

THE FLINT RIVER OBSERVER

NEWSLETTER OF THE FLINT
RIVER ASTRONOMY CLUB

An Affiliate of the
Astronomical League

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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. 30-31:
JKWMA observings (at dark); **Fri.-Sat.,
Sept. 6-7:** JKWMA observings (at dark);
Sun., Sept. 8: The Garden observing (7:00
p.m., rainout date **Mon., Sept. 9,** same
time); **Thurs., Sept. 12:** FRAC meeting
(7:30 p.m., Rm. 305 Flynt Bldg.); **Fri.-Sat.,
Sept. 27-28:** JKWMA observings (at dark).

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President's Message. As **Jerry Reed** sang
in the movie *Smokey and the Bandit*,
“We’ve got a long way to go and a short
time to get there” this month, so I’ll just say
Hi and leave it at that.

-**Dwight Harness**

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Last Month's Meeting/Activities. **Dwight
Harness, Carlos Flores, Joe Auriemma &
yr. editor** got in a couple of hrs. of
observing at JKWMA on Aug. 2nd. Before
dark, Joe flew his model airplane, a lovely
little triplane that weighed less than 2 lbs.
After dark, we tracked down globular
clusters in **Ophiuchus, Sagittarius &
Scorpius** until the sky clouded over.

The threat of rain contributed to a relatively
sparse turnout of fourteen at our annual pool
& pizza party on Sat., Aug. 10th.
Anticipating our usual large crowd for the
event, we ordered 20 large pizzas, so
everyone ate as much as supreme, pepperoni
or cheese pizza as they wanted.

Yr. editor contributed three door prizes.

Since he was donating them, the other
attendees' chances of winning were better
than 1 in 5. How'dja like to have them odds
with a lottery ticket?

Anyway, not only did it not rain on our
party, but a steady breeze throughout kept
everyone comfortably cool long before

sundown. Our attendees included: **Betty & Steve Bentley; Brianna & Erin Mills; Larry Higgins; Aaron Calhoun; Erik Erikson; Carlos Flores; Cynthia Armstrong; Dwight, Laura & Elizabeth Harness** and her boyfriend **Neil Langford**; and yrs. truly. (Erik, Brianna and Laura won the door prizes.) We would have preferred that more of you had been able to attend, but we were having so much fun that we forgot to give out Outreach Program pins & certificates to Cynthia (Basic) and Betty (Master).

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This 'n That. Website Update. **Tom Moore** has added directions to UGa-Griffin to the front page of our website to make it easier for Griffinites to find the campus and our lunar observing site. Tom has also added a "Directions to FRAC Sites" file to our [Downloads](#) link so you'll know how to get to the many sites that FRAC visits regularly or occasionally. (And *No*, **Ken Walburn**, that doesn't include directions to Girlz!Girlz!Girlz!, The Body Shoppe or other gentlemen's clubs.)

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Upcoming Meetings/Activities. We'll jump-start a busy Sept. observing schedule with four club observings at Joe Kurz Wildlife Management Area (JKWMA) on **Fri.-Sat., Aug. 30th-31st**, and again on **Fri.-Sat., Sept. 6th-7th**.

Then, to end the month, we'll return to JKWMA for two more club observings on **Fri.-Sat., Sept. 27th-28th**. That will give us *six* chances of having at least one clear night for a club observing this month. With all the rain we've had recently, that's not too much to hope for, is it? Maybe new members **Mike Basmajian** and **David Tew** will get to try out the site -- and maybe **Joe Auriemma**

will bring out his model plane for an encore flight.

To get to the wildlife management area from, say, Hampton, come S on U. S. 19/41 and stay on the 4-lane past the Hardee's/McDonald's stoplight at Ga. 92. Continue past the Griffin exit, and past the Newnan-Griffin exit at Ga. 16. Get off the 4-lane at the Ga. 362/Williamson Rd. exit, bear right (west) and set your odometer at 0.0.

Go 15.8 mi. on Hwy. 362W, and turn left at Mt. Carmel Road. (There's a sign announcing the intersection just before you get to it.)

Go 4.8 mi. on Mt. Carmel Rd., and you'll see a large "Joe Kurz Wildlife Management Area" sign on your right, just beyond a gray mailbox.

Continue past the mailbox and sign for 0.2 mi. on Mt. Carmel Rd., and turn right at the first – unpaved – road. (We'll have a couple of orange day-glo traffic cones to mark the road where you turn.) Turn right, follow that road for about 0.5 mi., and you'll see us set up in a small clearing beside the road. We'll show you where to park.

On **Sun., Sept. 8th**, we'll conduct a public observing for the "Friends of the Garden" club at UGa-Griffin's The Garden facility. Starting time will be 7 p.m. A large group of attendees is expected and we want to make a good impression, so please try to join us on that occasion if you can make it. (The rainout date is **Mon., Sept. 9th**, with the same starting time.)

Directions to The Garden: Coming south from, say, Hampton on 4-lane U. S. Hwy. 19/41, drive through the intersection where you'd turn left to go to a club meeting or right to go to Fayetteville on Hwy. 92, and stay on 19/41 through the next stoplight and drive past Ryan's on the right. After crossing over the RR tracks, take the Griffin exit. At the stoplight at the end of the S-shaped road, turn right onto Ellis Road. About 100 yds. down the road you'll cross

over a bridge. Another 100 yds. past the bridge you'll see a big stone wall on the right with "The University of Georgia – College of Agricultural & Environmental Sciences" on one side and "Research & Education Garden" on the other side, with a black gate between them. Turn right onto the asphalt road, pass through the gates, and the outdoor garden will be straight ahead on the right. We'll set up our telescopes on the grassy field just beyond the garden.

Our club meeting will be held at 7:30 p.m. on **Thurs., Sept. 12th** in Room 305 of the Flynt Bldg. on the UGa-Griffin campus. **Dr. Richard Schmude** will be our speaker, and his topic "Mars".

Please Note: Due to our "Friends of the Garden" observing on Sept. 8th, we will not have a UGa-Griffin lunar observing in September.

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ALCON 2013

a special report by Felix Luciano

(Editor's Note: ALCON, the A. L.'s annual national convention, was held in Atlanta on July 24th-27th.)

ALCON 2013 was a blast! The speakers and their presentations were first-class and very interesting.

FRAC attendees included **Erik Erikson, Dwight & Laura Harness, me,** and speakers **Stephen Ramsden** and **Dr. Richard Schmude.**

After Stephen's talk on solar astronomy and his amazing outreach program, he took us outside to view the **Sun**, using his "army" of telescopes that he had set up at the entrance to the Fernbank Science Center. Everyone came away super-impressed with the views of the Sun in H-alpha, Calcium-K and white light filters, plus a spectrograph. *(Dwight adds: "Stephen asked Laura to*

help focus his telescopes as he was setting up. It was a trip for her.")

Dr. Schmude spoke twice at the convention: once for the Association of Lunar and Planetary Observers (ALPO) Remote Planets Section, and a second presentation on the Mars polar caps. As always, his talks were excellent and super informative!

Other presenters included:

***Dr. Hal McAlister**, Regents Prof. at Ga. State Univ., director of the Center for High Angular Resolution Astronomy (CHARA), director and CEO at the Mt. Wilson Institute and author of the novel *Sunward Passage* that **Bill Warren** reviewed in the June issue of the *Observer*. Dr. McAlister talked about Mt. Wilson Observatory and CHARA.

***Tom Crowley**, a speaker at a Ga. Sky View star party a few years ago, talked about the Interstellar Medium (IM), what it is and how it is replenished and measured. I had a lot of fun talking to Tom during breaks and lunch. What a great guy!

Tim Puckett, who heads a group of north Ga. supernova hunters -- they've discovered 271 supernovas -- spoke regarding his beginnings in north Ga. and the work they are doing there. He said that he is moving his equipment to the west coast for several reasons, including better seeing than we have in the eastern U. S.

*Well-known astrophotographer **Don Parker** did a fun presentation for ALPO.

***Dan Llewellyn** of the Atlanta Astronomy Club (AAC) talked about high resolution planetary imaging with color cameras.

***Christi Whitworth**, education director of the Pisgah Astronomical Research Institute (PARI) told us about their educational center in western N. C. where students can use real observing equipment to study astronomy, astrophysics and engineering.

My first day at the convention, I had lunch with A.L. president **Carroll Iorg** and his wife; **Ann House** from Salt Lake City; and an AAC member. Ann discussed what her club is doing regarding “Astronomy in the Parks” outreach, and we talked about what other clubs are doing in terms of outreach.

Dr. Mike Reynolds, ALPO’s Eclipse Section coordinator and co-coordinator of the A. L.’s Outreach (pin) Program, brought a large selection of space rocks, and I believe I saw Laura and Dwight buying a couple of rocks.

I talked at length with representatives from Software Bisque about their new mount they had on display, the Paramount MX and the telescope atop it: an Officina Stellare Veloce RH200 Astrograph (8.5 in., f/3 focal ratio with 600mm f.l. and a Robofocus motor drive). It was a very nice setup for wide-field astroimaging.

Ken Poshedly of the AAC served as co-coordinator of this year’s ALCON. Ken did a super job of keeping the program moving right along and on time.

ALCON 2013 was a success from start to finish. I met people from other Ga. astronomy clubs, and from all over the U. S. as well. We had a great time, and I am very glad I was able to attend. I am looking forward to the A. L. having another ALCON somewhere nearby so we can have yet another opportunity to meet so many great astronomy-minded folks.

The convention was dedicated to the memory of **Art Zorka**, a leader in the AAC whose untimely passing in May, 2012 was a great loss to FRAC as well as the AAC. From the ALCON program: “ALCON 2013, In Remembrance of Art Zorka...Art would be ecstatic that this year’s ALCON is right here in Atlanta. We are glad that you are here and we dedicate this event to Art Zorka and his wife **Maria**.”

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THREE GREAT ADVANCES IN AMATEUR ASTRONOMY HISTORY

article by Bill Warren

It is hardly an exaggeration to say that three people have had a more profound influence on the growth and development of amateur astronomy than anyone else in mankind’s recorded history: the Italian **Galileo Galilei** (1564-1642); an Englishman, **Isaac Newton** (1642-1727); and an American, **John Dobson** (born in 1915).

Galileo. In mid-December, 1609 A.D., Galileo aimed a tiny 1-1/4” telescope with a magnification of 7x or 8x at the night sky and forever changed the way we see the universe. His telescope, a *refractor*, had a lens at the end of the tube that was pointed at the sky and an eyepiece at the other end.

Isaac Newton. Nearly eight decades later, in 1688 A.D., Newton built a radically different kind of telescope, now referred to as a *Newtonian reflector*. Newton’s reflecting telescope featured an open upper end and a concave primary mirror at the lower end of the tube. The primary mirror reflected incoming starlight back up the tube to a smaller, diagonally aligned secondary mirror that directed the light to an eyepiece located on the side of the tube near the upper end. Placing the eyepiece at the upper end of the tube allowed observers to stand comfortably while viewing objects that were overhead or nearly so. Large-aperture reflectors required a ladder to view objects that were high in the sky, but big telescopes were so expensive back then that few people could afford to build them.

Refractors and reflectors were brilliantly conceived telescope designs. Both, however,

contained built-in limitations. Refractors suffered color aberration due to the diffraction of light passing through the lens, and their long tubes required tall, sturdy mounts. They were also expensive for a number of other reasons, especially for observers who wanted increased light-gathering power.

Reflectors permitted larger apertures – up to a point. But the bulky mounts required to support the metal optical tube assembly (OTA) and heavy primary mirror were expensive. As late as the 1950s, 10” reflectors were considered extremely large, and few manufacturers offered reflectors larger than 4-1/2” to 6”. Large-aperture reflectors were too expensive to be mass-produced, and too expensive for most amateur astronomers to build.

Enter John Dobson.

The Dobsonian Mount. John Dobson was born in Beijing, China, in 1915. His family moved to San Francisco when he was 12, and in 1944 he earned a master’s degree in chemistry from the Univ. of California at Berkeley. Shortly thereafter he became a monk in a San Francisco monastery. He remained there for 23 years, during which time his responsibilities included teaching science and astronomy.

Dobson eventually left the monastery, but long before then he had devised an ingenious way to build large, portable, high-quality, low-cost reflectors.

As a monk, John Dobson had no earthly belongings and no income; everything he had belonged to the Church. He was passionately interested in astronomy, but had no funds to purchase a telescope. So, armed with little more than a burning desire to see the universe and show it to others, he became a telescope maker. Sometime during the 1950s he built a simple lazy Susan-like altazimuth mount (called a *rocker box*) that swiveled to steer the tube

from side to side and contained semicircular cut-outs on either side of the rocker box to move the tube up or down. He used castoff plywood from lumber yards and scraps of formica and other common materials from junkyards for the rocker box, a cardboard construction tube for the OTA, and discarded porthole glass for his primary mirror.

In 1967, Dobson was expelled from the monastery for sneaking out at night to show people the sky with his telescope. Undeterred, he co-founded the San Francisco Sidewalk Astronomers, a group of amateurs who set up their telescopes on city streets on clear nights to show passersby the wonders of the night sky. Many of the visitors asked him how he built his telescope, and he began teaching classes for the public on how to make your own telescope. He eventually wrote a book on the subject, *How and Why to Make a User-Friendly Sidewalk Telescope*.

As word spread about these new inexpensive, easy-to-make telescope mounts, people began referring to them as Dobsonian mounts, Dobsonian telescopes, or simply as Dobs. And because Dobs have virtually no size limitations, large ones are often referred to as “light buckets.”

Basically, the materials in a Dob consist of plywood for the base, an inexpensive, light-weight sonotube to house the optics, a primary mirror and secondary mirror, and a few other minor parts. At least three FRAC members have built their own rocker boxes; one of them, **Jessie Dasher**, built a rocker box for his telescope in one afternoon. **Larry Higgins** has built a 12” Dob, and ex-member **Doug Maxwell** a 13” Dob. Dobs contain the same high-quality optics as other telescopes, they just don’t require expensive mounts. That’s just one of several features that make Dobs so appealing and affordable for millions of amateur astronomers today.

It is somewhat surprising, then, that the commercial telescope manufacturers didn't immediately jump on the Dobsonian bandwagon. There was no logical reason for not doing so, either, because John Dobson never patented his invention. (If he had, he'd have become an extremely wealthy man.) He wasn't interested in making money, though: all he wanted was to make the universe accessible to everyone.

The first company to offer commercially available Dobsonian reflectors was Coulter Optics, in 1980. (**Smitty** has one of their original models, a red 10" Coulter Dob that, after all these years, is as lovely as ever.) Today, virtually every telescope manufacturer offers Dobs, in apertures ranging from a little 3" Celestron FirstScope that sells for under \$100 to a monster 50" Orion Dob that sells for \$125,000. Between those extremes, you can get a 6" Dob for about \$350, an 8" Dob for about \$500, a 10" Dob for \$700, or a 12" Dob for less than \$1,000.

And yeah, that's a lot of money. But it's also somewhat sobering to think that, a hundred years ago, you probably could have counted on the fingers of both hands the number of people on the planet who owned a telescope as large as 10" in diameter.

There was a time, not so many years ago in FRAC's history, when nobody in the club owned a telescope larger than 10". Since then, at least ten members have owned 'scopes with apertures of 12" or larger – all of them Dobs, of course -- and six of them have had 'scopes of 16" or larger.

You don't need a big Dob with an aperture as large as a Volkswagen tire to enjoy the night sky; in fact, we in FRAC recommend that beginners who want to buy a telescope and want the most Bang for their Buck\$ buy a 6" Dob. It's extremely portable, small enough for a child to use without standing on a ladder, and the \$350 price tag is comparable to what you'd pay to

get started in a pastime such as golf, scuba diving or model railroading. And if, later on, you get a case of "aperture fever" – an affliction characterized by an intense desire to purchase a larger telescope – remember this: *It was John Dobson who made it possible for ordinary people of ordinary means to dream such dreams.* Without him, we'd still be arguing about whose 4-1/2" 'scope is the best.

Other facts about John Dobson and his telescope mount:

*He doesn't refer to his unique telescope design as "Dobsonian"; he prefers the term "sidewalk telescope." He has said in jest that the reason he invented it was that he wasn't smart enough to build a more complex equatorially-mounted telescope.

*Dobson also insists that he didn't invent the Dobsonian concept. "For hundreds of years," he says, "wars were fought with cannons using Dobsonian mounts."

*In 2005, the *Smithsonian* magazine named John Dobson as one of "35 Individuals Who Have Made a Major Difference" during the lifetime of that periodical.

*Unlike us in FRAC, Dobson has never been shy about addressing religious issues at his sidewalk astronomy observing sessions and public speaking engagements. He claims that the Big Bang theory doesn't hold up under close examination. He calls it "fudge without walnuts," and says, "The Big Bang cosmologists want to get the Universe out of nothing. It's like asking us to believe that nothing made everything out of nothing. But that's not what physics tells us." He claims that physicists have invented "new physics" to match the Big Bang theory (e.g., the "mystery" of *dark energy*). And he is critical of an educational system that "indoctrinates young scientists in the Big Bang theory without presenting any of the problems with it."

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