THE

FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

Vol. 17, No. 6 August, 2013

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

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

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Club Calendar. Fri.-Sat., Aug. 2-3: JKWMA observings (at dark); **Fri., Aug. 9:** JKWMA observing (at dark); **Sat., Aug. 10:** Pool party/picnic dinner (**Bill Warren's** house, 5 p.m. for swimming and pool play, 6:30 for eating); **Fri., Aug. 16:** UGa-Griffin lunar observing (7-10:00 p.m.)

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President's Message. The first part of the upcoming school year should be busy for us. Starting in 2013, Georgia schools will be studying the solar system early in the school year rather than in the spring. Standardizing what is taught, and when, will ensure that transfer students won't study the same material twice.

That's good news for us, too, because with sunset coming earlier and earlier until December 21st, we can schedule observings around 6:30-7:00 p.m. and show other objects besides the planets.

There's nothing wrong with showing the planets, of course. Regardless of which ones are up at any given time, students are always eager to see them. But there are so many other fascinating and beautiful things in the night sky that children whose bedtimes are 8:30 don't get to see in the springtime when darkness doesn't arrive until after 10 p.m.

I hope you'll want to participate in our school and other public outreach activities, not just for the kids' sake but yours as well. As someone once said, "To teach is to learn twice." Showing and telling people about the sky is a learning experience for us as well as the people we're talking with.

If you've never done it before – or if you aren't confident in your ability to find things or talk about them – we'll give you all the help you need. We'll tell you what to show, how to find it, and what our visitors need to know about it. (They don't need to know much. Observings are fun events, not college seminars in astronomy.)

Like I've always said, "If I can do it, anybody can." I hope you'll want to, too. Observings are more fun than a barrel of **Larry Higginses.** *(Sorry about that, Larry; I wrote that last sentence, not Dwight. The editor always gets the last word. –Ed.)*

-Dwight Harness

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Last Month's Meeting/Activities. Our July club observings were rained out. (So what else is new? "Into each life some rain must fall," they say – but this is ridiculous! **Steve Bentley** says he's been trying to find someplace to land his ark.)

Dwight & Laura Harness gave a solar system presentation for a group of 60 scouts, leaders and parents at the Butts Co. fairgrounds on July 9th. That event qualified Laura to receive a Stellar Outreach certificate.

We had 11 members – including our two newest, **David Tew** of Jonesboro and **Mike Basmajian** of Peachtree City – at our July club meeting. Other members present were: **Dwight Harness; Joseph Auriemma; Tom Moore; Stephen T. Bentley; Erik Erikson; Roger Brackett; Steven "Smitty" Smith; Aaron Calhoun;** and **yrs. truly.** With Dwight (instead of yr. addlepated editor) setting up the "Man On the Moon" dvd, there were no snags and we enjoyed a stroll down memory lane with **Walter Cronkite** and CBS News to follow the birth and growth of the U. S. space program, culminating with the Apollo 11 **Moon** landing and **Neil Armstrong's & Buzz Aldrin's** historic Moon walks. It was interesting to see them practicing the little hop back onto the first step of the ladder to make sure they could get back in the lunar module before they explored the area around Tranquillity Base. No one knew anything about the Moon's surface until Armstrong and Aldrin walked on it…

Our July UGa-Griffin lunar observing, attended by **Dwight Harness, Aaron Calhoun & yrs. truly,** was raided by the cops – at least, we thought it was.

About 8 p.m., a total of 11 Griffin police cars with blue lights flashing showed up on Experiment St. in front of the lawn where we were set up. Dwight jokingly suggested that we'd better hide our stash in a hurry, but they were setting up a roadblock to check seatbelts, driver's licenses and insurance. Three or four of the policemen, seeing our FRAC sign, came over and we showed them the **Moon, Saturn** and the **Double Double.** One of them, **Sgt. John Hayes,** was *very* interested in astronomy and FRAC, and we hope he'll want to attend a meeting or observing in the future.

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This 'n That. We're sorry to have been so late in sending out the July newsletter. ("That kind of mistake has never happened before, and it won't happen again," **Bill** says, accidentally hitting the wrong key and deleting the entire August issue from his computer.)

*****Space limitations prevented us from mentioning this in last month's *Observer,* but admirers of the late **Carl Sagan** and his groundbreaking 1980 dvd, *Cosmos: A Personal Journey,* will be pleased to know that the July '13 issue of *Astronomy* contains a splendid profile of the astronomer and his work: "Remembering Carl Sagan and *Cosmos*," by **Raymond Shubinski** (pp. 52-55).

Here are a few tidbits from the article that suggest how immensely popular Sagan, the dvd and its companion book, *Cosmos* (Random House, 1980), were:

-The dvd has been seen by more than half a billion people, and has been broadcast in more than 60 countries. Yet the total cost of the 13-part series was $6.3 million – less

than the cost of one episode of today's weekly tv shows.

-The book *Cosmos* features 13 chapters that correspond with the 13 dvd segments. The book sold 5 million copies worldwide, stayed on the *N. Y. Times* Best Seller list for 70 weeks, and – most incredible of all – *it still ranks in the Top Ten in sales of science books at amazon.com,* ***33 years after it first appeared!***

-In the same way that **Sir Patrick Caldwell-Moore** and **Jack Horkheimer** promoted and popularized astronomy in the 20th Century, Carl Sagan popularized science as well as astronomy. People loved Sagan's other books (e.g., *Contact; Broca's Brain; Pale Blue Dot),* and his frequent guest appearances on **Johnny Carson's** *The Tonight Show:* "With his (ever-present) turtleneck and sports coat, Sagan looked at ease with anyone who might want to talk about science. He became America's professor." (p. 54)

Sagan passed away in 1996 at age 62, Horkheimer in 2010 at age 73 and Caldwell-Moore in 2012 at age 89. But the ideas that they promoted – their vision of the cosmos and man's place in it – will not be forgotten.

(Trivia Note: It was Johnny Carson, not Sagan, who used the phrase "billions and billions" in referring to the stars during one of Sagan's appearances on *The Tonight Show*. However, the phrase became so associated with Sagan that he titled his last book *Billions and Billions: Thoughts on Life and Death at the Brink of the Millennium.* [Ballantine, 1997]).

*Here's a simple question with a simple yet complex answer: *Why aren't all stars the same color?*

Put simply, stars' colors vary according to their surface temperatures. The hottest stars in the sky are young, blue stars; the coolest stars, red. Other star colors lie between those two extremes.

In 1888, a woman working at Harvard named **Antonia C. Maury** devised an ingenious star classification system that, with refinements, is still in use today. She grouped the stars into seven general classes according to the colors of their stellar spectra as seen through a prism or a spectroscope. Those classes are **O, B, A, F, G, K** and **M.** (To remember them, think: "Oh, Be A Fine Girl, Kiss Me.") Those letters represent, in descending order of surface temperatures, the following:

O = Blue stars (over 25,000^{o}K)
B = Blue stars (25,000^{o}-11,000^{o}K)
A = Blue-white to white (11,000^{o}-7,600^{o}K)
F = Yellowish-white (7,600^{o}-6,000^{o}K)
G = Yellow (6,000^{o}-4,500^{o}K)
K = Orange (5,100^{o}-3,200^{o}K)
M = Orange-red (less than 3,500^{o}K)

Regarding spectral classes O and B: both are blue, but O stars contain ionized helium and B stars do not. Also, there are ten subdivisions within each spectral class, and some overlap exists between classes due to varying amounts of certain elements or metals. Other classes (e.g., C for carbon stars) have been added at the ends of the stellar spectrum.

You don't need to know all this, of course. But you should know that blue-white stars such as **Rigel (Beta Orionis)** burn hotter than our yellow **Sun.** And the Sun is hotter than, say, the red giant stars **Betelgeuse (Alpha Orionis)** and **Antares (Alpha Scorpii).**

Armed with this knowledge, you should have no trouble answering the following question about **Albireo (Beta Cygni),** the loveliest double star in the sky: Of its two components – one is rich yellow, the other blue -- *which star is the younger and hotter of the two?*

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Upcoming Meetings/Activities. It's been awhile since we've had clear skies for a club

observing, so we've scheduled *three* JKWMA observing dates for August: **Fri.-Sat., Aug. 2nd-3rd,** and again on **Fri., Aug. 9th.**

In case you've forgotten: To get to Joe Kurz Wildlife Management Area from, anywhere north of Griffin, come S on U. S. 19/41 and stay on the 4-lane past the Hardee's/ McDonald's stoplight at Ga. 92. Continue past the Griffin exit, and past the Newnan-Griffin exit at Ga. 16. Get off the 4-lane at the Ga. 362/Williamson Rd. exit, bear right (west) and set your odometer at 0.0.

Go 15.8 mi. on Ga. 362W, and turn left at Mt. Carmel Road. (There's a sign announcing the intersection just before you get to it.)

Go 4.8 mi. on Mt. Carmel Rd., and you'll see a large "Joe Kurz Wildlife Management Area" sign on your right, just beyond a gray mailbox.

Continue past the mailbox and sign for 0.2 mi. on Mt. Carmel Rd., and turn right at the first – unpaved – road. (We'll have a couple of orange day-glo traffic cones to mark the road where you turn.) Turn right, go through the gate and follow that road. After you've gone about 0.7 mi. you can't miss where we're set up by the roadside.

The G.P.S. coordinates for JKWMA are: latitude 33.115079, longitude -84.542132.

Instead of a formal club meeting this month, we'll have our annual pool party/meal meeting at **Bill Warren's** house on **Sat., Aug. 10th.** Bring along a swimsuit, an item of food and the entire family, and be prepared for good food and a good time! Pool play will begin at 5 p.m., and we'll eat at 6:30. Come early and stay as late as you want. A good time is guaranteed, whether you take a dip in the pool or just sit around talking with your FRACky (not to be confused with *tacky*, of course) friends.

As for what food to bring – FRAC will provide soft drinks, hamburgers, hot dogs, eating utensils, etc., but fried chicken is always welcome. Or potato salad, beans, chips, nachos, dip, or some kind of dessert. Just bring whatever you'd bring for a church picnic.

Bill's address is 1212 Everee Inn Road, Griffin, GA 30224. His GPS coordinates are: 33^{o} 13' 15.37" N, 84^{o} 16' 54.77 W. Or if you prefer decimals: 33.220933, -84.281907. (Thanks to **Tom Moore** for supplying the data.)

To get to Bill's house from, say, Hampton, come S on US 19/41 and stay on the 4-lane past Ga. 92, the RR overpass and Griffin exit, Ga. 16 (the Newnan-Griffin exit) and Ga. 362 (Williamson Rd.), and turn left at the stoplight at Airport Road. Go 0.3 mi., and turn right at the 4-way stop at Everee Inn Rd. Go one block, and turn left at Roberts St. Bill's large paved driveway is the first one on the left. You can park there or drive past it, turn around and park beside his yard.

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(When) any of these frequent fires of unusual shape (comets) has made its appearance, everybody is eager to know what it is. Blind to all the other celestial bodies, each asks about the newcomer; one is not quite sure whether to admire it or fear it. Persons there are who seek to inspire terror by forecasting its grave import. And so people keep asking and wishing to know whether it is a portent or a star.

-Seneca the Younger (4 b.c.- 65 a.d,)

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Why I Observe

by Bill Warren

I first became interested in astronomy when, as a child, I learned what those tiny points of light in the night sky were: *stars*,

lying farther away than I could possibly imagine. My interest grew when I learned that a few of those points of light weren't stars, but planets that orbit the **Sun.**

I had no trouble seeing the **Moon,** either, but I wanted to see everything – the Moon, **Jupiter, Venus, Mars, Saturn's** rings, etc.. – up close. As a child growing up in the late 1940s and early '50s, I could find photos of them in library books, but there was no Internet back then and buying a telescope was a luxury that my family couldn't afford. So I contented myself with gazing longingly for hours at the 4-1/2" reflector that sold for $79.95 in the Edmund Scientific catalogs we received in the mail. I had no idea what a reflecting telescope was or how it worked; all I knew was that it would bring the universe close enough for me to see for myself what things like the planets, comets and galaxies looked like.

Later, as a teenager, the difference between seeing a photo of Saturn and imagining seeing it in a telescope was the difference between having a date with a beautiful girl and imagining what a date with her would be like. But I still couldn't afford a telescope. The Edmund 4-1/2" reflector was a pipedream on the back burners of my mind. I never forgot about it, though.

Fast forward 35-40 years to 1994.

My wife **Louise** knew that I was interested in astronomy, so she bought me a 2-1/2" Meade refractor for Christmas. All it took was one look at **Orion Nebula** to tell me two things: *THIS is what I should have been doing all these years!,* and *I need a bigger telescope!* So I went back to the store the next day and swapped it for a 3-1/2" refractor.

I used that telescope for two years, damaged it, and bought a 10" Orion Dobsonian reflector. I used that 'scope for about six years, then stepped up to the 12-1/2" Discovery Dob that I'm using now. I've had great observing experiences with all three telescopes – but in all honesty, I'd have been satisfied with the 3-1/2" refractor if I hadn't damaged it.

For me, *observing* is the name of the game. Whether using binoculars or a 20" telescope, the goals are the same: to have fun, learn about and enjoy our magnificent universe.

Every observer is part of a small but elite group of humans who have been privileged to see for themselves, as the result of their own efforts, what humans for thousands of years before us could not see. That's why I've always believed that *You own whatever you find in the night sky.* No matter how many times you or others have seen it, it's *yours* whenever you capture it in your eyepiece field of view.

Finding objects in the night sky and observing them is an intensely personal experience. In the same way that **Alan Pryor, Stephen Ramsden** and **Felix Luciano** own the astrophotos they take, you "own" what you see in the eyepiece if you've found it yourself. The visual image becomes a part of you, nestled away in a small corner of your mind.

There's nothing wrong with being an "armchair astronomer"; in fact, **Larry Higgins, Smitty** and I are "armchair" in the sense that I read every issue of the *Reflector, Astronomy* and *Sky & Tel* virtually from cover to cover, and Larry and Smitty have extensive libraries of astronomy-related books and resources. We can and do admire the breath-taking photos that adorn the magazines and light up the Internet -- but that's not enough for us. We want to see for ourselves what's up there to be seen.

That doesn't make us or any other observers superior to anyone else in astronomy; it just means that we aren't satisfied with what others have seen or done.

In the months after **Comet ISON** makes its regal appearance in November, the

magazines and the Internet will contain countless lovely photos of it. But what will linger in our memories will be, not the photos or articles about the comet, but our personal recollections of having seen for ourselves what the fuss was all about.

(Editor's Note: After I wrote this, I sent it in slightly altered form to the A. L.'s quarterly newsletter, the Reflector. *It will appear in the Sept. '13 issue as a "Letter to the Editor.")*

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Above: Okay, Class, here's today's problem: *Which of the stars in **Felix Luciano's** photo is **Pluto?*** (Hint: It's not one of the bright ones.)

No, we're kidding. Actually, this is **NGC 7039,** an open cluster in *Cygnus.* 7039 is the small, loosely concentrated group of stars located between the two brightest stars in the photo; it also includes stars above the SW star, giving the cluster a vaguely oval or rectangular shape measuring roughly 10' x 5'. (North is at the top of Felix's photo.)

Lying deep within the cloudy confines of the **Milky Way,** NGC 7039 is poorly separated from its surrounding star field. Depending on observing conditions and the size of your telescope, you'll see between 20-40 mag. 11 and 12 stars in the cluster on a clear night. That doesn't give you much to look at, and probably explains why NGC 7039 does not appear on any of the A.L. observing lists.

Still…those facts enhance rather than detract from the appeal of Felix's photo: it gives you a sense of the immensity of the Milky Way. All of the stars you see here are contained within an area of sky that is only slightly larger than the tip of your pinky held against the sky.

King David, the Psalmist, perhaps put it best: "When I consider Thy heavens, the work of Thy fingers, the moon and the stars, which Thou hast ordained, What is man, that Thou art mindful of him? (*Psalms* 8:3-4)."

Thanks, Felix, for sharing your artistry with us.

Above: Pluto, as photographed by **Alan Pryor**.

Okay, enough of that nonsense. This is, of course, a magnificent view of **Saturn** as imaged by Alan with his new Celestron EdgeHD 11-in. 'scope on June 15th. Beyond the striking range of colors in the rings, note the atmospheric bands visible on the planet itself.

Says Alan, "When I shot this photo of Saturn, I was using a 2x PowerMate to get the focal length to 5600mm. I have not figured out how to get to a longer focal length yet. This was my first attempt." Looks pretty darn good to us, Alan.

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