

# THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT  
RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

**Vol. 19, No. 5** **July, 2015**

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

Board of Directors: **Larry Higgins**; **Jessie Dasher**; and **Aaron Calhoun**.

Facebook Coordinators, **Jessie Dasher** and **Laura Harness**; Alcor, **Carlos Flores**; Webmaster, **Tom Moore**; Program Coordinator/Newsletter Editor, **Bill Warren**; Observing Coordinator, **Ron Yates**; NASA Contact, **Felix Luciano**; Comptroller/Grant Coordinator, **Roger Brackett**.

Club mailing address: 1212 Everee Inn Rd., Griffin, GA 30224. FRAC web site: [www.flintriverastronomy.org](http://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. Thurs., July 9:** FRAC meeting and public lunar observings (7-10 p.m., The Garden in Griffin); **Fri.-Sat., July 17-18:** club observings (Joe Kurz Wildlife Management Area, at dark).

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**President's Message.** I spent a relaxing, restful week in the Smoky Mtns. of eastern Tennessee in mid-June. It was the first real vacation my family and I have had in several years. I had a wonderful time doing nothing except eating, playing with the

grandchildren and enjoying the view of Mt. LeConte from our porch.

Well, I'm back now, refreshed and rarin' to go; I'll turn it over to Bill, so I can find out what went on while I was gone. But first I want to welcome our newest member, **David Haire** of Milner, Ga.

We're happy to have you in FRAC, David; please let us know what we can do to help make your membership as enjoyable as you want it to be. Like Delta Airlines, we're ready when you are.

**-Dwight Harness**

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**Last Month's Meeting/Activities.** **Truman Boyle** did a solo observing for a family of six at The Rock Ranch on June 6<sup>th</sup>, and **Ron Yates** conducted two solar system presentations for children and teens at UGa-Griffin on June 10<sup>th</sup>.

We had thirteen attendees at our June meeting: **Jessie Dasher**; **Steven "Smitty" Smith**; **Ron Yates**; **Sarah & David O'Keeffe**; **Truman Boyle**; **Steve Bentley**; **Felix Luciano**; **Carlos Flores**; **William Murray**; **Lenawee Silver**; yr. editor; and **David Haire**, who joined that night. Truman brought a sampling of about 20 items that he selected as payment for helping the late **Tim Nix's** sister sort out the astronomy equipment at The Camera Bug, Tim's store in Atlanta. Truman selected three of the items as door prizes for the meeting; the rest will be door prizes for later meetings and/or our Christmas party.

**Ron Yates** and **Dwight Harness** attended our club observing on June 19<sup>th</sup>. The highlight of their evening came when, before darkness settled in, Dwight saw an unusually bright light in the sky near **Polaris**. When he found it in his telescope, he saw that it was a large weather balloon. After they watched it for about five minutes, it suddenly exploded like a fireworks display, sending a cascade of fiery particles arcing outward in all directions to drift gently earthward before blinking off.

On the following evening, Ron, **Alan Pryor** and **Felix Luciano** showed true astronomers' persistence in waiting at JKWMA until 11:30 p.m. for the skies to clear. When the clouds finally rolled away, they took astrophotos until the wee hours of the morning. You can see some of their work on pp. 6-7; their other photos will appear in next month's *Observer*.

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**This ‘n That.** There is absolutely no truth to the rumor being spread by yr. editor that **Dwight Harness** didn't graduate from high school, he *quituated*. It *is* true, however, that Dwight's brilliant and lovely daughter **Laura**, our facebook co-coordinator who graduated from h.s. in late May, was not only a straight-A honor student at Griffin High and salutatorian for the Class of 2015, but she took home enough scholarship grants to pay off the national debt.

The only negative associated with Laura's graduation arose when she turned down yr. editor's offer to write her salutatory address for her. (He wanted her to begin by saying, "Here's what you can see in the sky tonight...")

Anyway, congratulations, Laura, from all of us in FRAC. Thanks for all you've done for us. We know you'll do great at Wesleyan College next year, and we'll miss you.

\***Ron Yates**, a marvelously gifted astronomer and astrophotographer who came to us from the Louisville Astronomical Society, has assumed the role of FRAC's observing coordinator. Ron has some great ideas for increasing attendance at our club and public observings, and we hope that you'll support his efforts in that regard.

\*A reminder: **ALCON 2015**, the A. L.'s national convention, will be held in Las Cruces, NM from **July 6<sup>th</sup>-11<sup>th</sup>**. FRAC's **Dr. Richard Schmude** will be one of the speakers. For more information regarding the annual event, go to [www.astroleague.org](http://www.astroleague.org) and follow the links.

\*By now you should have received the June issue of the A. L.'s quarterly newsletter, *The Reflector*. If you haven't receive it yet, contact **Carlos Flores** at [cflores111@hotmail.com](mailto:cflores111@hotmail.com) or 404-215-4493 and he'll see that you get it. (And if, for whatever reason, you don't receive your monthly issue of our newsletter by the end of each month, contact **Tom Moore** at [tmoores@dfiequipment.com](mailto:tmoores@dfiequipment.com) and he'll send it to you.)

\*If you're new to FRAC, you may not be aware that 1/3 of your \$15 club dues goes to membership in the Astronomical League. That membership entitles you to participate in the A. L.'s pin-oriented observing programs like the Messier, Binocular Messier and Lunar Programs, etc. To find out more about those programs and others – presently there

are 50 of them covering practically everything in the universe that can be seen in a telescope -- go to [www.astroleague.com/](http://www.astroleague.com/) and click on their Observe link.

Basically, each program consists of a list of objects for you to find and observe; when you do that, you earn an A. L. lapel pin and certificate of achievement for that program. The rules and requirements for earning pins vary from one program to another, so your starting point would be to go to the program(s) you think you might want to do, and see what they involve. One of the Observe links mentioned above will tell you which programs are suitable for beginning, intermediate and advanced observers. (*For more about those observing levels, see pp. 5-7. –Ed.*)

National Observing Program Coordinator **Aaron Clevenson** has created "What's Up, Doc?," a free monthly online publication that tells which objects in the A. L.'s beginner-level observing programs are visible in the night sky that month. To find it, Google "Aaron Clevenson's What's Up, Doc?" and follow the links. You can also follow that link to another, "What's Up Tonight, Doc?," that does the same thing for intermediate- and advanced-level observing programs.

If you go to the FRAC website, [www.flintriverastronomy.org](http://www.flintriverastronomy.org), click on the Downloads link and scroll down to "FRAC's Monthly Objects," you'll find a list of the objects in the Messier, Caldwell, Double Star and Herschel 400 Programs, arranged by month.

\*After a 9-1/2-year journey, NASA's New Horizons spacecraft will pass within 7,700 miles of **Pluto** in its flyby (not orbital) mission on July 14<sup>th</sup>. During the 48-hour period of its closest approach, the array of cameras aboard New Horizon will send back a flood of images of the dwarf planet with a resolution of 1/4 mi. per pixel. That's not the kind of up-close-and-personal view you get from spy satellites that can read the time on your wristwatch – but spy satellites don't travel 3 billion miles into space to reach their targets, and they float just a hundred or so miles above us.

(In traveling to Pluto New Horizons attained the greatest velocity of any man-made object in history, i.e., 31,000 mph, or 8.6 miles per second.)

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**Upcoming Meetings/Activities.** Our club meeting and public lunar observings will be held from 7-10

p.m. on **Thurs., July 9<sup>th</sup>** at The Garden in Griffin. Our program will feature “The Antennae Galaxies – A Cosmic Collision” from the dvd *Experiencing Hubble: Understanding the Greatest Images of the Universe*.

Our club observings will be at JKWMA Site #3 on **Fri.-Sat., July 17<sup>th</sup>-18<sup>th</sup>**.

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### **Bragging Rights** **by Bill Warren**

With about 23,000 residents, Griffin, Ga. isn't very big as cities go. It's located halfway between Macon (pop: 91,000) and the sprawling metropolitan Atlanta area, which numbers more than 2.2 million people. Griffin is known as “The Iris City,” but its main claim to fame is that the western gunslinger, gambler and dentist **Doc Holliday** was born here.

What many Griffinites may not know is that their city is home to one of the most incredible astronomy clubs in the world: the **Flint River Astronomy Club**. We're a little club with less than 40 members, but we've done some pretty big things.

During FRAC's 18+ years of existence, FRAC members have earned six national awards and one international award, and our club has distinguished itself in other ways that merit attention.

You already know this if you're a FRAC old-timer. But many of our newer members may not know it, and they're entitled to know how incredible their club really is. We've earned our bragging rights.

### **National Awards**

Since its beginning in 1997, FRAC has established a tradition of excellence that belies our small size. We've always been affiliated with the Astronomical League, the world's largest organization of amateur astronomy clubs. The A. L. carries considerable clout in amateur astronomy in the U. S.

\*In 2000, FRAC's **Katie Moore** won first place honors in the A. L.'s “**Jack Horkheimer Award for Exceptional Service to Astronomy By a Young Astronomer**” competition. Katie was 17 years old at the time; she later attended and graduated from the University of Arizona with a major in astronomy. Today, Katie runs the public

observatory at the Smithsonian Institution in Washington, D. C.

\*In 2001, two FRAC members, **Bill Warren** (#4) and **Phil Sacco** (#11), earned A. L. **Master Observer** pins and certificates. (Master Observer is the highest level of observing competence recognized by the A. L.) A third member, **Art Zorka**, earned M. O. #119 status in 2011; to our great dismay, Art passed away shortly after he received his pin.

To this day, those three FRACsters remain the only Georgians that we know of who have attained Master Observer status. In the fourteen years since Bill and Phil became Master Observers, only 154 of the A. L.'s 30,000 members have achieved M. O. status.

Phil also was SERAL -- Southeastern Representative of the A. L. -- for a decade or more, serving as troubleshooter for all of the A. L.'s affiliate clubs in the southeastern U. S.

\*In 2004, FRAC's secretary-treasurer, **Dawn Chappell**, entered FRAC in the A. L.'s annual **Astronomy Day** competition. FRAC won 1<sup>st</sup> place honors nationally in the “**Most (Activities) For Its Size**” category.

To put the magnitude of that accomplishment into perspective, consider: A few years later, the Savannah-based Oglethorpe Astronomical Association won that same “Most For Its Size” award. Savannah is six times larger than Griffin.

\*In 2008, after having served two terms as the A. L.'s national secretary, FRAC's **Dr. Richard Schmude** – then and now a professor in chemistry and an astronomy teacher at Gordon State College in Barnesville – was awarded the highest honor bestowed by the A. L., the **Astronomical League Award**. His election was unanimous, and well deserved: Richard's ongoing planetary and variable star research has earned him international recognition and acclaim.

\*In 2014, FRAC's **Stephen Ramsden** was one of only 17 finalists worldwide for the “Astronomy Photographer of the Year” award among hundreds of entrants from 51 countries. His solar photo, “Calcium K Eruption,” won 2<sup>nd</sup>-place honors in the Solar System category. The competition is sponsored annually by England's Royal Observatory and BBC's *Sky At Night Magazine*.

To see Stephen's prize-winning photo, go to FRAC's website, click on [Newsletters](#) and then click on [October 2014](#). His photo is on p. 2.

Stephen is by far the most prolific spokesperson for solar education in the world, having shown the **Sun** to at least half a million people – most of them schoolchildren – in the last seven years.

It doesn't stop there, though. In fact, we're just getting started.

### **Other FRAC Honors and Activities**

\*Twenty-eight FRAC members have earned A. L. **Basic Outreach** observing pins by participating in five public observings or other astronomy education activities. Seven members have received **Stellar Outreach** certificates for 50 additional hours of outreach, and five have earned **Master Outreach** pins for participating in 150 hours of outreach activity.

\*In all, 45 present and former FRAC members have earned a total of 124 A. L. observing pins. Leaders include: **Bill Warren** (16); **Art Zorka** (12); **Phil Sacco** (11); **Larry Higgins** (7); **Curt Cole & Stephen (Smitty) Smith** (6); **Dawn Chappell** (5); and **Doug Maxwell, John Wallace & Tim Astin** (4).

\*Then there is **Georgia Sky View – A Stellar Experience**, FRAC's annual star party. Beginning in 2004, we held GSVs at Camp McIntosh in Indian Springs State Park near Jackson, Ga. After a recent 2-year hiatus, in 2015 **Dwight Harness** revived GSV, this time at The Rock Ranch near Barnesville.

\*It is unlikely that many astronomy clubs in the world, however large or small, have their own A.L.-like certificate observing program. The **FRAC 50 Observing Program** was created by **Dawn Chappell** and **Larry Fallin** for the express purpose of meeting the needs of FRAC's observers. It contains fifty of the best non-Messier deep-sky objects for small telescopes at our latitude.

\*FRAC has also produced a marvelous 5-min. video, "The Night Sky Explorers," that you'll find on our web site. Written and filmed by **Tom Danei** and narrated by **Phil Sacco**, it serves as a wonderful introduction to astronomy and FRAC.

\*Beyond all that, there is FRAC's contributions to astronomy literature. **Dr. Schmude** has

published four astronomy books and hundreds of articles and reports in national and international astronomy journals and periodicals. **Smitty** wrote two articles for the *Observer* on dressing for winter and summer observing – you can find them on our website – and he combined them into one article that was published in *Amateur Astronomy Magazine*. My article, "How to Become a Master Observer," was published in the A.L.'s quarterly magazine, the *Reflector*.

\*FRAC's website, [www.flintriverastronomy.org](http://www.flintriverastronomy.org), is world-class in both quality and content. Operated virtually from its inception by webmaster extraordinaire **Tom Moore**, it serves as a comprehensive guide to what FRAC is and what we do.

\**The Flint River Observer* is our monthly newsletter. It contains club news, articles and photos submitted by club members, and other astronomy-related features and items. Except for a 1-1/2-year hiatus several years ago, I've served as FRAC's newsletter editor ever since the club began. For some members, the *Observer* is their primary source of information about astronomy and FRAC, so I try to make every issue informative, educational and entertaining.

Club president **Dwight Harness** recently summed up FRAC nicely: "I'm constantly amazed at how many talented astronomers FRAC has – not only those who have received awards, but many others who would be standouts in any astronomy club. Their contributions have helped to make FRAC what it is today, and I'm proud to serve as their president."

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### **Observing Levels**

**article by Bill Warren**

Question: *What's the difference between a beginning, intermediate and advanced observer?*

A **beginning observer** is one who is still learning how to operate a telescope and navigate the night sky, including using a star atlas or star charts to find things that lie beyond the solar system. Since every season features a different part of the sky, it usually takes a couple of years for a beginner

to become adept at things like recognizing the constellations. As a beginner, that problem affected me in two ways:

1. When *Cassiopeia* rose in the east, its five brightest stars formed a “bent W” shape in the night sky. But when it was in the western sky, it looked like a “bent M.” Similarly, I saw *Auriga* as a house-shaped pentagon of bright stars when it was in the east, but when it was in the west it looked entirely different to me. The house was upside-down. Eventually, through practice I learned to recognize constellation shapes on either side of the sky.

2. When I got my first telescope, I immediately started searching for Messier objects in the winter sky – and later, in the spring, summer and fall skies. By the time winter came around again, I had forgotten what many of the winter constellations looked like and I had to re-learn them. (Not *Orion*, though: nobody ever forgets Orion.)

Using all that as a starting point, an **intermediate observer** is one who understands the basics of telescope use and finding things with it. Intermediate observers have developed a variety of techniques for finding things, such as star-hopping, triangulating and scanning; they are comfortable using a star atlas or charts without outside assistance; and they understand what they are seeing in the telescope.

There is no precise cutoff point between intermediate- and **advanced-level** observing skills. The difference, I suppose, lies in preparation. Every advanced observer I’ve ever known has been an avid reader of astronomy books, magazines, etc. **Larry Higgins** and **Smitty** are two excellent examples: they wanted to learn all they could about telescopes and astronomy, and they applied what they learned to their observing.

Preparation takes another form, too: advanced observers have a plan for success. They know beforehand what they want to observe, where (and how) to find it, and if possible they know from their reading or research what it is likely to look like in their ‘scopes. And because they are veteran observers, they can recognize subtle differences between objects that might escape a less experienced observer, and a beginner certainly

would miss. Not all galaxies, nebulas or globular or open clusters look alike: advanced observers are capable of comparing what they see with other, similar objects they’ve seen in the past. They also are able to describe what they see in terms that are more detailed and precise than *small, faint* and *fuzzy*.

There is one other, smaller group of advanced observers who merit attention: those who confine their observing to one area of interest, largely to the exclusion of other areas – **Stephen Ramsden**, for example. Stephen says he prefers solar observing because the Sun is easier to find, but in fact his love of astronomy has evolved into a passion for the Sun.

Question: *Are there any shortcuts to becoming an intermediate- or advanced-level observer?*

I’ll answer that question with two questions of my own: *When you were a child, were there any shortcuts in learning how to walk, talk or read? How did you learn to do those things?*

**Alan Pryor**, **Felix Luciano** and **Ron Yates** are excellent astrophotographers – but they probably weren’t very good at it when they were just starting out. Back then, they made the same mistakes that every beginning astrophotographer makes. But they learned from their mistakes, and through constant practice, discussing astrophotography with each other and reading everything they could find on the subject they were able to fine-tune their imaging and their image-processing techniques in ways that allow them to produce the lovely images you see in the *Observer* every month. (See pp. 6-7. –Ed.)

It’s true in astronomy and in life: *You only get out of it what you put into it.* For example, as a beginning observer **Aaron Calhoun** faced more problems than the typical beginner because he’s nearsighted. At first, Aaron tended to blame his problems in finding things on his myopia rather than his inexperience. But he kept observing regularly and developed his skills to the point where today, more often than not, he finds objects faster than I do. I haven’t heard Aaron complain about his vision problems in a long, long time.

Since you asked, however, there *is* one shortcut to success as an observer: *Ask for help when you need it.* If you don’t ask for it, you’ll never get it.



Asking for help is not a sign of weakness or ignorance, it's a sign of needing help, and nothing more than that. Everyone needs help at least occasionally, even the most experienced observers. FRAC members are very generous about helping each other, and if we can't solve your problems or answer your questions, we can point you toward someone else or some other source that *can* provide the answers.

\* \* \*

## **Summerfall Winterspring**

article by **Bill Warren**

One of the puppet characters on the 1950s children's tv show "Howdy Doody" was an Indian, **Princess Summerfall Winterspring**. Today's topic, kiddies, is why we have those four seasons. It may not be the most exciting topic in astronomy, but it's something that everyone who calls him/herself an astronomer should understand.

**The Celestial Equator.** The equator is an imaginary line that circles the earth midway between the north and south poles. The *celestial equator* does the same thing in the sky: it's a projection of Earth's equator onto the sky that surrounds us in all directions – the *celestial sphere*. The celestial equator lies halfway between the celestial north and south poles of that sphere.

Every day, due to Earth's rotation the Sun appears to cross the sky from east to west. Over the course of a year it passes through 13 constellations, 12 of which comprise the zodiac: *Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus, Aquarius* and *Pisces*, in that order. (The other, non-zodiac constellation is *Ophiuchus*. It's not part of the zodiac because the Sun spends only a few days every year in Ophiuchus.) The Sun's path across the sky describes a line known as the *ecliptic*.

If the Sun traveled across the sky at the same angle all year, we'd have just one season. But it doesn't do that. It also drifts from north to south in our view for half the year, then reverses itself and moves from south to north for the next six months. (That apparent drift is due to the 23° tilt of Earth's axis of rotation relative to its orbital path around the Sun.) And that's what creates the four seasons: the

Sun's changing angle to Earth's equator raises and lowers temperatures as it drifts north and south.

**The Autumnal and Spring Equinoxes.** During its northern and southern drifts, twice a year the Sun crosses the celestial equator. On or about Sept. 23<sup>rd</sup> that crossing, or equinox, defines the first day of autumn – called, not surprisingly, the *autumnal equinox*. Six months later, while moving north rather than south, the Sun crosses the celestial equator again on or about March 21<sup>st</sup> – the first day of spring, or *vernal equinox*.

**The Winter and Summer Solstices.** After crossing the celestial equator in September, the Sun continues to drift south for three more months until it reaches its lowest point in the sky on or around Dec. 21<sup>st</sup> – the *winter solstice*, or first day of winter in the northern hemisphere. On that date, the Sun reverses its course and begins traveling north again. Six months later, it reaches its northernmost point (called the *summer solstice*) on or about June 21<sup>st</sup> and heralds the start of summer.

To recap: Although each of the four seasons overlaps the previous and next ones, their official beginnings are determined by the Sun's north-south altitude as it crosses the sky from east to west. The solstices mark the beginning of winter and summer; and the equinoxes, spring and autumn.

Now you know why.

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**Above: NGC 4565** (a.k.a. the **Needle Galaxy**), an edge-on spiral galaxy in *Coma Berenices*. Photo by **Alan Pryor**. NGC 4565 is the 17<sup>th</sup> object in the FRAC 50 Observing Program. It is also #38 on **Sir Patrick Moore's** Caldwell list, a Herschel 400

target and a showpiece of the Flat Galaxy Observing Program. One look at Alan's exquisite image shows why the Needle is so popular.

Needle Galaxy has all of the characteristics necessary to rate as one of the deep sky's celestial masterpieces: it's large and beautiful; it's brighter than most of the galaxies we can see in our telescopes; and it's easy to find, located near the "witch's hat" asterism that forms the identifiable portion of the constellation *Coma Berenices*. Like all truly great deep-sky objects, NGC 4565 is one that, having seen – or imaged – it once, you'll go back to it time and again to enjoy it or to show it to others.

You won't see all the way to the ends of the Needle in your telescopic view – its brightness tapers dramatically away from the galaxy's bright central bulge – but you may see the dust lane (depending on the size of your 'scope), and you certainly will see the large, prominent core that resembles a fried egg. And you'll have no trouble understanding how it got its nickname.

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**Above: M17 (Omega, or Swan, Nebula)**, an emission nebula in *Sagittarius*. The Swan's "body" – bright yellow in **Ron Yates's** lovely photo -- is oriented WNW-ESE; its shape has also been described as a Greek letter omega, a checkmark or the number "2." About two dozen stars are spread over the nebulosity, which is best seen using an O-III or narrowband nebula filter.

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**Upper Right Corner:** Just when you thought **Saturn** couldn't possibly get any prettier, along comes **Alan Pryor's** stunning astrophoto to redefine the word beautiful. Thanks, Alan.



**Below: A portion of Lynd's Dark Nebula (LDN) 204 in *Ophiuchus*.** Black & white photo by **Felix Luciano**.



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### Star Gazers

View the heavens  
With delight,  
And ponder the mysteries  
Of the night.  
The starry realms  
And voids of space  
That instill quiet reflection  
Of our place  
On this small rare Earth  
Set just so  
That life so precious  
Can dare to grow.

-**John Wallace**

July 5, 2014

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