

THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT
RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

Vol. 23, No. 7 September, 2019

Officers: President, **Sean Neckel**; Secretary, **Aaron Calhoun**; Treasurer, **Jeremy Milligan**; Board of Directors: **Larry Higgins**, **Cindy Barton** and **Felix Luciano**; Alcor/Facebook Coordinator: **Aaron Calhoun**; Webmaster: **Tom Moore**; Newsletter Editor: **Bill Warren**; Observing Coordinator: **Sean Neckel**; NASA Contact: **Felix Luciano**.

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Club Calendar. Fri.-Sat., Aug. 30-31: JKWMA observings (at dark); **Thurs., Sept. 12th:** FRAC meeting (7:30 p.m., The Garden in Griffin); **Sat., Sept. 21:** High Falls State Park public observing (7:30 p.m.); **Fri.-Sat., Sept. 27th-28th:** JKWMA observings (at dark).

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Editor's Message. For starters, here's a "WELCOME TO FRAC!" to the two newest additions to our FRAC family, **George Ruff** of Meansville and **Bill Honea**, who lives in Newnan.

For many years now, **Louise** and I have harbored the dream of purchasing and living in a beachfront condo at Panama City Beach. We recently began exploring that possibility; it is in fact becoming a reality as I write this, and we will be moving to the Sunshine State in the near future. Since the newsletter can be done via long distance, I will continue that task until a replacement can be found. But since my other responsibilities require a hands-

on presence, I am stepping aside as vice president and program chairman, effective immediately.

I wish you one and all a lifetime of good health, happiness and success. I will carry the memory of your friendship with me to the end of my days.

-**Bill Warren**

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Last Month's Meeting/Activities. Our JKWMA observings at the end of July were clouded out.

We continue to have stellar turnouts for our meetings this summer. August brought 16 members and visitors: **Truman Boyle**; **Ken Olson**; **Tom Moore**; **Mark Grizzaffi**; **Cindy Barton**; **Elaine Stachowiak**; **Steve Hollander**; **Dennis Nelson**; **Jeremy Milligan**; **Carlos & Olga Flores** and Olga's mom, **Ludmilla Dollgalla**; **Dwight Harness**; **Bill Honea**; yr. editor; and **George Ruff**, who joined FRAC at the meeting.

Our Sprewell Bluff observing was splendid! (Thanks, **Sean**, for all the work you put into it.) Our visitors – there were about 100 in all – were awed by what we showed them. Six FRACsters – **Mike Stuart**; **Dwight Harness**; **Sean Neckel**; **Mark Grizzaffi**; **Jeff Hoffman**; and **Bill Honea** (who joined the club that night) – brought telescopes, and **George Ruff** brought a pair of 20x80 binocs.

Our Lake Horton observing scheduled for Aug. 23rd was cancelled due to inclement weather.

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This 'n That. Standing 363 ft. high, the Saturn V rocket used in the Apollo launches was twice as tall as Niagara Falls. To date it remains the largest working rocket ever built. It weighed 6.2 million lbs., carried 4.5 million lbs. of fuel and consumed that fuel at a rate of 15 tons per second. (Sort of like **Larry Higgins**, **Dwight Harness** and yr. editor at an all-you-can-eat breakfast buffet.)

*The 50th anniversary of the Apollo 11 **Moon** landing has brought out the nuts in the woodwork. On July 17th, **Buzz Aldrin** was confronted outside a restaurant by an aggressive young man who demanded that Aldrin swear on a Bible that he actually walked on the Moon. When Aldrin refused to do so, the man called

him “a liar, a cheat and a thief.” Aldrin, who is in his late 80s, punched the man in the face.

Other conspiracy wackos have used the 50th anniversary as a forum for airing their grievances regarding what children are being taught about science in our schools. For example, we recently saw a member of the Flat Earth Society telling a tv reporter that no scientific evidence exists that the Earth is round. (He was correct in one respect: No scientific evidence exists that he would accept as true.)

Add to that the widely publicized statements regarding Earth’s shape by **Shaquille O’Neal** (“It looks flat to me”) and other NBA players – or present NBA superstar **Stephen Curry’s** contention that the Moon landings never occurred (he later said he was just kidding) -- and you have to wonder: *How can supposedly intelligent people who were taught in school that the Earth is round decide later in life that it is flat? Or that humans are incapable of traveling to the Moon and walking on it, despite overwhelming evidence to the contrary?* Does the ability to shoot a basketball or perform slam dunks confer a depth of wisdom that the rest of us do not possess?

A comedian once said that “Beauty is only skin-deep, but ugly goes all the way to the bone.” Humor aside, that statement certainly applies to stupidity.

Unlike intelligence, stupidity is a many-headed monster that attacks everything in its path. Ignorant people may not know that they are ignorant, but stupid people don’t even care that their knuckles are dragging the ground. They take pride in their stupidity, carrying it with them like body odor and proclaiming it loudly at every opportunity. They never let facts get in the way of what they believe.

***Signs of the Apocalypse.** When, in 1957, the Russians launched Sputnik I, the world’s first artificial satellite, the question immediately arose: *Who owns outer space?* After much international haggling, the nations of the world rightly agreed that no one does. As a result, today there are thousands of satellites, launched by many nations, circling our planet for a wide variety of purposes. There are spy satellites, G.P.S. satellites, communications satellites, weather satellites, space telescopes and the

International Space Station, to name just a few. So far, at least, only one kind of satellite has been banned by international agreement: satellites capable of being used for military purposes to launch attacks on other nations. (Spy satellites simply gather information.)

In recent years, private firms have begun exploring ways to make space use profitable. One method has been to provide rockets to deliver satellites into Earth orbit. Another very real possibility on today’s drawing boards is offering commercial space flights into the stratosphere and beyond (or even to the **Moon** and back) for anyone who can afford it. Someday there may even be luxury hotels on the Moon. It hasn’t happened yet, but it will.

Then there is PepsiCo, the manufacturer of Pepsi Cola, Diet Pepsi, Mountain Dew and a number of other soft drinks.

Recently, PepsiCo entered into a partnership with StarRocket, a Russian firm, to explore the possibility of erecting orbiting billboards to advertise Pepsi products. Pepsi has since cancelled the project, but it’s a good bet that someone else will pick up where Pepsi left off.

Think about it: Someday the A. L. might add a “Billboards in Space” observing pin. And won’t it be exciting if, instead of traveling to a fast-food restaurant, you can see **Ronald McDonald** in your backyard telescope, advertising Big Macs up there next to **Jupiter** and **Saturn**? (Like some orders of french fries, the signs will be super-sized.)

*In April, 2019 we saw the first photo of a black hole – at least, that’s what we were told. (*See the May Observer, p. 2.*) It was the black hole at the center of **M87**, a supermassive elliptical galaxy in *Virgo* that we have no trouble seeing in our backyard telescopes.

The photo showed a red-and-yellow ring of hot gases circling the black hole in the center. But that’s not exactly what we saw, because black holes neither reflect nor emit light, so they have no color, whether black or any other. They cannot be photographed.

So what did we see in the photo? Two things, actually. We saw the gases in the *accretion disk* of material surrounding the black hole, bent by the black hole’s awesome gravitational attraction

into a doughnut-shape like water circling a drain; and we saw the *event horizon* – the dark boundary (or edge of the drain) that separates the black hole and its contents from the rest of the universe outside it. The black hole itself lies invisible within or behind the event horizon. But however you want to describe its location, it lies unseen near the center of the dark mass.

In effect, then, what we saw was the area around the black hole -- the point where material gathers and then disappears inside the event horizon. But we did *not* see the black hole, despite what headlines and news reports told us. You can't see what cannot be seen.

It took a team of 200 astronomers and researchers four days to collect the data for the photo – but it took them two years to process it because, at a distance of 55 million light-years away, their target was thousands of times smaller than the period at the end of this sentence. (In the Sept. issue of *Sky & Telescope* [p. 12], **Camille Carlisle** asked, “How do you take a picture of something [that from where we are located is] the size of an orange on the **Moon**?”) Only after painstaking analysis of the data was the team able to conclude with accuracy approaching 100% that the object in the photo was indeed the area immediately adjacent to the black hole at the center of M87. And even then their confidence was based on the fact that what they saw looked exactly like what they were expecting to see.

The photo was taken by the Event Horizon Telescope (EHT), which consists of eight telescopes scattered across the globe, working together like a single telescope the size of our planet. Their images were combined and processed to produce a single photo of an incredibly tiny area of space.

The only way to make a telescope larger than the EHT would be by adding a telescope located in space – or by combining two or more space telescopes.

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Upcoming Meetings/Activities. We'll begin with club observings at Joe Kurz Wildlife Management Area on **Fri.-Sat., Aug. 30th-31st**. The gate will be left open all night, so you won't need to close it when entering or leaving. As

always, the observing will begin at dark, so plan to arrive early if at all possible.

Our club meeting will be held at The Garden in Griffin at 7:30 p.m. on **Thurs., Sept. 12th**. Our speaker will be **Dr. Richard Schmude, Jr.** His topic will be “The South Polar Region of Mars.”

We'll conduct a public observing at High Falls State Park at 7:30 p.m. on **Sat., Sept. 21st**. To get there, take I-75 South to Exit 198 (High Falls Rd.). Turn left onto High Falls Rd., and the park's Day Use Area will be 1.7 mi. ahead on the left, beyond the main entrance to the park across the bridge. Turn left into the Day Use Area, pass the pay station and park on the left. The observing site is between the parking area and the pavilion. See <http://goo.gl/maps/RQFN3gmvgTA2>.

Finally, we'll wind up the month with JKWMA observings on **Fri.-Sat., Sept. 27th-28th**.

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The Planets in September. **Jupiter** (mag. 2.1) will be visible all month, lying near **Antares** in *Scorpius*. **Saturn** (mag. 0.4) will be up there, too, in *Sagittarius* near the **Teapot**. **Neptune** (mag. 7.8) will be in *Aquarius*, and **Uranus** (mag. 5.7) will be in *Aries*. **Mercury** (mag. -0.2) and **Venus** (mag. -3.9) will be visible shortly after sunset in the W sky around the end of the month.

After a long stay that lasted more than a year in the night sky, **Mars**, like **Elvis**, has left the auditorium.

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Armchair Astronomy

by **Bill Warren**

Basically, amateur astronomers can be classified into two groups: those who go outside, whether regularly or occasionally, to see what the sky has to offer (and whether with the unaided eye, binoculars or a telescope); and those who, for any of a number of reasons, either cannot or prefer not to go out and study the sky.

In decades past, members of the former group – *observers* – considered themselves superior to other astronomers who did not share their passion

for observing. They believed that the best (or only) way to learn about the universe is through a telescope's eyepiece, and they scoffed at non-observers as being what they called "armchair astronomers."

Such elitist thinking is clearly wrong. It ignores the many other ways that people can enjoy astronomy, and fortunately for everyone it is no longer a widespread belief. In FRAC, for example, you are accepted for who you are, not for your status as an observer or non-observer.

Still...While we often refer in these pages and at meetings to the pleasure that some members derive from observing, we tend to downplay the ways that armchair astronomy is in fact superior to observing. (In some cases they are the same things that turn observers into armchair astronomers at least temporarily.)

1. Armchair astronomers don't have to buy anything. As we all know, astronomy can be a very expensive hobby. But it doesn't have to be that way. All you really need to spend is \$15 a year to stay in the club. Having paid your dues, you can learn about astronomy by attending meetings; talking with other members; reading the newsletter; using our Facebook and web sites; and reading books, watching dvd's or tv shows about astronomy, or trolling the Internet for interesting articles or items about astronomy.

2. Armchair astronomers don't have to learn how to do anything. Telescope manufacturers don't tell you this, but no matter what kind of telescope you buy, it won't work by itself. You have to learn how to set it up, align the optics and occasionally clean them, and solve whatever problems inevitably arise. If you have a GoTo scope, you'll have to learn how to make it work properly. And if you find things manually, you'll need to learn how to read star atlases and navigate the night sky using a finderscope or Telrad. Learning to do all those things takes time, patience and lots of practice.

3. Armchair astronomers don't have to worry about things that plague observers – things like cloudy nights, sudden rainstorms, observing in hot or cold weather, battling insects,

finding JKWMA or public observing sites, or stumbling over things in the dark.

4. Armchair astronomers don't have to travel long distances to observing sites. Once upon a time, I told a member of the Houston (TX) Astronomical Society that I was having trouble getting our members to attend club observings because many of them live 20-25 mi. away from where we observe. "You're breaking my heart," he replied. "Our members have to travel 150 mi. from Houston to get to our observing site. That's a round trip of 300 mi., but it's the price we have to pay for dark skies and getting away from city lights."

Armchair astronomers don't have that problem.

5. Armchair astronomers can see anything that observers see without going outside, simply by Googling a celestial object's (or event's) name. The photos you see in our newsletter, astronomy magazines or on the Internet are far superior to what you'll see in any but the largest backyard telescopes. Images are clearer, more detail appears and you see colors that eyepieces do not reveal. Whether that matters depends on whether (or why) you might prefer to see the sky through a telescope.

Conclusion: Different Strokes for Different Folks. All this is not to say that you should not buy a telescope if you don't already own one. Observing will always be an important part of astronomy. But despite what the name of our newsletter seems to imply, *observing is not what defines you as an astronomer*. You are defined by your desire to learn about the universe and how it works in any manner you see fit.

I'll wind this up by pointing out that two of the greatest astronomers in history were strictly armchair astronomers who left the task of observing the sky to others. Perhaps you've heard of them: **Nicholas Copernicus** and **Stephen Hawking**.

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**A Reasonable Question: Why Haven't We
Been Back to the Moon Since 1972?**
by Bill Warren

As you'll see, NASA is hoping to do just that five years from now. Basically, though, there are two reasons why we haven't already returned: *a lack of commitment*; and *money*.

Commitment. The theme of **Pres. John F. Kennedy's** 1961 inaugural address was "New Frontiers." (That's where, in 1966, sci-fi author **Gene Roddenberry** got *Star Trek's* famous opening line, "Space: The final frontier." It was Roddenberry's homage to the late president, who was assassinated in 1963.) And when, later in 1961, JFK revealed to Congress his desire to land a man on the **Moon** before 1970, it became immediately evident that space was one of his most important priorities.

Congress is not always easy to win over, especially where taxpayer dollars are concerned. From the very start, however, the American public was solidly behind the Moon mission. There were dissenters, but their arguments were swept away by a national fervor to beat the Russians to the Moon. As a result, Congress never turned down a NASA request for funds during those years.

Needless to say, we landed a dozen American astronauts on the Moon between 1969-72. With each successive landing, though, public enthusiasm waned. Moon landings were still exciting, but as they became more commonplace they lost their sense of urgency. NASA originally planned two additional trips to the Moon – Apollos 18 & 19 – but they were scrapped when it became apparent that lunar landings were no longer a compelling national priority.

Since then, NASA has focused on other space projects. While going back to the Moon would be of scientific value, it has been likened by many to watching reruns on tv. Today, NASA's quest for another attention-grabber like the Moon landings is centered around sending astronauts to **Mars**. (That's not precisely true, as you'll see in the p.s. to this article.)

Money. With JFK's goal having been achieved six times, Americans began listening to the protestors they had ignored earlier. Opponents questioned the wisdom or morality of

wasting money on space when those tax dollars could be better spent here on Earth on things like feeding America's hungry, improving living conditions in the U. S. and improving American education.

That argument has been part of the American landscape ever since. For an example, we need look no further than a letter to the editor that appeared in the May, 2019 issue of *Sky & Telescope* ("Problems at Home," p. 6) in which the writer – an amateur astronomer – expressed his belief that space exploration is a waste of money.

Our space program has seen numerous successes since the early 1970s – for example, the Hubble Space Telescope, the International Space Station, the space shuttle and satellites visiting all of the planets and elsewhere, to name just a few of them – but the days of unlimited federal spending on space initiatives have become pretty much a thing of the past. NASA's annual budget, while hefty, amounts to less than ½ of 1% of the federal budget, and their workforce is just 1/10th of what it was in 1972. Every year, their struggle to secure congressional approval for space projects has become more difficult, to the extent that private companies such as **Elon Musk's** SpaceX are seen by some as the future of U. S. space travel.

Presently, NASA's projected date for a manned Mars landing is 2040. To achieve it, they will need massive, unwavering federal support between now and then – and that won't be easy to obtain because the payoff is more than two decades in the future. Meanwhile, there is relentless pressure on our lawmakers to spend that money in other ways.

Thus, the battle lines are drawn: For every person who believes that space travel is important, there is someone else who believes that it is an unnecessary extravagance that should be addressed only when we have solved all of our other problems.

Which side will win that battle is anybody's guess. It all depends on who Congress listens to. But without another JFK-like commitment to a manned Mars landing, the odds tend to favor the opponents of space exploration.

(P. S.: Lest I appear overly pessimistic, I hasten to point out two very important

developments regarding NASA, Mars and the Moon:

1. NASA is inching its way toward sending astronauts to Mars in 2040. If everything goes as planned, next year will see the first unmanned orbital flight of the Space Launch System (SLS) rocket, successor to the Saturn V.

2. From the Sept. '19 issue of *Sky & Telescope* (p. 12): “The White House has requested an extra \$1.6 billion toward NASA’s accelerated return of astronauts to the Moon, a program dubbed Artemis for the Greek lunar goddess. NASA had already been planning to return to the Moon in 2028, but the new initiative aims to put boots on the lunar surface by 2024. The additional funds put NASA’s 2020 budget request at \$22.6 billion – about a 5% increase over 2019.”)

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Above: Located near the left edge of **Venci Krumov’s** incomparably beautiful photo, **Pickering’s Triangle** lies within the **Great Cygnus Loop**, a 3°-wide supernova remnant that features the parentheses-shaped E and W segments of **Veil Nebula**. Pickering’s Triangle is located 1° NE of the 4th-mag. star **52 Cygni** (which appears on the right side of the photo).

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Upper Right: **M2**, a globular cluster in *Aquarius*. **Alan Pryor** writes, “Around 8 p.m. on Aug. 10th, I took my scope out at my home in Lithia Springs to look at **Jupiter** and **Saturn**, and maybe take a photo if the sky was favorable.

“It was mostly cloudy early on, but by 11 p.m. there were substantial breaks in the clouds. The

forecasts said the sky would clear up between midnight and 2 p.m., so I settled down to wait and see.



“With an 82% illuminated **Moon** and the sky glow of Atlanta to the E of me, I knew I’d need to find a bright deep-sky object that would photograph fast under those conditions. In searching through my records I realized that I had never photographed **Messier 2**. I wondered how I had overlooked it all these years: At magnitude 6.3 it’s one of the brightest – and prettiest – globular clusters in the sky. I had to wait awhile for it to clear the trees, but it was worth the wait.”

On Sept. 12, 1758, **Charles Messier** was searching for comets when he came across a fuzzy object that is now known as **Crab Nebula**. He didn’t know what it was – all he knew was that it wasn’t a comet – but he recorded his observation anyway to remind him not to waste time studying it later on.

Almost exactly 12 yrs. later, on Sept. 11, 1770, Messier encountered another cometary look-alike that later was determined to be a globular cluster (although he didn’t know it at the time). He decided to compile a list of cometary impostors, and named his first two **M1** and **M2**.

By the time Messier wound up his comet-hunting days, his list extended to 102 objects. (About 140 yrs. later, other astronomers added 8 more objects based on Messier’s unpublished observing notes, making 110 objects in all.)

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