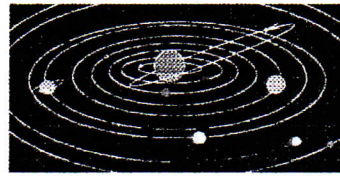


THE FLINT RIVER OBSERVER



Vol. 5, No. 12

FLINT RIVER ASTRONOMY CLUB

February, 2002

Officers: President, **Steve Knight:** (770)227-9871, 114 Central Lake Circle, Griffin, GA 30223 <sdknight@bellsouth.net>; Vice President/newsletter editor, **Bill Warren:** <warren1212@mindspring.com>, (770)229-6108; Secretary/Treasurer, **Dawn Knight** (see above); AlCor, **Neal Wellons**, and Web Site Coordinator, **Cody Wellons:** (770)946-5039; Librarian, **Tom Moore:** (770)228-6447. Club mailing address: 1212 Everee Inn Road, Griffin, GA 30224. Web page: <<http://welcome.to/frac>>, discussion group at <FRAC@yahoo.com>.

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

* * *

Club Calendar. **Thurs., Feb. 7:** FRAC meeting (Beaverbrook, 7:30); **Fri.-Sat., Feb. 8-9** and **Fri.-Sat., Feb. 15-16:** Cox Field observings (at dark); **Tues., Feb. 19:** observing at Cotton Indian Elementary School (Stockbridge, 7:30-8:30).

* * *

President's Message. First, let me give a hearty welcome to FRAC's newest member, **Scott Hammonds** (175 Martha's Cove, Fayetteville, Ga. 30215, (770)632-6515, <Scott@creatorsview.com>). Proud to have you along, Scott.

We have some interesting events coming up in the next few months.

In March, we've scheduled another road trip to Chiefland, Fla., this time for the Messier Marathon on Fri.-Sat., March 15th-16th. It costs \$5 a night to camp and observe; that's an incredible bargain for what you get (mag. 6.5+ skies, great facilities and friendly hosts and neighbors). We'll use the same schedule as the

star party, i.e., meeting at Home Depot, driving down and getting there by 3 p.m., and setting up camp. It's a touch over 300 miles and 5 hrs. driving time. You're cordially invited to come along.

On April 20th we'll have another Astronomy Day event, the details of which have not as yet been worked out.

Dawn and I spent New Year's Eve with **Chuck Woodward** and the resurrected Middle Ga. Astronomical Society based in Macon. They are some really nice folks who are very enthusiastic about astronomy. I'm looking forward to working with them in the future for the betterment of both clubs. We've already put a link to their club on our web site.

We still need a volunteer to head up April's "Dinner on the Grounds" at Cox Field, and I'd like to see more participation in club events. We have an observing for Cotton Indian Elem. School on Feb. 19th, with a rain date of Mar. 5. Directions to the school are given on p. 3. I hope you can join us.

Finally, if you have any ideas about how we can make events easier for you and others to attend, I'd like to hear from you. As I said before, we'll be doing some different things this year and I hope so far you are enjoying the ride. I welcome any ideas or comments that you may have on anything pertaining to FRAC. Thanks again for being an important part of our club.

-Steve Knight

* * *

Last Month's Meeting/Activities. We had eight members and five guests at our January meeting. **Dawn & Steve Knight, Smitty, yr. editor** and six guests comprised our sparse attendance at three Jan. Cox Field observing

nights. The skies cooperated nicely on those evenings. Wish you'd been there with us.

* * *

Membership Renewals Due in February: Larry & Veronica Fallin; Robert Hall; Tommy Narron; and Lee Russell.

* * *

This 'n That. Thanks to **Keith Cox** for his generous donation to our sorely depleted treasuries. In paying his annual dues, Keith sent a check for \$50 and said we could keep the change rather than adding three years to his membership. No wonder everybody in the club likes Keith except **Tom Moore**. (Just kidding, Keith; actually, Tom likes everyone in FRAC except **Steve K**. [Just kidding, Steve; actually, Tom doesn't like anybody.])

*Congratulations to **Joe Auriemma** for completing his Binocular Messier observations. Congrats, too, to **Phil Sacco** for completing his Caldwell Club pin requirements and earning **Master Observer** pin #11. Of the eleven pins given out so far, *two* of them belong to FRAC members.

*If you're new to FRAC and want to find out what members are doing between meetings, you can go online to <FRAC@yahoogroups.com>; join the group, and you can discuss such things as **Steve K**'s decision to drill a beehive of holes in his telescope tube or how many telescopes **David Ward** will buy this year before his wife **Veronica** blows her stack.

***From Steve Regarding the Above:** "I'm testing the structural failure point of sonotube by seeing how many holes you can drill/hang toys on until something gives. Actually, nobody else was foolish enough to ride the cutting edge of what goes on in magazine articles. They wouldn't print it if it wasn't the absolute truth, would they?"

*If you're looking for information on the Messier objects, a "12-Month Tour of the Messier Catalog" can be found at

<www.nerdnet.nl/~angelo/phoenix/messier/xtra/12months>.

***UGa Astronomy Professor Strikes Again!** From the *Atlanta Journal's* "Q&A" column of Jan. 21, 2002 (p. D2): "**Question:** *Over the past several months I've watched an object that looks like a bright star traverse the space above the "V" formed by the horns of the constellation Taurus. Its movement is imperceptible except over time. The planets that have been visible during this time all seem to be in different parts of the sky, and I don't recall seeing this object before. What is it?* -- *Jim Martin, Cumming*

"Answer: Without precise positions or a photo it's 'really hard to tell,' said **J. Scott Shaw**, professor of astronomy at (UGa). He speculated that what you saw was **Saturn**, because it has spent the past week or so entering and crossing *Taurus*."

However, Shaw speculated, since the reader said it wasn't a planet, "It's possible it is a new comet...(that) you can get named after you."

Great Leaping Caesar's Ghost!!! This is the same UGa astronomy professor who, last June 27, speculated that the fireball that thousands of Georgians -- including many of us in FRAC -- saw was really a jet plane; now, he's telling us that Saturn has spent "the past week or so entering and crossing *Taurus*," when it has been near the face of *Taurus* since last August or earlier! And what are the chances that a "bright star" is a new, previously undiscovered naked-eye comet?

It's enough to make you wonder: When's the last time the professor went outside to look at the sky? And why does the AJC keep contacting this gentleman regarding observational astronomy when there are so many knowledgeable, up-to-date observers in FRAC and the AAC?

* * *

Upcoming Meetings/Activities. Our club meeting at 7:30 p.m. on **Thurs., Feb. 7th** at Beaverbrook will feature **David Ward's** presentation on "Computer Software Mapping Programs and Customized Charts."

We'll meet at Cox Field for deep-sky

observing on **Fri.-Sat., Feb. 8-9** and again on **Fri.-Sat., Feb. 15-16**, with the new moon falling between those dates on the 12th.

We'll likely be holding a lot of public observings in upcoming months. Since the dates often are set too late to appear in the newsletter, we'll call our local members for Griffin observings. Let **Bill Warren** know by phone or e-mail if you'd like for us to call you, too, whenever we have an observing scheduled.

We're conducting a public observing for Cotton Indian Elem. School near Stockbridge from 7:30-8:30 on **Tues., Feb. 19th**. To get to the school from Griffin, go N on Hwy. 19/41 to Hwy. 138, turn right, and stay on Hwy. 138 past I-75 and I-675, then bear right onto Hwy. 42 at Wal-Mart. 1-1/2 mi. past Wal-Mart you'll cross over a RR bridge "hump" and then turn left onto East Atlanta Rd. Go about 1/2 mi. on E. Atlanta Rd. and turn right at Old Conyers Rd. Go about 2 mi., and Cotton Indian will be on the left, in front of (and adjacent to) Stockbridge High School.

If you're new to FRAC, be advised that you **don't** have to be an experienced observer to show the night sky to kids. Come on out on the 19th and we'll tell you what to show them, how to find it, and what to say about it. We may give you **Jupiter** or **Saturn** since they're easy to find and require little explanation.

Remember, too that just because you're the "expert" that evening doesn't mean you're expected to know everything about the night sky. There's nothing wrong with saying "I don't know" or referring viewers to someone else who might know the answer to a child's question. It's something that all of us have done at one time or another.

* * *

The Sky in February. **Mars**, although smaller and faded to mag. 1 by Feb., will be an early evening target in the W sky; best we can say is, it'll still be orange. **Venus** will show up as an evening star during the last week of the month. **Jupiter** and **Saturn** will continue to dominate the evening hours, setting after midnight.

On **Tues., Feb. 20th**, the **Moon** will occult (pass in front of) **Saturn** at 6:56 p.m.; at 8:27

p.m., the ringed planet will reappear on the other side of the Moon. It won't be completely dark at 6:56, but that won't matter: just find the Moon, and Saturn will be nearby on the 20th. If you're working on a Planetary Club pin, *this* will be a perfect opportunity for you to log a lunar occultation. It's an easy find, too: at mag. 0, Saturn will be easy to spot opposite **Aldebaran** and forming the other eye of the V-shaped face of *Taurus (the Bull)*.

Beyond all that, those of you who are chasing down spring Messiers and Herschel 400s need to get an early start on the galaxies in *Virgo, Canes Venatici, Coma Berenices* and *Ursa Major* before the spring humidity arrives to foul up observing conditions.

* * *

Measuring Time and Movement In the Night Sky

article by **Bill Warren**

***Question: Why do the stars and constellations move from east to west across the sky?** They don't. The earth's counter-clockwise rotation on its axis makes them appear to move clockwise (E-W).

While the stars are all moving in space, they are much too far away for us to see their actual movement relative to us except over long periods of time called *epochs* (e.g., epoch 1950.0 or epoch 2000.0, as in *Sky Atlas 2000.0*).

***Question: If I looked at, say, M42 at 8 p.m. last night, how far west will it have moved by 8 p.m. tonight?** M42 is in the same place tonight that it was last year at the same time, and that it will be a year from now as well. Here's why:

The stars and constellations take one year -- roughly 365-1/4 days -- to circle the sky and return to where they are now. Since there are 360° in a circle, it figures that a given star, constellation or deep-sky object will move roughly *one degree* west every 24 hours. M42 will be about 1° -- two Moon-widths -- west of where it was last night.

In a month's time, it will have moved E-W

30° (depending on the month), or about 1/6 of the distance from horizon to horizon.

The **Moon**, on the other hand, takes 27 days, 7 hrs., 43 min. and 12 sec. to complete one orbit around the Earth. So the Moon will have moved about 13° west of where it was last night at the same time.

***Question: How fast do the stars and constellations appear to move across the sky at night?** Since one 360° rotation of earth's axis takes 24 hours, the stars and constellations' apparent movements amount to 15° per hour, or 1/4° -- 15 arc-minutes (15') -- each 60 sec.

***Question: Why do objects move out of the telescopic field of view faster at higher magnifications?** With all other factors being equal, increasing magnification magnifies the size of images while decreasing the size of the field of view. You're seeing a larger image in a smaller area.

***Question: How can I determine the size of my field of view?** Pick a bright star such as *Aldebaran (Alpha Tauri, the Bull's right eye)*. Place it at the edge of your field of view, and time in seconds how long it takes for the star to move through the center of your field of view to the opposite edge. Dividing that time by 4 will give you the field of view in arc-minutes for that eyepiece. (One degree = 60 arc-minutes [60'].)

* * *

Putting Heat In Its Place (Part I)

tech article by Steve Knight

Most problems with telescopes can be overcome with proper maintenance or equipment modifications. One problem that hasn't been addressed until recently is that of cool-down time.

Unless you leave your telescope outside, you have to deal with tube currents on a regular basis. Even then, though, the air will continue to cool faster than your mirror, giving some degradation in low- to medium-power views

and possibly even ruining high power images. All this is due to the presence of a large cylinder of glass or Pyrex -- the primary mirror -- at the bottom of the telescopic tube in a reflecting telescope.

The primary mirror emits heat collected from the Sun (or the heat inside your house), and the dispersion of that heat creates an effect similar to looking across a parking lot on a hot summer day. The shimmering air is simply a boundary layer of heat rising from the pavement to the cooler air directly above it.

Where heat is concerned a primary mirror is, like pavement, a reflective surface. Ten feet above the parking lot, the shimmery, dancing air disappears. One inch above the surface of the mirror in the tube, heat is no longer a factor but the damage has already been done. The starlight we work with must pass through that heat *twice* -- once in getting to the primary mirror, and again on its way back to the secondary mirror and eyepiece.

Various methods exist for cooling mirrors down, but most of them do not actually address the problem; instead, they simply speed up the natural cooling of the mirror.

Probably the most popular cool-down technique (aside from simply waiting 30-45 minutes for the mirror to cool down to match the ambient temperature outside) involves the use of fans blowing on the back of the mirror; while this technique works, it takes time to cool the mirror in such a manner. What if there were a faster way to achieve the desired result without worrying about the actual mirror temperature?

Rather than cooling the mirror, a better method might involve getting rid of the boundary layer of heat. But how do you get rid of something you can't see, much less reach?

The solution is simpler than you might think.

By using basic computer fans to blow air across the mirror's surface, and exhaust holes on the other side of the tube to let the heat out, you can cure the problem instead of addressing the cause. The heat will come out of the mirror regardless of what you do; why not just let it come out rather than cool down the mirror?

With proper placement of the fans and exhaust

holes, the breeze will scrub the heat layer off the mirror and carry it away before it can do any damage to the image in the eyepiece.

The parts and labor necessary in order to install such a cooling system are as follows (sizes may vary with the size of your scope):

(1) two ball bearing, 43 cfm, 12v computer fans; (2) one cigar lighter plug with 6' lead; (3) drilling seven 1.5" exhaust holes on the top of the tube and two 3.625" holes on the bottom for the fans at five and seven o'clock blowing in an X pattern across the mirror; and (4) one 12v battery for power.

I already had a battery pack (from Target for \$40) to power my table light. The rest of

the materials cost about \$30 and took less than an afternoon to install.

(Editor's Note: This was Part One of a 3-part series. Next month will cover the installation of fans and the process used in choosing the fan that's right for you.)

Editor's Note: Are you having trouble organizing your monthly searches for objects in the night sky? If so, Larry Fallin offers a monthly guide to which Messiers, Caldwell's, Herschel 400s and Double Stars are up. His February installment appears below.

##

Constellations of the Month - February

	Messiers	Caldwells	Double Stars	Herschel 400
Camelopardalis	none	C5 IC 342 C7 NGC 2403	1 Camelopardalis 32 Camelopardalis	NGC 1501 NGC 1502 NGC 1961 NGC 2403 NGC 2655
Canis Major	M41	C58 NGC 2360 C64 NGC 2362	Epsilon Canis Majoris	NGC 2204 NGC 2354 NGC 2360 NGC 2362
Gemini	M35	C39 NGC 2392	Alpha Geminorum Delta Geminorum	NGC 2129 NGC 2158 NGC 2266 NGC 2304 NGC 2355 NGC 2371 NGC 2372 NGC 2392 NGC 2395 NGC 2420
Monoceros	M50	C46 NGC 2261 C49 NGC 2237-9 C50 NGC 2244 C54 NGC 2506	Beta Monocerotis Epsilon Monocerotis	NGC 2185 NGC 2215 NGC 2232 NGC 2244 NGC 2251 NGC 2264 NGC 2286 NGC 2301 NGC 2311 NGC 2324 NGC 2335 NGC 2343 NGC 2353 NGC 2506