THE FLINT RIVER OBSERVER

Newsletter of the Flint River Astronomy Club
Vol. 8, No. 5 July, 2004

Club mailing address:
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Web page: www.flintriverastronomy.org , discussion group at <FRAC@yahoogroups.com>. Please notify **Bill Warren** if you have a change of home address, telephone no. or e-mail address.

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Club Calendar. Thurs., July 8: FRAC meeting, 7:30 (**Curt & Irene Cole's** house, 190 James Court, Hampton, Ga.; **Wed., July 14:** joint FRAC/AAC girl scout observing (near Newnan, at dark); **Fri.-Sat., July 16-17:** Cox Field observings, at dark.

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President's Message. Now that we've had time to rest and recoup from our **Georgia Sky View 2004** star party, I'm going to bounce a few reflections off my personal mirror.

Like most astronomy clubs, ours may not be very large in numbers, but I think we have the best membership around. We have a lot going for us; just look around at your fellow FRAC brothers and sisters and you'll see what I mean.

As with any club, our members come from different walks of life. We all have our specific astronomical interests. Most of us are avid observers. We observe even when the skies are far less than ideal. Many clubs cannot say that. We have followed **John Dobson's** lead in bringing astronomy to everyone by holding public observings at schools, on Astronomy Day, etc., and we always put on a good show. Usually, quite a few members attend and help out with these events, whereas a lot of clubs don't do public observings at all, or else only a minimal amount of them. We enjoy entertaining folks with views through our telescopes and telling them the folklore, astronomical statistics and general "Wow!" information about the objects, or just letting them see neat patterns of stars. Some clubs' public observings are just boring science.

Whether you realize it or not, our members are a combination of talents rolled into one. We are observers, science nuts, educators, information couriers, explorers, comedians and entertainers, with a taste of nature lover thrown in. Some FRAC members have more of these different traits than others do, but we all have them. Congratulations, FRAC!

While someone who does not know us may think we are "those crazies who look at the stars," folks who have met us know differently.

-Steven (Saratoga Smitty) Smith

*(**Smitty's** right. We look at a lot of things besides stars. –Ed.)*

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Membership Renewals Due in July: Steve & Dawn Knight. Steve, please send yourself a **$15** check payable to FRAC c/o your home address as shown on p. 1.

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Last Month's Meeting/Activities. Nine members showed up at Atlanta Motor Speedway on the morning of June 8th to witness the long-awaited **Venus** transit of the **Sun's** face: **Scott Hammonds, Doug Maxwell, Brendon & David O'Keeffe, Felix Luciano, Steve Knight, Curt Cole, yr. editor** and his wife **Louise.**

And how did it go? **David** said, "It was fun watching guys rushing to get their telescopes ready during the one minute that the Sun was visible." In all, we got less than three minutes of usable Sun through heavy cloud cover. **Steve** had the best idea, i.e., taking off the solar filter for his 4-1/2" refractor during the brief visibility period and risking blindness to find out what could be seen through the eyepiece. It worked, but Steve spent so much time letting the rest of us look at the transit through his 'scope that he hardly got to see it at all.

Fortunately, the Sun was still low enough that, seen fleetingly through a thin filter of clouds, Venus was a pencil eraser-sized circle, black against the Sun's glow instead of its customary dazzling white color, and no one went blind despite our mothers' warnings during our teenage years. (Or was that about something else?)

On the way home, **Curt** joined **Louise** and **yrs. truly** for a globular cluster (hash-browns, Waffle House style) and other culinary surprises.

More than 20 people attended our June dinner meeting at Hong Kong II buffet restaurant, including: **Dawn & Steve Knight** and Dawn's mother, **Sylvia Adams; Smitty; Irene & Curt Cole; Dr. Richard Schmude; Bill Snyder; Heidi & John Wallace; Laura & Doug Maxwell; Felix Luciano; Mary & Dan Newcombe; Tonya, Jamey, Drew, Jerica & Jaycon Jenkins;** and **Chuck Sims.** During the meeting portion of the evening, **Smitty** proposed that we amend our bylaws to accommodate a universal payment schedule in which all members' annual dues will be up for renewal at the same time. His proposal will be voted on at the July meeting.

Steve talked about **Ga. Sky View 2004**, how well it went and how much money we made – an astonishing *$1,500.00* after expenses – and he proposed that we use some of the money to purchase liability insurance for club activities. Everyone present was in agreement, but a formal vote will be taken at the July meeting.

Oh, one more thing: **John Wallace** finally received the **Captain Midnight 2003-04** trophy that he was supposed to have gotten in March. (For those of you who might have spent the past 2 yrs. living in a cave, the "Capt. Midnight" trophy, sponsored by **yr. editor** and presented by FRAC every march, goes to whomever earns the most A. L. observing pins during the previous calendar year. **Dawn Knight** was our winner for 2002-03, and she presented this year's award to John.

Presently, everyone in FRAC is tied at zero, but that situation will change dramatically if **Larry Fallin** and **Mike Stuart** will get off their lazy duffs and finish the programs they've begun but not completed.

Fifteen members and guests showed up for our Cox Field club observing on June 19th: **Cherrie, David & Sara O'Keeffe; Doug Maxwell; Mike Stuart; Felix Luciano; Smitty; Dawn & Steve; Jamey & Drew Jenkins; yr. editor;** and guests **Rebecca, Alan & Ryan Lewis,** who were also visitors to our Astronomy Day exhibition.

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Upcoming Meetings/Activities. Our July FRAC meeting will be held at **7:30 p.m.** on **Thursday, July 8th,** at the home of **Curt & Irene Cole** at **190 West James Circle** in Hampton.

To get to their house from Griffin, go N on U. S. Hwy. 19/41 and, about 2 mi. N of Atlanta Motor Speedway in Hampton turn right at the flashing amber light at Ga. Hwy. 81. Go E for ½ mi. and turn right at West James Circle. The Coles' house is on the left, about ½ mi. from Hwy. 81, with the address prominently displayed in big numbers on their mailbox.

If you're coming from Jonesboro, go S on 19/41 for 7-8 miles and you'll pass Talmadge Lake on your right. At the top of the hill beyond the lake, turn left onto Ga. Hwy. 81 at the flashing light and follow the previous directions from that point.

Says Curt, "We live on a lake. Bring a fishing pole. We also have a pool table. Come early and play."

On **Wed., July 14th,** FRAC will conduct a joint observing with the Atlanta Astronomy Club for about 125 girl scouts at a site E of Newnan. **Smitty** writes, "July 14th is a Wednesday, so we can't be out too awful late. I'm interested in doing it. Anybody else? Or are we gonna let the AAC show us up on our own turf?"

For security and privacy purposes, directions to the site will appear on the FRACgroups web site, or you can call **Smitty** at **(770)583-2200.**

We'll have Cox Field observings on **Fri.-Sat., July 16th-17th,** with the new moon on the 17th.

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This 'n That. Here's an unusual situation: In the June, 2004 "Observing Award" section of the *Reflector*, the A. L.'s quarterly newsletter, neither FRAC nor the Atlanta Astronomy Club had any pin recipients listed.

Let's hope that doesn't signal the start of a trend in either club.

*****Page 1 of the *Observer* states, "Please notify **Bill Warren** if you have a change of home address, telephone no. or e-mail address." We need to know how to contact you, of course – but we also want to continue uninterrupted delivery of the *Observer* to you via hard copy or the internet, whichever you've stated a preference for.

Please note that **yr. editor's** e-mail address is now warren7804@bellsouth.net ; if you forget it, you can always find it (along with pertinent information regarding club officers and committee chairmen) on p. 1.

And that brings up another thought: *If you don't have an updated membership list and would like one, let yr. editor know and he'll send you a copy.*

*****The A. L. has a brand-new observing program for beginners. It's called the **Constellation Hunter Club.** Two pins are offered, one for the Northern Skies and one for the Southern Skies.

"The purpose of these programs," the A. L. explains, "is to provide an orientation to the sky for novice astronomers. They require no special equipment (other than a planisphere and a reference for the brighter star names), and no prior knowledge."

To qualify for a certificate and pin, all you have to do is be a member of the A. L. – which you already are if your dues are up to date – and sketch 38 selected Northern constellations. (Hey, all you're drawing is *dots*!)

Your observing log should include: "local date and time; latitude and longitude of observation (*Cox Field is 33 09 22N, 84 25 50W*); constellation name; sky conditions (transparency & seeing); a sketch of all stars that were visible to the unaided eye, out to the limits of the constellation's boundary (named stars should be identified on the sketch); and other objects that are visible within the boundaries of the constellation, including but not limited to (deep-sky objects)."

The 38 northern constellations on the list include: *Andromeda; Aquarius; Aquila; Aries; Auriga; Bootes; Camelopardalis; Cancer; Canes Venatici; Canis Minor; Cassiopeia; Cepheus; Coma Berenices; Corona Borealis; Cygnus; Delphinus; Draco; Equuleus; Gemini; Hercules; Lacerta; Leo; Leo Minor; Lynx; Lyra; Monoceros; Orion; Pegasus; Perseus; Pisces; Sagitta; Serpens; Sextans; Taurus; Triangulum; Ursa Major; Ursa Minor;* and *Vulpecula.*

To receive a "Constellation Hunter Club" certificate and pin, you should give your completed observing logs to one of the club officers (**Smitty, Larry Fallin, Doug Maxwell, Steve Knight**), or to **yr. editor**, FRAC's observing chairman, for evaluation. Yr. editor's approval fee is $2.00 cheaper than any of the others. (Just kidding, there's no fee involved. But tips are appreciated. [More kidding.])

*Frankly, we think that *everyone* in FRAC could benefit from doing the Constellation Hunter Club –

and **yr. editor** isn't just saying that because he's pin-hungry and frustrated at having found only 57 of 120 required Galaxy Groups and Clusters after 2 yrs. of searching, either. Beyond that admittedly greedy and self-aggrandizing goal, it would be interesting to find out exactly how many naked-eye stars can be seen in those 38 constellations.

Too, while most veteran observers are already aware of many of those constellations' basic shapes (i.e., the familiar shapes formed, in connect-the-dots fashion, by imagining lines connecting their brightest stars), we seldom pay attention to other stars in those constellations except in star-hopping to locate deep-sky objects, comets, etc.

You may be familiar with a few, many or even *most* of those basic constellation shapes. *Lyra, Cygnus, Leo* and *Orion* are easy but, without consulting a star chart, could you draw – or even *find*, for that matter – *Lynx, Hydra, Equuleus, Serpens* or *Sextans?* You're probably familiar with the shape of the **Big Dipper** – but could you draw the rest of the "Great Bear"?

Few, if any, of us are consciously aware of where the constellation boundaries actually lie.

The Constellation Hunter Club will, in some cases, take us back to old friends and introduce us to their families; in other instances, it will introduce us to new friends. (**Tom Moore** says he wants to meet the *Sex* constellation family and friends.)

Phil Sacco's nighttime constellations talk is based on his familiarity with the shapes, stars and lore of the star groups that the ancients imagined when they gazed up at the night sky. Studying the constellations should give all of us a newfound understanding and appreciation for those early giants of astronomy upon whose shoulders we stand.

*****Reading about the Constellation Hunter Club, **yr. editor** came up with the following **Trivia Quiz** based on the Northern constellations. The answers are on p. 9, but see how you do on it *without consulting any print sources* before you turn to p. 9. (We used *Seasonal Star Charts* in preparing Questions 1-4.)

1. How many of the 88 constellations can be seen in their entirety from Cox Field? (*Hint: It's more than half.)*

2. How many of those constellations do not appear on the Constellation Hunter Club's Northern list shown on p. 3? *(Hint: It's less than half.)*

3. How many of the constellations referred to in Question #2 can you name *before listing one that either isn't on the list or extends beyond the S horizon at Cox Field?*

4. What is the northernmost constellation that does not appear on the Northern list? *(Hint: It's a summer constellation that's on meridian on July 25th.)*

5. Five zodiac constellations do not appear on the Northern list. Name them.

(Final hint: Most of your score will come from Questions 3 and 5. Spend most of your time there.)

*****From **Jamey Jenkins** re our **Ga. Sky View 2004** star party: "While I haven't been to many star parties, I've organized nearly three dozen events involving between 100-300 attendees each. I know well, as **Steve** does, the organizational nightmares that come with running such large events. The paybacks come in the form of satisfied faces of the participants.

"There was definitely plenty of satisfaction to go around at **GSV.**

"From my experience, it is quite obvious that Steve and **Dawn** did an exemplary job of organizing **GSV 2004**. The conduct and work ethic of all FRAC members in attendance set an excellent example for everyone else.

"Steve & Dawn, please allow all of us in FRAC to say one more time, **THANK YOU!"**

*The topic has been discussed on FRACgroups and elsewhere: preparing a clubwide list of every participating member's telescopes, binoculars, eyepieces, accessories and equipment, so you'll know whom to contact to discuss certain equipment you're considering buying, problems you're encountering with our own equipment, etc.

Curt Cole has agreed to spearhead the project, in which participation will be voluntary.

An example of how such information might be helpful to our members can be seen in **Doug**

Maxwell's recent struggle to decide the direction he should upgrade in eyepieces. His solution was to contact FRACgroups and ask if anybody out there had any information comparing Nagler and Pentax eyepiece performances. He got the information he needed – most of it courtesy of **Larry Fallin –** but to get it, Doug had to ask everyone in the club.

What filters should you buy if you're just starting out to build a collection? Who should you ask?

How does a Cat's Eye collimator work? Are zoom binoculars worth buying? Has anyone tried Meade's wide-field eyepieces? Are the upright reflex sights as good as a Telrad? Do mylar solar filters work as well as the commercial brands? Who can you contact in FRAC to discuss star chart software programs?

Who should you ask?…

Under Curt's leadership, we hope to solve those kinds of problems.

Curt adds: "I don't plan to – and I'd be opposed to – posting the list on the internet or distributing it to non-FRAC members. Some folks, especially those with expensive gear, might legitimately be concerned about burglary. (But various club members already know what some other folks have anyway, so I don't think it's a concern within the club.) Nor would I put addresses on the list. Phone numbers? Maybe, maybe not, whatever the club decides is fine."

Other options exist, of course, including sending out the list in hard copy via regular mail or posting it on a separate, password-coded FRACgroups sub-group.

At any rate, although things are still in the planning stages at this point, the one thing you can count on is that, if it's done at all, it will be done properly and safely. The only thing worse than doing something too fast is doing it half-fast.

*Although it has been **yr. editor's** policy for nearly 7-1/2 years now to steer clear of non-astronomical or club-related topics in the *Observer*, he must beg your indulgence just this once and (hopefully) never again.

On May 5th, **Ronald Reagan** passed away at age 93. Setting aside the editorial "we" momentarily, I mourn his passing.

At a time – 1980 -- when I regarded the U. S. as headed down a long, endless spiral toward oblivion in almost every respect, Reagan restored my faith in our country's basic goodness. His optimism gave me hope for America's future where I had none before, and for that I consider him the greatest American of my lifetime. I will miss him.

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The Sky in July. In terms of the night sky, at least, your best bets are likely to be bright **Jupiter** (mag. –2) in the W and little **Mercury** (mag. 0.8 and slowly fading), which, due to its proximity to the **Sun**, never rises very high in the sky.

On **July 10th,** 30 min. after sunset Mercury and **Mars** (having dimmed to mag. +1.8) will be a scant 12' apart, Mercury being twice as large and bright as Mars. The pair should be impressive in binoculars.

Neptune and **Uranus** will be visible in the SE during the latter portion of July. Neptune will lie no more than 1 degree N of 4th-mag. *Theta Cap* in July; at mag. 7.8, the planet's tiny blue disk should be easy to capture in binocs.

At mag. 5.8, green **Uranus** should be an even easier target, providing that you can find mag. 4.8 *Sigma Aqr:* the planet will be between 1-1/2 and ½ degrees N to NE of the star as the month progresses.

Pluto will be up there somewhere during July evenings, too – but so what? Most of us are as likely to find the late **Clyde Tombaugh** up there as to locate the planet he discovered.

Venus and **Saturn** will be confined to morning viewing. **Chuck Sims** (a.k.a. **Hannibal Lecter**) should be confined, period.

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A VERY PERSONAL MESSAGE

By Steve Knight

To Everyone Who Attended the Inaugural **Georgia Sky View 2004** Star Party:

THANK YOU.

Whenever someone takes on a leadership role, the first thing they have to deal with is having the right people in the right places. I had that many times over the **GSV** weekend.

Getting group participation to work smoothly is difficult, especially over a span of three days. It felt incredible to have people walking up to me and asking for something to do to help out – and the best part was, there usually were folks standing around because we already had it covered.

From setting up the dining hall, the dorms or the field, it was covered.

Keeping things running smoothly, answering questions from our guests, identifying issues and dealing with them, it was covered.

Breaking down the dining hall – When did I contract for a night shift? Special thanks to **Doug, David & John** for that – cleaning the hall, dorms and staff cabins, it was covered.

At the end of our stay at Camp McIntosh, after the campers had gone and only a few of us remained when cleanup was completed, we received a glowing review from the ISSP ranger who inspected us. It was due to all the hard work we – all of us – put into this weekend.

We had no problems this weekend. None. Why? Look in the mirror and see why.

We learned a few things, like putting signs on the Men's and Women's dorms and which breaker switch to throw to kill a particular security light, but those things were handled quickly and correctly. Whoever was closest just took care of them, no questions asked. Those are the kind of things that make an organization or an event run like a well-oiled machine.

I said at the May meeting, *If you see something that needs to be done, do it. Don't ask, just take care of it.*

And it got done.

I can't tell you how many times I was told that it looked easy, or that ours was the best star party that that person had ever been to. Or just how well things were going. It was because of people who had the answers, made decisions on the spot and got things taken care of without being told to.

To our speakers: Special thanks for putting on such great shows for us. Getting up there and giving such great talks that so much preparation went into meant so much to us, especially since this was our first star party. I hope you heard some of the many compliments that I heard regarding your performances. All of them were great, and the questions asked at the end of your talks far exceeded the usual number for star party presentations. We hope you'll come back next year for an encore performance.

To our guests who are reading this: a big THANKS to you as well. I had no problems with anyone, nor heard of any. Great behavior throughout, from the kids to the adults. If I could have the same crowd every time, I would do this monthly.

I met more people from all the surrounding states than I can even try to remember, and, true to form in our hobby, we all got along great. The kids played together like old friends, and the adults walked and talked with each other as if we were attending a family reunion instead of meeting strangers for the first time.

That's what made all of this so special. I haven't felt an air of unity like this at any of the other star parties I've attended. Despite all the work it took, I actually hated to see it end. I was having that much fun.

Thank you.

Thanks, too, to my wife **Dawn**, who was really running things behind the scenes. She put more work into this event than I can ever pay her back for.

So in the end we pulled it off, and with greater ease than I ever could have imagined. My original goal was to survive the weekend and get out of it with the skin still on my back, but we were on cruise control from the word go. And it was due in no small part to everyone who decided to become involved – our staff, speakers, guests, *everyone.*

Rod Mollise told me that we threw a star party for the best possible reason: not to make money, but *to fill a void* – a void in the Spring southeastern star party schedule that sorely needed to be filled. We did just that, and more, thanks to everyone involved.

I now know that I was president of – and still am proud to be a part of – the *best damn astronomy club in the world,* period! Knowing that is worth all the pressure that running **GSV 2004** brought me.

-Steve Knight

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THE VENUS TRANSIT: A QUICK LOOK

observing report by Neal Wellons

My wife **Frede** and I were visiting Americus on June 7th-8th, so I took my #14 welder's glass, compass, Orion Short Tube 80 telescope and hand-made wooden tripod on the trip with me. On the afternoon of the 7th, I drove out to some fields that I thought would be good sites for viewing the E horizon. About 5 mi. S of Americus, with the help of my compass I found a good site.

Although the sky was about 95% obscured by clouds, we headed out to the site about 6:20 a.m. on the morning of the 8th. I hoped that at least some of the clouds would burn off before the end of the transit at 7:30.

We reached the site to find both ground fog and heavily overcast skies to the E. We were able to park facing east, so we sat watching for the sunrise without even taking the telescope out of the car. I had decided to stay the whole hour in case there was a break in the clouds.

About 6:50, I saw what looked like part of the **Sun's** disk, dim and partly hidden. I quickly pulled the telescope and tripod out of our van and set it up. (It takes about 30 seconds to set up the Short Tube.) I had my solar filter in place, and even though I could see by then that the object was the Sun, there was no image in the telescope. I double-checked by looking into the finderscope with my eye about 4 in. back in case the light was bright. The light was dim, and the Sun was centered perfectly in the finderscope. I looked again into the telescope. Everything was black, so I decided to remove the solar filter (!!!) and take a peek into the eyepiece with my eye about 6 in. away.

I could see the Sun that way, and it was not even bright at 40x in my 80mm 'scope. I placed my eye in the regular viewing position and focused on the faint disk.

Scattered clouds partially obscured the Sun's disk, including the portion that contained **Venus**. After a few seconds, though, Venus popped into view. It was extremely black compared to the scattered clouds, and exactly the size that I was expecting it to be from articles I'd read previously. In fact, the view was exactly like the one I saw in the *AJC* the next day, except my telescope reversed the position of Venus to the lower left side of the Sun. Then it was my Frede's turn to look, but while I was considering going to a higher magnification a cloud bank drifted over the Sun. I didn't even have a chance to use the welder's glass for an unmagnified view since I was busy with the telescope.

We waited for another glimpse, but the sky remained clouded over until the transit was completed, so we called it a day.

I am not a regular observer of the heavens, and I had not expected the view to be exciting. I was wrong. It was very exciting, even though the total viewing time was no more than two minutes. I consider myself fortunate to have seen even for a few seconds what turned out to be a magnificent event.

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OBSERVING GALAXIES, Part II

article by Bill Warren

Last month, I briefly outlined the observable features you should look for in galaxies; this month in Part II, my topic will be *recording your observations.*

First, of course, you need an observing form. The A. L. offers a reproducible form on its "Astro Notes" link, and I have another, better A. L. form in hard copy if you need one. Or, like **Felix Luciano, John Wallace, Larry Fallin** and others have done, you can create your own form. If you choose the latter course of action, include only what the instructions for that particular observing club call for. Anything else will be extra – and unnecessary – work for you.

I don't use a form when I'm observing. I used to write down my observing notes on legal pads or notebook paper; nowadays, like a growing number of

FRACsters I dictate my notes into a hand-held tape recorder.

By the way: if you're using a tape recorder, be sure the red light is ON when you're dictating notes and OFF when you're not; otherwise, you'll hear an evening's worth of blank tape when you attempt to transcribe your notes later at home. (C'mon, now, you don't *really* think I'd do something as dumb as that, do you? I mean, I'm Master Observer #4 *worldwide*, for goshsake! I find it highly insulting that you'd even suggest that I might…)

Well…

Okay, so I did it once or twice. But that's all.

So far.

Degrees of Observing Sophistication. Imagine, if you will, the following somewhat terrifying fantasy actually occurring:

You're out at Cox Field by yourself early one evening, looking for Messier galaxies while you're waiting for other members to arrive, when a stranger drives up.

"Hi," he says, extending a hand of friendship, "I'm **David Levy**. I was in the area and heard that your club is having an observing tonight, and I thought I'd join you, if you don't mind. I don't have my telescope with me; is it all right if I observe with you for a couple of hours?"

Assuming that you agree to his request and manage to stammer out a "Sh – Shuh – Sure!," who do you think is likely to see more detail in the objects that the two of you find in your telescope? You, or David Levy, one of the best visual observers in the world?

He is, of course. Why? Because, over a span of many years spent observing deep-sky objects, David Levy *has developed a highly sophisticated eye regarding what to look for in what he sees.* That sophistication includes the ability to estimate objects' size, brightness and orientation, but it also extends to making accurate and detailed descriptions of objects' appearance.

There's an obvious – and very good – reason why the A. L.'s observing forms provide very little space for recording observing notes: *Beginners don't need more than that to describe what they see*, because they don't see much of what is there to be seen.

Moving out of beginner status involves learning to look more deeply into whatever you're looking at. There are no magic formulas here, and no shortcuts to success. The only way to improve your ability to see what is there is through patience and practice. Ask **Felix.**

The A. L.'s dual purposes in having you compile observing logs are (a) to provide you with a written record of what you've observed, and (b) to help you learn to describe the ways that objects differ from other objects of the same type. That's not always an easy task when you're starting out at Square One as a novice stargazer.

Shape, Size and Brightness. The most obvious ways of describing differences in galaxies are in terms of their shape, size and brightness.

Describing shapes is fairly easy, even for beginners. Take the Messier galaxies, for example: **M84** in *Virgo* is round; **M64 (The Black Eye Galaxy)** in *Coma Berenices* is oval; **M82** in *Ursa Major* is elongated – either cigar-shaped or rectangular, depending on sky conditions; **M104 (The Sombrero Galaxy)** in *Virgo* is an edge-on fried egg that experts call "spindle-shaped"; etc. But what about size? And brightness?

If you're a beginner who has never seen the Messiers before, how do you know whether a given galaxy – or any other deep-sky object, for that matter -- is large or small? Do they come in sizes? And compared to most of the Messier open clusters, globular clusters and nebulae, virtually *all* galaxies, whether Messier or otherwise, are faint.

During my initial search for Messiers back in 1994-97, my way around these problems was, whenever possible, to compare what I was seeing with what I'd already seen. For example, my notes for **M85**, an elliptical galaxy in *Coma Berenices*, were as follows (as seen in my 3-1/2" refractor at 40x): "M85 is very small and faint. It has a telescopically bright star next to it but otherwise is an indistinct, circular gray patch about the size of **Ring Nebula (M57)** in *Lyra*. A star-like center comprises most of the light but little of the area of M85. Overall, M85 is fainter than M64 (The Black Eye Galaxy)."

And here is the description of what can be seen in M85 by a veteran observer using a 10" telescope at 100x, courtesy of **Kepple & Sanner's** *Night Sky Observer's Guide, Vol 2* (p. 91): "M85's large, bright oval core is embedded in a much fainter halo extending 6' x 4' nearly N-S. A mag. 12.5 star is superimposed upon the halo, just N of the core. A mag. 10.5 star is 2.75' NE of the galaxy."

Both descriptions refer to the shape, size and brightness of M85; both cite a bright core within a fainter halo (although I didn't use those terms); and both refer to a bright star near the galaxy. So: apart from aperture size and magnification – and admittedly, those are major considerations – what's the difference between the two observations?

Sophistication.

I didn't see – or at least I didn't record – a mag. 12.5 star just N of the core. Whereas I, a beginner using a small telescope and very low magnification, saw the core as "star-like" and the galaxy as "circular" and "very small and faint," a more experienced observer using a larger 'scope saw a large, bright oval core within a halo that was wider than your pinky in a 100x field of view.

I didn't record M85's orientation at least partly because I saw it as round, not oval. But at that stage of my development, working alone in my backyard (as opposed to having fellow club members around to correct my faulty thinking), even if I had seen M85 as oval, I probably would have assumed – incorrectly -- that the top of the field of view was North and the right side was West. After all, that's how the star atlases show it. (But not the eyepiece.)

So was my description of M85 wrong? No, I just lacked the equipment and experience necessary to see all that a veteran observer might see in M85 in a larger telescope at higher magnification.

My searching and observing skills developed gradually but steadily after that, due primarily to two factors. First, I observed regularly, and that's important because learned skills tend to improve quickly through practice, and to fade rather quickly through disuse. Developing newfound observing skills added immeasurably to my confidence, and to my ability to describe in fairly precise terms what I was seeing at the eyepiece. And second, moving up in aperture from a 3-1/2" refractor to a 10" reflector delivered eight times more galactic light to my eyepiece than was available earlier.

(It just occurred to me that, in my earlier fictional reference to **David Levy** showing up unannounced at Cox Field and asking to share a telescope with someone from FRAC, I've given **Tom Moore** another excuse for not attending our club observings.)

(The concluding portion of this 3-part series on observing galaxies will appear in the August issue of the Observer. *–Ed.)*

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Answers to Trivia Quiz (p. 3)

1. 57 (count any number within +3 or –3 as correct)
2. 19 (count any number within +2 or –2 as correct)
3. -----
4. Ophiuchus. Its N boundary extends to +14N.
5. Capricornus, Libra, Sagittarius, Scorpius, Virgo

(Scoring: Give yourself one point for each correct answer. A perfect score is **27,** but a passing score is **6.** If you scored **10** or higher, consider yourself an Astronomy Genius. If you scored **15** or higher, you're a Supernova. If you scored **20** or higher, you probably copied **Phil Sacco's** paper.)

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