

# THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT  
RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

**Vol. 23, No. 6** **August, 2019**

**Officers:** President, **Sean Neckel**; Vice President, **Bill Warren**; Secretary, **Aaron Calhoun**; Treasurer, **Jeremy Milligan**; Board of Directors: **Larry Higgins**; **Cindy Barton**; and **Felix Luciano**.  
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Observing Coordinator: **Sean Neckel**; NASA Contact: **Felix Luciano**.

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**Club Calendar. Fri.-Sat., Aug. 2-3:** JKWMA observings (at dark); **Thurs., Aug. 8:** FRAC meeting (7:30 p.m. at The Garden in Griffin); **Mon., Aug. 12:** Sprewell Bluff State Park public observing (8:00 p.m.); **Fri., Aug. 23:** Lake Horton public observing (8:30 p.m., rainout date **Sat., Aug. 24**, same time); **Fri.-Sat., Aug. 30-31:** JKWMA observings (at dark).

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**President's Message.** **Bill Warren**, our esteemed vice president, recently sent out a summary of our outreach hours that our members have accumulated. If you are like me, you took a quick glance at the file, found your name (and maybe a family member or two) and looked at your total. But after a day or so, I went back and took another look at the list, and realized something important: **The Flint River Astronomy Club is AWESOME at outreach!**

(But first, some background about the A. L. Outreach programs: For the basic level, 10 hrs. are required to receive a certificate and pin, An additional 50 hrs. are needed to earn a Stellar certificate, and 100 hrs. beyond that brings you to the Master Outreach level, which offers an additional certificate and pin. It takes a total of 160 hrs. to earn a Master Outreach certificate and pin.)

I'm an engineer by trade, and as such data analysis is an important part of my job. It can tell some very interesting stories. Here are a few interesting facts about FRAC's outreach.

\*24 Basic Outreach awards

\*6 Stellar Outreach awards

\*7 Master Outreach awards

\*15 other members have participated in at least one outreach event

\*50% of our members have received an Outreach award

\*70% of our members have participated in at least one outreach event

\***Total hours logged: 2,536.** (That's more than 105 days that our members have devoted to teaching children and adults about astronomy by sharing the universe with the public. [Actually, the number is much higher than that, since our Master Outreach recipients stop accumulating hours.]

**That is an amazing level of participation, and I want to thank all of you for making it happen.** We always receive positive feedback from our events, and we continue to receive new requests to bring the stars to the people.

In particular, I want to thank Bill for keeping the outreach logs for us, and for sending in requests to the A. L. for the pins and certificates.

**-Sean Neckel**

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**Last Month's Meeting/Activities.** Nine members assisted in our June 21<sup>st</sup> Lake Horton observing: **Sean, Chelsea & Gianna Neckel**; **Dwight Harness**; **Mark Grizzaffi**; **Eugene & Nyssa Pennisi**; **Mike Stuart**; and **Felix Luciano**.

Three members – **Aaron Calhoun**, **Ken Olson** and **yr. editor** – attended our club observing under clear skies on June 28<sup>th</sup>. (Our other observings were clouded out.)

We had 24 attendees at our July meeting: 15 members (**Marla Smith**; **Alan Pryor**; **Mark**

**Grizzaffi; John Killian; John Felbinger; Tom Moore; Cindy Barton; Kelly Mallard; Ken Olson; Erik Erikson; Felix Luciano; Aaron Calhoun; Sean & Chelsea Neckel; and yr. editor** – and an astonishing *nine* visitors: **Rod Chennault; Larry, Christopher & Zachary Taylor; Colleen Whitman and Janice, Asher & Clover Sinyard; and Steve McMinn**, who gave the club a Celestron Astromaster 90 telescope with all the fixin's but couldn't stay for the meeting.

One of the things we learned at the meeting was that, although Apollo 11 astronauts **Buzz Aldrin, Neil Armstrong & Michael Collins** worked and trained together on a daily basis for 3 yrs. prior to the launch, they were not close friends and never socialized away from the job.

**Dr. Richard Schmude's** ALPO/SERAL conference drew 30+ participants, including FRAC's **Erik Erikson** and **yrs. truly**. It was a very impressive affair, and everyone enjoyed themselves immensely. Congratulations, Richard, for a job exceedingly well done!

Felix Luciano, Truman Boyle & yr. editor conducted an observing under crystal clear skies at High Falls State Park on July 20<sup>th</sup>. The 35 visitors were fascinated at what they saw and heard, and several of them were surprisingly well informed. A guest that Felix invited has a brother who works for NASA, and a 9-year-old girl asked us, "Is it true that we are made of the same thing as the stars?"

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**This 'n That.** Sprewell Bluff Park used to be a state park, but not any more. Located about 5 mi. W of Thomaston along the Flint River, it has been a popular swimming and recreation site for well over 50 yrs. (Trivia fact: Although those of us in the Griffin area have always pronounced it "SPROO ul Bluff," the lady at the Sprewell Bluff Trading Post at the park entrance says that locals refer to it as "SPUR ul [rhymes with squirrel] Bluff.")

We hope you'll be able to join us for our observing at Sprewell Bluff Park on Aug. 12<sup>th</sup>.

\*Here's an interesting trivia fact for you: Of the first 29 astronauts selected by NASA, 27 of them were their families' eldest sons. (Of the other two, **Ed Roosa's** older brother died at birth and Mike Collins was 13 yrs. younger than a brother he hardly

knew before the brother left home to forge a life of his own.)

Essentially, then, all 29 astronauts were eldest sons.

Since the 1870s, psychologists have known that eldest children tend to be high achievers. With no other children present, parents can devote their time to teaching the child things like how to read, study hard and handle responsibilities at an early age. When other children arrive, parental time is divided. And whenever Mom and Dad are not present, the eldest child is left in charge of his or her younger siblings.

*(Note: Those 29 astronauts were not selected because they were eldest sons; rather, they were chosen because their experiences as eldest sons gave them the leadership qualities, desire to excel and ability to solve problems quickly that astronauts must have.)*

**\*An Opportunity Lost.** On Jan. 25, 2004, NASA's Opportunity rover landed on **Mars** and began a 3-month exploration that, if everything went as planned, would take it 1,100 yds. across the martian terrain.

Everything did *not* go as planned.

At the end of its 90-day life expectancy, Opportunity did not succumb to the harsh martian environment. Instead, like the Energizer bunny it kept on going -- and going, and going, for fourteen years after its expected demise. During those years, its solar batteries powered the golf cart-sized research vehicle across 28 mi. of the martian landscape, sending back more than 200,000 photos and responding to performance commands throughout its extended tour of duty.

In June, 2018, however, a massive global dust storm covered the entire planet and blocked sunlight from reaching the surface for several weeks. Deprived of its source of renewable energy to keep its electronics from freezing, Opportunity automatically shut itself down and entered a sleep state. But when, a month later, the storm passed and the skies finally cleared enough for sunlight to reach the surface, the rover remained asleep – presumably because its solar panels were covered with a thick layer of dust that prevented the batteries from charging.

Years earlier, Opportunity's twin rover, Spirit, became mired in a shallow depression in 2010.

Unable to free itself and collect sunlight for its batteries during the martian winter, Spirit fell silent forever. But Opportunity took its lickings and kept on ticking for an additional eight years. After 12 months of not hearing from the rover, NASA officially pronounced it dead in June, 2019 and turned their attention elsewhere.

Opportunity's accomplishments include providing the first solid evidence of liquid water on the martian surface, and becoming the first rover to examine sedimentary rocks on another planet.

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**Upcoming Meetings/Activities.** We'll begin August with JKWMA observings beginning at dark on **Fri.-Sat., Aug. 2<sup>nd</sup>-3<sup>rd</sup>**.

Our club meeting will be at 7:30 p.m. on **Thurs., Aug. 8<sup>th</sup>** at The Garden in Griffin. **Phil Sacco** will be our speaker. His topic will be "My Twenty-Five Years As an Astronomer." Given Phil's many achievements and his broad understanding of all aspects of astronomy, his talk about his journey through astronomy and what it has meant to him should prove to be one of the most interesting, informative, funny and memorable programs we've ever had. As baseball's **Yogi Berra**, who was a master at saying things wrong, put it, "Don't miss it if you can!"

We'll conduct a public observing at Sprewell Bluff State Park in Upson Co. at 8:00 p.m. on **Mon., Aug. 12<sup>th</sup>**. To get there from, say, Griffin, go S on the 4-lane US 19/41 Bypass and turn right at the BP-Ingles-McDonald's stoplight to follow US 19 S. Go 23.5 mi. on U. S. 19, through Zebulon to Thomaston, and turn right onto W. Main St. in Thomaston. Stay on that road for 5.6 mi., and turn left at Old Alabama Road. (There's a big "Sprewell Bluff Park" sign on the left where you turn.) Go 4.6 mi. on Old Alabama Rd. to the stop sign and toll booth at the park entrance. (Sprewell Bluff Trading Post is on the left.)

Check in at the toll booth (there's no entrance fee, just tell them you're with FRAC), then stay on that road for 1.7 mi. to the point where the pavement ends at the Flint River. That's where we'll set up.

The G.P.S. coordinates (courtesy of **Tom Moore**) are: 32° 51' 12.36" N, 84° 28' 50.53 W; or 32.853365, -84.480787.

We'll conduct another Lake Horton observing on **Fri., Aug. 24<sup>th</sup>** (rainout date: **Sat., Aug. 25<sup>th</sup>**) at 8:30 p.m. Directions will be sent out later.

We'll wind up August with JKWMA observings beginning at dark on **Fri.-Sat., Aug. 30<sup>th</sup>-31<sup>st</sup>**.

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**The Planets in August.** **Jupiter** (mag. -2.3) will be up all month, as will **Saturn** (mag. 0.2), its rings tilted favorably to show them at their best. Jupiter will set after midnight, and Saturn around 3 a.m.

**Mercury** (mag. 1.4) will rise 90 min. before sunrise on Aug. 9<sup>th</sup>.

The best time to see this year's **Perseids Meteor Shower** will be at our Lake Horton public observing on Aug. 23<sup>rd</sup>.

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**Above: a portion of Meteor Crater** (Photo by Steve Bentley)

### Arizona's Meteor Crater

by **Bill Warren, Steve Bentley & Alan Pryor**

#### Bill

Fifty thousand years ago, the area around what is now the town of Winslow in northern Arizona consisted of rolling grasslands and forests. If early humans inhabited the area – which is possible but unlikely -- they shared their surroundings with animals like woolly mammoths and giant ground sloths.

One day, a 160-ft.-wide space rock composed of nickel and iron suddenly lit up the sky, blazing a fiery trail as it plunged earthward.

About half of the meteor burned up during its descent through the atmosphere. Most of the remainder vaporized on contact when it smashed

into the Earth at a speed of 29,000 mph. (That's why relatively few meteorites have ever been found there.)

The blast, which generated a force equal to 20 million pounds of TNT, created a crater  $\frac{3}{4}$  mi. wide and 560 ft. deep. Bye-bye mammoths, hasta la vista humans, so long sloths and practically every other living thing in the vicinity larger than a cockroach.

The crater still exists today for all to see. It is by no means the largest impact crater on Earth, but it is by far the best-known – so famous that it goes by the familiar name of **Meteor Crater**. Its fame derives from its location in what today is a desert. In such a dry and forbidding landscape, with little annual rainfall and no moving water to erode its borders or fill in its interior, it has remained essentially unchanged over the past 50,000 yrs. It is the best preserved impact crater on Earth.

More to the point, unlike older impact sites such as Wetumpka Crater in Alabama and Chicxulub in the Gulf of Mexico, Meteor Crater looks exactly like the craters on the **Moon**. It's so other-worldly in appearance that it was one of the sites selected for NASA astronauts to prepare for the Apollo lunar missions.

Meteor Crater is owned by descendants of the wealthy iron magnate **Daniel Barringer**, who purchased the mineral rights to the crater in 1903. Although the prevailing opinion at the time was that the crater had formed by volcanic activity, Barringer believed it was the result of an impact by a huge iron meteorite. He was correct, of course, but it was not until 1960 when geologist **Eugene Shoemaker** discovered shocked minerals that could have formed only by a meteor impact or a nuclear explosion, that the crater's true origin was proved conclusively.

Meteor Crater (a.k.a. **Barringer Crater** and **Canyon Diablo Crater**) was designated a National Natural Landmark by the federal government in 1960. (They couldn't make it a national park because the land is privately owned.) The site is a popular tourist attraction, visited by thousands of sightseers every year.

**Steve Bentley** visited the site in 2015, and **Alan Pryor** and **Sean Neckel** did likewise in 2019. Steve's and Alan's accounts of their visits appear below. Sean just got back from his trip

and hasn't had time to write about his experiences there, so we'll have to wait until next month to read about it.

### Steve



**Above: Steve Bentley** (lower right corner) at Meteor Crater

In 1964, a pilot and his passenger in a small two-seater plane flew over Meteor Crater and then dipped down inside it for a closer look. They got more than they bargained for. The pilot tried to circle inside the crater in order to gain lift and climb back over the rim, but the plane stalled, crashed and burned. Both men were severely injured but survived.

In 1985, the final scene in the movie "Starman" starring **Jeff Bridges** was filmed in the crater. The tour guide said the film crew did considerable damage during the filming, so they don't let anyone go down there anymore. Their guided tours are limited to viewing stations along the rim.

My companion, **Patty McMillan**, and I were told those stories, along with others involving the crater's history and geology, by our guide during our trip to Meteor Crater in 2015. The guide pointed out a small piece of the wreckage that still remains in the crater – they probably left it there as a reminder to other pilots not to try something dumb like that -- and showed us what's left of the mining enterprise that the owner operated for 27 years. Mr. Barringer thought iron was buried in the center, but he never found enough for his mining to pay off.

One of the things I remember is the crater's size. It was *huge*, especially considering the size of the impactor that created it. Another thing that struck me was its condition: it looked like it was

created recently. (I guess it was, too: fifty thousand years is a long time in human terms, but compared to Earth's age it's like yesterday.)

The only thing I was disappointed about in my trip to Meteor Crater was that I didn't find a meteorite. But nobody else did, either. It was so hot that, when the tour was over, my greatest concern was whether my truck's air conditioner would still be working.



**Above:** The center of the crater (photo by **Alan Pryor**)

### Alan

My daughter **Cassandra** and I visited Meteor Crater this spring. While we were driving along the 6-mi. paved road from I-40 to the crater, we saw a low, flat mountain ridge ahead of us but didn't understand exactly what it was. Once we got to the visitor center, though, it didn't take long for us to realize that what we had seen was the elevated rim of the crater.

When we went to the top of the rim, we were amazed at how high it was above the surrounding countryside, and how large the crater was. From where we stood, the rim appeared to be round, but in aerial photos it's actually a  $\frac{3}{4}$ -mi. square, or maybe octagonal in shape. The floor was perfectly circular, but it's off-limits because they want to preserve the site. I can't really blame them, either: the last thing the crater needs is crowds of tourists going down there every day and digging in the loose soil, looking for meteorites.

In reading the literature at the visitor center we learned that an entrepreneur had bought the crater, hoping to find a giant iron meteorite buried beneath the debris on the crater floor. We could see the exploratory wells he had drilled, and a boiler and steam-driven drill that had been

left in the crater when he closed down his mining operation. Unfortunately for him, there was no meteorite.



**Above:** **Alan**, with Meteor Crater in the background

On our way back to I-40, after driving a couple of miles we stopped and looked back. This time, though, we had no trouble understanding what we were seeing or how large the rim really is.

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### "Fly Me To the Moon": A Prof. Stargazer Interview

At age three, **Prof. Theophilus** (pronounced: The Awfulest) **Stargazer** knew as much about astronomy as a six-year-old kindergarten student. He still does.

Today, the professor humbly describes himself as "the greatest astronomer since the man you've all heard of who built the first astronomical telescope in 1610 – the brilliant Italian **Astronomo Telescopio!**"

Recently, **Sean Neckel**, **Larry Higgins**, **Dwight Harness** and **Tom Moore** took five other club members to meet and interview the kindly old gentleman. Sean began by asking, "What have you been up to lately, Sir?"

**Prof. Stargazer:** Well, after going to the Moon, I –

**Sean:** Wait a minute! *You've been to the Moon?* You never told us you were an astronaut!

**Prof. Stargazer:** I didn't tell you guys that I invented the game of Dirty Scrabble, either, but that hasn't stopped any of you from playing it.

There's a lot that you don't know about me, Sean. For example, I was there on the Eagle at Tranquillity Base, along with **Neil Armstrong** and **Buzz Aldrin**. I was the one who planted the flag, but you probably wouldn't have recognized me with my helmet on.

I was selected to plant the flag because I'm also a horticulturist. Every spring I plant Cheerios in my garden.

**Ben Fields:** Why on earth would you do that?

**Prof. Stargazer:** Why else? To grow doughnuts.

**Mark Grizzaffi:** Not to be disrespectful, Professor, but I think we'd have heard about it by now if you had been part of the Apollo 11 crew.

**Prof. Stargazer:** Well...Actually I was playing my 10-year-old neighbor's virtual reality game, "Fly Me To the Moon."

**Tom Moore:** We might have known it was something silly like that.

**Prof. Stargazer** (indignantly): *Silly?* It was extremely dangerous, Tom! I almost died!

**John Page:** Yeah, those games can be very realistic.

**Prof. Stargazer:** But the danger *was* real, the way I played it!

**Kelly Mallard:** What happened?

**Prof. Stargazer:** I wanted it to be as realistic as possible, so before I started my moon walk I put a plastic bag over my head as a helmet and tied it shut. If Jimmy hadn't been there to save me, I'd still be on the Moon along with **Gene Shoemaker's** ashes.

**Larry Higgins:** Serves you right, you nutty old fool! What else did you see up there? Was the Moon made of green cheese?

**Prof. Stargazer:** No, the only green cheese I've seen lately is a moldy lump in my refrigerator. It looks like my first girlfriend, only without the acne. My wife probably will serve it

tonight as leftovers. (I hope not. I'll feel like a cannibal!)

Anyway, the last thing I remember was Aldrin telling me that my fly was open, and then I started gasping for air. But I know that we splashed down because when I came to, the cup of iced tea I had been holding was spilled all over the floor. At least, I *hope* it was iced tea.

**Jeff Hoffman:** Will you be going back to the Moon any time soon, Sir?

**Prof. Stargazer:** Probably not. Jimmy's dad won't let me back in their house. He says it wasn't iced tea on the floor. But if I do go back, I'll borrow one of **Steve Bentley's** motorcycle helmets. The plastic bag was a bit more realistic than I bargained for.

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**Above: NGC 6503 (the Lost In Space Galaxy),** a dwarf spiral galaxy in *Draco*. **Alan Pryor** writes, "I took this photo at JKWMA on June 1<sup>st</sup>. When I brightened the image I counted about ten other galaxies, but they are very small and faint.

"**NGC 6503's** nickname derives from its location on the edge of the Local Void. A dwarf galaxy, it spans 30,000 light-years in dia. and is about 17 million l. y. from Earth."

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