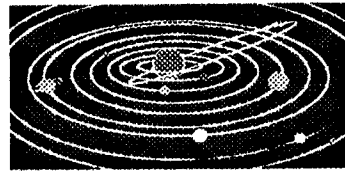


# THE FLINT RIVER OBSERVER



Vol. 2, No. 4

FLINT RIVER ASTRONOMY CLUB

June, 1998

**Officers:** President, Larry Higgins (227-2233); 1st Vice President/newsletter editor, Bill Warren (1212 Everee Inn Rd., Griffin, GA 30224 / 229-6108 / e-mail: WE1212LW@aol.com; 2nd Vice President/Secretary-Treasurer, Ken Walburn (P. O. Box 1179, McDonough, GA 30253 / 954-9442/e-mail: atkew00@kgf.geis.com); AICor, Neal Wellons (946-5039), e-mail: nwello01@sprynet.com; Librarian, Keith Cox (227-8171); Observing Chairman, Steven "Smitty" Smith (583-2200). Club mailing address: 2431 Old Atlanta Road, Griffin, GA 30223. All of these phone numbers have 770 area code prefixes.

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

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**Club Calendar. Thurs., June 11:** Club meeting (Flint River Regional Library, 7:00); **Fri., June 12:** Beaverbrook "First Light"/ FRAC joint observing, Fair Oaks Farm at dark; **Tues., June 23:** Henry Co. Library observing (Hampton); **Fri., June 26:** deep-sky observing (Cox Field at dark).

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**President's Message.** The first half of our May 2-3 Astronomy Day/Mayfling celebration at Griffin's City Park was a

huge success. (Sunday, the 2nd half, was rained out.) We met a lot of interested folks, showed passersby sunspots, handed out information on the club and its activities, and displayed artwork courtesy of Beaverbrook students.

I want to extend my personal thanks to: **Neal Wellons**, who did a great job of organizing and overseeing our participation, including putting together our nice visual display; **Richard Schmude**, whose planetary coloring book served as the basis for the BB artwork; **Louise Warren**, who coordinated things at Beaverbrook's end; and **Toni and Randi Higgins, Keith and Denise Cox, Cody Wellons, Tom and Katie Moore, Steven Byous, Ken Walburn, John Wallace, Doyne Tallman** and **Bill Warren**, all of whom worked hard to make the event so successful for us.

I'm sorry I didn't make it to the May club meeting; I changed jobs recently and my work hours changed. But I'm back now, and rarin' to go!

Ted Upchurch has changed his mind and decided that his ground-mounted 8" Maksutov is worth \$250 -- and maybe it *is*, but not to us. So our plan to get together sometime in June and move it are cancelled.

I received a card from **Smitty** recently that he wanted me to share with you: My dad is in the hospital and I've been here (Lorain, OH) going on 3 weeks now. Sorry I missed Mayfling, was really looking

forward to it. You all carry on & I'll be back home when I can. The sky here in the city is really bad, about mag. 3. How I long for the open country & Cox Field! I miss everyone in FRAC, but I'm not gone forever -- this is just something I've got to do. Dark Skies, Smitty.

Finally: regarding an item that appeared in the Atlanta Astronomy Club's May newsletter, let me state FRAC's position re use of Cox Field. Mr. Cox has graciously allowed FRAC and its members to use the observing site. Our policy has been -- and will continue to be -- to restrict use of the site on Mr. Cox's behalf to FRAC members and their one-time guests.

As a member of FRAC, you can bring anyone you want with you -- once. After that, they can either ante up the \$10 FRAC membership fee or drop out of the pot.

I don't want to make more out of this than meets the eye. We want to maintain good relations with AAC; after all, virtually all of our guest speakers have been AAC members who have donated their time and talents free of charge; and they have contributed articles to the *Observer* that have enhanced its appeal and value to our members. Those speakers and contributors -- **Art Russell, Rich Jakiel, Phil Sacco, Jerry Armstrong, Tom Crawley and Smitty** -- are, without exception, gentlemen of the finest quality, knowledgeable and articulate astronomers whose friendship I cherish. Knowing and working with them has enriched my life in many ways, and I would not gladly forfeit their friendship or anyone else's over what probably was a mistake on someone's part.

In essence, all I'm saying is that the ground rules haven't changed. We encourage AAC members to join FRAC, just as we encourage our members to join AAC, as **Bill's** article, "FRAC/AAC: The Best of Two Worlds" in the Dec., 1997,

issue of the *Observer* clearly points out. But we don't intend to merge with AAC or become an affiliate or satellite group.

- Larry Higgins

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**May Meetings/Activities.** Shame on you, those of you who chose to stay home on club meeting night to watch the final episode of Seinfeld! Not only were we graced with the incomparable loveliness of *five* of the most beautiful women on the planet -- my wife **Louise, Denise Cox, Kimberly Novak, Katie Moore**, and of course, the irresistible **Suzy Wellons** -- but you also missed seeing **Ken Walburn's** new goatee, which looks very much like what **Redd Foxx** (Sanford and Son) would have looked like if Foxx had been a Caucasian who looked like Ken Walburn. More important, you missed a dynamic presentation by **Dr. Richard Schmude**, who described, both verbally and visually via photos and charts, his two trips (last December and again in March) to the barren wilds of eastern Nevada to study Irwin Crater, a possible meteorite impact site. His verdict: either it is an impact site, or it isn't. (Sorry 'bout the zinger, Doc, but in this here club *everybody* gets zapped now and then. [Everybody, that is, except **John Wallace**, who I seem to have overlooked so far. Hmm...])

About a dozen Beaverbrook parents and kids showed up for our BB/FRAC joint observing the following night. The sky was so uncooperative that all we could show them was Arcturus, Mizar/Alcor, and upside-down trees on the horizon. (Hey, you haven't done an observing session until you've tried to stretch *that* into a 1-1/2 hour presentation!) But **Mike Stuart, Tom Moore** and **Neal Wellons** handled it

like the veterans they're becoming; all of them continue to grow in their confidence in talking with visitors about the night sky and FRAC.

Yr. agile reporter is proud to announce that he hasn't stumbled over a telescope or dropped anything of \$50 value or more but once in his last three observings.

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**For Sale.** Celestron Super 8 telescope w/accessories. New \$1200, now \$850. Call **Elaine Tallant** at (770) 957-6146.

\* \* \*

**Renewals.** Club members whose renewal dates are 07/98 include: none.

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**Upcoming Meetings/Activities.** Due to massive construction activity at Beaverbrook, our club meeting on **Thurs., June 11**, will be held at the Flint River Regional Library located in Griffin on Ga. Hwy. 16 (Taylor St.). If you're coming into Griffin on Hwy. 16 from I-75, the library is about a mile past the Dairy Queen on the left. If you're coming from the north on 19/41, bear right at the Griffin exit just beyond the railroad overpass and proceed through the light and up the hill. Turn left at the 4-way stop and stay on that road (Taylor St./Hwy. 16) for 2 miles. The library will be on your right. There are parking lots on both sides of the building.

**(Please note: the meeting will start precisely at 7:00 p.m. -- not 7:30 -- because the library closes at 9:00.)**

**Tom Crawley** will be our guest speaker -- at least, we hope so. No word as yet from **Larry H.** as to whom our guest speaker in July will be.

Our joint BB "First Light"/FRAC observing will be held at Fair Oaks Farm on **Fri., June 12.**

On **Tues., June 23**, we'll hold an observing at the Fortson (Henry Co.) Public Library in Hampton. To get there from Griffin, go N on Hwy. 19/41 and turn right on Hwy. 20 at the Hardee's just before you get to the racetrack. Go .9 mile on Hwy. 20 and turn right on Old Griffin Road. The library is the 1st building on the right.

Our Cox Field dark-sky observing will be on **Fri., June 26th.**

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**The Sky in June.** First, there is **Jupiter** in the daytime: on the **17th**, it will be two lunar widths N of the Moon. (See *Astronomy*, p. 75.) Second, there's **Mercury**, visible in the western skies an hour after sunset beginning **June 21st**; on the **28th**, a line extended from Castor through Pollux (the bright pair of stars in the constellation *Gemini*) and beyond will point to Mercury.

**Venus** rises at 4 a.m. at midmonth, **Saturn** about an hour later, and **John Wallace** about five hours after that.

**Uranus** rises at 2 a.m. in early June, near 4th-mag. *Theta Capricorni*. From *Astronomy*: "Center Theta...in your binoculars. To the right side of your field of view will be 2 faint stars (and) during the 1st week of June, one lies above the other...The brighter, southernmost one is Uranus." (p. 73)

**Neptune** rises earlier, before midnight, in the same low-power field as 5th-mag. *Sigma Capricorni*.

**Pluto** (mag. 13) will be 1° W of *Zeta Ophiuchi* (mag. 2.6). Your chances are better of finding Oprah Winfrey in front of you in the checkout line at Kroger's.

Your special treat in June is to switch back and forth at your leisure between the two finest globulars in our view, **M13** in *Hercules* in the north and **Omega Centauri** (NGC 5139) in the south. If you get tired of those two -- and shame on you, if you do! -- there's always **M4** in *Scorpius*, **M3** in *Canes Venatici*, **M5** in *Serpens Caput* (the "Serpent's Head"); and **M22** in *Sagittarius*, the latter rivaling the Hercules Cluster if you stay out late enough for the Teacup to rise. All are lovely, bright globulars and well within range of any telescope.

As you probably know, I'm hooked on globulars. I'd rather observe them than anything else in the sky, except of course the 160 Herschels I haven't gotten around to finding. Mercury, Venus, Mars, Jupiter and Saturn are all brighter than globulars; galaxies contain hundreds of billions more stars than globulars; but globulars convey a sense of scarcely-controlled order on the brink of chaos that I find both humbling and awe-inspiring. Give me **M80**, my favorite little globular (in *Sagittarius*), and I'll give you the Little Dumbbell any night of the week.

(**Ken**: "Little dumbbell? Bill shouldn't oughta call people names like that. Maybe **Mitch Hammond's** elevator don't go to the top floor, if you know what I mean, but he's a real nice guy and I like him a lot!")

**Mitch**: "Boy, is **Ken Walburn** gonna be mad when he reads this! Anyhow, who's Bill Warren to call anybody a dumbbell? He's so dumb he thinks *encephalitis* is one of Saturn's moons!")

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**People You Should Know: Kimberly Novak.** Of all the things that **Smitty** has done for our club, perhaps the nicest has been introducing **Kimberly Novak** to

**FRAC.** Kimberly teaches astronomy at East Coweta H. S., where she faces the challenging task of getting high school juniors and seniors excited about something besides each other. In the two observings we've conducted for her classes (in about five attempts), Kimberly's students have been unfailingly polite, interested and informed, all of which underscore her teaching and leadership skills. (She's a lovely young woman, too, although we didn't know that until the first time she came to a club meeting; before then, she was, like us, just one of many voices in the dark.)

Like **Smitty**, Kimberly is both caring and thoughtful: unasked, she showed up for our May meeting with a pair of posters to be used for door prizes, along with a stack of astronomy-related materials for Beaverbrook's students. **Richard Schmude** won the posters, but all of us in **FRAC** are the *real* winners for having Kimberly in our club. I hope she knows how much we appreciate her.

\* \* \*

Writing about Kimberly and **ECHS** dredges up memories of an occasion that should clear up any lingering doubts about my intelligence:

A student approached me at an observing session on the **ECHS** football field about 3 years ago and asked if Saturn was visible. "Sure it is," I said, but it's got to be up for you to be able to see it." She stared at me like I had just stepped in something squishy and wet.

"Well, *is* it up there?," she asked. Hey, I hadn't seen Saturn in at least a month; for all I knew, it could have been in Schenectady! So I decided to use **Larry Higgins's** advice: *When in doubt, fake it.*

"Oh no," I said confidently, "Saturn

won't be up for at least two more months." And then, like an echo, here came **Phil Sacco's** voice out of the darkness: "**Hey, everybody, come over here if you want to see Saturn!**"

"Oh," I said quickly, "Phil must be using his new satellite feed; it can pick up stars and planets on the other side of the Earth, and darken the skies so he can see them." I got the impression she didn't believe me, though.

Then, as if to prove that ignorance doesn't know when to stop, a few minutes later there came the following exchange in the darkness:

**Me:** See that bright star over there? That's not really a star, it's Venus, second brightest object in the night sky behind the Moon. Sometimes Venus is bright enough to cast a shadow on the ground when the Moon is not up.

**Unidentified Voice:** Excuse me, sir, but isn't that one of the stadium security lights?

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### The Exploding Suns

Book Review by Neal Wellons

**Isaac Asimov** is one of America's most prolific writers, with more than 100 science fiction and astronomy books published. *The Exploding Suns* (Truman Talley Books, 1985 & 1996, 288 pp.) falls in the latter category, offering a fascinating and highly readable account of: the beginning of the universe; the formation and life cycle of various types of stars, novae, supernovas, exotic stars (e.g., neutron stars, pulsars and quasars) and black holes; and the formation of the Earth. Asimov also offers insights into the relation of astronomical events to life on Earth.

Notable quotes: "The more massive the white dwarf, the smaller its size." "Grote Reber...built an elaborate paraboloid detector in his backyard in 1937. (He was only 16 at the time.) This was the first radio telescope...He made the first radio map of the sky." "Of every 1,000 atoms in the entire universe, 920 of them are hydrogen, 80 are helium, and less than one are something else." "It would seem to be cosmic ray particles, then, more than anything else, that powered mutations which, in turn, gave natural selection a handle and made evolution proceed at the rate at which it did."

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### The Most Incredible Astronomy Book Ever Written

Book Review by Bill Warren

Throughout his years as editor of *Astronomy Magazine*, **Robert Burnham** was constantly approached by admiring fans who told him how much they appreciated, enjoyed and used his wonderful *Burnham's Celestial Handbook* (Dover Pub. Co., 1977). But it wasn't he, but another Robert Burnham who wrote the massive *Handbook* that ranks among the top five all-time best-sellers in astronomy. The two men who shared the same name were not related.

The "other" man was the late **Robert Burnham Jr.**, a reclusive genius who worked at Lowell Observatory for 22 years. In 1966, Burnham self-published his "Celestial Survey," as he called it -- a 1,347 pp. study of objects outside our solar system that are within range of telescopes in the 2"-12" range. Writing the book took him six years.

Divided into 3 volumes by alphabetically

arranged constellations (Vol. I, Andromeda Through Cetus; Vol II, Chameleon Through Orion; and Vol. III, Pavo Through Vulpecula), the material within each constellation is further subdivided into four sections: double and multiple stars; variable stars; star clusters, nebulae and galaxies; and descriptive notes.

The first three sections contain so much statistical information that Lowell Observatory's **Brian Skiff**, hired to update the 1950-based position coordinates and other information that has become outdated or been disproved in the 32 years since the *Celestial Handbook* first appeared, soon begged off the task. It was too much for him, as it would be for any one person unable to devote several years of full-time work to the project. If you've ever seen the books, you'll understand exactly what I mean.

Although it has become fashionable in recent years to dwell on the books' inaccuracies, *BCH* was in fact far more accurate than most other astronomy books of its time. However, its real value and appeal lies in the descriptive sections, which include lengthy histories of object names and observation milestones; references to those objects in poetry and literature; detailed analyses of physical features (e.g., 22 pp. devoted to **M31** alone); finder charts, esp. for variable stars; explanations of phenomena (e.g., the evolution of star clusters); and 600+ black-and-white photos from some of the world's largest telescopes. Regarding the latter, although visually stunning most of the photos bear no more likeness to what you and I see at the telescope than I bear to Sylvester Stallone.

One point I've never seen mentioned in reviews or critiques of Burnham's magnum opus is that the books are eminently readable apart from their statistical value.

Although possessing only a high school education, Burnham was a tireless researcher and gifted writer who knew his subject matter intimately and wrote with clarity and loving care from the viewpoint of the observer at the telescope. The result is a book which, although dated in some respects and unavoidably flawed in some others (e.g., celestial distances), is well worth reading by anyone who is interested in the universe that lies beyond our tiny solar system.

Robert Burnham Jr. died penniless in San Diego in 1993, and few people knew of his passing. His legacy to astronomy is the one book he wrote. Like *Norton's Star Atlas* which first appeared in 1910, *Burnham's Celestial Handbook* is a classic that made a deep impact on an entire generation of amateur astronomers, many of whom (yrs. truly included) still use it regularly with enjoyment although it's half a century behind the 2000.0 sky alignments. It is unlikely that anyone in the future will ever write an astronomy book with the depth, breadth, scope and attention to detail that Burnham lavished on his masterpiece -- and it certainly is no exaggeration to describe his *Celestial Handbook* as one of the most incredible astronomy books ever written.

To get a book of similar value to the observer, you'd have to give **Art Russell**, **Rich Jakiel** and **Phil Sacco** access to 30" telescopes for two decades, and then have Terence Dickinson write up their observations. And that's a book I'd buy in a heartbeat, no matter how much it cost!

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### The Brightness of the Moon

by Phil Sacco

If you haven't taken the opportunity to introduce yourself to the Moon, then by all means do so! The Moon is the one object other than our Sun which is virtually unaffected by light pollution. Any area of the Moon offers far more detail than any galaxy. As a matter of fact, why don't you try the AL's Lunar Club Challenge? At writing, only 92 people nationwide have completed this survey!

When you gaze at the brilliance of the full Moon, you probably marvel at its great snowy white countenance. But the Moon isn't white; in fact, it is one of the darkest objects in the solar system and only appears white because there is nothing nearby to compare it to. (This is an optical illusion not unlike the greater apparent size of the Moon when it lies close to the horizon as opposed to when it lies high overhead: it appears smaller when overhead because you don't have anything to compare it to directly.)

The amount of sunlight an object reflects back is known as its **albedo**. Whereas the Moon's albedo is a paltry 7% to 12%, Earth's albedo is more along the lines of 37%; that is, the Earth reflects back into space about 37% of the sunlight that strikes it. Thanks to its thick layer of clouds, the albedo of Venus is fully 65%, while Mercury is similar to the Moon with an albedo of about 15%.

Soil samples brought back from the Moon turned out to be a very dark gray-brown, and so dark that in some cases they almost resembled charcoal. So next time you look at the Moon, just remember that its white, shining orb is actually a *very* dark gray shining orb.

\* \* \*

(Editor's Note: Phil is the newly elected President of the Atlanta Astronomy Club.

While **Art Russell**, AAC's out-going president and newly elected board member, left some very large shoes to fill, we think the club could not have done better than to elect **Phil Sacco** to lead it in 1998-99.

Congratulations, Phil, from all of us in FRAC. We know you'll do a wonderful job as AAC's CEO, just as you did in following Art [and **Larry Higgins** before him] as Observing Chairman.

Finally, regarding Phil: Nobody got the answer to his puzzler last month -- you know, the one asking for either of the other two names Polaris went by. (The answers: *Cynosura* [I got that one, but disqualified myself because I received the AAC newsletter that had the same challenge in it 2 weeks before the *Observer* came out] and *Alruccabha*, the Roman and Babylonian names for Polaris.)

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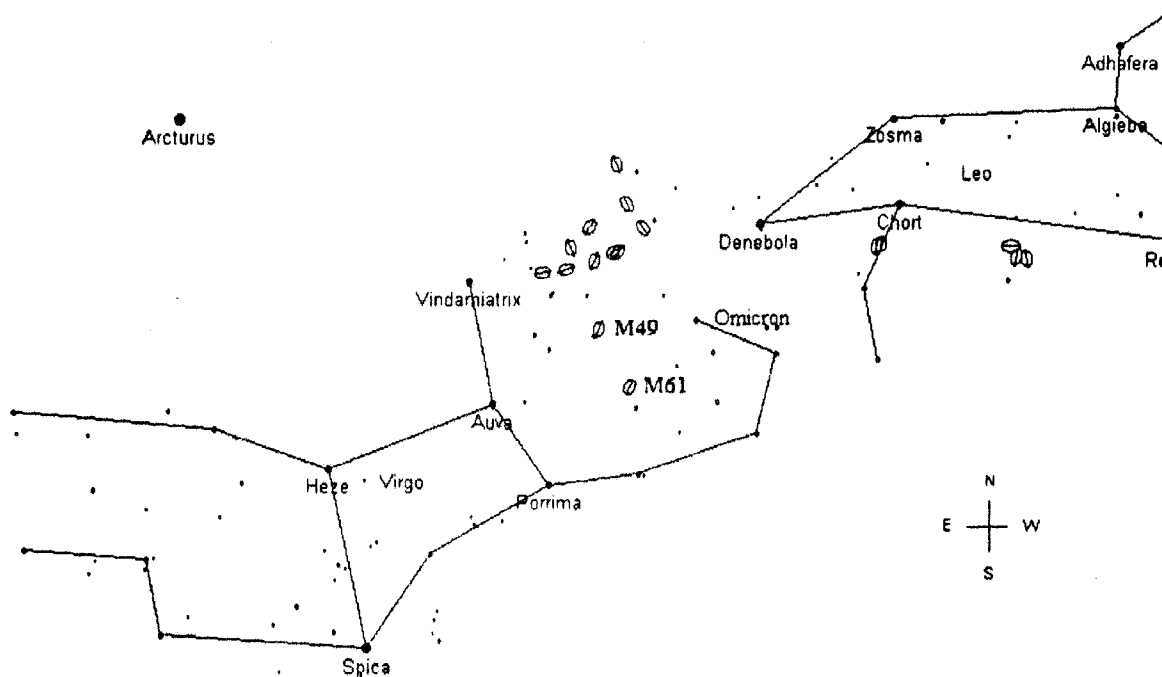
## Beginners' Star-Hop: May, 1998

*This is The End...*

By Art Russell

I'm sure Jim Morrison would be rolling over in his grave if he knew that I'd appropriated a few words from one of his songs of the late '60s. However, in this case, it is appropriate. This is the last **Beginner's Star-Hop**. I started writing the star-hops during my term as the club's Observing Chairman with the intent of helping the club's beginners get a good start in finding their way to the **Messier** objects. With this article, I finish that task. Along the way, that crop of beginners from the summer of 1995 has matured and gone on to other observing projects and interests. At the same time, my interests have changed as well. The **Messier** objects no longer hold quite the same allure for me that they once held. So in a sense, its time to move on. Its time for me to take a vacation from the star-hoping articles for a while. I will continue to write from time to time, but at times it may be about objects a bit more obscure and off the beaten trail. However, I hope that I'll be including enough to keep the beginners interested in my future postings as we go along. In the mean time, if you have a favorite object for which you'd like to see a star-hop, let me know and I'll see what we can do.

This month's two star-hops will complete the **Messier** objects. Here we go with **Messier 49** and **Messier 61**, both of which are galaxies located in the constellation Virgo. Before tackling these star-hops, it is important to remember that the Springtime brings us that part of the sky known as "**the Realm of the Galaxies**." In practical terms, this means that if you are observing in the area of the constellations of Virgo, Coma Berenecies, Cancer Venatici, or Ursa Major, if you see one galaxy, you'll see a lot of galaxies. This also means that it's relatively easy to get lost if you don't pay attention to where you are in the sky and where your telescope is pointed.



To begin our star-hops, first locate the constellation Virgo which will be on the meridian and about 35 degrees (about one and a half spans of your open hand held at arm's length against the night sky) south of the zenith (the zenith is an imaginary spot directly overhead) at about 10PM on 15 May. Virgo is also located southwest of the prominent star Arcturus in the constellation Bootes. As an additional aid, Virgo is southeast of the constellation Leo another of the prominent constellations of the Spring skies.



**Star-Hop #1. M49, NGC 4472.** Located in the constellation Virgo, M49 is a relatively bright, 8.4 magnitude galaxy located just south of a line between the prominent star *Vindamatrix* and the star *Nu Virginis*. Starting at *Vindamatrix*, extend an imaginary line from *Vindamatrix* to the star *Nu Virginis*. About 8 degrees, or a little less than half way from *Vindamatrix* to *Nu Virginis*, extend a line southwest for less than one degree, or the distance spanned by your little finger against the night sky. Here, in a low power telescope or binoculars you'll find M49 as the brightest of a number of galaxies located in this region of Virgo. In the Atlanta Astronomy Club's 20 inch reflector, and at moderate power, M49 appears small and round in appearance. Its nucleus predominates and is significantly brighter than its halo. At high power, the halo is much more pronounced, and appears to be somewhat flattened.

**Star-Hop #2. M61, NGC 4303.** Our last Messier object is the galaxy M61. This 9.6 magnitude galaxy is located about 4 degrees south-southwest of M49. However, for this final Messier star-hop, we'll start at the star *Porrina*, *Gamma Virginis*. From *Porrina*, extend an imaginary line to the star *Omicron Virginis*. M61 is a little more than halfway along this line to *Omicron Virginis*, and just slightly to the northeast. Search this area in the low power view of a telescope or a set of binoculars. Most of the Virgo galaxies are located to the north of M49, so if you find a bright galaxy in this area, it is M61. Using the club's 20 inch reflector at low magnification, M61 appears to have a generally round halo with a stellar nucleus visible in averted vision. At high power the nucleus is visible in direct vision, and the halo appears to have some mottling.

