

# THE FLINT RIVER OBSERVER

Newsletter of the Flint River  
Astronomy Club

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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., June 8-9:** Cox Field observings (at dark); **Thurs., June 14:** FRAC meeting (7:30 p.m., Stuckey Bldg., UGa Griffin Campus); **Fri.-Sat., June 15-16:** Cox Field observings (at dark).

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**Vice President's Message.** Our May 18<sup>th</sup> Relay For Life observing fizzled, and eight days later **Curt & Irene Cole** conducted their VA nursing home observing without my assistance, in both cases due to unforeseen circumstances.

In the former instance, **Larry Higgins** and I were amazed at the *huge* crowd of 1,000+ participants present at the Griffin all-night walkathon. We were anticipating a great evening until Larry, unduly fatigued from a full day in the hot sun, needed to

go home and rest but refused to do so until I insisted that both of us pack it in for the night.

As for the VA observing in Atlanta – well, after promising faithfully to be there for that very worthwhile event, I not only failed to appear, but I compounded my error by neglecting to tell Curt that I wasn't coming.

On the morning of the observing, I got a wake-up call from my older brother **George**, 73, who lives in Calif. and I hadn't seen him in a dozen years or more. George was in Savannah to attend the funeral of his oldest and closest friend. Operating from that moment on automatic pilot, I talked with George awhile, hung up, tossed a few clothes in a bag and hurried to Savannah. Not until Sunday evening when I was coming back did I give a thought to the VA observing or my obligation to attend it and help out.

I apologized to Curt, but that's not enough. Thus, my apologies to everyone in FRAC for letting the club down. My fear that I might never see my brother again this side of the pearly gates or perdition notwithstanding, Curt, FRAC and those brave men and women who sacrificed so much for all of us deserved better.

-Bill Warren, Vice President

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**Last Month's Meeting/Activities.** A healthy turnout of 17 members and guests attended our May meeting: members **Joel Simmons, Matt McEwen, Dan Newcombe, Tom & Brit Danei, Steve & Aimee Mann, Jim Chiu, Curt & Irene Cole**, new member **Mike Polk, yr. editor & Louise Warren**, our blushing bride of 36 years; and guests **Russ Rader, Samantha Smith, Al Bolton** and **Charles Turner.**

The program consisted of an Astronomy Quiz Bowl contest pitting the Yellow squad (captained by **Curt** with teammates **Russ, Mike, Tom, Steve** and **Jim**) vs. the Red team of **Matt** (captain) with teammates **Joel, Al, Dan** and **Charles.**

After an epic battle that saw the Red team come away with a hard-earned 300-259 win, members of the victorious Red team received lovely individual trophies. Doubtless, those awards will occupy places of prominence in their households, temporarily resting beside remnants of yesterday's meals, junk mail and other, equally valuable collectibles, eventually to be enshrined in their respective counties' Mt. Trashmores.

Said proud winning team participant **Dan Newcombe**, eying his newly earned prize, "It's amazing what 79 cents will still buy nowadays, isn't it?" (Actually, he didn't say that, but it's the sort of thing Dan would have said if he'd thought of it.)

Dan's wife and children will doubtless be thrilled to learn that he was generally well behaved throughout... Well, there *was* his post-contest comment that participating in our FRAC quiz bowl was the most fun he'd had since his last hemorrhoid surgery, but we know he was only kidding. (Actually, he didn't say that, either, but **yr. editor** knows from experience not to miss an opportunity to toss in a verbal hand grenade at Dan whenever possible. Sort of like pre-emptive air strikes in wartime.)

FRAC thanks Beaverbrook media specialist **Louise Warren** for loaning us the quiz bowl equipment, setting it up and serving as timer and chief trouble-shooter for the match; and **Irene Cole** for serving as the official scorer.

The following night at Cox Field was so cloudy that only a blithering idiot would have gone out there. That explains the presence of **yr. editor** and **Curt Cole**, but doesn't explain visitors **Russ Rader, Samantha Smith** and **Charles Turner**. We took a quick look at **Saturn** through Curt's new binocs, and we also had a lot of fun talking for 2 hrs. about things like astronomy, the universe, and why **Ken Walburn's** teeth are so ugly. Hey, Ken, that's what happens when you buy your dentures at Ace Hardware. (Actually, we didn't talk about Ken at all – which, all things considered, was probably for the best – but he used to surprise Cox Field attendees by showing up at observings wearing novelty dentures straight out of *Deliverance*.)

Sat. evening was clouded out – no rain, of course – but the next Fri. yr. editor visited Cox Field and joined **Dan Newcombe** and **Steve & Betty Bentley** in tracking down the asteroid **4 Vesta** (which, like Dan and yr. editor, wasn't nearly as bright as it was expected to be).

On Sat. evening, six of us showed up at Cox Field for an unseasonably chilly mid-May observing: **Larry H., Dan, Felix Luciano, Tom Danei, Matt McEwen** and **yr. editor**. Larry found **7 Iris**, 4<sup>th</sup> brightest of the asteroids, and Matt tried out his new bino viewer eyepiece with adjustable settings, while at the same time trying to keep Dan and yrs. truly from – well, not exactly *stealing* it, but sort of “borrowing” it on a long-term loan basis. Apparently, Matt was absent on the days when his kindergarten teacher talked about the importance of *sharing*. (And the other two apparently were absent when their parole officers talked about *repeat offenders*.)

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**People You Should Know: Prof. Theophilus Stargazer.**  
(*Editor's Note: In a departure from our normal format, we decided to interview the eminent but reclusive Prof. Stargazer, the world's foremost authority on astronomy, cosmology and the universe, regarding his contributions to astronomy.*)

**FRAC:** What are some of your more notable accomplishments in astronomy, Professor?

**Prof. Stargazer:** Well, among other things I invented the Newtonian reflector, after which I –

**FRAC:** Excuse us, Professor, but wasn't it **Sir Isaac Newton** who did that?

**Prof. Stargazer:** Did what?

**FRAC:** Invented the Newtonian reflector.

**Prof. Stargazer:** Oh, that was me. Glad you asked. Anyway, I –

**FRAC:** But what about the “Newtonian” part?

**Prof. Stargazer:** That was my secretary's fault. She's a sweet old lady, but she's terrible with names, especially after her mid-morning hot toddy with a dash of Jack Daniels added for medicinal purposes. She thinks Newton's first name was “Fig”.

**FRAC:** Professor, do you seriously expect our readers to believe that it was you who invented the Newtonian reflecting telescope in 1668? How gullible do you think we are?

**Prof. Stargazer:** Do you really want me to answer that? And did I mention that my middle name is “Newtonian”?

**FRAC,** exasperated: Well, let's go on. It says in your resume that you also discovered the Galilean moons.

**Prof. Stargazer:** True, but again I never received proper credit for my work. Looking back, maybe I shouldn't have named them Eeny, Teeny, Meanie and Elton John. *Eeny*, because it was the eeniest. *Teeny*, because it was the teeniest. *Meanie*, because it was the meaniest. And *Elton John*, because it was the pianist.

**FRAC:** We're trying to have a serious discussion here, Professor.

**Prof. Stargazer:** Hey, *you're* the one asking the questions, not me!

**FRAC:** But it was **Galileo** who discovered the moons of Jupiter in 1610 – you know, *Galileo*, the astronomer who was under house arrest—

**Prof. Stargazer,** showing his wrist: Why do you think I'm wearing this bracelet?

Incidentally, the clerk at Camera Bug was lying: the four-piece suit I was wearing in the store came with a coat, trousers, vest and Nagler 2-1/2mm eyepiece.

Did I mention that my other middle name is “Galileo's”?

**FRAC:** Okay, Professor, I think our readers get the picture. One last question: What do you think your lasting legacy to astronomy will be?

**Prof. Stargazer:** Oh, that's easy. There was a best-selling book written about my legacy to astronomy.

**FRAC:** And that book might be...

**Prof. Stargazer:** *Galileo's Daughter*.

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**Upcoming Meetings/Activities.** We'll have two weekends of Cox Field observings in June, on **Fri.-Sat., June 8<sup>th</sup>-9<sup>th</sup>** and again on **Fri.-Sat., June 15<sup>th</sup>-16<sup>th</sup>**.

Between those dates we'll have our club meeting at **7:30 p.m.** on **Thurs., June 14<sup>th</sup>**, at Stuckey Hall in the UGa Griffin Campus complex. The program will feature (a) an abridged version of the slide presentation prepared by **Steve Bentley** and used by FRAC at the recent UGa Griffin Campus program for kids, and (b) a sneak preview of **Tom Danei's** video about FRAC, who we are and what we do. (Well, not *everything* we do, or else you'll hear some bad jokes and find out why, at star parties, nobody wants to sleep downwind of **Larry Higgins's** tent or within 600 yds. of **Dan Newcombe's** sawmill.) If you're actively involved in FRAC and its many activities, it may give you a chance to see and hear yourself or your buddies trying to sound intelligent on camera. ("*Hi, Mom!*" "*We're Number One!*" "*Excuse me, Bill, but didn't I see you put my bino viewer in your pocket?*")

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**This 'n That.** Tell the truth, now: If you watch the **Jeff Foxworthy** TV show "Are You Smarter Than a Fifth Grader?," do the questions on astronomy stump you? ("Is Andromeda Galaxy (a) a nebula?, (b) a black hole?, (c) a galaxy?, or (d) one of the three finalists on this year's 'American Idol?")

If, like **Ken Walburn**, you thought the correct answer was (d), you probably need to attend FRAC activities more often. (Now Ken is probably mad at us: "*Shucks, Bill, you always make me look silly. Everybody knows the correct answer is (b).*")

\***Felix Luciano**, back at the eyepiece in his backyard in May, offered a couple of typically superlative observing reports via [FRAC@yahoo.com](mailto:FRAC@yahoo.com).

Felix's observing session of May 21<sup>st</sup> was especially noteworthy, not just because he spotted a weather balloon with an attached "very long, shiny string holding a round weight at the end of the string," but also because, as he tracked it across the sky it exploded "right at the center of the (8mm Radian) field of view! There was shiny material that looked like confetti scattered all over the fov; it seemed to be standing still, not falling, and just blinking as it expanded away into the skies.

"Three bright, round objects (he went on) -- two at one end of the string and a smaller one at the other end -- began falling, picking up speed as they fell. I had to move the 'scope more often and faster to keep up with them as they fell. I continued to observe the string and the shiny objects until they disappeared from view."

Wow.

What an unexpected delight -- and what a marvelously detailed report Felix gave us of what he saw! That's why Felix ranks right up there with such top-of-the-line visual observers as **Dr. Richard Schmude** and **Rich Jakiel**.

Yes, Felix uses top-notch observing instruments and equipment (e.g., a TeleVue 85 'scope, Nagler and Radian eyepieces and a 2.5x Powermate) -- but equally important, he has

the ability to see everything that those superior instruments reveal. Felix's attention to detail in describing what he has seen marks him as someone who is truly special in his field.

If you think we're exaggerating regarding Felix's observing skills -- although why anyone would think so is beyond us -- here's an experiment you can try:

Sometime at Cox Field when Felix is observing, say, **Jupiter** or **Saturn**, ask him if you can look at it through his 'scope. Take your time at the eyepiece and see what you can see. Then, when you're finished, ask Felix to describe to you what *he* sees. If you're like us, when he's done you'll find yourself wondering if the two of you were looking at the same object.

As an opposing coach once said about **Bear Bryant**, "He can take his'n (players) and beat your'n, or take your'n and beat his'n."

It's true of Felix, too -- at least, in **yr. editor's** experience, anyway. Like Dr. Schmude and Rich, Felix really *is* that good!

*(Editor's Note: All of the following statements in quotation marks were taken from the article, "GSU scores astronomical coup," by Mike Toner in the June 1, 2007 issue of the Atlanta Journal-Constitution.)*

What sort of telescope will \$16 million buy you? A telescope -- four of them, actually, "positioned hundreds of yards apart to achieve the resolving power of a single lens that would be the size of a football stadium." (p. C6)

Such a telescopic system -- the one that comprises Ga. State University's Center for High Angular Resolution Astronomy (CHARA) array atop Mt. Wilson in Calif., produces views of the universe that are "100 times sharper than pictures from the Hubble Space Telescope -- the optical equivalent of reading a newspaper from 100 miles away." (p. C6)

CHARA is presently in the news because U. of Michigan astronomer **John Monnier** and his team were able to produce "the first image ever to reveal a sun-like star as more than a pinpoint of light." (p. A1) That image of **Altair (Alpha Aquilae)** -- seen as a **Neptune**-colored but broadly oval blue sphere -- is destined to become an instant classic in the same way that the famous 1995 Hubble Space Telescope astrophoto popularized the "Pillars of Creation" in **Eagle Nebula (M16)** in *Serpens*.

And why is blue-white Altair so far out-of-round? "Although Altair is a hydrogen-burning star like our own Sun, it is larger and spins more than twice as fast -- so fast that it is flattened at the poles and has a girth that is 14 percent wider than it is tall. Rapid rotation also makes its poles hotter than its equator.

"It's really whipping around, and that's why it's spread out like a twirling ball of pizza dough," Monnier says." (p. C-6)

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**The Sky in June.** It's not often that such stellar (pun intended) celestial attractions as **Saturn** and **Venus** get upstaged -- but when's the last time you saw a naked-eye asteroid? Well, here's your chance, because the asteroid **4 Vesta** will reach mag. 5.4 in late May and early June. Located in *Scorpius* in June, Vesta will

be the brightest “star” in its area, a *very* easy target in binocs and visible naked-eye under dark skies as a faint star. An excellent finder chart appears on p. 57 of the June issue of *Sky & Tel*.

4 Vesta (the “4” refers to its being the 4<sup>th</sup> asteroid to be discovered) was discovered by the German astronomer **Heinrich Olbers**, who was part of a group of German astronomers who referred to themselves as the “Celestial Police” because they were searching for new asteroids. Olbers discovered Vesta on the evening of March 29<sup>th</sup>, 1807. It was his second asteroid discovery, **2 Pallas** being his earlier discovery, in 1802.

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### **The Ions of Dawn**

by Patrick L. Barry

This summer, NASA will launch a probe bound for two unexplored worlds in our solar system's asteroid belt—giant asteroids Ceres and Vesta. The probe, called Dawn, will orbit first one body and then the other in a never-before-attempted maneuver.

It has never been attempted, in part, because this mission would be virtually impossible with conventional propulsion. “Even if we were just going to go to Vesta, we would need one of the largest rockets that the U.S. has to carry all that propellant,” says Marc Rayman, Project System Engineer for Dawn at JPL. Traveling to both worlds in one mission would require an even bigger rocket.

This is a trip that calls for the *unconventional*. “We’re using ion propulsion,” says Rayman.

The ion engines for the Dawn spacecraft proved themselves aboard an earlier, experimental mission known as Deep Space 1 (DS1). Because ion propulsion is a relatively new technology that’s very different from conventional rockets, it was a perfect candidate for DS1, a part of NASA's New Millennium Program, which flight-tests new technologies so that missions such as

Dawn can use those technologies reliably.

“The fact that those same engines are now making the Dawn mission possible shows that New Millennium accomplished what it set out to,” Rayman says.

Ion engines work on a principle different from conventional rockets. A normal rocket engine burns a chemical fuel to produce thrust. An ion engine doesn't burn anything; a strong electric field in the engine propels charged atoms such as xenon to very high speed. The thrust produced is tiny—roughly equivalent to the weight of a piece of paper—but over time, it can generate as much speed as a conventional rocket while using only about 1/10 as much propellant.

And Dawn will need lots of propulsion. It must first climb into Vesta's orbit, which is tilted about 7 degrees from the plane of the solar system. After studying Vesta, it will have to escape its gravity and maneuver to insert itself in an orbit around Ceres—the first spacecraft to orbit two distant bodies. Dawn's up-close views of these worlds will help scientists understand the early solar system.

“They're remnants from the time the planets were being formed,” Rayman says. “They have preserved a record of the conditions at the dawn of the solar system.”

Find out about other New Millennium Program validated technologies and how they are being used in science missions at <http://nmp/TECHNOLOGY/infusion.html> . While you're there, you can also download “Professor Starr's Dream Trip,” a storybook for grown-ups about how ion propulsion enabled a scientist's dream of visiting the asteroids come true. A simpler children's version is available at <http://spaceplace.nasa.gov/en/kids/nmp/starr>.

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



Caption:

*Artist's rendering of Dawn spacecraft, with asteroids. Largest are Vesta and Ceres. Credits: Dawn spacecraft—Orbital Sciences Corporation; background art—William K. Hartmann, courtesy UCLA.*