

THE FLINT RIVER OBSERVER



Vol. 1, No. 6

FLINT RIVER ASTRONOMY CLUB

August, 1997

Officers: President, Larry Higgins (227-2233); 1st Vice President/newsletter editor, Bill Warren (1212 Everee Inn Rd., Griffin, GA 30224 / 229-6108); 2nd Vice President/Secretary-Treasurer, Ken Walburn (954-9442); AlCor, Melanie Handy (228-6214); Librarian, Keith Cox (227-8171); Hospitality Chairman, Lee Russell (228-0704); Observing Chairman, Steven "Smitty" Smith (583-2200). Club mailing address: 2431 Old Atlanta Road, Griffin, GA 30223. All of these phone numbers have 770 area code prefixes, if it matters.

Please notify **Bill Warren** and **Melanie Handy** promptly if you have a change of address.

Club Calendar: **Tues., Aug. 12:** Meteor shower observing party, Beaverbrook at dark (alternate date: Aug. 13); **Thurs., Aug. 14:** Club meeting (trip to Villa Rica, we'll leave Beaverbrook parking lot at 6:30); **Fri., Aug. 15:** Club observing session, Beaverbrook Elem. (at dark); **Fri., Aug. 29:** Deep-sky observing session, Cox Field (at dark).

President's Message. First, let me welcome our newest club members, **Jack Warner** and **Doyme and Jodie Tallman**. FRAC is 6 months old now, and we already have 55 members. Back in February, Bill, Ken and I figured we'd have to give away sets of Ginsu steak knives to get more than a handful of members in FRAC's first year.

Your response has been overwhelming, and humbling. We *do* appreciate you, folks, every one of you -- but we aren't giving you steak knives for joining.

Thanks to **Rich Jakiel** for donating three books to our club library at the July meeting. They are: *The Guinness Book of Astronomy*, by Patrick Moore; *To the Red Planet*, by Eric Burgess; and *Astronomy of the Ancients*, by Kenneth Brecher and Michael Feirtag. We'll append a list of our library resources in an upcoming issue of the **Observer**. Meanwhile, if anyone else has any books or other resources to donate, please contact our club librarian, **Keith Cox**, at (770) 227-8171.

I hope you'll read Bill's article this month; it addresses a problem we discussed recently, namely, that some of you might lose your enthusiasm for stargazing and become inactive members in light of the miserable weather that cancelled all of our planned observings in May, June and July.

So here's what I'm proposing: if it looks like good weather on a given evening and you feel like observing, call one of us. We both have yards with good views, and we'll be more than happy to have you come over and join us in seeing what's going on in the universe. *We* could call *you*, I suppose, but it's more practical for us to receive a few calls than to make 25-30 calls every time we get a clear night. This way, if you call we know you're interested.

We've got **FRAC Star Party I** coming up in late September; attending it will be

the best decision you've made since you decided to join our club. It's fun, informative, and will do more to make you a seasoned observer than reading a year's worth of astronomy magazines and books will do. You can't beat hands-on observing; it is, after all, what stargazing is all about, regardless of your particular area of interest.

We have our **Perseids meteor shower party** coming up at Beaverbrook: it is, literally, the most laid-back form of stargazing you'll ever do. Come join us at the observing site behind the school on **Aug. 12th**; bring your telescope if you like, but all you really need is a comfortable lounge chair that will permit you to lie back and look at the sky without straining your neck muscles. We'll have observing forms available for those of you who want to keep track of the meteors you see (I'll show you how it's done), or you can simply kick back, prop up your feet, and enjoy the show without doing anything at all.

And if you will, we'd like for you to help us help Beaverbrook students and media specialist **Louise Warren** to form their own astronomy club, "First Light." We're having a meeting to discuss organizational strategies in the media center at Beaverbrook at 7:00 on Aug. 12, before the meteor party. I hope you'll want to attend this important meeting.

"I'm Suzy. My mama's in heaven."
Those words, from 9-year-old club member **Suzy Wellons**, explain why we are dedicating this issue of the **Observer** to the memory of **Cindy Wellons** -- loving wife, devoted mother, dedicated teacher and FRAC member whose passing will be sorely felt by all of us.

Cindy, who died in an automobile accident on June 11th, is survived by her husband **Neal**, son **Cody**, 14, and **Suzy**.

On behalf of everyone in FRAC, I want to extend our heartfelt sympathies to the Wellonses belatedly, having learned of the tragedy only recently.

We share your loss and your grief.

-Larry Higgins

May, June and July Observings. We'll let the Statler Brothers describe our club and deep-sky observing sessions since April: *Countin flowers on the wall, that don't bother me at all, / Playin solitaire till dawn with a deck of fifty-one, / Smokin cigarettes and watchin Captain Kangaroo, / Now, don't tell me I've nothin to do...*

July 12 Meeting/July 13 Club

Observing. **Phil Sacco** was typically animated and dynamic; his talk on the basics of astrophotography -- what to do and what *not* to do (e.g., "Don't use your red flashlight near the camera while the shutter is open") was well received by the 18 members and guests present.

Afterward, Phil took us outside and let us experience hands-on astrophotography under a sky that mercifully remained clear throughout.

True to his reputation as the most obsessive stargazer south of Nome, Alaska, Phil stayed until 1:30 a.m. although it was Thursday night and he had to drive back to Stone Mountain. **Chuck Beckham** stayed late, but **Doyle Tallman** took top honors by hanging around till closing time.

Thirteen people showed up for the next night's club observing. Working around potholes in the clouds, we wore out the Moon, Mars, Epsilon Lyrae, Ring Nebula and Albireo at every possible magnification before the sky closed for good around 10:30 -- all of which brought up an interesting question: *Where have the clouds been hiding during the daytime?*

Maybe we should all buy solar filters and

hold our observing sessions during the daylight hours. Or forget the stars and planets at our night observings and concentrate on studying cloud structure with nebula filters.

Upcoming Meetings. For our club meeting on **Aug. 14th**, we're going to Villa Rica to see the Atlanta Astronomy Club's observing site. We'll leave Beaverbrook parking lot at 6:30 and travel in a caravan. It's about a 1-1/2 hour ride from Griffin, so getting there at 8:00 will give us a chance to inspect the facility and telescopes, and maybe even observe for awhile before heading home. (Now, that's an optimistic viewpoint!) We're including maps to the Villa Rica site for those members who might prefer not to travel there by way of Griffin.

Aside from the light-pollution produced by two million people living 30 miles away to the east, the Villa Rica site is, as we noted last month, very nice. In addition to individual viewing sites with concrete pads, Villa Rica also has a latrine, a warmup room where observers can thaw out in the dead of winter, and a garage-like facility with a roll-back roof that houses the club's telescopes, the star of which is a massive 20" reflector that probably outweighs (and outplays) the entire Atlanta Falcons offensive line.

Our September meeting will feature a return visit by AAC member, author and astronomical artist **Jerry Armstrong**, who told us everything we needed to know about Comet Hale-Bopp at our very first club meeting last March. Well, he's baaack, and this time his topic will be *meteors and asteroids*. Those of you who joined the club since Jerry's last visit will have the opportunity to order one or more of his beautiful hand-painted shirts featuring astronomical themes.

On **Fri., Sept. 26** and **Sat., Sept. 27**, our club will hold its first annual **FRAC Star Party**. Start making plans to attend one or both nights, observing as late as you like and then tent camping or roughing it under the stars, whichever suits your style. We'll have some workshops on Saturday that you won't want to miss. (Here's a sneak preview: one of the workshops will feature **Larry Higgins** showing you how to clean your mirrors and lenses.) We'll tell you about the other activities in next month's newsletter.

We hope you'll plan to attend all (or at least some) of the activities and observings at **FRAC Star Party I** in September. Plan to come and stay awhile; it's gonna be a ball, y'all!

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Random Ramblings

by Bill Warren

*My new address is: 1212 Everee Inn Road, Griffin, GA 30224. My phone no. will stay the same, i.e. (770) 229-6108. You can send articles, news items, etc., to my new address, and call me at my old number to tell me that you didn't like the way I edited your material.

*The **Mars Pathfinder** mission has been incredible, hasn't it? To my mind, at least, it ranks as one of the five greatest milestones in the history of astronomy, along with: *Galileo*, using his 1-1/4" telescope to discover the four largest moons of Jupiter in 1610; *Albert Einstein*, publishing in 1916 his general theory of relativity that predicted the expanding universe; the *Hubble Space Telescope*, photographing galaxies between 10-13 billion light-years away from us; and, in

August, 1996, my wife *Louise*, finding "the Coathanger" (Cr 399) in binoculars after only 45 minutes of looking straight at it, at **Larry H.'s** Perseids meteor shower party. ("Oh, I see it now: it looks like a *coathanger!*")

*Considering the unbelievable advances being made in every area of astronomy, there's only one real milestone left and, unless something happens quickly, it's unlikely that we'll see it achieved before the end of this century: **Ken Walburn** staying awake through an entire observing session.

Getttttt Outtttttt!!!!!!* No, it's not the Amityville Horror, it's **me, telling you to get out and look at the sky anytime you can this summer, because the summer sky is filled with objects beautiful and wondrous. All you have to do to experience the majesty of the universe is point your telescope at the Milky Way anywhere from Cygnus in the north to Sagittarius in the south and let yourself wander idly among more stars than you ever thought existed.

And *yes*, the summer sky has its "down" side, the four **Horrible H's**: heat, humidity, haze and hinsects. But it also has a fabulous "up" side, including: the enchanting star nursery M8 (Lagoon Nebula); M13, the brightest globular cluster in northern latitudes (and M22, the 2nd-best, as well); M11, the amazing open cluster that thinks it's a globular; the beautiful double star Albireo, its components yellow and Carolina blue; the wonderful Ring Nebula (M57) and M27, a large, bright planetary nebula whose nickname, "Dumbbell Nebula," describes its shape; the "Double-Double" star Epsilon Lyrae; and, of course, the cute little asterism Collinder 399, the Coathanger. (Just don't let my wife show it to you.) Exciting as they are, these are only a few

samples of the magic in store for you in the summer celestial night show.

*One of the first lessons to be learned in stargazing is that, for every cloudy night, there's a crystal-clear night somewhere down the line. We haven't had many good nights for observing since April, but that will change. It always does. Don't let the weather discourage or disillusion you about stargazing. We'll have our share of dark, clear nights -- but *you have to be ready to take advantage of them*. So I'll repeat **Larry's** message: If it's a clear night and you want to observe, call us. Don't just sit around the house grumbling that you'd go out and look at the stars if you knew what was up there and how to find it. Larry and I both have good viewing sites -- not as good as Cox Farm, but better than Beaverbrook -- and we'd love to have you come over and enjoy the sky with us. (Hey, you can even use *our* telescopes if you feel that yours is not up to the task.) If you're just starting out in stargazing, you need to take advantage of every opportunity to learn how to navigate the night sky in summertime.

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The Planets in August. Mercury is visible low in the western sky in evening twilight, early and midmonth. Venus sets in the west at 9 p.m. Mars sets at 11:00. Jupiter is visible all night. Saturn rises at 10:00. Uranus is 4 degrees east of Sigma Capricorni as August opens, its green disk visible in binoculars at magnitude 5.7. Blue Neptune, 2 mags. fainter, is in Sagittarius.

* * *

We're Having a Party! Don't bring your dancing shoes, just a lounge chair and your

own refreshments to Beaverbrook on **Tues., Aug. 12th**, for a relaxing evening of watching **Ken Walburn** sleep through the **Perseids meteor shower**.

If you're planning to stay until midnight or later when the meteor rate is highest (the peak is expected to be about 100 meteors per hour in the early morning hours), bring along a light jacket or blanket. You may not need it, but it's better to have it and not need it than -- well, you know the rest. You won't even need binoculars unless you just want to look at the stars.

If it's cloudy on the 12th, we'll try again at Beaverbrook on the 13th. We'll be at Cox Farm on the 14th; plan to stay awhile and watch the meteor shower in the late evening and early morning hours.

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Deep Observing M33

by Richard Jakiel

(Editor's Note: In stargazing parlance, Rich Jakiel is a "deep-deep sky" observer. Whereas the typical deep-sky observer studies a galaxy such as M33 and moves on to something else, Rich goes deeper, examining the components of M33 that make it, in his words, "one of the finest galaxies in the sky...a wonderfully complex object when viewed in a large amateur instrument." Rich uses a 17" telescope for his deep-deep sky observing.)

Easily accessible via star-hopping, **M33**, the Pinwheel Galaxy, is nearly face-on to us, an Sc-type (i.e., open-armed) spiral galaxy located about 1/3 of the way between the stars Alpha Trianguli and Beta Andromedae. Its mag. 5.7 brightness is exceeded in galaxies in northern latitudes only by that of nearby **M31**, the

Andromeda Galaxy.

The posted magnitude for M33 is deceiving, however, since its large visual size -- 45' x 25' -- serves to significantly reduce its surface brightness. It's not unusual for observers to locate M33 in their finder scope and fail to see it in their main scope. The **Pinwheel Galaxy** can be very difficult to observe from urban or even suburban sites, due to a lack of contrast with the sky. In observing this galaxy or other low surface brightness objects, the first rule is: Find the darkest skies possible!

Under dark skies, M33 is relatively easy to find and observe. At a distance of over 3 million light-years, it is the most distant object visible to the unaided eye. I've observed the Pinwheel without binoculars under exceptional conditions as a faint glow roughly 1/3 the size of the Moon; under similar conditions, 10x50 binoculars reveal traces of spiral structure. Using a 6-8 inch telescope, beginners are likely to see M33 as little more than a diffuse, elongated glow measuring 30' x 20' and oriented from NNE to SSW; more experienced observers may detect the familiar backward-S shape of its two main spiral arms plus a few of the brighter star associations and HII regions of ionized hydrogen.

Using a small telescope in 1764, Charles Messier designated his latest discovery **M33** and described it as a "nebula...a whitish light of almost even brightness." During the mid-19th century Lord Rosse III and William Lassell resolved Messier's "whitish light" into spiral arms with numerous bright knots of light. Using the 100-inch Mt. Wilson telescope during the 1920s, Edwin Hubble resolved M33 into a swarm of faint stars that helped to establish the galactic nature of the so-called "spiral nebulae."

In telescopes of 16" or larger, M33 can

be visually overwhelming, with two dozen or more knots visible, 15 of which have NGC (New General Catalog) or IC (Index Catalog) designations. These "knots" are huge HII regions of nebulosity and/or OB associations of hot, massive stars that help to delineate M33's two main spiral arms and the two smaller, fragmented secondary arms that are visible in astrophotographs. These four main spiral arms lend M33 its familiar nickname, the "Pinwheel Galaxy."

NGC 604 is the brightest and largest "knot" in M33. Located in the NE portion of the galaxy, NGC 604 is 30 times larger than **M42**, the Great Nebula in Orion, and rivals the famous **Tarantula Nebula** in the Large Magellanic Cloud in size and complexity. At magnitude 10.5, NGC 604 is marginally visible even in small telescopes; its concentrated light is much brighter than the overall surface brightness of the galaxy itself. Nebula filters help to show the cottony inner texture and wispy margins, while high magnification, a large aperture and good seeing conditions are necessary to resolve any of the dozens of faint (16th magnitude) Wolf-Rayet stars. With the exception of supernovae, Wolf-Rayet stars are the most distant individual stars visible, their feeble light having traveled 3 million light-years to reach us.

Somewhat less distinct yet a major structural component of spiral arms are the OB associations -- vast regions of brilliant stars and diffuse nebulae often spanning hundreds of light-years. In M33, they form diffuse knots of light that respond well to nebula filters. **Association 85** is the closest, a small hazy patch SE of the giant HII region. Most of the OB associations in M33 are magnitude 13 or 14.

Although the spiral arms and associated structures within M33 can be quite impressive in a medium-to-large telescope,

the nuclear hub is not very impressive. While this central hub is only weakly concentrated with stars, its higher overall surface brightness allows for the use of greater magnifications. The nucleus appears as a tiny stellar point of about mag. 13, surrounded by a mottled region a few arcminutes across. This is a striking contrast to neighboring M31, whose nuclear hub dominates the view.

Tips for Viewing. Generally, most guidebooks advocate the use of the *lowest* available power. Although this helps in locating M33, it is NOT the best way to observe this galaxy. To maximize contrast and get the best views of M33, use 10x-15x per inch of aperture (e.g., 100x-150x for a 10-inch scope.) If you hope to see more than an unresolved haze, go for the gusto and use medium to medium-high power eyepieces once M33 is in the field of view. High surface brightness regions such as NGC 604 can tolerate higher magnifications if seeing conditions permit.

If you like hunting down small, faint structures, programs like **Megastar** and upgraded versions of **The Sky** can provide detailed maps. Photographs and detailed descriptions can be found in Vol. 4 of **Deep Sky** and in Luginbuhl and Skiff's **Observing Handbook and Catalogue of Deep Sky Objects**. So if it's a clear, dark, moonless night, take the time to observe one of our nearest galactic neighbors, M33, the Pinwheel Galaxy. The view can be spectacular when you know what you're looking at.

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Beginner's Star-Hop; July 1997

By Art Russell

After what seemed like the proverbial 40 days and 40 nights, the summer observing season has finally arrived. Admittedly, that does mean high temperatures and high humidity. However, that also means the summer Milky Way and its veritable host of open clusters. One of my favorite concentrations of these clusters is in the area bounded by the constellations Scorpius, Sagittarius, and Serpens Cauda. I'll admit that given their low declinations and proximity to the southern horizon, they aren't viewed in their prime at these latitudes. However, given that all of these objects are spectacular, the time required to view them all is time well invested.

Enough said. Lets get started. As ever, its always best to get as far away from any source of light pollution when viewing deep sky objects. Given these objects' low declinations, its even more important. Invest those few extra minutes to drive a little further out into the country to look for these objects. You'll be well rewarded.

Star-Hop #1: M7 (NGC 6475). We're picking up where we left off last month, in the constellation Scorpius. First things being first, locate Scorpius near the southern horizon. The first indicator that you may be near should be the bright yellow-red beacon that is the star *Antares*, *Alpha (α) Scorpii*, the "Rival of Mars" or the "Heart of the Scorpion." From here, locate the star *G Scorpii* representing the Scorpion's stinger, about 20 degrees, or the distance spanned by your little finger and thumb spread against the night sky at arm's length, to the southeast of *Antares*. Before continuing on to M7, be sure to examine the area immediately surrounding *G Scorpii* for the presence of NGC 6441, a small, moderately bright globular cluster. From *G Scorpii*, M7 is a little bit more than 2 degrees or twice the distance spanned by your little finger at arm's length against the night sky, to the northeast. M7 is a bright naked eye object. Moreover, you should be able to easily locate M7 by sweeping the area with binoculars or a telescope at low magnification. Binoculars will show M7 as a body of nebulosity with a few resolved stars. Telescopes in progressively larger sizes and magnifications will resolve all of M7's visible stars.

Star-Hop #2: M6 (NGC 6405), the "Butterfly Cluster." Locate M6 by returning to our previous guide star, *G Scorpii*. Due west 3 degrees, or about the distance spanned by 2 fingers held at arm's length against the sky is the star *Shaula*, *Lambda (λ) Scorpii*. Imagine an isosceles triangle pointed north with *G Scorpii* and *Shaula* as the east and west apexes, respectively. Extend a line 5 degrees, or the distance spanned by 3 fingers held at arm's length against the night sky, to the north apex of the isosceles triangle to find a beautiful, compact open cluster which is much smaller than M7. Binoculars will resolve a number of stars and suggest a "H" or "Butterfly" pattern. Moderate sized telescopes at moderate magnifications will resolve most of the cluster's stars.

Star-Hop #3: M24 (Mel 197)(the "Small Sagittarius Star Cloud"), M23 (NGC 6494), and M25 (IC 4725).

M24. Our next star-hop takes us from Scorpius to the nearby prominent constellation Sagittarius. Also known as the "Teapot," the heart of Sagittarius is located about 10 degrees, or the distance spanned by your fist against the night sky at arm's length to the northeast of *G Scorpii*. Having found Sagittarius, locate the star *El Nasl*, *Gamma (γ) Sagittarii*. From there, extend a line a little less than 10 degrees, or the distance spanned by your fist against the night sky at arm's length, northeast to find the star *Mu (μ) Sagittarii*. About half-way there, you may notice a faint patch of nebulosity. Upon examination, you'll discover that it is the small globular cluster NGC 6553. Continuing the line from *Mu Sagittarii*, for a little more than 2 degrees and you'll arrive at a bright star-cloud buried in the southern Milky Way, M24. Don't be distracted by a dimmer open cluster enroute. This is NGC 6595, but is much less prominent than M24. M24 is visible both as a naked eye object, but is better seen with binoculars. Better still, telescopes at moderate magnifications will reveal an embedded open cluster NGC 6603 which is sometimes mistaken for M24. Keep in mind how to quickly find M24. We'll be using it as a start point for several of the following star-hops.

M23. From M24, extend a line a little more than 4 degrees, or a little less than the area spanned by 3 fingers held together against the night sky at arm's length, west-southwest, and you'll arrive at a bright open cluster which you can easily find when sweeping the area with binoculars. Moderate magnifications will show an open cluster relatively with many stars, some of which may suggest a "ladder" or "picture frame" in appearance.

M25. Once again with **M24** as a point of reference, extend a line, except this time a little less than 4 degrees east-southeast and you'll arrive at **M25**. This cluster may be observed with the naked eye, but is better seen with binoculars where it dominates the view. At moderate magnifications in a telescope, **M25** is a pretty and bright open cluster. Several of its stars may appear to form a "bowl" upon closer examination, but take a look and make up your own mind. What do you see?

Star-Hop #4: M18 (NGC 6613), M17 (NGC 6618)(the "Swan or Omega Nebula"), and M16(NGC 6611)(the "Eagle or Star Queen Nebula").

M18. Using **M24** as our starting point once more, extend a line north-northeast for a little more than 1 degree, the distance spanned by your little finger against the night sky at arm's length. Here you'll find a small, moderately bright patch of nebulosity. The cluster is visible in binoculars, but it really doesn't shine until you examine it with a telescope at moderate magnifications. Take the time to enjoy this often overlooked gem in Sagittarius.

M17. From **M18**, extend a line 1 degree north-northeast. Here you'll find a cluster which appears a bit brighter than **M18**. Additionally, in binoculars and smaller telescopes you may notice the suggestion of embedded nebulosity which you may mistake for unresolved stars. Not so in this case. Examine this open cluster closely because it has its own associated nebula and is one of the better known objects seen in the summer Milky Way from the northern hemisphere. Moderate to high powers, and / or narrow-band ("nebula") filters will help you to best observe this pretty object. Under the right conditions, **M17** may resemble the letter "P."

M16. The final jump in this star-hop takes us to another of the prominent nebulae in the southern summer Milky Way. At close examination you may recognize it as one of the recent targets for the Hubble Space Telescope. While we don't have access to the same resources as NASA, it's nice to know that we can get a pretty good view for considerably less money!! From **M17**, extend a line a little more than 2 degrees to the north-northwest and into the constellation Serpens Cauda. Scan this area with your binoculars and you'll easily find **M16**.

However, binoculars won't do this object justice. Like **M17** previously, try to observe **M16** with a telescope at moderate to high magnifications and possibly nebular filters for the best possible view. Don't dare miss this object. Miss any of the others. Not this one!

