

THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT
RIVER ASTRONOMY CLUB

An Affiliate of the Astronomical League

Vol. 21, No. 2 **April, 2018**

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**; Treasurer, **Jeremy Milligan**.

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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. Thurs., April 12: FRAC meeting (7:30 p.m., The Garden in Griffin); **Fri.-Sat., April 13-14:** JKWMA observings (at dark); **Sun., April 22:** Earth Day solar observing (1 p.m.-4 p.m., The Garden in Griffin).

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President's Message. When our March observings were clouded out, **Truman Boyle** invited us to use his property near Barnesville for an observing on Thurs., Mar. 22nd – and to sweeten the

deal, he offered to cook hot dogs. We took him up on it quicker than you can say “Pass the ketchup!”

Truman and **Sean** worked out the arrangements, I brought soft drinks, plates, napkins, etc., others brought baked beans, chips, potato salad and brownies, and we had a terrific time! It's amazing how much we enjoy each other's company in FRAC.

The observing site was good, and we hope Truman will invite us back, with or without the hot dogs.

Thanks, Truman, for being such a great host – and thanks, too, for reminding us that observings don't have to be limited to telescopes. With a little imagination and preparation, they can be even more fun than usual.

-**Dwight Harness**

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Last Month's Meeting/Activities. Twenty-four members – **Sarah & David O'Keefe, Gianna & Sean Neckel, Ken Olsen, John Felbinger, Carlos Flores, Cindy Barton, Larry Higgins, Dwight Harness, Alfred McClure, Jeremy Milligan, Felix Luciano, Marla Smith, Elaine Stachowiak, Eva Schmidler, Steven Hollander, Tom Moore, Chuck Davis, Steve Benton, Tricia Lopez, Erik Erikson** and yr. editor – and visitors **Barbara & Wayne Raye** enjoyed what is arguably **Dr. Richard Schmude's** best-ever talk on **Mars** at our March meeting. The question-and-answer period afterward sparked lively discussion and probing questions about the Red Planet that lasted nearly as long as Richard's talk.

Our JKWMA observings were clouded out, but **Dwight** met visitors **Wayne & Barbara Raye** there on Mar. 16th to give them an introductory look at the site and familiarize them with what we do and how we do it.

The following Thursday we had a cookout and observing at Truman's house. Attendees included **Dwight, Larry Higgins, Sean Neckel, Marla Smith, Elaine Stachowiak, Truman** and some guests he invited. Everyone enjoyed themselves from start to finish.

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This 'n That. If you haven't already done so, please send your \$15 check payable to FRAC for your 2018 dues to: **Jeremy Milligan, 100 Old Mill**

Way, Senoia, GA 30276, or give it to him at our April meeting.

*From **Alan Pryor** regarding last month's article on scary moments in observing:

"I remember that night at JKWMA when we saw an object moving around erratically in the sky. It was weird.

"I also remember another night a few years earlier at Cox Field. It was around 12:30 or 1 a.m., and **Felix (Luciano)** and I were the only ones still there when a man walked up. It was very dark, and we didn't know he was there until he spoke. It definitely gave us a scare.

"He said *Good evening*, and when we responded he asked us, 'Are you armed?'

"'Yes,' I replied, 'and you could have gotten hurt real bad by surprising us.' The thing is, we didn't any weapons, not even a can of Mace.

"He told us his story.

"He had parked his car on Turner Road, and was walking across the observing field to sneak in a visit with his girlfriend. She lived with her father, and she was pregnant. Her father had told her that she could not see the fellow any more.

"He walked away across the open field to the south of us, and about 20 min. later we saw a light come on in a house in that direction.

"I do not know who turned on the light. Was it the girl, or her father? We did not hear any gunshots, so I guess it was the girl."

*Re last month's reference to people often mistaking the planet **Venus** for a UFO: it's not hard to do, and making that mistake isn't a sign of ignorance. It's a matter of confused perspective.

During the Cold War period of the 1950s-'60s when the U. S. and Russia were developing rocketry for military and space purposes, so many people reported seeing unidentified flying objects that the U. S. Air Force developed a multi-year study of UFO sightings called *Project Blue Book*. After examining more than 12,000 cases of UFO sightings over an 18-yr. period, they were able to dismiss all but 5% of the sightings as natural phenomena. By far the most common of those sightings was Venus, as seen from a vehicle in motion.

Why Venus? Because Venus is the 2nd-brightest object in the pre-dawn or evening sky, and therefore

easy to notice and mistake for a UFO while you're driving. (People recognize the **Moon** when they see it.)

Drivers glancing out their side-view windows often report seeing a bright light that appears to be moving with them, paralleling their driving paths. The light isn't moving, of course – which they would know if they stopped to look at it – but they have places to go and are too busy to stop.

Used to seeing familiar objects like billboards and buildings disappear when they pass them, they assume that lights in the sky will also vanish behind them. But Venus stays in their side view and traveled with them because, like the **Sun, Moon**, other planets and the stars, Venus is too far away for its position in the sky to change when seen from a moving vehicle. So they think they are seeing a UFO moving with them.

*FYI: On Jan. 5, 2018 **Thomas Bopp**, co-discoverer of **Comet Hale-Bopp (C1995/ 01)** passed away in Phoenix, Arizona. He was 68.

Several FRAC members met Mr. Bopp when he and **Dr. Alan Hale** spoke at an Atlanta Astronomy Club meeting. Mr. Bopp was a friendly, likeable, soft-spoken gentleman, and like the comet that bears his name he will not soon be forgotten.

***Question:** In the mid-1920s, the American astronomer **Edwin Hubble** noticed that light from distant galaxies was more pronounced toward the red end of the spectrum, which indicated to him that those galaxies were moving away from us. Everywhere he looked in the sky, the same thing was happening. More important, the farther away the galaxies were, the faster they were moving away from us. From those facts Hubble determined that the universe's expansion is speeding up.

So here's the question: *What is redshift?*

Answer: Spectrographs split light or other forms of electromagnetic radiation into their component colors of the spectrum. If a celestial object is moving neither closer to nor farther away from us, its spectrum will be normal and unchanging. However, if an object (e.g., **Andromeda Galaxy**) is moving toward us, its spectrum will be more pronounced toward the blue end (i.e., blue shift). But if the object is moving farther away, the electromagnetic wavelength will

stretch, or “shift,” toward the red end of the spectrum.

In other words, “The wavelength of an electromagnetic wave traveling through the expanding universe will stretch so that blue light emitted by a distant galaxy will have become red light by the time (it reaches us).” (**James Geach**, “The First Galaxies [*Sky & Telescope*, April, 2016, p. 14].)

*Here’s another example of why astronomy is so complex and confusing. Cosmologists universally believe that the universe and everything in it began with a Big Bang (which, incidentally, is a misnomer: there was no *Bang!*, because sound does not travel in the vacuum of space. And even if it did, since the Big Bang created space for the universe to expand into there was no space to convey the sound produced by the explosion.)

For present purposes, let’s assume that the Big Bang is a fact, not a theory.

1. Cosmologists tell us that in the first 10^{37} of a second after the Big Bang, the universe expanded from nothing to the size of a grapefruit.

2. Cosmologists also say that the universe has no center, but is expanding everywhere.

Do you see a conflict between those two statements?

Even if, at the moment that expansion began, space expanded in all directions, the expansion had to have had a starting point, however small it might have been. And wherever that starting point was, after 10^{37} second it was still contained within an area the size of a grapefruit, even if everything within that grapefruit-sized universe was expanding away from everything else.

The answer given by cosmologists is that the Big Bang didn’t occur somewhere, it occurred *everywhere*. But prior to the Big Bang there was nothing, so “somewhere” and “everywhere” were the same thing. And if it was true then, why isn’t it true now? Can you be somewhere and everywhere at the same time?

If that’s confusing – well, it should to be. It’s scientists’ way of explaining things that have no explanation.

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Upcoming Meetings/Activities. Our April FRAC meeting will be held at 7:30 p.m. on **Thurs., April 12th** at The Garden in Griffin. Our speaker, **Felix Luciano**, will talk about “How to Process Astro-Images.”

Felix is a gifted speaker and a marvelously talented astroimager. He doesn’t often talk about his specialty at meetings – but when he does, he’s like the guy in the old E. F. Hutton tv ads: “When he talks, people *listen*.” Felix will tell you what you need to know in order to get started or improve your images.

If you’re interested in astroimaging – and many of our members are – this is one meeting that you absolutely do **not** want to miss!

Our club observings at JKWMA will be held on **Fri.-Sat., April 13th-14th**. (Remember: Bring your fishing or hunting license, and leave the gate closed but not locked behind you when you enter and leave.)

On **Sun., April 22nd**, we’ll conduct a solar observing at The Garden in Griffin. It will be an Earth Day celebration, and will run from 1-4 p.m. A large crowd is expected. The folks at UGa-Griffin are kind enough to let us use their facility at The Garden to conduct our meetings; this is our way of repaying their generosity, and we hope you’ll make every effort to attend.

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People You Should Know, Part 1: Sean Neckel.

Sean has made a huge impact on our club since joining FRAC in March, 2017. He quickly became a staple at our meetings and observings, and three months ago he became our observing coordinator. It’s a role he’s well suited for.

A highly organized individual, Sean is the kind of person who gets things done in a hurry. His love for observing is evident to anyone who watches him at work at JKWMA, and he is stunningly effective at communicating with visitors at our public observings.

“Sharing astronomy with people is something I’m passionate about,” Sean explains. “One of my favorite experiences in astronomy has been that “WOW!” moment when someone sees something amazing for the first time in the eyepiece.”

Sean observes with a Celestron Evolution 9.25” Schmidt-Cassegrain telescope, a Celestron C90 Maksutov-Cassegrain ‘scope and 20x50 binoculars.

He presently is working on the A. L.'s Double Star and Universe Sampler observing programs, and he plans to start on the Messier program and pursue planetary imaging in 2018. (Beyond all that, he is helping his daughter **Gianna** complete the Sky Puppies program before she turns 11 in August.)

Want more? Sean says, "I ride motorcycles, and I like to take long trips to desolate places and camp out. Recently I've started taking my C90 Mak with me, so when I'm out in the desert or on a mountaintop I'll have something to do at night.

"This summer, I'm going on a backpacking trip to Peru, where I hope to catch a view of a clear southern sky. In particular, I want to see the **Magellanic Clouds**, **Alpha** and **Beta Centauri** and the **Southern Cross**."

Sean works as manager of the tooling dept. at Porex Technologies in Fairburn, Ga. He lives in Fayetteville with his wife **Chelsea** and daughters **Isabelle** (age 15) and **Gianna**.

People You Should Know, Part 2: Alan Rutter.

Alan is an integral part of the vanguard of FRAC's new generation of observers. He uses a Celestron NexStar 6-in. Schmidt-Cassegrain telescope and a Coronado 40mm Personal Solar Telescope with a skill and tenacity that is astonishingly effective. He has already earned pins in the Lunar, Messier and Hydrogen Alpha observing programs, and he is presently working on the Double Star, Lunar 2, Binocular Messier and Herschel 400 programs. He says, "It's going to take awhile, but I'd love to get a Master Observer pin one of these days." He'll do it, too. Count on it.

Alan's involvement in FRAC reaches beyond observing: since Feb., 2017 he has served on our board of directors.

His bucket list also includes a trip to Scandinavia to view the aurora borealis and upgrading his solar 'scope for solar photography.

Alan received his degree in veterinary medicine from Mississippi State University ("Go Dogs!"), and he owns and operates Lake Harbin Animal Hospital in Morrow. He plays trumpet with the Alliance Drum and Bugle Corps, and he has acted in and directed numerous plays with the Henry Players Community Theatre in McDonough and the Southside Theatre Guild in Fairburn.

Alan lives in McDonough. He's not married, but he and his girlfriend Heather Simmons have been together for 7 yrs.

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The Sky in April. Jupiter (mag. -2.5) will rise around midnight on April 1st, and about 30 min. after sunset by the end of the month.

Venus (mag.-3.9) will be an "evening star" in April; **Mars** (mag. 0) and **Saturn** (mag. 0.4) will be "morning stars" huddled around the top of the *Sagittarius* Teapot.

The **Lyrids meteor shower** will take place between Apr. 14th-30th, peaking near dawn on the 22nd. The **1st Qtr. Moon** will be out of the way by then, so you'll be able to see Lyrids meteors if you're an early riser. (It doesn't matter where you look: if they're Lyrids, they will appear to be coming from the direction of the constellation *Lyra*, no matter where you see them.)

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Telescopes, Part I

(Editor's Note: This article first appeared in the July, 1997 issue of the Observer. It is Part 1 of a 3-part series on telescopes. Parts 2 & 3, written by yr. editor, will appear in subsequent issues of the Observer.

Smitty's excellent article focuses on Dobsonian reflectors because over the years our members by a large margin have shown a preference for Dobs over standard Newtonian reflectors, refractors or other kinds of telescopes.

Part Two will describe how telescopes work, including the strengths and weaknesses of each type. Part Three will compare them in terms of cost, portability, simplicity of use, quality of images and light-gathering power.)

A Telescope With Your Name On It

by Stephen (Saratoga Smitty) Smith

I'm often asked, "I want to get a telescope; which one is the best? My reply is always the same: *The one you're going to use often after you buy it.*

My listeners' blank stares deepen as I go on to explain that *Telescopes are like hammers...*

There are many kinds of hammers; each is designed for certain kinds of tasks. The telescope that's right for you depends on what you plan to do with it. A variety of telescopes are available (e.g., refractors, reflectors, Schmidt-Cassegrains, and off-axis reflectors, to name a few). Each type collects and focuses light in its own special way. Each has its strong points and limitations for different kinds of astronomical viewing.

Mountings. Telescope mountings are many and varied, but basically boil down to two types, *equatorial* and *alt-azimuth*.

With equatorial mounts, a slow-motion control knob or motorized drive is used to track objects across the sky. Equatorial mounts can be a headache for beginning observers because they must be polar aligned and set up properly before objects can be observed. They are also difficult for a beginner to operate in the dark due to the confusing array of friction knobs, handles, counterweight arms, and height adjusters present.

Alt-azimuth mounts simplify the task of locating objects, but they do not track: you must move the telescope tube vertically and horizontally to keep the object in your field of view. This can be rather confusing at first, since most astronomical telescopes (including those on equatorial mounts) invert and/or reverse the image. You can't use motorized drive with an alt-azimuth mounting. (*Editor's Note: This was true in 1997 when Smitty wrote this article, but today motorized platforms can be purchased to permit Dobsonian owners to track objects across the sky.*)

Other Problems. Mountings aside, most beginners' problems with their telescopes can be traced back to flimsy or unstable tripods, or to cheaply made friction locks (the devices that enable you to move and point the telescope on its mountings but keep it from drooping or swinging away from its targets.) A quality mount and tripod costs more than a cheaply made "beginner's telescope" (including mount and tripod) sell for!

Another troublesome feature – and usually an identifying characteristic of unreliable, "el cheapo" telescopes – concerns focusers and eyepieces. Most inferior telescopes use .965" eyepieces, which are available only with simple lens designs and an adapter for standard 1.25" eyepieces, but don't be

fooled: most .965" focusers are cheaply made. You're better off with a telescope that takes 1.25" eyepieces.

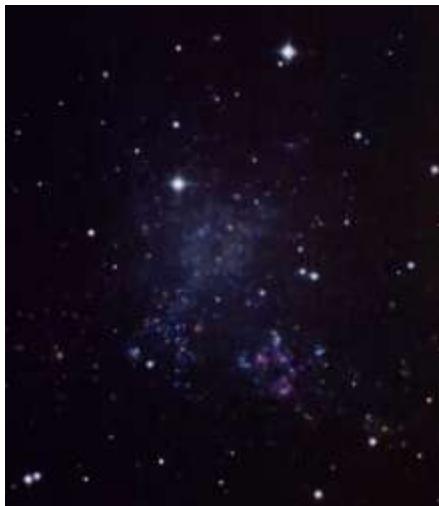
Dobsonians: Alt-Azimuths With an Attitude.

In what direction should beginners go in looking for a high-quality telescope at a reasonable price? Well, more than 60 years ago **John Dobson**, a Californian, had a similar problem. A monk, Dobson had no money or personal possessions but he wanted to see what the universe was all about. So he built his own telescope, a Newtonian reflector, out of used scraps and parts. What made Dobson's telescope truly special, though, was its mounting: a brilliantly simple kind of alt-azimuth mounting that is stable, highly maneuverable, and doesn't add the equivalent of open-heart surgery fees to the price of the telescope. A Dobsonian reflector can be built with basic hand tools, or you can purchase one from any of several manufacturers at a very reasonable price. Aperture (mirror) sizes from 3" and up are available.

For most people (including women and older children), a 4-1/2" or 6" Dobsonian is light enough to be carried and set up with ease, and will gather enough light to fully acquaint you with a wide range of wonderful objects in the night sky. Prices range from under \$200 for a 4-1/2" Dobsonian to about \$300 for a 6" Dob, depending on the manufacturer. Major manufacturers of Dobsonians under 18" include Celestron, Meade and Orion. If you're interested, you can write to them for free information about their telescopes – and you should talk to some Dob owners as well. Most of them probably will tell you that they plan to keep their Dobs even if they buy another 'scope for other purposes (e.g., astrophotography).

John Dobson never patented his design, nor did he seek money from the companies that have copied it. He contends that telescopes should not be named after people, so he referred to his creation as a "Sidewalk Telescope."

Personally, I feel that Dobsonian owners *should* use names – their own – for their telescopes. In my own case, I like to think of my telescope as a 10" *Smithsonian!* It gets me where I'm going whenever I feel like taking a leisurely, 30 million light-year stroll through the night sky.



Above: IC 1613, a dwarf irregular galaxy in the constellation *Cetus*. (Photo by **Alan Pryor**.) **IC 1613** is a member of the **Local Galaxy Group**, along with the **Milky Way**, **Andromeda Galaxy (M31)**, **Pinwheel Galaxy (M33)** and two score or more other dwarf galaxies. IC 1613 is 2.8 million light-years away, or slightly farther away from us than M31.

About two decades ago, the prominent British amateur astronomer **Sir Patrick Caldwell-Moore** decided to compile a list of 109 deep-sky objects that rival the Messier objects in beauty or fascination. In preparing his list, Sir Patrick made two stipulations: All of his Caldwell objects should be interesting to amateur astronomers, and they should be accessible in ‘scopes as small as four inches.

He was half-right at best.

Some of the Caldwells, such as the **Hyades** (Caldwell 41 in *Taurus*), **Saturn Nebula (NGC 7009)**, Caldwell 55 in *Aquarius*) and the great globular cluster **Omega Centauri (NGC 5139)**, Caldwell 80) are showpieces of the night sky that Charles Messier somehow overlooked. But others such as **NGC 188** (Caldwell 1), an open cluster in *Cepheus*, and **IC 1613** (Caldwell 51) are obscure, faint and difficult to find or observe in any telescope.

Alan writes, “I thought that IC 1613 would be a piece of cake to photograph, but it was far from that. My references indicated that it would be bright, but the stated brightness was an integrated brightness (i.e., the object’s total brightness if it were condensed to the size of a star. -Ed.) The actual surface brightness was much lower than that.

“I made the photo using a rented 24-in. telescope located in Fresno, Calif., but the lights of Fresno were a problem. This was compounded by the presence of a bright star in the image that created other reflections in the optical train. (I solved that problem by cropping the star out of the photo.)

“Between the light gradients, the noise and the low surface brightness, this photo was a problem from start to finish. I spent several months processing it, and I’m still not entirely satisfied with it.”

*(A p.s. from yr. editor: It’s like **Picasso** said when asked how he knew when a painting was finished: “You don’t finish a painting, you abandon it.” You do the best you can with a photo or an object you’re observing, but sooner or later you have to accept that it’s not going to get any better than it is now.*

Hey, Alan, I looked for IC 1613 when I was working on my Caldwell Program pin, and I never found it in my 12-in. ‘scope! Your photo is incredible, especially given the difficulty of your target and the situation you encountered in photographing it. You should be very, very proud of your finished product!)



Above: 2997, a spiral galaxy in *Antlia*, the *Air Pump*. **Alan Pryor** long-distance imaged this lovely southern hemisphere galaxy using a rented telescope in Australia. **NGC 2997** is about 25 million light-years from us.

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