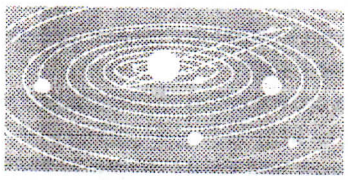
THE FLINT RIVER OBSERVER



Vol. 4, No. 12 **FLINT RIVER ASTRONOMY CLUB** **February, 2001**

Officers: President, **Steven (Smitty) Smith** (583-2200) -- or, if you prefer e-mail: <starship-saratoga@dellnet.com>; Vice President/newsletter editor, **Bill Warren** (229-6108; <warren1212@mindspring.com>); Secretary-Treasurer, **Ken Walburn** (P. O. Box 1179, McDonough, GA 30253 / 954-9442); AlCor, **Neal Wellons**, and Web Site Coordinator, **Cody Wellons** (946-5039); Librarian,**Katie Moore** (228-6447); Observing Chairman & Public Observings Coordinator: **Larry Higgins** (884-3982), e-mail <larrylhiggins@yahoo.com> . All of these phone numbers have 770 area code prefixes. Club mailing address: 1212 Everee Inn Road, Griffin, GA 30224. FRAC web page address: <http://welcome.to/frac>.

Please notify **Bill Warren** promptly if you have a change of address or e-mail.

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Club Calendar. Mon., Jan. 29: observing for Griffin H. S. Science Club (Cox Field, at dark); **Thurs., Feb. 1:** observing for Gordon College (Barnesville, on campus at Russell Hall, 6:30-6:45); **Thurs., Feb. 8:** FRAC meeting (Beaverbrook media center, 7:30); **Fri., Feb. 9:** BB observing (behind the school, at dark); **Fri.--Sat., Feb. 23-24:** Cox Field observings, at dark.

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Vice President's Message. *Something old, something new.* That's an apt description of the slate of officers proposed by our nominating committee to lead FRAC into the Brave New Millennium. The "old" (as in having served previously) refers to our nominees for president (**Larry Higgins**) and vice president (**Bill Warren**); the "new" refers to nominees **Dawn Knight** (secretary) and **Steve Knight** (treasurer). Larry founded FRAC and was the club's first president; I spend about 25-30 hrs. a month preparing the newsletter and dealing with club concerns; and Dawn and Steve showed their willingness to take on leadership roles in raising money for **Katie**'s Horkheimer 2000 gifts and their spearheading the "dinner on the grounds" for the Coxses last September.

Of course, these aren't the only members capable of heading FRAC. Hey, back in 1999 I tried to convince **Neal Wellons** to accept an officer's position for 1999-2001, but he felt -- and wrongly, I think -- that FRAC's officers should be *observers*, not armchair astronomers. **Smitty** has been a wonderful president for whom I have a world of respect, and **Ken Walburn** has been great to work with over the past four years. **Katie** would be excellent officer material if she'd give up that silly notion of going off to college next year when she could be leading FRAC by night and flipping burgers at DQ during the day. Other members would be equally effective as club officers -- but with only four positions available we think we've given you a slate of nominees who will work extremely hard on your behalf.

Whether you agree will be determined at our February meeting.

At any rate, we're getting the newsletter out early this month because we have a couple of public observings coming up soon that you need to know about.

-Bill Warren

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Last Month's Meeting/Activities. Our Dec. observings were clouded out, saving us from having to bundle up against the blistering cold like Nanook of the North.

We had a fine crowd of 16 in attendance at our Jan. meeting to hear Gordon College astronomy professor and FRAC member **Dr. Richard Schmude's** illuminating talk, "Planetary Observing and Why It's Important." **Yr. editor's** ignorance of matters astronomical was reduced by one as Dr. Schmude explained how to orient N and S on the planets.

Larry Higgins received his Universe Sampler pin at the meeting, and it was nice to see long-lost prodigals **Chuck Hancock** and **David Ward**.

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Membership Renewals Due in February: Larry & Veronica Fallin; and **Rickie, Cindy, Joshua & Austin Ramsey.** Send your $12 check made out to the Flint River Astronomy Club to **Ken Walburn** c/o the address listed on p. 1.

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This 'n That. Ken Wilson informs us that we have his e-mail address wrong; it's <kwilson_volt@inetnow.net>.

*Remember the really neat tabletop binocular mounts that **Larry H.** and **Smitty** made? Well, Larry has added a Dobsonian azimuth swivel to the base to make it even easier to use. (Incidentally, if you've ever doubted Larry's observing skills, you shoulda been at his house on Jan. 4th when, having been told that **Venus** was "about 40° from the Sun," it took him about 10 seconds to find it with binocs at 2:30 in the afternoon.)

*It was good seeing **Steven Byous,** who was home from Washington D.C. for awhile during the holidays. He said to tell everyone hi, and that he misses us. (We're guessing that what he *really* meant to say -- but didn't -- was that, having read the *Observer* every month from afar, he's missed the opportunity of seeing **Dawn Knight** at Cox Field in curlers, houserobe and bedroom slippers.)

*If **David Ward** ever drags his rusty carcass to our Cox Field observings, you'll get to see his new 15x70 binocs. David presently is tracking down the Herschel 400s with a 6" 'scope, a feat roughly comparable in difficulty to **Tom Moore** ever tracking down *anything* in the sky. David and **Mike Stuart** are, to the best of our knowledge, the only ones in FRAC who are pursuing the 400s.

***Dr. Richard W. Schmude, Jr.,** our Jan. guest speaker, has a new book out, *ALPO Observing Guide* (ALPO, $4.00). To purchase a copy, contact: John Westfall, 5061 Carbondale Way, Antioch, CA 94509.

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Upcoming Meetings/Activities. Our Feb. events will kick off on **Mon., Jan. 29th,** with a Cox Field observing for **Katie's** Science Club from GHS. Three days later, on **Thurs., Feb. 1st,** we'll trek to the wilds of Barnesville and the Gordon College campus to help **Dr. Schmude** with an observing for his students. If you're interested in helping out -- and we hope you will, of course -- bring along your telescope and we'll meet in the Ingles parking lot where Griffin bypass Hwy. 19/41 splits. (If you're coming from N of Griffin, stay on the 4-lane past the Griffin exit, the Newnan/Griffin exit (Hwy. 16) and the Williamson Rd. (Hwy. 362) exits, and Ingles will be off to the right at the 2nd stoplight past Hwy. 362. We'll caravan over from there and, after parking in the Visitor Parking area, we'll go over to Russell Hall for Richard's 7:00 talk in Rm. 112. He'll tell us when we get there how to get our telescopes to the observing site.

Our club meeting on **Thurs., Feb. 8th,** will be at Beaverbrook at 7:30 p.m. After electing officers for the 2001-2003 term of office, we'll see the first in a *great* six-part videotape series called "The Astronomers." It's about the modern astronomers who have shaped (and are shaping) our understanding of the universe.

On the following night, **Fri., Feb. 9th,** we'll

conduct our regular Beaverbrook observing behind the school at dark.

Our Cox Field observing weekend, **Fri.-Sat., Feb. 23rd-24th,** will fall directly on the new moon.

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The Sky in February. Bright **Venus** (mag. -4.6) will be at its greatest elongation (i.e., angular distance from the Sun) on **Feb. 16th-17th.** While you won't see much surface detail -- **Larry H.** points out that sometimes clouds can be detected along the terminator -- the planet's out-of-round shape is a reminder that both **Mercury** and Venus display lunar-like phases because they're closer to the Sun than we are.

Speaking of Mercury, that planet will be an easy target at mag. 0.4 (if you have a decent W horizon) just after sunset during the first week of Feb: on **Feb. 3rd,** Mercury will be the bright "star" about 30° below and to the right of Venus. (30°= a spread thumb-to-pinky width + the curled, thumbless fist of your other hand, with hands held together at arm's length against the sky.)

Jupiter and **Saturn** continue their celestial tango with the naked-eye clusters **M45 (the Pleiades)** and the **Hyades** in February. *Sky & Telescope* points out that this will be the last month for the next two decades that we'll be able to see those planets in the same binocular field of view.

On the morning of **Tues., Feb. 27th,** the new **Comet McNaught-Hartley (C/1999 T1)** will, at mag. 9 or thereabouts, be visible 12° W of *Vega* and just NE of the *Hercules* "Keystone," the 4-star asterism representing the strongman's torso. *S&T* advises, "Use binoculars."

At 1:32 a.m. on the evening of **Tues.-Wed., Feb. 6th-7th,** the **Moon** will pass in front of 3.5-mag. **Delta (δ) Geminorum**, the 3rd brightest star in *Gemini* behind **Castor** and **Pollux**, causing Delta to disappear for awhile. (We mention that because lunar occultation is one of the 25 features of the Planetary Club observing program.)

Finally, at 2 p.m. on **Fri.-Sat., Feb. 23rd-24th,** the Moon will pass within 1/5° (i.e., about 1-1/2 inches from the center of your low power field of view) N of mag. 5.8 asteroid **4 Vesta.** (Tracking an asteroid's progress over two nights is another feature of the Planetary program.)

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Rating the A. L. Observing Clubs, Pt. 2

by Bill Warren

(Editor's Note: Last month we took a brief look at the three easiest clubs to earn a pin in -- the Lunar, Universe Sampler and Binocular Messier clubs. This time around, we'll move into the "moderate difficulty" class.)

4. Messier (110 objects)**.** The Messier list is a logical starting point for beginners for four reasons. First, it takes you into most of the major northern constellations, thereby acquainting you with the basic layout and movement of the night sky as the seasons change. Second, it helps in developing useful scanning skills and techniques for locating the various kinds of deep-sky objects. Third, it teaches you to recognize -- and describe -- the sometimes-broad, sometimes-subtle differences in nebulae, galaxies and star clusters. And fourth, the Messier list contains many of the most beautiful objects in the known universe.

Messier searches normally take from 1-1/2 to 2 years to complete, but the process can be speeded up by (a) observing regularly, (b) organizing your search (e.g., by not letting any winter Messiers go unfound before they move too far W to be seen until next year), and (c) getting someone who's been there and done that to help you when you need help. All three are important, of course, but the importance of observing regularly to improve (or maintain) finding and observing skills cannot possibly be overstated.

Put it this way: show me someone -- *anyone* -- who doesn't know his or her way around the night sky, and I'll show you someone who hasn't spent (or isn't spending)

much time at it. Life is a matter of arranging your priorities.

5. Double Star (100 objects). At least 3/4 of the double stars on the list can be seen naked-eye, although it takes binocs (mounted for steadiness) or a telescope to split most of them. All of the most well-known double stars are there (e.g., **Albireo, Mizar/Alcor,** the **Trapezium, Polaris, Alnitak** (the easternmost of the 3 stars in *Orion's* belt), **Pollux, Regulus** and **Gamma Andromedae**). Some, like **Rigel**, require high magnification to be split, but changing eyepieces should be a regular part of your observing technique. Find them at low power, then try other magnifications to secure the best view.

Seasonal Star Charts identifies most of the stars by Greek letter, so you'll need a copy of the Greek alphabet (lower case) to remind you of what *Omicron* or *Rho* look like.

Some of the targets are fairly dim (think: **Steve Knight** at 3 a.m.), and others can be difficult to identify due to a lack of finder stars for star-hopping to them. Drawing double stars is easy, though. Don't forget to add an arrow to indicate which direction is W, and tell what magnification you used for your drawing. (Let the stars drift out of your high power field of view; where they leave indicates W.)

6. Binocular Deep-Sky (60 objects). This is another generally easy project, made difficult only by the presence of a few unusually large open clusters and two objects that don't appear in *Sky Atlas 2000.* Like all of the observing clubs, Binocular Deep-Sky contains objects from each of the four seasons, and thus is designed to take a year to complete.

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Basic Observing Terms

article by Bill Warren

Aperture. The diameter of the primary mirror or objective lens of a telescope. Generally, the larger the aperture, the fainter the objects that can be seen and the greater the resolution. (While "resolution" normally refers to the telescope's ability to split close double stars into separate components, it can also refer to the ability to show greater detail (e.g., revealing individual stars in globular clusters).

Averted vision. In the dark, the outer edges of the retina are more sensitive to light than the center. When observing objects such as faint galaxies, nebulae or unresolved clusters, looking slightly to one side of the object allows that object's light to fall on the more sensitive outer part of the retina, revealing detail that might otherwise escape notice when looking directly at that object.

That's why the **"Blinking Planetary" (NGC 6826** in *Cygnus)* appears to blink on and off like a turn signal: when you look straight at it, the faint central star cannot be seen and the star's halo is too dim to be revealed. But when you look away slightly -- say, half an inch in any direction -- the outer portion of the retina collects the light and the central star and its gaseous halo "blink" back on.

Collimation. The alignment of the optical elements of binoculars or a telescope at the correct angles to the light path. A poorly collimated instrument will distort images, esp. away from the center of the field of view, into elongated stars, hazy planetary images and unresolved close double stars.

With a reflector, both the large **primary mirror** located at the bottom of the tube and the **flat secondary (diagonal) mirror** near the light-gathering aperture require periodic recollimation; the former is easy, the latter much more difficult.

Refractors, on the other hand, seldom require such adjustments.

Direct vision. Looking straight at an object.

Eye relief. The distance your eye must be from the eyepiece to see the entire field of view. The greater an eyepiece's magnifying power, the smaller its viewing aperture will be -- and the closer your eye must be for you to see the whole field of view. That's why people

who wear glasses sometimes have trouble observing with their glasses on.

Focal ratio. The "f/number" of a telescope, referring to its "speed." The smaller (i.e., faster) the f/number, the lower the magnification, the wider the field and the brighter the image. "Fast" (f/4 to f/6) focal ratios are preferable for wide field and deep-sky observing and photography; "slower" (f/11 to f/15) ratios are better for lunar, planetary and double star observing and high magnification photography.

Focal Length. The distance (in millimeters) from the primary mirror or lens where the light is gathered to the point where the image is focused.

Magnification. The number of times larger an object appears in an eyepiece than its naked-eye size.

Magnitude. A number indicating the relative brightness of a star or other celestial object. The brighter the object, the higher its negative number or lower its positive number will be. For example, **Sirius,** at mag. -1.46, is brighter than **Arcturus** (mag. 0), which in turn is brighter than **Pollux** (mag. 1.1).

A difference of one full magnitude of brightness between two objects means that one is 2-1/2 times brighter than the other; a 2-mag. difference indicates that one is 6.25 times (i.e., 2.5 x 2.5) brighter than the other; and 3 mags. of difference = 15 times brighter, etc. To find out how much brighter the **Sun** (mag. -26) is than the full **Moon** (mag. -11), multiply 2.5 by itself 15 times.

With deep-sky objects, the stated magnitude refers to the brightness an object would have if all of its light were concentrated into an area the size of a single star. For example, the face-on galaxy **M33 (Pinwheel Galaxy)** is listed at mag. 6, but due to its large size -- about twice the size of the full moon -- it can be difficult to see under less than ideal conditions. Such faint objects with relatively high stated magnitudes are said to have *low surface brightness.*

The faintest stars that can be seen visually (as opposed to photographically) in amateur telescopes of any size range somewhere between mag. 19 and mag. 22 in brightness.

Objective. The main, or **primary**, light-gathering mirror or lens of a telescope. The greater its area, the greater the amount of light received.

Scanning. Locating celestial objects by systematically moving the eyepiece -- usually, at low-power -- up, down, back and forth through the target's suspected location. Everyone develops his or her own scanning technique, and there is no one "right" way to do it, as long as you cover the entire area. (Best advice: *scan slowly.*)

Seeing. The relative stillness of the atmosphere through which light is passing. Poor seeing conditions negatively affect the resolving power of any telescope, limiting the amoung of magnification that can be applied under those conditions.

Star-Hopping. Locating celestial objects by moving to them in a series of small steps, or "hops", from known stars or other objects -- say, by using portions of the 4° field of view of a Telrad to move ever closer to your target.

Transparency. The clarity of the sky, as evidenced by the brightest star that can be seen naked-eye.

Triangulation. Locating celestial objects by using two known stars or other objects to form a triangle with the suspected location of the target, and starting the scanning process at that point.

P.S.: A pop quiz will be given when you least expect it. (Just kidding.)

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