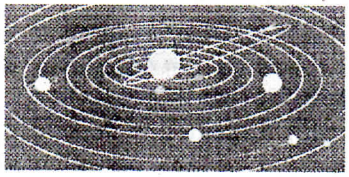
THE FLINT RIVER OBSERVER



Vol. 4, No. 11 **FLINT RIVER ASTRONOMY CLUB** **January, 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. Thurs., Jan. 11: FRAC meeting (Beaverbrook media center, 7:30); **Fri., Jan. 12:** BB observing (behind the school, at dark); **Fri.--Sat., Jan. 19-20,** and **Fri.-Sat., Jan. 26-27:** Cox Field observings, at dark.

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Vice President's Message. We're having some fun stuff coming up in the next few months that will, like the Starship Enterprise, take us where we've never gone before. First up is **Dr. Richard Schmude's** Jupiter/Saturn workshop at our Jan. meeting. I hope you'll want to participate in this project for the club's sake and your own as well.

Later on down the line, we'll visit a meteor impact site in Alabama; among other things, it'll prove to **Ken Walburn** that a "field trip" is not someone stumbling over a telescope.

If you haven't done so already, I'm looking forward to your meeting our newest member, **John Felbinger,** of Brooks. He's a beginner, but no one ever said that new members had to be experts. Remember, an *ex* is a has-been, and a *spurt* is a drip that fizzled.

-Bill Warren

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Last Month's Meeting/Activities. The first half of December, at least, was almost totally unobservable, the clearest night being that of our Dec. 14th meeting. Disinclined to pass up even so dewy an opportunity, **Steve Knight** trotted out Big Boy in the Moores' driveway and we oohed and aahed over its splendid views of **M31** and everything else in the vicinity of Dobson's Hole.

The meeting turned out to be a party as well, with a dazzling array of tasty treats prepared by **Kathy & Katie Moore** (and presumably not **Tom**, since everyone enjoyed the food immensely). **Yr. editor**, whose pockets were crammed with culinary delights purloined from the various food trays, received his Universe Sampler pin and certificates and talked about that observing program -- and all of us got to know the very likeable **John Felbinger**.

Others present besides those already mentioned included: **Toni & Larry Higgins** (listed in order of their importance to humanity); **Neal Wellons; Larry Fallin; Donald Harden; Dawn Knight** (who, to no one's surprise, won another door prize; one

wonders why we even bother to draw names when it would be quicker and easier just to present the door prizes to Dawn every month and get on with our lives); and last but certainly least (you know we're only kidding in telling you that we're kidding, Joe), **Joe (the Dilemma) Auriemma.**

What a great crew! The only way we could possibly have had a better time at the Moores' home is if **you** could have been there, too.

Our scheduled observings on the 15th-16th were weathered out. *Bah* and *Humbug*!

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Membership Renewals Due in December: None.

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This 'n That. Theres a new glow in the heavens this month; it's not *gegenschein,* but rather the vivacious spirit of AAC's **Chrissy Mondell,** a delightful and remarkable woman who passed away in her sleep recently. (You may remember Chrissy accompanying **Phil Sacco** whenever he spoke at our meetings or visited Cox Field, or her coordinating the pancake breakfasts at the Peach State Star Gaze.) Our deepest sympathies are extended to everyone in the AAC, which lost one of its very brightest stars.

*On a happier note, the folks at Beaverbrook would like to thank **Larry Higgins** for playing Santa Claus at the school on Sat., Dec. 2nd; and everyone who attended our Dec. club meeting wants to thank **Tom, Kathy & Katie Moore** for inviting us into their home for our meeting on the 14th. It was a festive and joyous occasion, due in no small part to the hard work and gracious manner in which the Moores received us.

*The Nov. issue of the AL *Reflector* contains, among other things: announcements of observing award winners **Steven (Smitty) Smith** (Sunspotters Club), **Tim Astin** (Regular Messier Club *and* Binocular Messier Club) and **Jerry Williams** (Lunar Club); a long-overdue article on **Katie's** winning the Horkheimer 2000 award (p. 9); and a brief article and drawing of sunspot groups by **Dr. Richard W. Schmude, Jr.** (p. 4).

Speaking of Katie, the *Griffin Daily News* of Mon., Dec. 18th, had a big front page photo of her, with a nice article about her astronomical exploits and aspirations.

*There's a photo of the Universe Sampler naked-eye double star **Theta (θ)$_{1,2}$ Tauri** in the "Binocular Highlights" foldout section of the Jan. issue of *Sky & Tel.* The photo and accompanying text features open cluster **NGC 1647,** a Herschel 400 binocular target that writer **Gary Seronik** refers to as the "Crab Cluster" due to its binocular resemblance to that crusty crustacean.

There's also a detailed sky chart and descriptions of: Universe Sampler telescopic target **NGC 457 (the "Owl Cluster")** with photo; Herschel 400 targets **NGCs 7789, 7790, 185** (with photo), **654** and **663;** and Binocular Deep Sky targets **NGCs 869** and **884 (the Double Cluster)** and **Stock 2**, a huge -- 1° -- open cluster -- all of the aforementioned in a Jan. *Astronomy* article on "Cassiopeia" by **Tom Polakis** (pp. 80-84).

***Wanta See the International Space Station?** Here's how, according to the AJC: "The best way to locate a satellite is by using NASA's Sky Watch at <http://spaceflight.nasa.govt/realdata/sightings/index.html>...At that Web site, click on Start Java Applet. Be patient. It may take a few minutes for the input page to load. Enter ISS at Select Satellite and Atlanta for the city, then Next Sighting. After it finds the next sighting, click on the Sky Track button at the bottom of the input screen to view a map of the sky near the satellite."

Sky & Tel also has ISS data on its Web site: "Under the 'Sights/Satellite Observing' option at <www.skypub.com>, users can get visibility predictions for 250 cities in North America, including Atlanta..."

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Upcoming Meetings and Activities. The speaker at our meeting on **Thurs., Jan 11th,** will be the aforementioned **Dr. Schmude**, who will take us through the process of observing and drawing Jupiter and Saturn. Bring your telescope, because afterward we're going outside (weather permitting) for a hands-on workshop. Dr. Schmude has asked FRAC to assist him in observing those planets during the year 2001 in a year-long project to measure Jupiter's brightness.

Please don't be daunted by the project or our role in it; Dr. Schmude is a wonderful teacher, and he'll tell us exactly how to do our part in terms of what he needs from us. We are honored that he has come to FRAC for help in this study; it's another sign that our club has gained respect and credibility.

Since we're still encountering iffy skies even at this time of year, we're scheduling **two** January Cox Field observing weekends, those on either side of the new moon. Our first weekend will be **Fri.-Sat., Jan. 19th-20th,** and we'll try again on **Fri.-Sat., Jan. 26th-27th.** Please feel free to attend any or all of those observings; they give us *four* more chances to enjoy your company, rather than just two.

Larry H. wants you to know that we'll also be having public observings at Crescent Elementary School and at Cox Field sometime in January, the latter being for Griffin High School's Science Club. Arrangements presently are incomplete, but we'll call you when they're finalized.

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The Sky in January. Bright **Venus** and mighty **Jupiter** and **Saturn** will be the stars of the nightly planet parade this month, with Venus displaying a half-moon shape in your telescope, Jupiter lying between the **V**-shaped *Hyades* and the *Pleiades (M45),* and Saturn to its upper right. At 1:37 a.m. on **Jan. 15th,** shadows of two of Jupiter's moons will appear on the planet's surface, and three nights later, on **Jan. 18th**, the Jovian trio of **Europa, Ganymede** and **Callisto** will be tightly bunched at about 8:30 p.m.

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e-mail Addresses. We should have done this a long while back, but never got around to it. If you have an e-mail address and it's not listed here (or if it's incorrect as listed), let us know and we'll add it in a later issue of the *Observer.*

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Eyepiece Magnifications and Fields of View

article by Bill Warren

Magnifications. Determining what magnifications your eyepieces are applying to celestial objects is easy: just divide the eyepiece focal length -- it's expressed in millimeters (as in *26mm* or *9.7mm*), usually on the side of the eyepiece -- into the focal length of your telescope, which is also expressed in millimeters. The number you come up with is that eyepiece's magnification.

For example, if you have an 8" telescope with a focal length of 1200mm and your eyepieces are 26mm and 10mm, their magnifying powers are 46x and 120x, respectively. A 2x **Barlow** lens attached to your eyepiece will double their magnifications to 92x and 240x, but will not necessarily improve the clarity of the resulting images. A magnification of, say, 46x means that the object is seen 46 times larger than it would appear to the naked eye.

Incidentally, for those of you who wear eyeglasses while viewing, a Barlow lens offers better eye relief (i.e., a wider viewing aperture) than a higher power eyepiece of the same magnification. Thus, a 25mm eyepiece with a Barlow affixed should provide almost the same magnification as a 12mm eyepiece, and with better eye relief. Of course, there's the problem of taking the time to fit the Barlow into place after finding an object at low power; still, you could remedy that problem by buying another low power eyepiece and using one of them for low power viewing and the other with the Barlow attached for medium power observing. That may seem a drastic measure to some -- but if it makes viewing with eyeglasses easier, isn't it worth the effort?

Magnification Limits. While you could (theoretically, at least) apply *any* magnification to any telescope, there are practical limits to what you should expect to see clearly at high power. Beyond those limits, images tend to lose contrast by spreading and dimming the light that afforded clearer images at lower magnifications.

The useful magnification limits are roughly 50x for a 60mm (2-1/2") telescope, 100x for a 4-1/2" 'scope, 150x for a 6" 'scope, 140x-160x for an 8" 'scope, 175x-200x for a 10" 'scope, 210x-240x for a 12-1/2" 'scope, and 245x-280x for **Steve Knight's** "Big Boy."

Those figures aren't etched in stone -- but to get good views with higher than those stated magnifications generally requires exceptionally steady seeing and high quality optics. Even then, though, you aren't likely to find magnifications of upwards of 350x-400x useful with any telescope; there's just too much atmosphere to contend with. (On the positive side, that same atmosphere makes breathing possible, so we shouldn't complain too bitterly.)

Field of View. Your field of view includes everything that can be seen in your telescope or binoculars without moving them around. The greater the magnifying power of a given eyepiece, the smaller its field of view (f.o.v.) will be -- but objects within that f.o.v. will be correspondingly larger. That's why images leave the field of view so quickly at high power.

To measure an eyepiece's field of view, select a star that is somewhere near the celestial equator -- say, **Aldebaran,** the right eye of *Taurus (the Bull)* --and place it at the E edge of your f.o.v., then time how long in seconds it takes for that star to drift through the center of the field to the opposite edge. That time divided by four gives the diameter of the field in arc-minutes. (60' [arc-minutes] = 1°, 30' = 1/2°, 15' = 1/4°, etc.) If your field of view is 1/2°, or 30', the Moon will fit neatly inside it.

Knowing your field of view can be helpful in finding objects by star-hopping. If, for example, you're told that a given object is, say, 3/4° E of a given star and your field of view is only 1/2°, you already know that you won't find your target in that star's field with that eyepiece. To find it, you could either switch to

a lower magnification (and thus expand your f.o.v.), or else place the guide star on the W side of your field, guide your 'scope one field of view to the E, and look for the object in the middle of *that* field of view.

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Ranking the A. L. Observing Clubs

article by Bill Warren

(Editor's Note: This is the 1st in a series of articles ranking the A.L.'s observing clubs, not by their value -- all *of them are valuable tools for learning about the universe and our solar system -- but by their relative difficulty. We'll start with the easiest and work our way through the list. Part Two will appear in next month's* Observer.*)*

1. Lunar Club (100 features). This program is an ideal place for beginning astronomers to get their feet wet: you don't need expensive equipment, since all of the features can be seen with 7x35 binoculars or a 60mm telescope. You can qualify for a pin and certificate with any instrument. The same features are there every month, all year, within the 1/2° confines of the Moon, so you don't have to scan the broadest expanses of an unfamiliar sky to find what you're looking for. And since the Moon is the 2nd brightest celestial object we can see, haze, smog and other sources of light pollution aren't nearly as intrusive as when you're searching for other, more elusive targets.

As if that weren't enough, consider this: you don't even have to describe the features, just check off each item and record the date as you find it.

The most difficult target is likely to be **Reiner Gamma**, a bright, diamond-shaped surface marking lying a short distance W of the crater **Reiner**: Gamma is not a crater, and its brightness is unexplained. It's the only Lunar Club feature that isn't marked on our club's Moon map.

2. Universe Sampler. This program is difficult only in the sense that, if you're a beginner, you won't know what you're looking for (or at), and not all of the deep-sky objects are located in any single atlas that is less advanced than *Sky Atlas 2000.*

Two resources will make your work a lot easier: **Wil Tirion's** *Deep Map 600* ($13.95 from Orion), which has all of the telescopic deep-sky objects (DSOs) except one, and all of the naked-eye DSOs; and **Amelia Goldberg's** *Universe Sampler* ($7.00 from the A.L., but we have a copy in our club library).

You can earn a pin and certificate for binocular/telescopic observing (Lists I & II), or for naked-eye observing (Lists 1 *&* III). Both methods feature three easy double stars and 15 DSOs.

The most difficult parts are likely to be from List I, observing the Sun (can be difficult without a filter or a "pin-hole camera" and gauging the brightness of two variable stars. But that's why we, your fellow FRAC members, are here -- to guide you through the rough spots and offer assistance where needed.

At any rate, this is a much easier observing project than the Messier Club program, as long as you ask for help or advice when you need it.

3. Binocular Messier (60 objects). Two features -- finding *any 60* of the 110 Messier objects and the wider binocular field of view (typically, 7°-8°) -- more than compensate for the fact that, in binoculars, most of the Messiers are smaller and fainter than they appear in a telescope of 3-1/2" or larger.

First, you should order a free copy of the Binocular Messier list from the A.L., or get it off their Web site by clicking on Observing Programs.

When viewing, record the object's name, the date, power, instrument, time, seeing conditions and your observing notes.

If you don't have an observing form, let me know and I'll give you one to run off copies from. And if you don't know what to record, any of several club members can tell you what you need to know about describing what you're looking at.

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