THE

FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

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Club Calendar. Thurs., Aug. 13: "Perseids and Pluto Pizza Party" club meeting (7-10 p.m., The Garden in Griffin); **Fri.-Sat., Aug. 14-15:** club observings at Joe Kurz Wildlife Management Area (Site #3, at dark).

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President's Message. Bill Warren's article last month about FRAC's achievements came out a month too soon. Since then, we have not one, but two exciting announcements that would have fit perfectly into that article. I'll tell you about one; Bill will tell you about the other one on p. 3.

I recently received a message from **John Goss**, the A. L. president, informing me that *FRAC has won one of the ten Library Telescopes that we applied for in May!*

Here is the A. L.'s official announcement:

"Because of the generosity and vision of the Horkheimer Charitable Fund, the A. L. presented ten Library Telescopes at ALCON 2015 in Las Cruces. The names of the clubs, one from each region of the A. L.. were drawn from the 33 total entries. These clubs will each receive an Orion 4.5-in. StarBlast Dobsonian Telescope, a Celestron 8mm to 24mm zoom eyepiece and a commemorative plate, all to be modified by the respective clubs as a Library Telescope.

"The Astronomical League wishes to thank Orion Telescopes and Celestron for making this program possible.

"The 2015 Horkheimer Library Telescopes winners are: Northwest Region: Olympic Astronomical Society; Western Region: Temecula Valley Astronomers; MARS: Longmont Astronomical Society; Southwestern Region: Houston Astronomical Society; North Central Region: Northern Cross Science Foundation; Mid States Region: Broken Arrow Sidewalk Astronomers; Great Lakes Region: Oakland Astronomy Club; Northeast Region: Amateur Observers Society of New York; Mid East Region: Back Bay Amateur Astronomers; and Southeast Region: Flint River Astronomy Club."

I'll have more to report as we receive the Library Telescope, prepare it for presentation and donate it to an area library to be checked out by library patrons the way they check out library books.

-Dwight Harness, president

Vice President's Message. The legendary **Nat "King" Cole's** most unforgettable song was, appropriately enough, his 1951 recording of "Unforgettable."

When the equally legendary **Elvis Presley** was just starting out as a pimply teenage rock 'n roller, one of his first recordings for Sun Records in 1955 was the eminently forgettable "I Forgot to Remember to Forget." (He should have forgotten to record it.)

What do those things have to do with astronomy or FRAC?

I forget. What was I talking about?

Oh yeah, now I remember: forgetfulness.

My latest bout with forgetfulness involves last month's newsletter, in which I wrote at length about FRAC's accomplishments and the features FRAC offers its members. But I left out two important aspects of our communication network. Can you remember what they are?

Of course you can. You aren't as forgetful as I am. (If you are, you have a real problem.)

FRACgroups and FRAC on *Facebook*. That's what I forgot to include.

FRACgroups is an online chat room that can be used by members and nonmembers alike to – well, chat – about matters of interest to our members. However, its most widespread usage over the years has been by our astrophotographers, who use it to store their photos in albums or share them with other members without having to wait for those photos to appear in the newsletter. To join, go to our FRACgroups web site – frac@yahoogroups.com -- and click on Subscribe.

Most of you probably know what Facebook is and how to use it. Basically, it's e-mail in overdrive -- instant, ongoing individual or group communication that can be conducted with your cell phone. To access us, just Like our FRAC Facebook page, and your messages will be posted on our wall.

Smitty is our new Facebook editor.

-Bill Warren, vice president

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Last Month's Meeting/Activities. Cathy Gardner invited a group of guests to our July meeting and planetary observing, so we had a total of 21 members and visitors in attendance that night. Several members brought their telescopes, and despite iffy skies we were able to show our guests **Venus** and **Jupiter**. Members present included: Cathy and **Wayne Gardner; Dwight Harness; Aaron Calhoun; Steven "Smitty" Smith; Carlos Flores; Tom Moore; Dawn Chappell; Jessie Dasher; Alan Pryor; Truman Boyle; David Haire; Ron Yates;** and **yr. editor**. Our guests were: **Jeremy, Sarah, Emily & Delilah Milligan; Lisa & Sami Hutton;** and **Cody Killingsworth**. Ron received his Basic Outreach pin, and he and Alan received Zombie awards for staying out till 3:30 a.m. at JKWMA in June. (**Felix Luciano** was with them that night; he will receive his Zombie certificate at our Aug. meeting.) Truman gave out five doorprizes. So as they say, "A good time was had by all."

Five members – **Dwight Harness, Truman Boyle, Erik Erikson, Aaron Calhoun** and **yr. editor** – and eight visitors – **Addison & Alex Moses, Rose & Ken Olsen,** and **Jeremy, Sarah, Emily & Delilah Milligan** – attended our JKWMA observing on July 17th. The sky was so clear that we could see 6th-magnitude stars, and the Great Rift in the Milky Way was a dark tunnel stretching all the way from *Sagittarius* in the south to *Cygnus* in the north. Truman showed us **Saturn** at 450x, and the Cassini Division in Saturn's rings was a black ribbon as large as any of us had ever seen it before. Six of us – Aaron, yrs. truly and the four Milligans – observed until 2:30 a.m.

The next evening, four fearless FRACsters – Dwight, Aaron, yr. editor and **Ron Yates** – tried to wait for the clouds to pass, but they never did. The final score: Clouds 1, FRAC 0. Sometimes you win, sometimes you don't – but you never win unless sometimes you're willing to take a chance.

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This 'n That. Georgia Sky View 2016 is on, and **Dwight Harness** will serve as its coordinator. No date has been set, but he'll soon begin ironing out that little detail and others with the staff at The Rock Ranch. Dwight hopes to have more and better doorprizes in 2016 than he was able to arrange on such short notice this year. With ample time to prepare this time around, he's hoping to boost the registration figures considerably for next year's GSV.

*One of everybody's favorite FRACsters, **Jessie Dasher**, has moved to Florida to pastor a church near Panama City. To say that we'll miss him is an understatement: Jessie has been a member of FRAC's board of directors for several years, and he also served as our Facebook co-coordinator with **Laura Harness** (who is also leaving us to attend Wesleyan College in Macon). Jessie's ever-present, off-the-wall humor always added considerably to our club meetings.

So now, like like a good shepherd whose hobby is gardening, Jessie will be tending his phlox in north Fla. We wish you godspeed, Jessie, and thanks for all you've done for FRAC.

*Next month on the evening of **Sun., Sept. 27th**, we'll see a *total lunar eclipse* if the sky cooperates. We'll have more to say about it in the Sept. newsletter, but for now be sure to mark it down on your calendar.

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Upcoming Meetings/Activities. On **Thurs., Aug. 13th,** we'll hold a "Perseids & Pluto Pizza Party" club meeting at The Garden in Griffin, and your whole family is cordially invited to attend. The meeting will begin at 7 p.m. —not 7:30 -- and we'll keep the business portion brief. While we're eating pizza indoors, we'll watch a program on NASA's New Horizons spacecraft's trip to **Pluto**. Some of your children or grandchildren weren't born yet when that trip began 9-1/2 years ago. They won't understand or fully appreciate its significance, but we will: it's mankind's first up-close-and-personal look at Pluto, a dwarf planet on the fringes of the solar system. It's so far away that its light, traveling at 186,000 mi. per second, takes four hours to reach us.

After the program, we'll go outside, weather permitting, and look for **Perseids** meteors. While the shower peaks earlier that day during the pre-dawn hours of Aug. 13th, there will be late arrivals from the stream of meteor dust appearing after dark for several nights thereafter. If you plan to stay awhile after the indoor portion of the meeting concludes, bring along reclining lounge chairs.

We always have a good time at our Perseids parties, and we hope that you and your family will be able to attend. If so, please let **Dwight** know before Aug. 13th how many people you're bringing, so he'll know how much pizza to buy. You can contact Dwight at 770-227-9321 or rdharness@yahoo.com.

On the following evenings, **Fri.-Sat., Aug. 14th-15th,** we'll hold our club observings at Joe Kurz WMA Site #3.

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ON THE DOORSTEP OF GREATNESS:

FRAC'S ALL-TIME

GREATEST ACHIEVEMENT

report and article by Bill Warren

After reading in the July *Observer* about FRAC's many accomplishments over the past 18+ years, you have every reason to be extremely proud of your club. Well, like the man sez, "You ain't seen nuthin' yet!" Get ready to be even prouder.

What you're about to read involves FRAC's most stunning, spectacular achievement of all – *and until mid-July we didn't even know we'd done it!*

Best of all, this achievement has been a team accomplishment involving the entire club, not just one or two individuals.

I recently sent in **Alan Pryor's** Basic Outreach observing log, requesting his certificate and pin. A day or two later I received the following e-mail from **Dr. Maynard Pittendreigh**, coordinator of the A. L.'s Outreach Program:

"I received your submission, William.

"When you mentioned that your club has 29 pins in all, I took a look at our database and found that you are doing better than you thought: your club actually has 32 individuals who have an Outreach Award on some level.

"Of those 32, they all have reached the Basic Outreach level, of course, but nine of them have gone one or two steps further: three have moved up to the Stellar level, and six have made it all the way to Master Outreach.

"Those 32 individuals have performed 1,690.75 hours of outreach in 472 different events. The number of people you have reached? An incredible 41,372 individuals participated in these events.

"You MUST get three more Basic Outreach pins; that will put you one ahead of the Houston Astronomy Club, which currently holds the top dog position with the greatest number in the entire A. L. (34).

"Of course, if you accomplish this I make no promises not to challenge the Houston club to regain their former position.

"I don't know what you are doing to encourage such participation, but keep it up."

We're #2 nationally in Basic Outreach pins!

Take a minute or two to digest that, folks.

The Houston Astronomy Club is one of the largest in the U. S., drawing its membership from *six million people* in the Houston metropolitan area. It's the fifth largest metropolitan area in the nation. FRAC has just 36 members, yet we have only two

less Basic Outreach pin holders than they do, and more than anybody else.

There are more than 300 astronomy clubs in the A. L., including cities like Chicago, Philadelphia, Dallas, San Diego, Phoenix, Nashville, Miami, Atlanta and Jacksonville, to name just a few – and *none of them have as many Basic Outreach pin holders as FRAC does!*

We need three more members to earn Basic Outreach pins in order to pass the Houston Astronomy Club and be #1 in the nation; where will we get them? The answer is obvious: we need for our members who have not yet earned a Basic pin to step up and get involved.

Three of our current members have already attended four outreach activities and need only one more to receive a pin. Two others have attended three, four have attended two, and seven have attended one. All you need to do to earn that pin is attend five of our public observings, and one of them – our UGa-Griffin lunar and planetary observing – is a monthly event.

We have a new observing coordinator, **Ron Yates,** who has some great ideas for expanding our outreach activities (e.g., by conducting unscheduled public observings at the walking track by the airport in Griffin). We need to give Ron our full support, not just because he's new to the position and we'd like to become #1 nationally, but also because public outreach is an integral part of FRAC. It's what we do, and we're very good at it. We show people what lies in the night sky at our public observings – but we also talk about astronomy and FRAC, and you don't need a telescope or binoculars to do that.

As **Larry Higgins** has pointed out many times, *Even if you're new to astronomy, you know more about it than 99% of the people who attend our public observings.* Those people consider us to be astronomy experts, and they're correct in the sense that Larry was referring to.

Here's the *truth* about FRAC (and all other astronomy clubs as well): *There are no "experts."* (My definition of an expert: an "ex" is a has-been, and a "spurt" is a drip that fizzled.) All of us – including you –know at least a few things about astronomy, and some members know a lot. But what any of us knows is a drop in the bucket compared to what we don't know about astronomy. At public observings, we focus on what we *know* rather than what we *don't* know.

So what happens if someone asks a question and you don't know the answer? (It happens all the time.) There are two ways to handle it, and I've used both methods.

First, you can simply say that you don't know. There's nothing wrong with that, since (a) it's the truth, and (b) nobody but an utter fool expects you to know everything there is to know about astronomy. But there's an additional benefit in using the "I don't know" response: the person who asked the question is proud that he/she had a question that an expert astronomer couldn't answer.

The other way to handle difficult questions is to get another member involved. You can say, as I've done many times, "See that guy over there? Go ask him, he'll probably know the answer." Or you can ask him yourself. (And if neither of you knows the answer you should say, "Congratulations! You've asked a question that two astronomers can't answer! Have you ever thought about joining an astronomy club?")

Here's how our public observings work.

After the telescopes are set up, someone – either Ron or I – will tell you what to show in your telescope, binoculars or naked-eye, depending on what you're using. (We do that so everyone won't be showing the same thing.) We'll show you where the object is located; if necessary we'll tell you how to find it. And we'll give you one or two interesting facts to tell the visitors about that object. (To cite Larry again: *If you're showing people something in the sky or talking about it, don't give them more than one or two basic facts. That's all they'll be able to understand.)*

Visitors rotate from one telescope to the next, and members who don't have a telescope either show visitors waiting in line a noteworthy star (or a binocular or naked-eye object), or else they chat with visitors about FRAC or astronomy.

Our UGa-Griffin lunar observings are slightly different. Since only the **Moon** and maybe a couple of planets can be seen in the evening twilight, we show those objects in all available telescopes. (And if, say, only the Moon can be seen, we might use different colored filters or different magnifications to give it a different look.) And we talk with visitors about FRAC, telescopes or whatever else they want to talk about.

There are two important things to remember about public observings.

First, *It ain't rocket science*. Even if you're walking around chatting with the visitors, you'll spend just a minute or two with each person you meet. And that minute or two is all they need.

Second – and most important – *you're not alone*. We won't put you in a situation that you can't handle, and we're there for you whenever you need us.

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An Enlightening Interview With Prof. Stargazer

Prof. Theophilus Stargazer *is a legendary figure in astronomy and cosmology. His latest astronomy book is* The Time-Space Continuum, Multiple Universes and **Larry Higgins**: Three Boring Subjects That You Don't Need to Know About. *So far, the professor says, his book has sold eight million copies (if you round it off to the nearest eight million, that is. But you'll get a more realistic estimate of its sales if you round it off to zero.)*

We recently asked Prof. Stargazer to shed some light on a few astronomy topics. His responses were enlightening, informative and $30 per question.

Dwight Harness, reaching for his wallet**:** *Thirty bucks a question?* It used to be just $20.

Prof. Stargazer: Alas, there's inflation to consider. Like your waistline, Dwight, the universe isn't the only thing that's expanding.

Tom Moore: What is the major source of light pollution in the U. S.?

Prof. Stargazer: Light. I'd have thought you knew that, Tom.

Incidentally, Tom, you might be interested in this: After months of intensive research that cost American taxpayers nearly $3 billion, a fact-finding committee of the U. S. Senate recently announced that light pollution appears to reach its peak levels during the daytime.

"We don't yet understand the root causes," committee chairman **Farley Smarkington** explained, "but we think it may have something to do with global warming."

When asked about light pollution at night and its consequences for astronomers the senator replied, "We're looking at the Big Picture here. Before tackling light pollution problems that arise during the night, we need to study its effects during the daytime, which have reached crisis proportions. Every day, millions of people worldwide are getting sunburned during the daylight hours. It is imperative that we find out why and introduce legislation to control the amount of daytime light pollution in the U. S.

"As for astronomers," the senator concluded, "the evidence suggests that light pollution is much less intrusive at night, but you know how astronomers like to complain."

Alan Pryor: Speaking of light, Professor: We know that it's composed of particles called *photons*. Do photons have mass?

Prof. Stargazer: Of course they do. We eat them every day.

Alan: We *eat* them? What do you mean?

Prof. Stargazer: Haven't you ever had a light meal?

Does anyone have a more challenging question for the professor? If not, he has an important meeting with a couple of friends, **Jack Daniel** and **Ice Cube**.

David Haire: What about dark matter? Does it have mass?

Prof. Stargazer: Only if it's Catholic.

Felix Luciano: Have you seen anything interesting in the sky lately, Professor?

Prof. Stargazer: It's funny that you should ask that, Felix: Just last night, while observing in *Sagittarius* I came across a *snoo*. They're very rare, and this one was extremely bright, so I –

Truman Boyle: What's snoo?

Prof Stargazer: Nothing's snoo with me, Truman, what's snoo with you?

Well, I see by the old clock on the wall that it's stopped. I have time for one more question.

Smitty: Here's one, Sir. There are many important issues, problems and concerns facing astronomy today – things like funding for NASA projects, the closing of major observatories, curbing our growing light pollution and solving the mysteries of dark matter and dark energy. Undoubtedly, some of those topics are more important than others. In your professional opinion, sir, what is the most important question? What are

professional astronomers most likely to discuss every day?

Prof. Stargazer: Whose turn it is to pay for lunch.

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Above: The Moon, Venus and **Jupiter** framed by palm trees on June 20th, 2015. Yr. editor's sister-in-law, **Phyllis Bell,** took this iPhone photo of the triple conjunction during our family vacation at Duck Key near Marathon in the Florida Keys.

Incidentally, while we were there, we looked for the green flash during a sunset cruise. (Phyllis and her husband **Joe** saw it the day before.) The Keys are a good location for a green flash to occur as the Sun is rising or setting, since there is relatively little air pollution to affect it. Not this time, though. It was not to be. At least the cruise captain didn't tell us, "You should have seen it yesterday!"

Lower Left Corner: M17 (Omega, or **Swan, Nebula),** an emission nebula in *Sagittarius.* Photo by **Felix Luciano**. An easy binocular or telescopic target, M17 is popular with astrophotographers and visual observers alike. An O-III or nebula filter brings out a stunning array of stars amid an intricate pattern of bright and faint areas of nebulosity that, depending on the observer and his observing instrument, resemble a checkmark, the number "2", the Greek letter *omega* or a swan. (The Swan's body is the white area oriented N-S at the center of Alan's photo.)

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Question: Smitty has talked a lot lately about the total solar eclipse that will occur two years from now on Aug. 21, 2017; I know that total solar eclipses are cool things to see, but why is that one important to us?

Answer: The **Moon** is only 1/6th as large as the Earth, so the shadows it casts on our planet during a solar eclipse are much smaller than the shadows cast by Earth on the Moon during a lunar eclipse. Those lunar shadows – an outer, larger *penumbra* and a smaller central *umbra* – are small, and you have to be directly in their path to see either a penumbral (partial) or umbral (total) eclipse at all.

Total solar eclipses are rarely seen because the path that the umbral shadow describes as the Moon passes in front of the **Sun** is only 160 miles wide. That's why we don't often see even partial solar eclipses: Earth experiences between 2-5 solar eclipses a year – most of them partial – but because we usually aren't within the tiny path that the lunar shadows follow, we don't see most partial or total eclipses.

And that's why people travel all over the world to see a total solar eclipse: it won't come to them, so they have to go somewhere within that 160-mi.-wide path to witness totality. If we stay home on Aug. 21, 2017, all we'll see is a partial solar eclipse.

So what are the odds that, say, Atlanta or Griffin will fall within the umbral shadow of a total solar eclipse? On average, the path of totality will pass over any given place on Earth *only once in every 350 years.*

That's why July 21, 2017 is so special. We won't have to travel a long way to see something that most astronomers never see: a total solar eclipse.

We think it's worth it.

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