

THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT
RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

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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**.

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Club mailing address: 1212 Everee Inn Rd., Griffin, GA 30224. FRAC web site: 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* from the A. L.

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Club Calendar. Fri.-Sat., Aug. 5-6: club observings (JKWMA, at dark); **Wed.-Sat., Aug. 10-13:** ALCON (Washington, D. C.); **Thurs., Aug. 11:** FRAC meeting (7-10 p.m. at The Garden in Griffin, meeting at 7:30, public lunar & planetary observing before and afterward).

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President's Message. FRAC's membership is not limited to 50 states: **Felix Luciano** and **Carlos**

Flores are from Puerto Rico, **Olga Flores** came to the U. S. from Russia, and **Andy Hasluem** is from England. Now our membership roots are even more international, because **Vencislav Krumov** visited JKWMA on July 1st and joined the club that night. (He found out about FRAC through **Brendon O'Keefe**, who works at the Coca-Cola Space Science Center in Columbus, Ga., and told him about our club. Thanks, Brendon.)

Venci (pronounced VEN see) is from Bulgaria. He is a construction lawyer living in Columbus and helping his client, a Bulgarian construction company, build two photovoltaic power plants near Butler, Ga.

Until recently, Venci says, he used a 60mm refractor because "Telescopes are several times more expensive in Bulgaria than they are in the USA." He has a 6-in. Celestron NexStar 6SE Schmidt-Cassegrain telescope with GoTo now, and he loves it!

Venci came back to JKWMA on Sat. night, and **Jeremy Milligan** and I were glad he did: between the three of us, we tracked down **Pluto**.

It wasn't easy to do, because Pluto is very faint. But Jeremy had brought along a good placement chart that showed where Pluto was located and Venci had a computer chart hooked up to his telescope. Pluto was in a good place for us to look for it between three faint little specks on the charts. When we finally found those three stars – that was the hard part, it took us about half an hour! – Pluto was the other "star."

So thanks, Venci, for joining our little club. If Sat. night was any indication, your membership is going to be a lot of fun for all of us.

And thanks, Jeremy, for your dedication to astronomy, FRAC and observing. We're living in a time when most people would rather not go out and see what the sky has to offer, and you're an important exception. We made FRAC history at JKWMA by finding Pluto on July 2nd, and we couldn't have done it without you.

We added another new member, **Alan Rutter**, at our July meeting. Alan lives in McDonough.

I can't tell you how happy we are to have you join us, Alan. Please let us know what we can do to help you get started in FRAC. That's what astronomy clubs are all about: members helping each other.

-Dwight Harness

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Last Month's Meeting/Activities. Seven members and two guests attended our JKWMA observing on July 1st. One of our visitors – **Vencislav** (“You can call me Venci”) **Krumov** -- joined FRAC that evening. Besides showing us his new telescope, Venci also showed us his new Meade Astrometric Eyepiece. It has a superimposed reticle that lights up like a Telrad to show the position angles of double stars. It definitely will come in handy when he decides to work on the A. L.'s Double Star Program.

Our other visitor, **Gil Shilcutt**, is a superbly talented observer – as you might expect from someone who brought along a 20-in. Dobsonian truss-tube reflector. Gil came with **Phil Sacco** (who is not exactly a slouch when it comes to observing, either). Needless to say, every time Gil found something, everyone had to see what it looked like in his monster ‘scope.

Other attendees included: **Dwight Harness; Jeremy, Emily & Delilah Milligan; yr. editor; and Truman Boyle**, who arrived early and mowed a large area at Site #1 for us to park and set up our telescopes. (Thanks, Truman.) The sky cooperated nicely, and all of us had a very good time.

On Saturday night, Dwight, Jeremy and Venci made the club record books by becoming the first FRACsters ever to find **Pluto** at a club observing. And when **Neptune** finally rose high enough to be observed – it was waiting for Dwight to leave -- Venci and Jeremy quickly found it. It was the first time that Venci had ever seen Neptune or Pluto. (Hopefully, Venci, they were the first of many such “firsts” for you in FRAC.)

We had 21 members and a visitor at our July meeting: **Tom Moore; Carlos Flores; Steve Benton; David Haire; Truman Boyle; Jeremy, Sarah, Emily and Delilah Milligan; Dawn Chappell; Felix Luciano; Erik Erikson; Aaron Calhoun; Venci Krumov; Dwight Harness;** a visitor, **Alan Rutter**, who joined FRAC that night; **John Wallace; Steven “Saratoga Smitty” Smith; Ken Walburn; Larry Higgins;** and **yr. editor**. The latter five are FRAC's remaining charter members, and boy!, did they enjoy being together again! Each of them received a white polo shirt with the A. L. logo on it and either “FRAC CHARTER MEMBER” (John and Smitty) or “FRAC CO-FOUNDER” (Ken, Larry & yr. editor) printed on the back.

This ‘n That. Our heartfelt sympathies are extended to **David Haire**, whose mother passed away after a long illness on June 10th.

On an equally sad note, we regretfully inform you that **Larry Higgins's** daughter **Randi** has passed away. Like her father, her mother **Toni** and her brother **Dylan**, Randi was a wonderful person and a joy to everyone who knew her. The deepest condolences of all of us in FRAC are extended to the Higgins family in their time of bereavement.

*Thanks to **Tom Moore**, our webmaster, we will have a complete set of FRAC newsletters on our website dating all the way back to Vol. I, No. 1 (March, 1997).

Beyond perusing FRAC's early history at your leisure, there's another reason why you might find the *Observer's* first year of newsletters valuable: throughout that year, in 12 monthly installments Atlanta Astronomy Club president **Art Russell** contributed a column devoted to telling you how to find all 109 of the Messier objects. Finder charts accompany each of his star-hops. Since you can't use GoTo or PushTo in the Messier Program, Art's articles are a valuable resource for anyone who wants to earn a Messier pin.

***NEWS FLASH:** After our July meeting, **yr. editor** sent a “Letter to the Editor” and one of **Felix Luciano's** group photos to **Ron Kramer**, editor of the A. L.'s quarterly newsletter, the *Reflector*. Our cover letter explaining our submission read, “**Denise Moser**, the A. L. League Sales Representative, (said) that you might want to publish this Letter to the Editor and attached photo in a future *Reflector* as an incentive for other clubs to do something similar to what we've done.”

Mr. Kramer's reply came the same day: “Hi, Bill! Thanks so much for the letter and the photo. We agree it would be a good addition to our Reflector Mail column, and we have reserved a place for it in the December issue. (The September issue is already filled.)”

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Upcoming Meetings/Activities. Our JKWMA observings will be on **Fri.-Sat., Aug. 5th-6th** – 3 and 4 days after **New Moon**. Since we haven't used Site #3 in more than a year and Site #2 in nearly as

long – we’ll explain why next month – unless otherwise noted all of our JKWMA observings from now on will be at Site #1 (i.e., the parking lot located 1/3 mi. inside the gate at Mt. Carmel Rd.).

Our meeting will be on **Fri., Aug. 11th**, at The Garden in Griffin, with public lunar/planetary observing from 7-7:30 and again after the meeting. The program will be “The Northern Sky and the North Celestial Poles” from the *Our Night Sky* dvd.

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The Solar System in August. This month will be a delight for planetary observers: all eight of the planets will be visible in the evening sky if you know when and where to look, and if you have a relatively open western horizon.

After sunset, look for **Venus, Mercury** and **Jupiter** in the western sky. On Aug. 1st, they will form a 27° straight line, with Venus (mag. -3.9) the lowest and by far the brightest, Mercury (mag. -0.1) less than a fist-width to its upper left, and Jupiter (mag. -1.7) 2-1/2 times farther to the upper left of Mercury.

On Aug. 27th, Venus and Jupiter will appear to the naked eye to be virtually a single incredibly bright star; in a low-power in a telescopic view, they will be about a thumb-width apart. (We hope our astrophotographers are reading this.)

Mars (mag. -0.8) and **Saturn** (mag. 0.4) will be high in the southern sky.

The ancient Greeks named the brightest star in the constellation *Scorpius* **Antares**. It meant “rival of Ares,” the Greek god of war. Mars was the Roman equivalent of Ares. Like Mars, the bright (mag. 1.0) glow of Antares is deep red in color. They are so similar in appearance that, without binoculars or a telescope, it’s easy to mistake one of them for the other.

On the evening of Aug. 23rd, though, it will be easy to compare them because Mars will lie just 2° NNW of Antares. Mars will be the brighter of the two; telescopically, its sharply defined disk will contrast vividly with the spikes of starlight emanating from Antares.

Mars is not as close to us as it was in May, but it will still display subtle surface features on Aug. 23rd, if you take the time to look for them. You’ll see the white polar caps, of course – but you may also see dark surface features.

To complete your viewing pleasure on the 23rd, Saturn will be 6° – a bit more than 3 finger-widths

held against the sky -- NNW of Mars. Antares, Mars and Saturn will be in a straight-line alignment.

While looking at Saturn’s lovely rings in your telescope, see if you can detect the thin black ribbon of the **Cassini Division**, a tiny gap in the rings. (*See photo, p. 6. –Ed.*) You may also be able to see Saturn’s shadow as a darkening of the rings east of the planet.

Neptune (mag. 7.8) will be up all night in the constellation *Aquarius*. You won’t see it at all naked-eye, but it will appear as a blue-gray “star” in binoculars and as a tiny but clearly defined disk telescopically.

Uranus (mag. 5.8) will rise in the east around 11 p.m. in August, its tiny blue disk immediately recognizable in binocs or any telescope. At almost naked-eye brightness, it’s an easy find in the constellation *Pisces*. Google “Uranus in August 2016” for a finder chart to help you locate it.

You won’t see any surface features on Uranus or Neptune, no matter how much magnification you use. Still, it’s amazing to think that we can see their colors from distances of 1.8 and 2.7 billion miles away, respectively.

Here are the trade-offs you get between viewing the planets with binoculars and with a telescope: they are easier to find in binocs because your field of view is much wider than even a low-power telescopic view. But they will be smaller and more star-like than they appear in telescopes. In binoculars, you’ll see Venus, Mercury and Jupiter as bright, white “stars” – but you won’t see Saturn’s rings unless you use a telescope. Mars will be a red “star,” Saturn will be pale yellow, and all five of those planets will be visible without binoculars or a telescope. Venus will be the first to leave the stage; it will begin its disappearing act during twilight.

Oh, by the way: to view the eighth planet, look *down*, not up at the sky. **Prof. Stargazer** will give you detailed finding instructions for that planet for a paltry fee of \$25. (He accepts Visa, MasterCard and PayPal. And if you’re one of the first 50 to call, you’ll get a free set of ginsu steak knives.)

The **Perseids meteor shower** will peak on Aug. 12th-13th. The waxing gibbous **Moon** will set around 1 p.m., so the sky should be dark after that. Experts predict that this year’s Perseids may produce as many as 150 meteors per hour around peak. (For the Perseids, the peak normally lasts about 24 hours.) Now, if they can just predict clear skies for that time...

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Planets Real and Imaginary

article by **Bill Warren**

After the discovery of **Uranus**, astronomers charting its orbital path noticed that it deviated from its predicted route in ways that suggested that something large and even farther out from the **Sun** was affecting its orbit. That led to the discovery of the planet **Neptune**.

When astronomers plotted Neptune's orbit, they found discrepancies in its path that suggested that a planet beyond Neptune was affecting its orbit. That eventually led to the discovery of **Pluto**. But Pluto was found to have no effect on Neptune's orbit, and in 2006 Pluto was reduced to dwarf planet status.

Since then, other Pluto-sized bodies have been found in the **Kuiper Belt**, and many astronomers believe that at least one as-yet undiscovered planet-sized object resides either in the Kuiper Belt or farther out in the **Oort Cloud**. That much is fact, or at least scientific conjecture. I'll come back to that subject, but before doing so let's take a look at what certain unscientific minds have suggested, i.e., that an undiscovered planet is lurking somewhere out there and heading for Earth with deadly intentions.

Niribu. In 1995, a mystic named **Nancy Lieder** made headlines worldwide and gained millions of followers when she announced that, through psychic channeling with aliens from the **Zeta Reticuli** star system, she had been warned that a planet called **Niribu** was on virtually a collision course with Earth. In May, 2003, she said, Niribu would fly through the inner solar system, passing so close to Earth that our planet's magnetic north and south poles would suddenly reverse themselves, destroying most of humanity.

As is universally true of such hoaxes, there were grains of truth in Ms. Lieder's prediction. Earth *does* periodically undergo geomagnetic reversals – but not in such a brief time frame. It takes anywhere from a thousand to 10,000 years for those magnetic shifts to occur, not a day or two.

Still...A close encounter with a planet-sized body would dramatically speed up Earth's geomagnetic reversal process, so let's fast-forward to May, 2003.

Unless I'm very much mistaken, Niribu never showed up, Earth's magnetic poles did not shift and

humanity was not wiped out. But Niribu didn't go away, either. Ms. Lieder just postponed its arrival date.

(The name Niribu did not come from Nancy Lieder or aliens in the Zeta Reticuli star system. It first appeared in a book by a Russian "ancient astronauts" theorist, **Zecharia Sitchkin**, based on his study of ancient Sumerian mythology. According to Sitchkin, the Sumerians believed that their civilization was begun by a race of aliens called the *Anunnaki*, who came from a planet Niribu that was located somewhere beyond Neptune. But Sitchkin never claimed that Niribu would present a threat to Earth. Obviously, he didn't have Ms. Lieder's psychic hot line to the Zeta Reticulans.)

2012. Sometime in the early 2000s, other "ancient astronauts" writers noticed that the Mayan calendar – which was very sophisticated as primitive calendars go – ended abruptly on Dec. 21, 2012. They took it to mean that time on Earth would end on that date. (They didn't explain how the Mayans might have known that, unless it was through communication with aliens that once paid them a visit. Such myths and legends are associated with the Mayan, Aztec and Incan civilizations.)

Before you could say *Are you sure about that?*, every crackpot doomsayer from A to Z came out of the woodwork to explain in newspaper, radio and television interviews, tv documentaries and even movies how Earth's demise would occur on that date. The media, most of whom knew nothing about astronomy but recognized a good story when they saw it, treated each 2012 disaster prediction like it had come from **Stephen Hawking**.

Some doomsday forecasters said that a unique straight-line alignment of the planets on that date would decay their orbits and send them hurtling into the Sun like a yo-yo returning to your hand. (Nope. There was no straight-line alignment of the planets on that date, nor had any reputable astronomers predicted such an alignment.)

Other mystics said the end of the world on Dec. 21, 2012 would be due to events such as:

*The **Sun** passing through the galactic plane of the Milky Way, thereby linking the Sun gravitationally to **Sagittarius A***, the supermassive black hole at the Milky Way's center, resulting in our entire solar system being sucked into the black hole. (They conveniently overlooked the facts that (a) the Sun had already passed through the galactic plane in 1998 with no ill effects, and (b) even if it

were to occur, it would take thousands of years for the solar system to reach the black hole.);

*Earth's mantle and crust overheating and shifting due to a sudden, massive burst of solar radiation. (Try proving that *that* won't happen on any given date!);

*An asteroid impact. (See above.);

***Betelgeuse** going supernova. (Hey, it's probably already happened, we just don't know about it yet. But we're too far away for it to affect us. In order to cause a mass extinction on Earth, a supernova would have to occur within 26 to 33 light-years away. Betelgeuse is 640 light-years away.);

*An alien invasion. (*War of the Worlds*, anyone?); or,

*The planet Niribu making its belated – and deadly – appearance.

So the gloom-and-doom crowd differed as to how humanity would suddenly become extinct – but all of them agreed that the event would take place on Dec. 21, 2012. (Or if not then, perhaps later.)

None of those things happened on 12/21/12 or thereafter, of course, or else you wouldn't be reading this now. But as any reader of *National Enquirer* will tell you, *Bad news sells; good news doesn't*. That's why the ten o'clock news always features things like house fires, auto accidents, drownings, shootings, robberies, or footage of floods, tornadoes or other natural disasters. And that's why people are so interested in doomsday predictions, no matter how far-fetched they might be. To the media, at least, bad news is good news.

Still...Just because Niribu doesn't exist and therefore isn't on a collision course with Earth doesn't mean that there are no undiscovered planet-sized bodies in the solar system. As I've pointed out before, there aren't any inside the orbit of Neptune, or else they already would have been discovered. But who knows for sure if any other planets lie in the outermost regions of the solar system? Many astronomers, both professional and amateur, are working under the assumption that very large objects are out there, and they are searching for them with very large telescopes. Thousands of Kuiper Belt objects have been identified since the discovery of Pluto in 1930 and **Sedna** in 2003. And that brings us to an article, "How We Discovered Planet Nine," by **Mike Brown** in the June, 2016 issue of *Astronomy* (pp. 20-25.)

Planet Nine. Brown relates in painstaking detail how he and his colleagues discovered "Planet Nine." According to him, it is located in the outer region of the Kuiper Belt, at an average distance of 55.8 billion miles from the Sun. (By way of comparison, Pluto is 3.96 billion miles from the Sun.) Brown writes that Planet Nine is ten times as massive as the Earth (i.e., slightly less massive than Neptune), which certainly qualifies it as a planet. But here's the rub: *They haven't seen it*. They have inferred the presence of Planet Nine and gathered data about it based on its supposed effects on the orbits of other Kuiper Belt bodies, but they don't know where it is. They think that presently it might be located in southern *Ophiuchus*, glowing faintly at about mag. 25 (which might be likened to being in Griffin and identifying the glow of a single match flame as far away as downtown Atlanta in your telescope).

Still...as the noted physicist **John Archibald Wheeler** has said, *No phenomenon is real until it is observed*.

The title of Brown's article expresses far more confidence in Planet Nine's existence than his last two paragraphs would indicate:

*"Is Planet Nine out there? It's always wise to be skeptical, but we are still convinced that the answer is yes. Something must be responsible for all the unusual orbits that we now see in the solar system. Planet Nine (*which, incidentally, is not an official name, since its existence has never been proved or its location identified –Ed.*) is by far the most likely explanation." (p. 25)

*Also from p. 25: "If it is out there, when will we find it?" The first five words of that sentence strongly suggest that Planet Nine has not been "discovered."

No one asked me, of course, but while Mike Brown's article is well written and authoritative, it is also sensationalistic. It doesn't deliver the goods regarding the promise inherent in its title. Brown and his colleagues have not discovered a ninth planet in the solar system – *and they never will, unless one of them is the first to see it*. That's why he couldn't afford to wait until Planet Nine is found to announce its discovery: someone else would get the credit for it.

Brown's premature announcement that he and his fellow researchers have discovered a new planet brings to mind the situation when, in 2015, a group of astronomers breathlessly announced the discovery of gravitation waves that would prove

that the Big Bang occurred. A few weeks later, other studies showed that they were actually seeing the effect of dust in the solar system on their view of more distant objects.

I'm not suggesting that Brown *et al* are wrong about the existence of Planet Nine in the Kuiper Belt. It probably *is* out there. But discovery rights go to the person who sees it first, not to the first person to predict its existence. For example, in 1846 the French mathematician **Urbain Le Verrier** predicted where Neptune would be found. A German astronomer, **Johann Galle**, quickly found it located less than 1° from where Le Verrier said it would be, so Galle (who saw it first) was credited with the discovery of Neptune and Le Verrier was allowed to name it. Mike Brown probably will claim the right to name the new planet – if, that is, it qualifies as a planet.

When the International Astronomical Union voted to demote Pluto to a dwarf planet, they listed three requirements that celestial bodies must meet in order to be classified as a planet. One of those requirements is, *It must have cleared the area around its orbit of other similar objects by absorbing or destroying them.* Is that possible in an area that contains billions or trillions of objects similar to Planet Nine?

Anyway, my real gripe about all this concerns the editors of *Astronomy Magazine*. This is not the first time they have played mind games or word games with their readers. A recent issue of *Astronomy* contained three statements by writers who implied strongly that people who hold religious beliefs are ignorant, unscientific cretins whose knuckles drag the ground when they walk. Such a lack of respect for *Astronomy's* readers is deeply unsettling, and more than once I've considered canceling my subscription.

In publishing an article that offers an unproven (albeit highly convincing) theory as fact, the editors are being decidedly unscientific and misleading. I'd expect that kind of behavior from *National Enquirer*, but not from an astronomy magazine whose editors know the difference between scientific theories and scientific facts but choose to ignore it when it suits their purposes.

P.S.: In case you thought that Niribu has gone away – well, think again. Since 2012, Niribu has been linked to **Comet ISON** (in 2013) and, more recently, to Planet Nine.

If at first you don't succeed,...

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Above: Saturn. North is at the top of **Alan Pryor's** photo, and Saturn rotates from left to right. A number of ring and surface features are visible in the photo.

Ring Features. The outermost feature is the grayish **A Ring**. At the center of the A Ring you can see the thin, darker gray **Encke Division**, which is a smaller version of the **Cassini Division** that separates the A Ring from the white **B Ring**. (Both the Encke Division and the Cassini Division are gaps in the rings.) The innermost **C Ring** is light blue below Saturn's disk and royal blue outlined in gray elsewhere.

Surface Features. Like **Jupiter**, Saturn contains dark *belts* and lighter-colored *zones*. The **North Polar Region** appears pale green at the top of the planet. The lighter area below it is the **North Tropical Zone**, and below that lies the pastel orange **North Equatorial Belt**. The **Equatorial Zone** is the yellow band; below it and extending down to the rings is the **South Equatorial Belt**.

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I am one individual on a small planet in a little star system in one of the galaxies.

-Robert Assagioli

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Put three grains of sand inside a vast cathedral, and the cathedral will be more closely packed with sand than space is with stars.

-Sir James Jeans

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