THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

Officers: President, **Dwight Harness** (1770 Hollonville Rd., Brooks, GA 30205, 770-227-9321, rdharness@yahoo.com); Vice President, **Bill Warren** (1212 Everee Inn Rd., Griffin, GA 30224, warren7804@bellsouth.net; Secretary, **Carlos Flores**; and Treasurer, **Truman Boyle**.

Board of Directors: **Larry Higgins; Aaron Calhoun; Jeremy Milligan**.

Facebook Editors: **Steven "Saratoga Smitty" Smith** and **Laura Harness**; Alcor, **Carlos Flores**; Webmaster, **Tom Moore**; Program Coordinator/Newsletter Editor, **Bill Warren**; NASA Contact, **Felix Luciano**.

Club Mailing Address: 1212 Everee Inn Rd., Griffin, GA 30224. FRAC website: www.flintriverastronomy.org.

Please notify Bill Warren promptly if you have a change of home address, telephone no. or e-mail address, or if you fail to receive your monthly *Observer* or quarterly *Reflector*.

* * *

Club Calendar. Fri.-Sat., Sept. 30-Oct.1: JKWMA observings (at dark); Thurs., **Oct. 13:** FRAC meeting (7-10 p.m. at The Garden in Griffin, meeting at 7:30, public lunar & planetary observing before and afterward); **Fri., Oct. 21:** home schooling observing (Griffin, 8 p.m.); **Fri.-Sat., Oct. 28-29:** JKWMA observings (at dark).

* * *

President's Message. Fall is here, and winter is on the way, so be sure to read **Smitty's** article about cool and cold weather observing, "Of Mukluks and Messiers." It's on our website, and I read it every year to remind me how to start out warm and stay that way when the temperature drops after sunset.

Think about it: no matter how much you've spent for a telescope, eyepieces, equipment and accessories, you won't enjoy using it in cold weather unless you're warm from head to toe. Smitty's article tells you how to do it, step-by-step. Read it. You'll be glad you did, especially if you've never read it before.

-Dwight Harness

* * *

Last Month's Meeting/Activities. On an otherwise overcast evening, **Dwight Harness, Venci Krumov** and **yr. editor** got in about an hour of observing at JKWMA on Sept. 3rd. We started off by tracking down the "Smiley Face" asterism in *Cygnus* that **Sue French** wrote about in the Aug. issue of *Sky & Telescope*. (It looked like **Kermit the Frog**.) And then…

A mystery unfolded when Dwight noticed a faint, tube-like streak in the SW sky. It stretched eastward from the treeline for about 20°. To the naked eye, it resembled a stationary, fading searchlight beam in the distance. But it wasn't a searchlight: over half an hour or more, it drifted 30° to the east before we lost it. Searchlights rotate or remain stationary, but they don't drift.

In binoculars, the object was brighter and clearly not a beam of light, but something more substantial – a jet contrail, perhaps, or maybe a weather balloon or a cloud. But its outer edges were smooth and sharply defined, not bumpy or wispy, so it wasn't a contrail. Contrails dissipate into the atmosphere, they don't drift.

It was too large to be a distant weather balloon, and too close for us not to recognize it as an elongated balloon even in the dark. Anyway, weather balloons are oriented vertically, not horizontally, even when they are drifting in the wind.

Was it a cloud? Clouds are shaped by the prevailing winds around them. Elongated clouds are not uncommon; we've all seen them many times. But have you ever seen one the size and shape of a pencil, or maybe a drinking straw? And if so, did it retain its shape for half an hour?

So what was it, if not a searchlight beam, a jet contrail, a weather balloon or a cloud? "We know what it *wasn't*," says Dwight. "We just don't know what it *was*." If you have any thoughts regarding what the mysterious object might have been, let Bill know. Otherwise, it will remain an unsolved mystery of the night sky.

Twelve members – **Dwight Harness; Kenneth & Rose Olson; Jeremy, Sarah, Emily & Delilah Milligan; Venci Krumov; Carlos Flores; Felix Luciano; Erik Erikson;** and **yr. editor** – attended our pool party and dinner on Sept. 10th.

The following day, fifteen FRACsters – **Steve Bentley; Jeremy Milligan; Venci Krumov; Kenneth Olson; Dwight Harness; Carlos & Olga Flores; Steve & Anna Hollander; Aaron Calhoun; Truman Boyle; Alan Pryor; Steve Benton; Felix Luciano**; and **yr. editor** – showed the **Sun** to a huge crowd at UGa-Griffin's annual "Art in the Garden" extravaganza. As is always true of events at The Garden, this one was superbly organized by **Wayne Gardner** and his troupe of coordinators and workers. We gave out a ton of handouts and awed our visitors with a stunning array of solar views.

(We'd be remiss if we didn't mention two other lovely ladies: **Patty McMillan**, who came with Steve Bentley, and the little lady Olga brought with her: her mother **Ludmila**, who is Russian. We told Olga, "She's the most beautiful woman here." Olga replied with a broad smile, "I know.")

Thanks to everyone who helped to make those two days so very special.

* * *

This 'n That. In the Oct. 2016 issue of *Astronomy* (p. 44), the "AskAstro" column contains the following question: *"Is the Moon's rotation rate still slowing down? If so, will there come a time when the currently unseen 41 percent will be visible from Earth?* **Bill Warren,** Griffin, Georgia."

Briefly stated, Senior Editor **Richard Talcott's** answer was, "Yes, the Moon continues to spin more slowly, but…because the Moon's rotation rate is locked to its revolution, we will never get to see Luna's hidden 41% from Earth."

*A few weeks ago, **yr. editor** sent out an e-mail regarding the dangers inherent in sending humans to **Mars**. In it he cited a statement by **Camille Carlisle** in *Sky & Telescope* (Oct. 2016, p. 22) that "Since the dawn of the Space Age, scientists have sent (or tried to send) more than 40 spacecrafts to Mars. Half have failed. In fact, only NASA has managed to land anything that operated on the surface for more than 2 minutes." You were asked, *Should NASA send a manned mission to Mars?* Here are your replies:

Aaron Calhoun. Advancement requires risk. The same thing applies in life and work: you have to take risks. You will not advance by playing it safe.

I realize that "Star Trek" was fiction, but do you think the crew of the *Enterprise* thought, *Gee, we could die on this mission!* No, they thought, *Let's do this!* That's the attitude NASA needs in order to send astronauts to Mars.

Phil Sacco. Mankind MUST spread its wings and reach for the stars. The argument about not doing so until we have eradicated famine, disease and war is one which cannot be realized. **Jesus** said that "The poor will always be with you," and it's true, whether by circumstance or political agendas. It is not the responsibility of the U. S. to make sure that every mouth is fed in Eurasia; that is for their own political entities to work out. We should be doing all we can to eradicate hunger within our own country before spending our resources to feed children in countries on the other side of the world. Many of those endeavors are sabotaged by their local greedy heads of state as it is.

As for the U. S., if we have the means to explore space, we have an obligation to do so. The entire world will end up benefiting from our endeavors, and we may just discover ways of solving the problems we face on Earth in the process.

If man does not leave Earth, we are doomed to die on Earth. It only takes one megalomaniac with a finger on a button to wreak the destruction of vast areas if not the entire world, but it takes many geniuses to plant the seed of man and our collective influence on another world. You tell me which is the greater endeavor.

Steve Hollander. There have been many practical spinoffs from the space program in communication, medicine, etc. But more important, the pursuit of scientific knowledge has advanced civilization throughout history even when there was no practical benefit. When **von Leeuwenhoek** looked at pond water under his primitive microscope, who knew that it would eventually lead to our knowledge of microorganisms with many practical benefits?   Maybe I am too cynical, but I doubt that the savings from not pursuing space exploration would go toward the eradication of disease, poverty and war.

As for sending a man to Mars, it probably is prudent to improve on safety if the odds are only 50% that he will return. But I'm not sure that the statistics Ms. Carlisle cited are accurate. If NASA does the mission, then NASA's history is the only relevant history to use in evaluating the safety of a manned mission to Mars. Also, if the failures occurred in the first attempts to reach the planet, a simple average success rate is not the way to evaluate the safety of a proposed mission to Mars.

Dawn Chappell. I have always been a curious person; I love to explore the unknown -- at least, unknown to me. I think you should live your life to the fullest, you are not getting out of it alive. God gave you this gift, make good use of it.

Many people face danger every day. Police officers, firefighters, members of our military forces – they know the risks involved but take on the challenge anyway. Astronauts are aware of the risks they face in space travel and they still choose to pursue the unknown. If they are willing to make the necessary sacrifices, then *Yes*, send them to explore (Mars).

Conclusion. Actually, it's not a matter of *Should* we send a man to Mars?, but *When* will we do it?

At ALCON 2016, the speaker at the closing banquet was **NASA Administrator Maj. General Charles F. Bolden**. The general was understandably vague about details of such a mission at this point, but he said, "It's a done deal. We've already begun making plans to send a team of astronauts to Mars within the foreseeable future."

*A passing thought from yr. **editor**: *Do you believe in UFOs?* I do. **Dwight, Venci** and I saw one at JKWMA last month.

Wait a minute!, you're undoubtedly thinking. *Are you saying that the three of you saw an alien spacecraft?*

No, I'm just saying that we saw something in the sky that we couldn't explain. It wasn't an optical illusion, and it was "flying" in the sense that clouds "fly" in the sky.

And *No*, I don't think it was a flying saucer. But it was real, and we couldn't come up with a rational explanation of what it might have been.

As you'll see, the program at our Oct. meeting will be a talk by **Neil DeGrasse Tyson** from his dvd *The Inexplicable Universe*. It's an apt title because our universe is mostly unexplained. We Earthlings think we know a lot about the universe, but we don't, not really.

Sir Isaac Newton once described himself as follows: "I do not know what I may appear to the world; but to myself I seem to have been a small boy at the seashore, diverting myself by finding a smoother pebble or a prettier shell than ordinary, while the great ocean of truth lay undiscovered before me."

That's us -- all of us, from the greatest astronomer to someone who doesn't know which end of a telescope to look through. What we *don't* know about the universe far exceeds what we *do* know about it. But I'm not talking about what we know or don't know, I'm talking about what we *believe*.

With more stars in the universe than grains of sand on earth -- and with most of those stars harboring planets that formed as debris while the stars were forming – the mathematical odds strongly favor the development of life elsewhere in the universe. But if you're going by logic alone, bumblebees shouldn't be able to fly because their wings are too small and beat too slowly to support their body mass in flight.

So here's my question – two of them, actually: *Do you believe that life exists anywhere in the universe besides Earth? And if so, do you believe that Earth has been visited by aliens with the intelligence and technical skills to get here?* Tell

me what you think, and I'll share it with your fellow FRACsters in a future newsletter.

Remember: This is not a true-false test. There are no correct or incorrect answers here. Believing that, in His infinite wisdom, **God** saw fit to put life on just one planet in the universe doesn't make you a religious zealot, and believing that Earth has been visited by extraterrestrials doesn't make you a sub-human whose knuckles drag the ground when you walk. We're talking *beliefs* here; in the absence of verifiable proof either way, your opinion is as good as anyone else's, and probably better than mine.

*When we look outward into space, we are looking backward in time. We see objects such as the **Sun, Moon**, planets, stars and galaxies, not as they are now but as they appear after their light has traveled immense distances to reach us. So let's reverse the process.

Light travels at a speed of 186,000 miles per second, or 5.8 trillion miles a year. At that rate, here's how long it would take to travel to the planets and other selected objects in space if you could travel at the speed of light (planetary figures vary because their distances from us change with their – and our – location in our respective orbital paths):

Travel Time (at the speed of light) to Objects in the Solar System. The Moon: 1.25 seconds; the Sun, 8 minutes; **Mercury**, 5 to 12 min.; **Venus**, 2.5 to 14.5 min; **Mars**, 4.5 to 21 min.; **Jupiter**, 35 to 51.5 min.; **Saturn**, about 1 hr., 20 min.; **Uranus**, about 2.5 hrs.; **Neptune**, 4 to 4-1/2 hrs.; **Pluto**, 5 hrs.; and the **Oort Cloud**, 1 year.

The Milky Way. Proxima Centauri (the nearest star to us besides the Sun), 4.2 years; **Sirius** (the brightest star in the night sky), 8.6 yrs.; **Vega** (which will become the North Star in about 5,000 yrs.), 25 yrs; **Arcturus**, 40 yrs.; **Betelgeuse**, 640 yrs.; **Orion Nebula**, 1,350 yrs.; and the center of the Milky Way, 27,200 yrs.

Galaxies. The **Large** and **Small Magellanic Clouds** (dwarf galaxies in our neighborhood), 160,000 and 210,000 yrs., respectively; **Andromeda Galaxy (M31),** 2.5 million yrs.; **Whirlpool Galaxy (M51),** 26 million yrs.; and the **Virgo Galaxy Cluster**, 55 million yrs.

*History's first great astronomy book was written by the Greek-Egyptian astronomer **Claudius Ptolemaeus (Ptolemy)** in the 2nd century a.d. He titled it *Syntaxis Mathematica*, but it is now known as the *Almagest*, an Arabic phrase meaning "The Greatest Book."

The *Almagest* was both a star catalog and a star atlas; it charted the locations of 1,022 naked-eye stars, and gave names to some of them. But it was much more than a catalog or atlas: it contained 13 volumes that, among many other things, recorded the research that had been conducted by **Hipparchus** and other astronomers regarding the motion of the **Sun, Moon** and the planets. The *Almagest* was so influential in astronomy that it remained astronomy's "greatest book" for 1,400 years.

Ptolemy's *Almagest* echoed the prevailing sentiment of his time, i.e., that the Earth was the center of the solar system. Not until the invention of the telescope led to proof that the planets moved around the Sun, and that countless stars lay beyond mankind's naked-eye view, was it considered necessary to replace the *Almagest* with a more accurate and inclusive version of the solar system and the universe that lay beyond it.

***Mike Brown**, whose team of researchers discovered "Planet Nine" (the *Observer*, Aug., 2016), also discovered the icy dwarf planet **Sedna** in the **Kuiper Belt** in 2003. Two years later, in 2005, he and his team discovered three other dwarf planets out there: **Eris, Makemake** and **Haumea**. So despite what **yr. editor** wrote recently, it's not like they just pulled Planet Nine out of a hat.

Doubts as to whether Brown and his colleagues actually discovered a new planet in the solar system arose because they haven't actually seen it: their "discovery" was based on computer simulations that predicted what might be affecting the orbits of other known Kuiper Belt objects.

***Solar System Trivia Facts.** If you could stand on **Mercury** (temperature: 800°F) without becoming a crispy critter, the Sun would appear three times larger than we see it.

At 880°F, **Venus** is hotter than Mercury due to the greenhouse effect of its thick carbon dioxide

atmosphere trapping the Sun's heat. But even if you could stand on Venus – which is unlikely since, like Mercury, the surface of Venus is hot enough to melt lead – the atmospheric pressure there is 89 times greater than Earth's. It's the equivalent of swimming 3,000 ft. deep in the ocean.

The Russians soft-landed eight spacecrafts on Venus during the 1970s. *Venera 13* lasted the longest, surviving for 2 hrs. and 7 min. before succumbing to Venus's fierce heat and pressure. *Venera 9* survived for just 1-1/2 min., and *Venera 10* for nearly nine min. -- but during their brief tenures they managed to transmit a few photos of the surface, giving mankind its only up-close-and-personal glimpses of that forbidding planet.

* * *

Upcoming Meetings/Activities. Due to the **Moon's** location during the month, we'll have two JKWMA observings in October. Our early Oct. JKWMA weekend will be **Fri., Sept. 30th-Sat., Oct. 1st**. The **New Moon** will be on Sept. 30th.

Our club meeting will be at 7:30 p.m. on **Thurs., Oct. 13th** at The Garden in Griffin. Since Halloween will be here soon, our program will be "The Spooky Universe" from **Neil DeGrasse Tyson's** 6-part dvd series, *The Inexplicable Universe: Unsolved Mysteries*.

Dr. Tyson, who narrated the 2013 *Cosmos* sequel, is a splendidly animated, engaging public speaker: at one point he speaks for 12 min. (without notes or cue cards, of course) without uttering a single "er" or "uh" or a change in camera angle that might indicate a corrected mistake or forgetting his lines. If you've ever given a speech before, you'll appreciate how incredible that is. A few hesitations occur in the latter portion of his lecture, but that's understandable in a 30-min. talk.

As always, we'll preface our meeting with lunar & planetary observing for visitors from 7-7:30 p.m., and continue it again after the meeting.

On **Fri., Oct. 21st** we'll conduct a home schooling observing for about 40 students and parents at a location on Griffin's southside. The observing will begin at 8 p.m.

To get to the site from, say, downtown Griffin, start at the stoplight at the intersection of Taylor St.

and Hill St. (i.e., at KFC and First Baptist Church). Set your odometer at 0.0.

Head south on Hill St., toward and past the Kiwanis Fairgrounds and Griffin Airport, both of them on the right. When you've gone 1.9 mi. from Taylor St., turn left just beyond a stop sign on the left at Etheridge Mill Rd. (There's a gas station just beyond where you turn.)

Go 0.5 mi. on Etheridge Mill Rd., and turn right onto Brice St. Go 2 blocks and turn right onto Karen Ct. Go one block and turn left at Laura Ashley Ln. The large vacant lot on the left is the observing site.

The G. P. S. coordinates for the site are: 33° 12' 45.91" N, 84° 16' 27.66" ; or, 33.212914, -84.273386. (Thanks, **Tom Moore**.)

It's a good observing site. **Yr. editor** has visited it at night, and while there's a certain amount of sky glow from Griffin to the N, there are no streetlights or houselights to bother us and we've been assured that the one set of driveway lights on Karen Ct. will be turned off. The horizons to the E, S and W offer a big chunk of sky for us to use.

We'll wind up Oct. with JKWMA observings on **Fri.-Sat., Oct. 28th-29th**. The New Moon will be on Oct. 30th, so it won't be a factor.

We had two other observings scheduled for early Oct., but both of them had to be postponed until late Oct. or early Nov. We'll let you know if or when they are rescheduled.

* * *

The Sky in October. This will be a good month for planetary observers. Five planets – **Venus, Mars, Saturn, Uranus** and **Neptune** – will be in the night sky and two others – **Mercury** and **Jupiter** – will be visible in the pre-dawn sky. Venus will be in the WSW during the 1st half of the month and the SW after that, and Saturn in the SW.

Mars (mag. 0.1) will be up all month, too, flitting around the *Sagittarius* Teapot.

If, like most folks, you've never seen **Pluto** except in cartoons, the Oct. issue of **Astronomy** (p. 42) gives excellent finding instructions for everyone's favorite ex-planet. (It also tells you where to find **Neptune** (mag. 7.8) and **Uranus** (mag. 5.7), both of which are up all night.)

Mercury (mag. -0.8) rises about 1-1/2 hrs. before sunrise on Oct. 1st (which is good, because you

don't want to see the rising **Sun** in your binocs or telescope while looking for Mercury). On the 1st, Mercury will still be 10° above the E horizon 30 min. before sunrise.

On Oct. 8th, Jupiter (mag. -1.7) will join Mercury in the E pre-dawn sky; on the 11th, they will be less than 1° apart half an hour before sunrise. By the 15th, Mercury will be too close to the Sun to risk looking at, but Jupiter will continue to rise and move away from the Sun.

<p align="center">* * *</p>

Alan Pryor: An Observing Report (Aug. 27th)

Even though I was exhausted and aching from fixing my mother's attic stairs I decided to go outside tonight with my binoculars.

My target was the Jupiter and Venu**s** conjunction. I pulled up my celestial program called "The Sky 6" to get an idea of where Jupiter and Venus should be right after sunset. Depending on the time they were supposed to be at an azimuth of 272° and 10 to 15 degrees above horizon. I got out my "good" compass which is calibrated to compensate for the difference between true north and magnetic north. I used it and the inclinometer on the compass to find a place in the pasture where the trees were going to be low enough to give me a good view of 272 degrees azimuth. I found one place in the pasture that would work.

The sun was supposed to set was at 8:06 p.m. So I waited until 8:10 p.m. to start looking. The sky was clear in the west. I took my Celestron 9x63 binoculars with me. I started scanning the area with the binoculars. Around 8:13 p.m. I found Jupiter and Venus with my binoculars. Venus was the brighter of the two by a good bit, and Venus was above Jupiter. At the time Jupiter was a little faint. The twilight dusk was pretty bright. I tried to see them with the naked eye, but I could not see them without the binoculars. At 8:18 p.m. both of them were appearing a bit brighter against the sky when I used the binoculars. They were extremely close even in the binoculars. I have never seen two planets that close before. If I had to guess, I would say their separation was about 20 times the angular size of Jupiter. Around 8:20 p.m. I could see them with the naked eye, but with my vision they looked like one object without the binoculars. By 8:25 p.m. they were behind the trees.

If I had waited 15 more minutes to start looking for them I would have missed them completely. I guess I won't get to see this again unless I live until 2065.

Above: NGC 6905, Blue Flash Nebula in *Delphinus*. Photo by **Alan Pryor**. In **yr. editor's** 1997 Herschel 400 observing notes, he saw this 12th-mag. planetary nebula in his 10-in. Dob as "a small, faint gray nebulosity at 56x, but definitely a planetary at 147x. Slightly elongated E-W." On better evenings since then he has seen its distinctly bluish tint.

Above: DWB 82 & LBN 239 in *Cygnus*. In **Felix Luciano's** photo, **DWB 82** is the bright splash of nebulosity extending from the upper left corner to the center. **LBN 239** is the nebulosity extending and broadening to the lower right corner. (North is up.)

Everything in the photo is part of the massive **Gamma Cygni Nebula (IC 1318)**.

<p align="center">##</p>