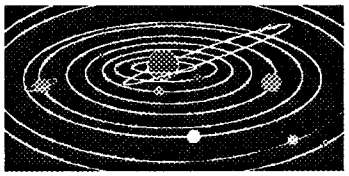
THE FLINT RIVER OBSERVER



Vol. 1, No. 12 **FLINT RIVER ASTRONOMY CLUB** **February, 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); AlCor, Melanie Handy (228-6214); 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 **Melanie Handy** promptly if you have a change of address.

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Club Calendar. Thurs., Feb. 12: Club meeting (Beaverbrook media center, 7:00); **Fri., Feb. 13:** "First Light"/ FRAC joint observing at Fair Oaks Farm on Birdie Road, at dark (see *Upcoming Meetings/ Activities*, p. 2); **Fri., Feb. 27:** deep-sky observing (Cox Field at dark).

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President's Message. First, I want to welcome our three newest members: **David Floyd, Phil Sacco** and **Chrissy Mandell. David** was steered to our club by **Keith Cox;** he has binoculars and is considering buying a telescope. **Phil** is presently serving as vice president and observing chairman of the Atlanta Astronomy Club, and **Chrissy** is his better 2/3.

A 3-meter dish and receiver have been donated to our club by **Ernie Grant** and the **First Baptist Church of Sunnyside**; the dish will be permanently installed at Cox Field when the observatory is built. We'll keep you posted re the dish and the observatory as events transpire; right now, everything is still in the planning stage.

Meanwhile, **Smitty** has come up with what we think will be an excellent fundraiser: **Ken Walburn** has designed a logo for our club, and we're going to sell tee shirts with our silk-screened logo affixed. It'll be a fine way for you to show the world that you're a member of the Flint River Astronomy Club and at the same time support our effort to raise money for a number of worthwhile projects.

-Larry Higgins

* * *

January Meetings/Activities. Speak of the devil, **Phil Sacco** was the guest speaker at our Jan. meeting. He gave us a wealth of tips for combatting the frigid observing conditions of winter and showed us how to use a variety of star atlases and maps ranging from *Seasonal Star Charts* (with planisphere) to *Uranometria 2000*.

The largest crowd in FRAC's history

attended the meeting: **23.**

Our **Jan. 9** First Light/Beaverbrook observing was cancelled due to cloudy weather and construction in the area behind the school. Likewise the **Jan. 30** Cox Field observing, but I'd be the last person in the world to blame **Keith** ("the Griffin Jinx") **Cox.**

* * *

Upcoming Meetings/Activities. You won't want to miss our **Thurs., Feb. 12th** club meeting at Beaverbrook featuring **Doug Chesser** of the Atlanta Astronomy Club and his remarkable CCD-imaging gear. You could rig up an outfit just like it for roughly the annual budget of Somalia.

Beaverbrook's First Light meeting on **Fri., Feb. 13th,** will consist of a joint observing with FRAC at **Fair Oaks Farm** at dark. Fair Oaks is located on Birdie Road, exactly three miles west of Beaverbrook on the left (south) side of Birdie Road (the same road that the school is on) in the second of two sharp curves. The Fair Oaks site is very good despite the city lights of Griffin to the south.

Our Cox Field observing on **Fri., Feb. 27th**, will be perfect for Messier or other deep-sky observing because the new Moon will be only one day old.

Our March club meeting will feature guest speaker **Tom Crowley,** a member of the Atlanta Astronomy Club who specializes in radio astronomy and has close ties with SETI.

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AN IMPORTANT FRAC POLICY STATEMENT. Starting with this month's newsletter, we'll be announcing the names of club members whose memberships are due to lapse the following month. Members with expiration dates of 3/98 include: **Larry, Toni & Randi Higgins; Ken & Doris Walburn; Bill & Louise Warren; Tim & Celia Astin; Chuck Beckham; Steven Byous; Keith & Denise Cox; Mitch, Tammy, Lauren & Jordan Hammond; Joey, Melanie, Christopher & Nikki Handy; Rich Jakiel; Frieda Maddox; David, Patti, Joe & Chad Pendergrast; Joe Sheppard; Danny & Sharon Smith; Steven (Smitty) Smith; Mike Steele; John & Lynn Strong; John Wallace; and Ken & Karen Wilson.** Make your $10 checks payable to the Flint River Astronomy Club c/o Ken Walburn, P. O. Box 1179, McDonough, GA 30253.

Our club policy regarding unpaid memberships will be as follows: members will have until the 1st of the month following their due date (e.g., 4/1/98 for the members listed above) to get their checks to Ken; after that, their unpaid memberships will be considered lapsed and they will no longer receive our newsletter or be notified of club activities. We're sorry if this sounds negative; please consider it a policy statement made necessary by the fact that, with FRAC's first anniversary coming up in March, we haven't needed a membership expiration policy until now.

Get your check to Ken *now*, while the idea is fresh in your mind, and you won't forget it and regret it later.

* * *

The Sky in February. Mercury will be too close to the Sun to see; wait till next month. **Venus,** rising about an hour before dawn, will offer a lovely crescent phase. **Jupiter** will be low in the WSW during the 1st half of the month, with **Mars** lurking nearby. **Saturn** will be higher than the

other planets, starting the month very near the crescent **Moon** in the SW.

There'll be a partial (20%-40%) **solar eclipse** beginning at noon on Feb. 26th and lasting until 1:54 p.m. DON'T look at it in binoculars, and DON'T use a telescope for viewing unless you're using a solar filter. The Feb. issue of *Sky & Tel* offers ways to view the eclipse safely (pp. 83-84).

Other Feb. highlights include: the return of 10th-mag. **Comet Tempel-Tuttle**, parent of the annual Nov. Leonids meteor shower (*Astronomy*, p. 68); the binocular open cluster and star chain called **Kemble's Cascade**, in the constellation Camelopardalis (*Astronomy*, p. 67, and *S&T*, p. 96); **Cone Nebula**, a wedge of dark matter slicing into the emisson nebula surrounding the star S Monocerotis, which is itself the bright ornament in NGC 2264, the Christmas Tree Cluster (*Astronomy*, p. 70); visits by the asteroids **4 Vesta, 8 Flora** and **103 Hera** (*Astronomy*, p. 71); and, on Feb. 20th, the eclipsing of one of the stars in the Trapezium, **Theta Orionis A,** by a dimmer companion star, reducing its brightness by 1.5 mags. for about 7 hrs. (*S&T*, p. 92).

* * *

People You Should Know: Bill Warren. Last month's *Observer* featured a profile of FRAC vice president **Ken Walburn**, and next month you'll get the low-down on **Larry Higgins**, our beloved club president who is only now showing us what we've suspected all along, namely, that there *is* a face under the fuzz. But enough about them, let's talk about *me.*

I'm universally admired in international cosmology circles, having successfully refuted the "Big Bang" theory through the use of pure Socratic reasoning. (My argument: (a) you weren't there, so (b) it didn't happen the way you said it did. Such brilliance comes natually to me, and marks me as a deep thinker. ("About knee deep, watch where you step," is, I think, how **Larry H.** puts it admiringly. The kid worships me.)

I'm crazy about the night sky and, like **Larry H.** and **Smitty**, I want to show it off to the world-at-large. Sometimes I get frustrated when only a handful of members show up for our club observings; it suggests to me that I'm not doing a good enough job in the newsletter of motivating you to join us. I try very hard to make the *Observer* interesting, informative and entertaining for those of you who can't attend our meetings or observings. In my vainer moments I like to think that occasionally I succeed.

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Keith (the "Cloud Magnet") **Cox** recently mentioned that a retraction might be in order re recent statements of mine in the *Observer* suggesting that he's the jinx who is responsible for all the bad weather we've had since last March. Okay, Keith, I'm not too big a man to apologize. I'm sorry you're a jinx.

And whatever happened to **Lee Russell**?

* * *

The Early Observations of Barnard's Galaxy (Part II)

article by Rich Jakiel

A Time of Transition. The late 19th and early 20th century was a time of transition. Astronomers no longer needed to rely solely on their observational skills now that other, more powerful and accurate

techniques were coming into use. **Edward Barnard** stood on the cusp between the old ways and the new. One of the best visual observers in the world, he was a pioneer in wide-field astrophotography as well. Starting with a 6-inch Willard portrait camera lens, Barnard was able to capture breath-taking views of the Milky Way. Unfortunately, after several years of heavy use his lens began to deteriorate and had to be sent off for refiguring. While Barnard endured a subsequent *three-year* delay, other astronomers began to experiment with astrophotography.

One of Barnard's chief rivals was **Max Wolf** of the Heidelberg Observatory in Germany. Using a 5-1/4-inch portrait lens, Dr. Wolf conducted his own wide-field photography of the Milky Way, and also found time to discover the North America Nebula (NGC 7000), dark nebulae in the Milky Way, and over 5,000 so-called "nuclear nebulae" (galaxies). As Barnard tried desperately to acquire a single 10-inch Bruce lens to replace the Willard lens, Wolf was using *two* 16-inch Bruce lenses that were coaxially mounted with a 10-inch refractor. Wolf's good fortune and accomplishments while Barnard was fretting impatiently inspired a rivalry between the two men that would last for decades.

Even photography did not immediately resolve the discrepancies between Barnard's original observations of **NGC 6822** and those made with much larger telescopes. In 1906-07, Max Wolf used the 16-inch Bruce cameras and the 28.5-inch Walz reflector to photograph the region around NGC 6822. He identified the two largest diffuse nebulae as NGC 6822 and IC 1308, noting in the process "a dense region of small clusters and nebulae." The "new" object was actually the main bar of the galaxy, by now well resolved into stars and nebulae. It received the designation IC 4895, and once again Barnard's original observations were overlooked. It would be another 15 years before the true identity of his discovery was unearthed.

Spiral Nebulae and the Great Debate of 1920. "Spiral nebulae" had baffled astronomers ever since their discovery by **Lord Rosse** (William Parsons) in 1845. By the early 20th century, the known nebulae numbered in the thousands, with more added to the total every night. Thus, the question arose: *Were the spiral nebulae "island universes" far beyond our Milky Way, or were they part of our galaxy?*

In 1920, the National Academy of Sciences sponsored a "Great Debate" to help resolve the issue. Many astronomers supported **Heber D. Curtis** of Lick Observatory, who proposed that the Milky Way was relatively small -- no more than 15,000 light-years in diameter -- and that the Sun was located near its center.

According to Curtis and his supporters, the "spiral nebulae" were actually island universes -- great star systems located vast distances from the Milky Way. Curtis photographed hundreds of spirals using the Lick Observatory's 36-inch Crossley reflector and estimated the total number of such objects at a million or more. The continuous spectra of the spirals, recent detection of novae and high recessional velocities derived from spectrographic studies, all seemed to support his hypothesis.

The single system hypothesis was represented by a relatively youthful upstart, **Harlow Shapley** of Mt. Wilson Observatory. Using Cepheid variables as "standard candles," Shapley estimated the average globular cluster to be more than 50,000 light-years away. These clusters were highly concentrated in a small portion

of the sky, which helped to define the location of the Milky Way's core. Based on this data, Shapley contended that the Milky Way was much larger than Curtis's "island universe" hypothesis suggested. It was, rather, a gigantic system 300,000 light-years across, with the Sun at least 50,000 light-years from the center. The spiral nebulae, Shapley asserted, lay within the confines of the Milky Way.

Support for Shapley's hypothesis came from the reported photographic detection of spiral rotation by **Adrian van Maanen.** Such rotation, if accurately identified, would have implied that the objects were relatively nearby, but van Maanen's data was later found to be spurious, much to his and Shapley's chagrin.

One man who took a keen interest in these goings-on was **Edwin Hubble** of Mt. Wilson Observatory. Though the Great Debate proved inconclusive, Hubble clearly sided with Curtis. In 1920, Shapley left Mt. Wilson for Harvard, thus securing Hubble's access to the 60- and 100-inch reflectors with which he continued his studies of "extragalactic nebulae" and formulated his now-famous classification scheme.

As the dust settled over the spiral nebulae debate of 1920, Hubble and other astronomers began to photograph the larger, brighter spirals. **Charles Dillon Perrine** of the Cordoba Observatory in Argentina used a 30-inch reflector to study galaxies in the southern hemisphere, and in 1922 resolved the discrepancies in identification and interpretation of Barnard's Galaxy. He verified that the "diffuse nebulae" and Max Wolf's "small clusters" were all part of the same system. Perrine was the first to recognize the true nature of NGC 6822 as an extragalactic system; he classified it as a Magellanic Cloud-type object. Perrine's studies paved the way for Edwin Hubble's groundbreaking work in 1925.

Resolution of the Spiral Problem: Hubble's 1925 Paper. Edwin Hubble's 1925 paper, "NGC 6822, A Remote Stellar System," is one of the great classical studies in early 20th century astronomy. The resemblance of Barnard's Galaxy to the Magellanic Clouds led to its intense scrutiny via the large reflectors of the era. Using the 100-inch Mt. Wilson telescope, Hubble conducted a detailed study of the structure and stellar population of this galaxy, discovering 15 variable stars (eleven of which were Cepheids) and describing five "diffuse nebulae" (giant H II regions).

Hubble's discovery of Cepheid variables in Barnard's Galaxy rates among the most important milestones in galactic astronomy. Using the Cepheid Period-Luminosity relationship as a yardstick, he calculated a distance from Earth of 214,000 parsecs -- more than 700,000 light-years -- for NGC 6822; it was far beyond Shapley's stated size of the known universe. Barnard's Galaxy thus became the first system besides the Magellanic Clouds to have its distance measured. Barnard later applied the same techniques to the great spiral galaxies M31 and M33.

Hubble's observations of a faint, otherwise insignificant galaxy helped to resolve the Great Debate and re-define the distance scale of the universe. Through his insight, it became clear that all spiral nebulae were galaxies far beyond our own.

Today, Barnard's Galaxy is once again under intense scrutiny. It has been the subject of numerous technical papers, and has gradually emerged from relative obscurity to become a target for a wide range of amateur telescopes. NGC 6822 has been observed with instruments as

small as 7x35mm binoculars; its brightest stars can be seen with today's large telescopes. Several of its largest H II regions are visible in the northern part of the galaxy.

Although it will never be a star party favorite like the bright galaxies M31 or M51, Barnard's Galaxy deserves attention. Few if any deep-sky objects can match its unique observational history.

A Timeline of Observations of Barnard's Galaxy. **1884:** discovery by E. E. Barnard; **1885:** "variability" detected by Barnard; **late 1880s:** J. L. Dreyer starts work on the *New General Catalogue*; **1887:** 26-inch telescope fails to detect the galaxy, instead finds two H II regions, one of which is identified as Barnard's Galaxy; **1888:** Dreyer completes the *N. G. C.*, Barnard's Galaxy denoted as NGC 6822; **1906-07:** Max Wolf photographs the area; **1920:** the "Great Debate"; **1922:** Perrine photographs NGC 6822 and correctly identifies the galaxy; **1923-25:** Hubble discovers Cepheids in NGC 6822, M31 and M33; and **1925:** Hubble publishes several papers that re-define the size of the universe.

* * *

A Marker of Another Color

article by Keith Cox

Phil Sacco pointed out at the January meeting that, when using a red dry erase marker to outline constellations on a star chart, the lines disappear under a red LED or flashlight. I decided to apply my considerable math and physics skills to the problem under highly controlled lab conditions. I selected four dry erase markers -- red, black, blue and green (amazingly, they turned out to be the very same colors that were lying on my desk!) -- and subjected them to extensive scientific testing on my *Sky Atlas 2000.0 Laminated Field Edition* star charts. The pages of my charts are black with white stars.

The red markings I applied faded away when the red light came on, as Phil had predicted they would.

The three remaining colors had to pass three tests: not only did they have to make legible lines on the charts, but they also had to allow the user to read, in normal or red light, any writing on the chart that they marked over.

Black was easily seen, even on my black charts, in normal light and under the red glow. Unfortunately, the "M" in Andromeda disappeared, so black was out. With the field now narrowed down to two contenders, I continued the experiment.

The blue marker showed up very well on the charts, with and without red light, but it allowed only some of the writing to show through. Bye, bye, blue.

Convinced by now that I was on the right track, I applied green markings to a page of my laminated *Sky Atlas 2000.0*. Sure enough, the green showed up splendidly under normal as well as red lighting, and the underlying writing could be read easily.

So if you're looking for a good chart marker, go to Wal-Mart or Office Depot and buy a green dry erase marker. Just don't draw little green Martians on your charts unless you want people to think you're a nut case.

##

Beginners' Star-Hop: January, 1998

By Art Russell

This month, our star-hop will concentrate on nebulae. Most contemporary amateur astronomers have at least heard of nebulae. Nebulae come in a variety of "flavors": diffuse, reflection, emission, dark, and planetary. Although I have recently taken an interest in a group of obscure planetary nebulae ("Abell Planetaries") first identified by George Abell on photographic plates resulting from the Palomar Survey in the 1950's; I still enjoy observing the other forms of nebulae. In a sense, all nebulae are related. Stars are born in nebulae, and in the process of dying, return much of their matter back into interstellar space where it is recirculated into nebulae again.

The winter offers perhaps the best known of all nebulae in the Northern Hemisphere, **"The Great Orion Nebula," NGC 1976.** Unknown to most amateurs, **"The Great Orion Nebula"** is actually a relatively small "blister" at the edge of a much larger neutral cloud occupying the southern part of the constellation Orion. Interestingly, **"The Great Orion Nebula"** is visible because O and B type stars within the nebula are so hot and energetic that they ionize the surrounding cloud. In this case, the combination of stellar winds, ionization pressure and the location of the ionizing stars (collectively referred to as **"The Trapezium"**) near the edge of the parent cloud, all combine to provide a unique view into this birth place of stars. Likewise, not far away is the **"Rosette Nebula," NGC 2237,** located to the east in the constellation Monoceros. Here, we again see a host of hot and energetic O and B stars ionizing a parent nebula. In the case of the **"Rosette Nebula"**, we see a sphere of ionization (called Strömgren spheres after the astrophysicist Brent Strömgren who explained the phenomena) eating into the surrounding interstellar cloud with illuminating O and B stars in the center.

Star-Hop #1; M42, NGC 1976, "The Great Orion Nebula." **M42** is located very prominently in the middle of the constellation Orion, **"The Hunter"**, and well placed for observation at this time of year. It is located almost due south and about half way between the horizon and the zenith, the highest point overhead. This constellation is very large and well defined by bright stars, so once oriented, you should be able to easily find it. Once you have found Orion, you may well be able to see the **"Sword of Orion"** hanging from the **"Orion's Belt"**, the three stars forming the mid-section of the constellation of Orion. If not, note the very bright white star in at the southwest corner of the constellation, the star *Beta (β) Orionis, Rigel.* From *Rigel*, extend an imaginary line northeast for about 6 degrees, or a little more than the distance spanned by 3 fingers held at arm's length against the night sky. Here you should see three prominent stars in a row pointing to the south. The middle star is **M42**, the **"Great Orion Nebula."** Although visible in binoculars, **M42** is definitely a telescopic object. Use the biggest telescope you can to observe this nebula and you will find the views are simply stunning! With a large telescope at moderate magnifications you may note different colors within the nebula as well as branches of nebulosity which extend well beyond the limits of the eyepiece. Due north of **M42** is the much smaller patch of nebulosity, **M43. M43** is often overlooked and or misidentified as new observers begin to search for the Messier objects. Center your eyepiece on the brightest stars within **M42**, the multiple star system called the **"Trapezium."** In so doing you will also have **M43** in the same field of view, but immediately to the north.

Star-Hop #2; NGC 2237, "The Rosette Nebula." Start with the top star in the **"Sword of Orion"** (remembering that **M42** is the middle star) which is superimposed on the open cluster **NGC 1981** (and worth a look for its own sake!). Continue the imaginary line you started at *Rigel* in Star-Hop #1. Extend the line again to the northeast for another 16 degrees, or a little more than the distance spanned by your index and little fingers spread wide at arm's length against the night sky. Just before that distance, your line will pass a little south of the star *8 Monocerotis* which is only about 1 1/2 degrees, a little more than the distance spanned by your finger held against the night sky at arm's length, to the east-northeast. Although you can observe the **"Great Orion Nebula"** even under the light of a full Moon, you should reserve observing the "Rosette Nebula" for the darkest possible nights. Even then you will have to take your time to find this nebula. Once found, its details may be elusive, but rewarding never the less.

nebulae from various photographs or even design a few of your own. Practice can only improve your drawing skills.

While learning to sketch, here's a few helpful tips: 1) keep your fingers dry and grease free, 2) don't mix blending stumps; i.e.: keep the white and black charcoal separate, and 3) "fix" your drawings with a fixative. You don't want the smudging to "continue" after you're done!

Field Sketch Preparations

Once you have gathered together your supplies and practiced basic skills, its now time for a few preparations. First, I generally advise choosing a target that's not too large or intricate. Far too often, novice astro-sketchers take on an object which is far too difficult for their skill level. Good examples of challenging targets are M17, M42, The Veil, M31 and M33. All of these are either too large, structurally complex or lie in dense star fields. Save these objects for later after you have honed your skills.

Now its time to chose some interesting targets, and make some field sketches. Mark off an area on each sheet of paper for your object. Some observers like to use draw circles several inches in diameter to represent the eyepiece field of view (fov). However, some objects overflow the "normal" fov, and may stretch across several eyepiece fields. In contrast, many planetary nebulae are very small and may get "lost" in a large circle that represents the entire fov of that eyepiece. Be ***flexible***. Choose an area on your paper that will best frame that particular object.

After you have marked off the area to be used for the drawing, leave some space for technical information. You will want to include the object designation (i.e. NGC 891), the date, telescope used, magnification or eyepieces, filters (if any), object magnitude/sizes and so on. I often include a short written description plus interesting notes that might be useful when I transfer the drawing into my permanent sketchbook.

Time to Solo!

You are now at the telescope and have centered a nice galaxy in the eyepiece. You are "chomping at the bit", ready to make a drawing. But don't rush into it, take some time and ***observe*** the galaxy. Note how the brighter stars are arranged around the object; draw these in first. They will serve as a "frame" and points of reference for your drawing. Next, *lightly* sketch in the outlines of the galaxy, and note other details such as dust lanes, mottling and the brightness of the core. Try not to be influenced by any bias - only draw in the details you can see. Now using your pencil, lay down a thin layer of graphite. Start smudging the area and continue to *build* the image with more graphite until you reach a desired "density". Here's where your eraser comes into play. Roll one end into a point, and use it to "draw" dust lanes, knots and mottling textures. You will find these techniques useful for every type of deep-sky object.

If a deep-sky object is particularly complex, don't be afraid to add notes or draw in added details on field drawing. Sometimes the starfields can be incredibly complex. If they get to be overwhelming, don't get frustrated by positioning *every* star. Star charting software like *Megastar* and *TheSky* can be marvelous labor saving devices. Generate a star chart of the area, and sketch in only the nebula. And lastly, this isn't supposed to be a "masterpiece", accuracy is more important. Save your best artistic efforts for the final copy of your drawing.

The Finale

After a long night of deep-sky drawing, you may wish to transfer your efforts into a bound drawing book. At home, you can spend the extra time perfecting the image while it is still fresh in your mind. Using utmost care, copy the details of the field sketch. Once the drawing has been completed, use a fixative to keep it from smearing. Although we have stressed the ease of "negative" drawing for field work, feel free to try out other media. After you have finished the final copy, don't discard the original field drawings. They are the truest record of what you saw. Keep them for future reference.

Over the past 20 years there have been some amazing leaps in astronomical imaging. Once the province of large observatories, CCD's are now becoming commonplace. Small amateur telescopes can now match the performance of the world's largest instruments several decades ago. Even astrophotography is being brushed aside by the "CCD revolution". And while the electronic images generated border on amazing, only drawing can truly capture what is seen through the eyepiece. And for many observers of the deep-sky, it is the simple pleasures that are the best.

Observing Schedule through February

please check for updates on the Web site of through Phil Sacco-Thanks!

Orientation: Open to the public and all new members are encouraged to attend. The dates for the Orientation Program will rotate monthly to allow members to work on viewing programs, in particular the Lunar Program.

January 17th at Villa Rica. Starts at 5 sharp. Viewing will commence at the end of the program. Rain or shine event for the orientation. Please dress for the weather. Bring a stool or folding chair to be comfortable.

February 21st at Villa Rica. Starts at 5 sharp. Viewing will commence at the end of the program. Rain or shine event for the orientation. Please dress for the weather. Bring a stool or folding chair to be comfortable.

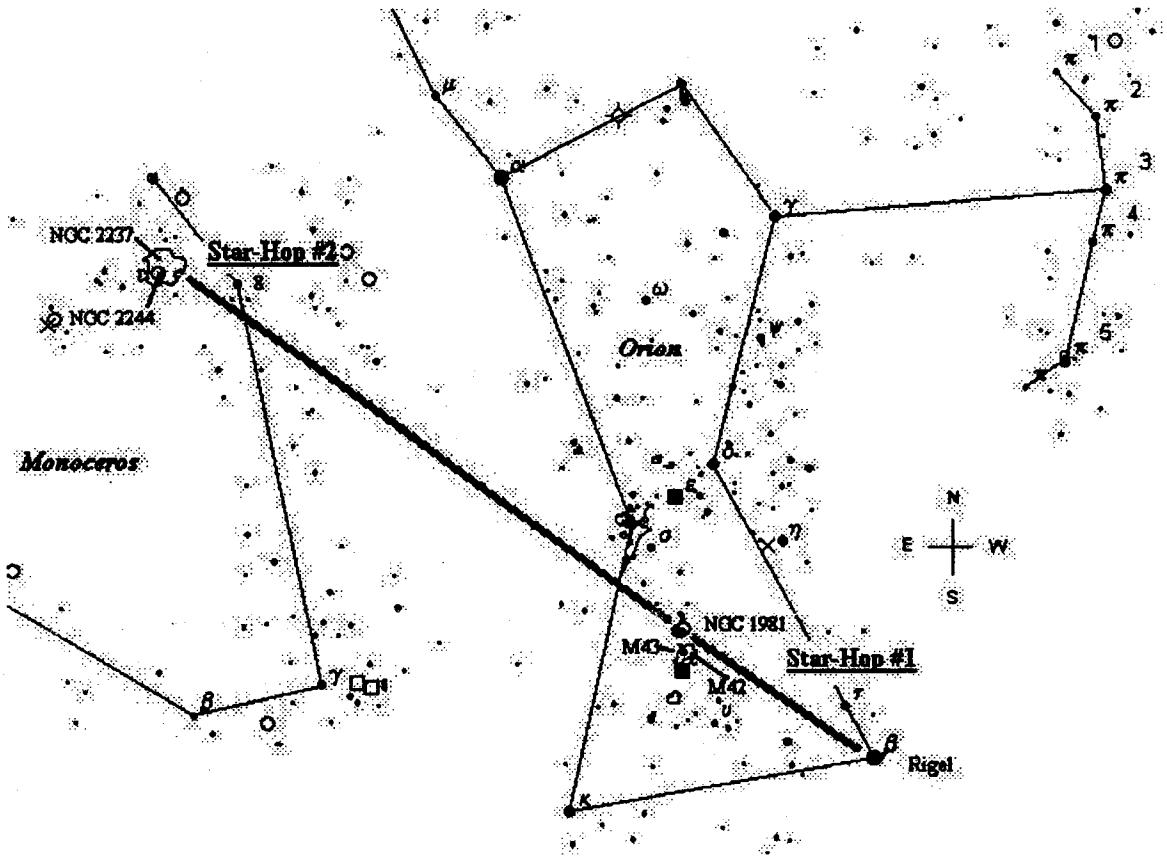
Deep Sky Viewing Programs: All Members and Guests are welcome. The general public is encouraged to come to our Orientation Programs as the Deep Sky sessions are intended for our members and guests to work on viewing projects.

January 31st: Akins field. Starts at dusk.

February 28th: Location to be announced.

Associated with the "Rosette Nebula" is the open cluster NGC 2244. In a large telescope at low power, I observed that the nebula seemed to form a crescent around NGC 2244 which itself seemed to consist of a double row of stars.

As ever, take your time when you observe. In fact the more time on the eyepiece, the better. This applies to the observation of any of the various deep sky objects. Be sure to try it with this month's objects. Both the "Great Orion Nebula" and the "Rosette Nebula" offer wonderful details for your discovery. Good Hunting! - Art Russell



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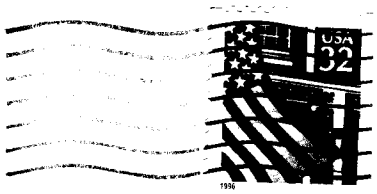
The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.



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FIRST CLASS

The Atlanta Astronomy Club Inc., the South's largest and oldest astronomical society, meets at 8:00 p.m. on the third Friday of each month at Emory University's White Hall or occasionally at other locations (check the hot line for details). Membership is open to all. Annual dues are $25 ($10 for students). Discounted subscriptions to Astronomy, and Sky & Telescope magazines are available. Send dues to: **The Atlanta Astronomy Club, Inc., 3595 Canton Road, Suite A9-305, Marietta, Ga. 30066.**

Hot Line: Timely information on the night sky and astronomy in the Atlanta area is available on a twenty-four hour basis on the Atlanta Astronomy Club hot line: **770-621-2661.**

Check out our ASTRO discussion list on the Internet: ASTRO@Mindspring.com. Also visit our Internet home-page: **http://stlspb.gtri.gatech.edu/astrotxt/atlastro.html**

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