis as well; and **Larry Higgins**, FRAC's program coordinator, for providing a series of high-quality, entertaining and informative activities and speakers at our meetings in recent months.

Since Larry assumed his post a few months ago, attendance at club meetings has ranged

between 14-18. Those figures are outstanding for a small club; yr. editor cannot recall a higher 5-month attendance average during FRAC's first decade of existence.

A p.s regarding the June meeting: "I've been to a lot of meetings of different astronomy clubs, large and small, in the past eight years," visitor Heather Sherbourne said. "Maybe it's because I'm a woman in a male-dominated activity, but most clubs have acted like they either didn't want me there or didn't care. But it's not that way here. This is the friendliest club I've ever seen."

A total of 9 members attended our weekend observings of June 15th-16th: yr. editor (both nights); **Larry Higgins** and **Steve and Aimee Mann** (Fri. night); and **Steve & Betty Bentley, Joel Simmons** and **Curt Cole** (Sat. night).

On June 19th, **Steve & Betty Bentley, Curt Cole** and yr. editor conducted a 90-min. class for about 45 kids and teens at the UGa Griffin Campus facility. Steve had such a good time – and such excellent rapport with the kids – that we thought we were going to have to drag him away from them, kicking and screaming.

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Upcoming Meetings/Activities. Our first of two July Cox Field observings weekends will be held on **Fri.-Sat., July 6th-7th**, with the 3rd Quarter Moon on the 7th.

Our July meeting will be held at **7:30 p.m.** on **Thurs., July 12th** at the Stuckey Bldg. on the UGa Griffin Campus. Our speaker will be **Dr. Richard Schmude**, asst. professor of astronomy and physics at Gordon College.

Dr. Schmude is a member of several astronomy organizations, associations and

clubs (including FRAC), and he either holds or has held elected offices in the Astronomical League (AL), the Royal Astronomical League of Canada (RASC) and the Association of Lunar and Planetary Observers (ALPO). Richard is a regular contributor to numerous astronomy publications, and is in great demand as a public speaker. His July talk on **Venus** will include instructions for finding Venus in the daytime.

Our second July Cox Field observing weekend will be on **Fri.-Sat., July 13th-14th**, with the New Moon on the 14th.

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This ‘n That. Congratulations to **Curt Cole** for earning his 3rd A.L. observing club certificate and pin, the latest being for completing the Double Star Club requirements. Curt has, in his quiet way and without fanfare, become one of FRAC’s most highly skilled and proficient observers, as those three pins readily attest.

Keep up the good work, Curt!

***Yr. editor** is making headway in his personal quest to get **Tom Moore (Katie’s father)** back in FRAC. Tom, who dropped out of the club a couple of years ago, is actually quite intelligent and conversant re astronomy – hey, Katie didn’t get her brains out of a Capt. Crunch cereal box! – but to hear Tom talk, he’s Dumb and Dumber’s dumber cousin. Consider:

As veterans may recall, Tom once came up with the unusual (to say the least) idea of outlawing the use of red-beam flashlights at Cox Field.

“But won’t we lose our night vision?” he was asked.

“No problemo,” Tom replied cheerily. “We’ll just use regular white-beam flashlights and issue everyone red goggles.”

Such inspired lunacy belongs in FRAC. Sometimes Tom is almost capable of making **Dan Newcombe** and **yr. editor** sound like rational human beings.

***Two Editorial Asides.** First: You’ll note that you’re receiving your newsletter earlier than was previously the case. This change was necessitated by the fact that the ever-changing lunar cycle is producing New Moon phases that require the first of our Cox Field observing weekends to be held during the first week of the month.

Second : Conducting public observings is one of the three original goals set for FRAC by its founders. (The other two are having fun and educating our members in ways astronomical.)

Since many of our members dearly love to participate in our public observings, we encourage you to spread the word: we offer free public observings for any group, whether it be scouts (boy or girl), schools, churches, libraries or anyone else who might be interested, and at a site of their choosing.

While the decision to move the majority of our public observings away from Cox Field has entailed certain logistic problems, it’s important to remember two things: (a) **John Dobson**, who practically invented public observing on the streets of San Francisco, refers to his efforts as “taking astronomy to the people” rather than the reverse; and (b) Cox Field does not belong to us. Mr. Cox has graciously permitted us to use his land, free of

charge, for 10+ years, to hold our club observings. A few occasional visitors, or even an occasional small-group observing, at Cox Field is one thing; using it to conduct large-group observings or as our exclusive public observing site is entirely different, an imposition on his hospitality to us and a risk to his land as well.

At any rate, there are two steps involved in arranging a FRAC public observing, and we urge you to abide by them rather than attempting to schedule observings yourself. First, have the interested party contact **Larry Higgins**, our observing chairman, at (770)233-6933, to discuss possible observing dates, sites and other considerations; and second, refer that person to our website --

www.flintriverastronomy.org – where we offer detailed information about group observings, how they are conducted, what we expect from attendees and what they can expect from us. Reading our “FRAC Observing Policies and Procedures” guidelines is very important for any group leader who solicits our services.

How far will we travel to conduct a public observing? While no specific mileage limit exists, we seldom go farther than 30 mi. from Griffin in any direction, due in part to the presence of clubs in Atlanta, east of Atlanta and in Macon. Exceptions exist, of course – as with **Curt’s** May VA observing – but generally speaking we prefer not to infringe on other clubs’ turf. If they aren’t in the Flint River area, \$3 a gallon for gas is a *huge* incentive for having Larry tell them we’re sorry, but no, we can’t conduct a public observing in, say, Gwinnett County.

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The Sky in July. At last, we’re getting more than one or two planets up in the night sky at any given time. Now, if we can just find them...

Jupiter, mag. -2.5 and the 2nd brightest of the planets, will be up all night, starting its evenings in the S sky near orange **Antares** in *Scorpius*.

Venus, at mag. -4.5 the brightest of the planets despite its steadily shrinking crescent phase, will lie less than 1° S of **Saturn** in the W sky on July 1st. They will remain close for at least a week thereafter.

The Red Planet, **Mars**, will be bright (mag. 0.6) but very small and low in the W sky.

Neptune (mag. 8.5) should be an easy find in a small ‘scope after midnight, its small, blue-green disk located 2+ degrees N of mag. 3.7 **Gamma Cap**. An excellent finder chart appears on p. 50 of the July issue of *Astronomy*.

Blue **Uranus**, mag. 5.8 and therefore an easy target in binocs or a small ‘scope, will lie between **Phi** and **96 Aquarii**. Finder charts for Uranus, Neptune and **Pluto** between now and Nov. 1st appear on p. 60 of *Sky & Tel’s* July issue.

Finding the planets is, in most cases, a far easier task than most beginners think it is.

The naked-eye planets are easiest, of course. Jupiter and Venus are brighter than any stars. Mars appears starlike but displays a clearly defined disk shape in addition to its obvious color. **Mercury** is brighter than most of the stars, too, but its location near the **Sun** makes searching for it or viewing it risky if you aren’t exceedingly careful when using binoculars or a telescope.

Regarding Uranus and Neptune: they aren’t naked-eye targets, of course, but even if

you've never seen them before you'll know them at a glance when you find them, their small but lovely and colorful disks contrasting sharply with the dots of nearby stars.

Mercury will be a bright (mag. 0.5) naked-eye morning star located in *Gemini* in July. Just don't move your binoculars or telescope field of view anywhere near the **Sun** while looking for it; that's a mistake you won't have to worry about repeating in the future.

Pluto? As a dwarf planet (or whatever demeaning term they gave it because it was discovered by an American), like **Rodney Dangerfield** Pluto don't get no respect. It also don't get no viewing time by most of us, since, at mag. 13.9, it's always among the faintest objects in its field of view even if you're dedicated to finding it in an 8" or larger telescope.

For what it's worth – probably not much – Pluto is up in July, somewhere in NW *Sagittarius*.

Oh, one more thing: There's a new comet -- **LINEAR (c/2006VZ₁₃)** – and it will be mag. 10 in July. (Read: faint, but observable via telescope.) A finder chart appears on p. 50 of the July issue of *Astronomy*, but you can also find VZ sharing the low-power field of view with the bright globular cluster **M3** in *Bootes* on July 22nd.

And while we're at it: In case you missed it last month, the asteroid **4 Vesta** is still a prominent (mag. 6;1) binocular or telescopic target in July as it swings S toward the Scorpion's claws. (That's *Scorpius*, **Ken Walburn**, as you'd know if you spent your free evenings studying star charts instead the insides of your eyelids.) A finder chart for Vesta appears on p. 51 of the July issue of *Astronomy*.

As mentioned last month, locating asteroids involves a 3-step process. First, use a good finder chart to determine where to look at any given time. Second, scan the target area – your best bet is to scan when there's one or more bright stars nearby – and, if possible, draw the field of view if you can't remember it. And third, go back to that field of view in a couple of hours and look for the "star" that has moved from its former location. It's the asteroid. Lying closer to us, asteroids move faster across the sky than the stars which surround them.

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FRAC'S DARING DISCOVERERS

Humor by Bill Warren

Surprisingly, not everyone in astronomy -- or even in FRAC, for that matter -- is aware of the many important astronomical discoveries that are being made almost nightly by your fellow club members. For example, **Ken Walburn** has discovered that the insides of his eyelids are "gray, black or some other color.")

Here, then, are a sampling of other startling discoveries that have been, or doubtless will be, made by FRAC's finest.

Which one will win a Nobel Prize? Only time will tell...

Larry's Loop (a nebula, of course). As you doubtless are aware, the most cataclysmic supernova explosions in the universe are soundless in the vacuum of space. If there were sound, however, Larry's Loop would be as easy to find as **Larry Higgins's** tent at Ga. Sky View, and for the very same reason.

Knigh’s Knebula. First, there was **Horsehead Nebula** in *Orion*, visible via a H-beta filter. Sooner or later, someone will locate the other end of the horse; who better to do it than **Steve Knight**?

Curt’s Cascade. Step aside, **Fr. Lucien Kemble** (discoverer of Kemble’s Cascade, an asterism in *Camelopardalis*): **Curt Cole** has discovered his namesake, Curt’s Cascade, a loose grouping of stars that bears an uncanny resemblance to either next year’s projected budget or something else equally confusing.

Aurora Aimee. Now there are *three* auroras – aurora borealis, aurora australis, and aurora aimee.

Although **Steve Mann** presently is the more accomplished observer in the family, that situation likely will change dramatically when wife **Aimee’s** discovery of a new aurora receives the attention it deserves. Aurora aimee was located somewhere near the end of Steve’s telescope when she discovered it with her husband’s red-beam flashlight.

Felix’s Faculae. Not content with his meticulously detailed observations of **Jupiter**, the **Moon** and other celestial delights, **Felix Luciano** has turned his attention to the solar features known as **faculae**.

“Faculae,” Felix explains, “are bright, filamentary patches of hot hydrogen gas in the **Sun’s** photosphere. They are seen most easily near the Sun’s limb (edges). Because they indicate the presence of intense magnetic activity, they occur most frequently near sunspots. You can see where I’ve been

plotting their locations on my new Coronado solar filter with this Sharpie marking pen...”

O’Keeffe’s Octet. Longtime FRAC member **David O’Keeffe** hopes to make his mark in astronomy when he plots the precise location of O’Keeffe’s Octet, a cluster of eight galaxies in *Sagittarius*.

“Actually, there are a lot more than eight of them,” David says, “but I stopped counting at eight because O’Keeffe’s Octet sounded better than David’s Whole Bunch of Galaxies.

“It’s strange: all of them were elongated streaks of light when I found them by moving my telescope real fast, but when I stopped they looked more like stars. Maybe what I really found is a new kind of galaxies.”

Not to be outdone, intrepid deep-sky observer **Doug Maxwell**, using David’s patented quick-scan technique, discovered Doug’s Dozen in *Virgo* and echoed David’s findings: “I don’t want to give away too much information before I officially get credit for Doug’s Dozen, but when I stopped scanning, one of the galaxies looked just like **Spica**.”

It doesn’t really matter, Doug: another FRAC quick-scan specialist, **Matt McEwen**, now holds the club (and possibly world) record with McEwen’s Million, which he describes as “a massive galaxy chain that stretches all the way from *Sagittarius* to *Cassiopeia*. When you really crank up the scanning speed, it’s like a Milky Way full of galaxies.”

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Errata. FRAC attendees at the May 26th VA Nursing Home observing in Atlanta included **Curt Cole, Betty & Steve Bentley** and Curt’s cousin, **Jim Potts Jr.**

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Chew on This

The Mars robotic rovers, Spirit and Opportunity, are equipped with RATs, or Rock Abrasion Tools. Their purpose is to abrade the surface patina off the Mars rocks so that the alpha x-ray spectrometer can analyze the minerals inside the rocks, rather than just on the surface.

But future robotic missions to Mars will be asked to go even further below the surface. Scrapers and corers will gather rock samples of substantial size, that, in order to be analyzed by a spectrometer, will need to be crushed into a fine powder.

Crushing rocks on Mars? Now there's a problem that brings to mind a multitude of possible approaches: Whack them with a large hammer? Squeeze them until they explode? How about just chewing them up? It was with this latter metaphor that the planetary instrument engineers struck pay dirt—so to speak.

Thanks to NASA's Planetary Instrument Definition and Development Program, a small group of NASA engineers came up with the Mars Rock Crusher. Only six inches tall, it can chew the hardest rocks into a powder.

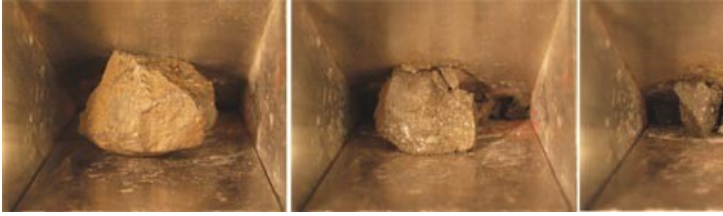
The Mars Rock Crusher has two metal plates that work sort of like our jaws. One plate stays still, while the other plate moves. Rocks are

dropped into the jaw between the two plates. As one plate moves in and out (like a lower jaw), rocks are crushed between the two plates. The jaw opening is larger toward the top and smaller towards the bottom. So when larger rocks are crushed near the top, the pieces fall down into the narrower part of the jaw, where they are crushed again. This process repeats until the rock particles are small enough to fall through a slit where the two plates are closest.

Engineers have tested the Mars Rock Crusher with Earth rocks similar to those expected to be found on Mars. One kind of rock is hematite. The rusted iron in hematite and other rocks help give Mars its nickname "The Red Planet." Another kind of rock is magnetite, so-called because it is magnetic. Rocks made by volcanoes are called basalts. Some of the volcanoes on Mars may have produced basalts with a lot of a mineral called olivine. We call those olivine basalts, and the Rock Crusher chews them up nicely too.

Visit www.jpl.nasa.gov/technology to read the latest about other NASA technologies for exploring other planets and improving life on this one.

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



Caption:

Looking down on the jaws of the Mars Rock Crusher, we see a magnetite rock get crushed into smaller and smaller particles.