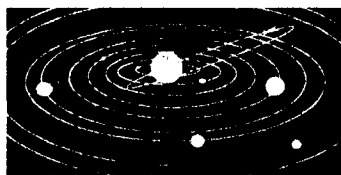


THE FLINT RIVER OBSERVER



Vol. 2, No. 9

FLINT RIVER ASTRONOMY CLUB

November, 1998

Officers: President, Larry Higgins; 1st Vice President/newsletter editor, Bill Warren, 229-6108 -- or, if you prefer e-mail: warren1212@mindspring.com; 2nd Vice President/Secretary-Treasurer, Ken Walburn (P. O. Box 1179, McDonough, GA 30253 / 954-9442; AICor, Neal Wellons, and Web Site Coordinator, Cody Wellons (946-5039); Librarian, Keith Cox (227-8171); Observing Chairman, Steven "Smitty" Smith (583-2200); Telephone/Hospitality Committee Chairman: Dan Pillatzki (707-0270). Club mailing address: 1212 Everee Inn Road, Griffin, GA 30224. All of these phone numbers have 770 area code prefixes. FRAC web page address: <http://welcome.to/frac>.

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

Club Calendar. **Thurs., Nov. 12:** Club meeting (Beaverbrook, 7:30); **Fri., Nov. 13:** Beaverbrook "First Light"/ FRAC joint observing (Beaverbrook [not Fair Oaks Farm], at dark); **Tues., Nov. 17:** Observing for 5th graders at Cotton Indian Elem. School (Stockbridge, 6:45); **Fri.-Sat., Nov. 20-21:** deep-sky observings (Cox Field, at dark).

Vice President's Message. First, I'd like to welcome FRAC's newest members, **Chris Dowdy** and his father **Royal**, of Locust Grove.

A small but significant youth movement is underway in FRAC. **Ken Walburn** and I are entering our second childhood. No, actually, teenager **Cody Wellons** (our Web site coordinator) and his younger sister **Suzy** are

frequent club and/or observing attendees, as is Beaverbrook 4th-grader **Danielle Stuart**. **Katie Moore**, a soph at GHS, is an avid young astronomer with Messiers on her mind and a universe of potential for excellence; her unexpected (but highly welcome) appearance at the PDK observing last month offered ample evidence that skywatching is not limited to members of one sex or age group.

New member **Cody Hinton**, 10, showed up rarin' to go at our Zombie Star Party and stayed up late both nights tracking down Messiers. (He bagged 13.) Cody was up at 5 a.m. on Sun. morning, asking **John Wallace** to show him Crab Nebula. John obliged, of course, and also gave Cody his first views of M81, M82 and Orion Nebula. Cody's comment on seeing M42 for the first time: a long, drawn-out "Wooooow!" No one has ever described it better. (Our spies at the North Pole report that Santa's elves are working overtime putting together something that looks very much like an 8" Dob, possibly for someone in the Hinton household.)

The enthusiasm of a **Cody Hinton**, the commitment of a **Katie Moore**, the technical competence of a **Cody Wellons** -- all of these qualities in our younger members suggest that we're on the right track in our ongoing attempt to spark youthful interests that will grow into lifelong love affairs with the night sky and its timeless treasures. I can envision a time when, as **Tom Moore** and I sit fidgeting, looking for our hearing aids and eyeglasses, drooling in our laps and wondering which pocket we left our teeth in, our FRAC meeting is called to order by its first woman president, **Katie Moore**. What a proud moment that would be for all of us!

Elsewhere, I should mention that **Dan**

Pillatzki survived his knee surgery and, although he faces several months of rehab, it was good to see him on crutches, stumbling over telescopes at the Star Party.

The **Zombie Star Party** was a roaring (or *snoring*, in the case of **Ken Walburn**) success. If it weren't for our FRAC observings, Ken and **Tom Moore** would never get any sleep.

Long past bedtime for normal folks, we heard **Joanne Cirincione**, **Chrissy Mandell** and the AAC "Ladies of the Night...Sky" in joyful pursuit of double stars and other celestial prizes. The weekend of **Oct. 16th-17th** was one of great fun, thanx to the efforts of folks like **Mr. Loyd Cox** (our host), **Phil Sacco** and **Smitty**.

Congratulations to **me** for earning my Lunar Club pin. **Mike Stuart** is up to 85 now in his pursuit of Messiers. Besides M48, a Winter target, his other 24 M's are in the Spring sky. Does the term "Virgo Cluster" ring any bells?

Finally: if you get a chance, look up FRAC member **Chuck Beckham's** astrophotos via our website. They're well worth a looksee.

-Bill Warren

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

-Roberto Assagioli

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Last Month's Meetings/Activities. Sixteen members enjoyed **Dr. Richard Schmude's** fascinating presentation regarding Jupiter and four of its moons (Io, Europa, Ganymede and Callisto) at our **October** meeting. Afterward, four of us -- Dr. Schmude, **Joanne Cirincione**, **Smitty**, and yr. sleepless reporter -- went out to Cox Field to observe the Draconids meteor shower. One hour's observing yielded one sporadic meteor, no Draconids, and the opportunity to watch Richard at work, an act as rewarding as watching Van Gogh paint a starry night.

The following night, about 30 FRAC

members and Beaverbrook parents and children showed up for a lively joint observing at Fair Oaks Farm that featured BB 5th-grader **Michael Moroz** showing off his new 4-1/2" reflector.

FRAC's combination lecture/observing for 25 prominent area educators at Mt. Zion H. S. in Jonesboro on **Oct. 15th** was well received, due in no small part to the efforts of **Tom Moore** and **Neal Wellons**. The late appearance of **Katie Moore** (who wasn't supposed to be there) was icing on the cake. Under incredibly light-polluted skies, we managed to show our erudite audience a few night delights such as Ring Nebula, the Double-Double, M31, Albireo, Jupiter and Saturn.

From our "Ignorance Will Not Be Denied" Dept. comes the following scene, identical to an earlier incident described in a previous *Observer*: When a PDK member asked me when Saturn would be up, I said (loudly, since stupidity is seldom transmitted in whispers), "Oh, in a couple of hours or so." Three seconds later, **Neal Wellons** announced that he had Saturn in his telescope. In the ensuing rush to Neal's telescope nobody heard my grumbled reply: "Yeah, but *my* Saturn is bigger than *his* Saturn!"

To show I'm a good sport about it, I'm offering a reward to whoever can identify the culprit who squirted Super Glue onto Neal's diagonal mirror, backed a truck over his tripod and realigned his tube with a crowbar!

About 30 overnights and maybe a dozen visitors attended our joint FRAC/AAC **Zombie Star Party** at Cox Field on **Oct. 16th-17th**. If you couldn't make it -- well, we missed you, and some of us waited up all night for you to come, but unlike Tom Baudet of Motel 6 we didn't leave a light on for you -- except red lights, that is.

A total of 9 observers (counting myself twice and three visitors on Fri. nite) attended our **Oct. 23rd-24th** Cox Field deep-sky observings. I had the field to myself after midnight on Sat. night; seeing conditions were about 9 (on a scale of 1-10), so I stayed till 3 a.m. and found 7 more Herschels, bringing my total to 330. By the time I track down the

remaining 14 Winter and 56 Spring Herschels on my list, I'll probably have to do my future stargazing by Braille.

An oddity: on both nights, due to an unusual alignment of a field star **Jupiter** appeared to have 5 moons in line, not 4. The question arose, *Which one was a star and which were moons?* Having learned my lesson with Saturn, I underwent a fit of coughing that rendered me speechless and unable to answer the question before the subject was changed.

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**Membership Renewals Due in November:
Mike, Danielle and Shane Stuart.**

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"For a moment of night we have a glimpse of ourselves and of our world islanded in its stream of sky -- pilgrims of mortality, voyaging between horizons across the eternal seas of space and time."

-Henry Beston

* * *

November Meetings/Activities. The topic of our **Thurs., Nov. 12th**, club program will be *Basic methods and techniques for navigating the night sky, and finding what you're looking for.* Our starting point will be the wonderfully succinct advice given by deep-sky guru **Art Russell** to newcomers: "Look up."

Our joint FRAC/BB observing will be held at **Beaverbrook** (not Fair Oaks Farm) on **Fri., Nov. 13th**. The observing site will be behind the school as before, but getting there will be a bit more complicated than it used to be.

When you turn off Birdie Road onto the school drive, don't go all the way to the front of the school; instead, turn left onto the new asphalt road that curves around to the gym, and go around the left (west) side of the gym to the observing site. Take it slow: it's not a road, and it *is* bumpy. Come early and set up before it gets dark.

On **Tues., Nov. 17th**, we'll stage a 6:45 p.m. observing for about 50 5th-graders at the delightfully named *Cotton Indian Elementary*

School in Stockbridge. I don't have directions yet for getting to the school as I'm writing this, but if you'd like to help show the kids the night sky meet me in the Wendy's parking lot (it used to be a Hardee's) on 19/41 in Hampton at 5:30.

Our Cox Field deep-sky observations will be on **Fri.-Sat., Nov. 20th-21st**, two days after the new Moon. Hope to see you there. (In case you didn't already know it, the best observing conditions of the year begin after the first frost.)

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Nov. 16th-18th: A Leonids To Remember.

Although hardly exciting most years, the November Leonids meteor shower puts on a spectacular show every 33 years or thereabouts. The last Leonids meteor storm occurred in 1966, when observers in the western U. S. recorded rates of up to 60,000 meteors per hour, including an incredible 1-min. span around 5:17 a.m. that produced *40 meteors per second* zipping across the sky at an average magnitude of 1.5-2.0 and leaving trails that lingered in the air for minutes at a time.

Unfortunately for us, the Leonids probably won't reach meteor storm proportions this year -- at least, not unless you're observing in Asia -- but it still should rank among the best meteor showers you've ever seen, and should be well worth getting up around 4 or 5 a.m. to observe. Sit facing the easily identifiable sickle-shape (or backward question mark) that forms *Leo's* head and mane; it should be high in the sky when the Leonids peak during the pre-dawn hours of **Nov. 17th or 18th**.

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The Sky in November. As usual, **Jupiter** rules the roost in November, shining at mag. -2.7, more than twice as bright as Sirius, the brightest star. **Saturn**, trailing Jupiter by 35°, will also be spectacular although losing about a magnitude of brightness as the month progresses. Jupiter will be in the constellation *Aquarius* (the Water Bearer), Saturn in *Pisces* (the Fish).

If you can find a site with a good view of the SW sky (e.g., Cox Field), you can find

Mercury at mag. 0.0, lying 23° -- that's an extended pinky-to-thumb width + two finger-widths -- above the horizon after sunset on **Nov. 10th**. Golden-orange *Antares*, now considerably fainter than usual in the SW sky, will be 2° to the upper right of Mercury on **Nov. 8th-9th**.

Mars rises in the E about 2 a.m. in early November, but will be easier to see just prior to sunrise. Smaller than a pumpkin but just as orange, Mars will be progressively easier to observe at night during the next five months.

On the nights of **Nov. 3rd-13th**, a relatively minor meteor shower, the **Taurids**, makes its annual appearance. Emanating from the area between the V-shaped *Hyades* star cluster that forms the face of *Taurus* [the Bull] and *M45* (the *Pleiades* open cluster), The Taurids meteors are debris from Comet Encke, which has the shortest solar orbital period of any known comet, 3.3 years. At peak, up to 10 meteors per hour may be seen.

You've seen **Andromeda Galaxy (M31)** many times before; initially, you probably were discouraged that it doesn't look at all like the glorious, full-color astrophotos in the books and magazines. Well, that's life. With 300 billion individual members, M31 has considerably more stars than Atlanta has people who use cell phones while driving on I-75, I-85 and Ga. 400 combined.

The next time you look in on M31, forget looking for spirality and note the way light is dispersed in the galaxy away from the core. From E-W, the nuclear glow fades, first, rapidly and then gradually along its oval width. And while the S edge fades away evenly to nothingness like much of **Tom Moore's** humor, the N edge is sharply defined -- the result of a dust lane. Follow that dark edge to the SW to find NGC 206, a faint star cloud W of the core. If M31 were a map of Atlanta, NGC 206 would be Villa Rica.

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The Fine Art of Drawing Nebulae: Part 2

by Rich Jakiel

(Editor's Note: Part I appeared in the Sept. '98 issue of the Observer.)

Learning Values and the Art of Smudging. Beginners are rightfully concerned about the technical and aesthetic aspects of their works. Fine detail requires practice in observing skills, but what about that delicate, nebulous look? Drawing nebulae requires two important skills, *estimating values* and *smudging*.

"Values" are nothing more than intensity levels of color or gray. Since deep-sky objects generally don't display intense coloration, we'll concentrate on the gray scale. While we can distinguish millions of colors, most of us have trouble discerning more than 40 gray levels. With that in mind, drawing even 10 different gray levels can be tricky. You can practice by making a value scale of ten equal gradients. Take a ruler and draw two parallel lines about 5" long; connect them to form a bar, and sub-divide them into ten equal parts. Now make a value scale starting from pure white and ending in pitch black in equal steps of increasing intensity. This sounds easy, but it can be quite challenging the first few times you try it.

Once you've mastered the value scale, try your hand at smudging. It's easy to do: have you ever accidentally brushed your hand across your drawing? There are two main techniques. The first requires nothing more complicated than the tip of your finger. The other uses a *blending stump* -- a cloth-covered pencil that can be found in a variety of sizes at any art supplies store. The results are similar, but not quite the same. The finger method produces a coarser, more mottled smudge than a blending stump does. For very fine details, the blending stump is superior.

Smudging should be a gradual process; it's best not to start out with too much graphite or charcoal. Instead, slowly *build* the image like a time-exposure photo "builds" the light it receives. Hold your pencil at a shallow angle and move it in a circular motion. Hard, dense lines don't smudge or erase well. Using a blending stump, start working the media to get a hazy, nebulous appearance. Add another

layer with your pencil, and continue with more smudging. With time and practice, you can achieve a "3-D" look. When you have time, try experimenting with smudging techniques in concert with an eraser. Don't be afraid to copy galaxies or nebulae from photos, or even to design a few of your own. Your drawing skills will improve with practice.

While learning to sketch, here are a few helpful tips: *Keep your fingers dry and grease-free. Don't mix blending stumps (i.e., keep the white and black charcoal separate). And always "fix" your drawings with a fixative; after all, you don't want the smudging to continue after you're done!*

Field Sketch Preparations. Once you have gathered your supplies and practiced basic skills, it's time for a few preparations. First, I generally advise choosing a target that's not too large or intricate; save those objects for later when you have honed your skills.

In making field sketches, you should mark off an area on each sheet of paper for your object. Some observers like to draw circles several inches in diameter to represent the eyepiece field of view (fov). However, some objects overflow the normal fov, and may stretch across several eyepiece fields. In contrast, many planetary nebulae are very small and may get "lost" in a large circle that represents the entire fov of that eyepiece. Be flexible: choose an area on your paper that will best frame that particular object.

After you have marked off the area to be used, leave some space for technical information, including: object designation (e.g., NGC 891), the date, telescope used, magnification or eyepieces, filters (if any), object magnitude/size, etc. I often include a short written description plus interesting notes that might be useful when I transfer the drawing into my permanent notebook.

Time To Solo! You are now at the telescope and have centered a nice galaxy in the eyepiece. You are "chomping at the bit," ready to make a drawing. Don't rush into it, but take time and **observe** the galaxy. Note how the brighter stars are arranged around the

object; draw them first. They will serve as a frame and points of reference for your drawing. Next, *lightly* sketch in the outlines of the galaxy, and note other details such as dust lanes, mottling and the brightness of the core. Try not to be influenced by any biases you may have, but simply draw in the details you can see. Now, using your pencil, lay down a thin layer of graphite. Start smudging the area and continue to build the image with more graphite until you reach the desired density. Here's where your eraser comes into play: roll one end into a point, and use it to "draw" dust lanes, knots and mottling textures. You will find these techniques useful for every type of deep-sky object.

If a deep-sky object is particularly complex, don't be afraid to add notes or draw in added details on your field drawing. Sometimes the starfields can be incredibly complex. If they appear overwhelming, don't get frustrated by trying to position every star. Star charting software like **Megastar** and **TheSky** can be marvelous labor-saving devices. Generate a star atlas of the area, and sketch in only the nebula. Finally, this isn't supposed to be a masterpiece; accuracy is more important. Save your best artistic efforts for the final copy of your drawing.

The Finale. After a long night of deep-sky drawing, you may wish to transfer your efforts into a bound drawing book. At home, you can spend the extra time perfecting the image while it is still fresh in your mind. Using utmost care, copy the details of the field sketch. Once the drawing has been completed, use a fixative to keep it from smearing. Although I've stressed the ease of "negative" drawing for field work (i.e., black stars on a white background), feel free to try out other techniques and media. After you have finished the final copy, don't discard the original field drawings; they are the truest record of what you saw. Keep them for future reference.

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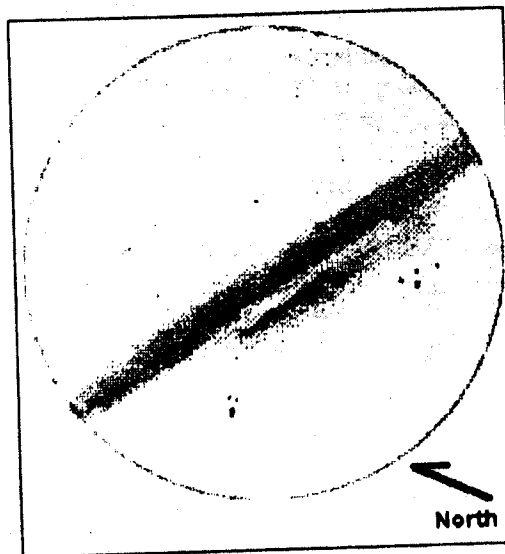
Beginners' Star-Hops; November, 1996

By Art Russell

The air is finally clear as our southeastern humidity has fallen to acceptable levels. What does this mean to us as astronomers? One of the most important benefits of low humidity is decreased haze and its associated sky-glow, the bane of all good astronomers. With the decrease in sky-glow we can now much more readily find low surface brightness objects which could be best seen only as a pale ghost of themselves only a month ago. This month's star hops will take us to two low surface brightness galaxies whose visibility noticeably improves with the decrease of atmospheric moisture and sky-glow, M31, the "Great Andromeda Galaxy," and M33, the "Pinwheel Galaxy." Along the way, we'll take a few side trips to M31's companion galaxies, M32 and M110, with our final destination being M74, a sometimes difficult to observe faint galaxy in the constellation Pisces.

This month's star-hops will be near the **Zenith** (which is located directly overhead) 10 PM on the evening of 15 November and therefore easier to find. Like last month, we'll use the "Great Square of Pegasus" as our starting point for this month's star-hops. Take a quick look at our accompanying map for our star-hops. You should see that the "Great Square of Pegasus" is aligned essentially north-south and east-west. This one aspect will help us quickly locate this month's star-hops.

Star-Hop #1, M31, NGC224, the "Great Andromeda Galaxy," M32, NGC221, and M110, NGC205. We start off this month with one of my favorite objects, M31. Once the sky gets dark enough, this galaxy seems to go on and on. Moreover, you don't need a high-tech telescope and digital setting circles to find this object; it is visible to the naked eye under dark country skies and even at Villa Rica! There are several ways to locate M31. However for this month we'll start at the "Great Square of Pegasus." Once you have located the "Great Square of Pegasus" find the northeastern most corner star, *Alpha* (α) *Andromedae*, *Alpheratz* (actually in the constellation Andromeda although a part of the "Great Square of Pegasus"). From there imagine a letter "V" such as the "V for Victory" made with your first two fingers on your hand. Extend this imaginary "V" to the northeast of *Alpha Andromedae* for about 7 degrees, the distance spanned by your four fingers held at arms length against the sky (incidentally, the length of your fingers in a "V" are about the right length here as well). Here you will find the stars *Delta* (δ) *Andromedae* and *Pi* (π) *Andromedae*. Continuing in the same general direction to the northeast, we extend another imaginary line about the same distance as before, except this time to the stars *Beta* (β) *Andromedae* and *Nu* (ν) *Andromedae*. From the northern most of these two latter stars, *Nu* (ν) *Andromedae*, it is only about 1 1/2 degrees, or little more than the width of one of your fingers, to M31. In binoculars and small telescopes, M31's galactic bulge will appear as an oblong haze with an increasing concentration of stars in its central nucleus. The edges of the galactic bulge or halo fade uniformly although there are hints of lane structure evident. Moderate sized telescopes will reveal a very bright center with an intense concentration of stars. In size, M31 will generally be one of the biggest objects you can see in your binoculars or telescope (where it often takes up many fields of view even at the lowest magnification).



M31's central portion @ 15X; 3 inch Refractor

M32, one of M31's several companion galaxies is located only about 20 arcminutes due south of M31's nucleus and is generally not easily visible with small binoculars or small telescopes except at high

power. A medium sized telescope will reveal M32 as a compact, but diffuse galaxy. To find it, scan south of M31's nucleus where you'll M32 as a bright concentration of light.

M110, another of M31's companion galaxies is located about 1/2 degree northwest of M31's nucleus and like M32, is generally not easily visible with small binoculars or small telescopes except at high power. Similarly, in a medium sized telescope, M110 is relatively compact with a relatively bright central core and diffuse body. Of the two companion galaxies mentioned, M110 is perhaps twice as large as M32.

Star-Hop #2, M33, NGC598, the "Pinwheel Galaxy." Head for a dark site to find this galaxy. You'll be glad you did! M33 is another galaxy located near the "Great Square of Pegasus." Lets start from *Beta Andromedae* which you already found in the last star-hop. From *Beta Andromedae*, M33 is about 7 degrees to the southeast. There, under dark and transparent skies, you may even be able to see M33 with the naked eye (but you will need good eyes). However, finding M33 can prove to be difficult. If your skies are less than pristine, M33 becomes increasingly difficult to find as it is a relatively low surface brightness face on spiral galaxy. That said, if you find it under good skies, you won't forget it! In binoculars M33 appears distinctly oblate in shape and looks much like a dim patch of soft light. Its body is broadly concentrated with no stars resolved. In medium sized telescopes under less than pristine skies M33 may appear as an unresolved low surface brightness concentration of light with little or no details.

Star-Hop #3, M74, NGC628. M74 is an often overlooked galaxy also in the general area of the "Great Square of Pegasus." The biggest problem with finding M74 is the perceived lack of good "finder" stars in the area. However, given the proximity of the "Great Square" and *Eta Pisces* in the constellation Pisces, this is a fallacious assumption! Enough said: lets head back to the "Great Square" to get started. In this case locate the two southernmost stars in "Great Square," *Alpha (α) Pegasi*, *Markab* to the west, and *Gama (γ) Pegasi*, *Algenib*, to the east. Extend an imaginary line from *Alpha Pegasi* through *Gama Pegasi*. Continue this line to the east for a distance of about 18 degrees, or a bit more than that between *Alpha Pegasi* and *Gama Pegasi*, or just a bit less than that the distance spanned by your thumb and little finger held at arms length against the sky. At this location you will find the star *Eta (η) Pisces*. From

Eta Pisces, M74 is a little more than 1 degree to the east-northeast, or the distance spanned by your little finger against the night sky at arms length. In medium sized telescopes M74 should be visible at low power as a faint smudge of nebulosity distinct from the background sky. At higher powers the galaxy stands out a bit better, but this galaxy will reveal little detail.

