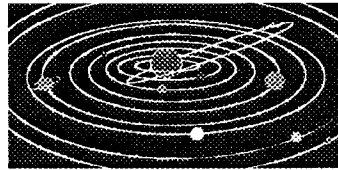


THE FLINT RIVER OBSERVER



Vol. 2, No. 1

FLINT RIVER ASTRONOMY CLUB

March, 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); AICor, 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.

* * *

Club Calendar. Mon., Mar. 2: Observing for East Coweta High School (ECHS football field at dark, see *Upcoming Meetings/Activities*); **Fri., Mar. 6:** Observing for 3rd Ward Elem. students (1st United Methodist Church at dark, see *Upcoming Meetings/Activities*); **Thurs., Mar. 12:** Club meeting (Beaverbrook media center, 7:00); **Fri., Mar. 13:** "First Light"/ FRAC joint observing at Fair Oaks Farm on Birdie Road, at dark (see *Upcoming Meetings/Activities*); **Fri., Mar. 20:** alternate date for 3rd Ward observing; **Thurs., Mar. 26-Sun., Mar. 29:** Peach State Star Gaze, Camp McIntosh at Indian Springs S.P. at Jackson,

GA, see Xeroxed brochure).

* * *

President's Message. First, let me welcome our newest members: **Charles, Katie** and **Kathy Osbolt**, of Griffin. We're pleased that you decided to join our merry band, and we hope you'll let us know how we can help to make your membership enjoyable.

FRAC is one year old now and doing fine, thanks. We now have 36 membership units (e.g., families) totaling 73 people -- a far cry from the 8-10 members **Bill, Ken Walburn** and I envisioned at our organizational meeting in February, 1997.

We also have: an ever-expanding core of regular participants at our observings; access to two observing sites; an unbroken string of outstanding speakers at our monthly meetings; an active Partnership in Education with Beaverbrook; a friendly and harmonious relationship with the Atlanta Astronomy Club; a 3-meter dish and computer; a club library; extremely low club dues; and a *great* newsletter!

In our first year, we've scheduled a total of 18 special observings for groups such as schools, the scouts, the American Cancer Society, etc., although the weather hasn't always cooperated -- and we've had special FRAC observings for the Perseids meteor shower and Comet Hale-Bopp, and a FRAC star party that was rained out. We're presently searching for ways to

finance and build a permanent observing facility at Cox Field.

So it's not like we haven't done anything during our one year in existence. FRAC is on the move, and I hope you'll want to join us for another year when your membership comes up for renewal.

We have a lot going on this month, including three school observings and AAC's **Peach State Star Gaze** at Camp McIntosh (adjacent to Indian Springs State Park). The **PSSG** will last from **Thurs., Mar. 26**, through **Sun., Mar. 29**, and will take the place of our regular Cox Field deep-sky observing. We're including an entry form to be filled out and mailed to **Ken Poshedly**, but you can just take it along with you and register when you get there if you wish. We hope to see you there; try to arrive early enough on Thurs. afternoon so we can camp together.

Finally: we're having a trial run of FRAC tee shirts made up; they'll cost \$10 apiece, and you can see them and place your order at our next meeting.

-Larry Higgins

* * *

February Meetings/Activities. Quite a few members and guests -- 24 in all -- attended our **Feb. 12th** meeting to hear **Doug Chesser** talk about CCD-imaging. Doug didn't bring his telescope along because his wedge, whatever that is (it sounds like a sandwich: "I'll have a tuna wedge with mayo on toast and a Coke, please"), hadn't arrived. Instead, he showed a video he prepared and walked us through the complicated world of computerized stargazing. (Complicated? Doug said it took him three days to polar-align his telescope. We could win a war with Iraq in that time...)

Chuck Beckham and **Ken Wilson** brought some photos of M31, M42 and the cute little asterism/star cluster "37" that they took during our Jan. 27th Cox Field observing. Their progress has been -- well, astronomical!

Sixteen members showed up for our **Jan. 30th** Cox Field deep-sky observing, including **Lee Russell** and **Ken Wilson** -- Hey, welcome back, guys! -- and 18 attended our **Friday the 13th** "First Light"/FRAC observing at Fair Oaks Farm. **Tim** and **Celia Astin** were there, scanning the skies for M81/M82 and other Messiers; and it was good to see **Tom** and **Katie Moore** -- Katie is the pretty one -- at both events. Maybe it's just water spots on my crystal ball, but I keep getting an image of something like an 8" Dob somewhere down the line in their future...

And where in Carmen Sandiego are **Doyle Tallman** and **Melanie Handy**?

* * *

Renewals. Club members whose renewal dates are 4/98 include: **Tony & Ruth Donaldson; Alex & Nelda Langoussis; Jim & Audrey McDaniel; Art & Jane Russell; and Lee, Sara, Travis & Jennifer Russell.** Make your \$10 checks payable to the Flint River Astronomy Club c/o Ken Walburn, P. O. Box 1179, McDonough, GA 30253.

* * *

Upcoming Meetings/Activities. On **Mon., Mar. 2nd**, we'll hold an observing for **Kimberly Novak's** astronomy class at East Coweta High School. The observing, to be held on the ECHS football field, will begin at dark but you'll want to get there early to set up. Call **Bill Warren** for directions to the school.

On **Fri., Mar. 6th**, we'll hold an observing for the students of Third Ward Elementary School in Griffin on the large field beside First United Methodist Church. To get to the church, go all the way into Griffin via U.S. 19/41 from the north or Ga. 16 from the east or west and stay on the main road (Taylor Street) until you reach the stoplight at 6th Street. Turn west on 6th; after going about a mile you'll reach a point where the road splits, one branch going straight ahead and the other bearing to the left. Follow the left branch as it curves back around to the right; it's now Maple Drive, not 6th Street. Several blocks farther along you'll reach a long downhill stretch that ends when you cross a tiny creek; the church and field are on the right at the top of the hill, facing Wesley Drive. The field borders both Maple Drive and Wesley Drive. You can't miss it. To be on the safe side, though, we're enclosing a map of Griffin with the newsletter.

Our **Mar. 12th** FRAC meeting will be a lively affair featuring AAC's resident expert on radio astronomy, **Tom Crawley**, talking on that subject and another that is dear to his heart, the Search for Extraterrestrial Intelligence (SETI). Tom will be instrumental in helping us to install our dish and computer; he is head of the amateur astronomers' branch of SETI.

Our joint FRAC/ "First Light" observing with Beaverbrook students on **Fri., Mar. 13th**, will again be held at **Fair Oaks Farm** at dark, due to continuing construction at the school. Fair Oaks is located on Birdie Road, 3 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.

Fri., Mar. 20th has been reserved as a makeup date for 3rd Ward's observing at the First United Methodist Church if our Mar. 6th observing is a washout.

Our regularly scheduled deep-sky observing at Cox Field has been pre-empted by the **Peach State Star Gaze** at Camp McIntosh from **Thurs. evening, Mar. 26th-Sat. morning, Mar. 29th**. Information about the event appears elsewhere in this newsletter.

* * *

The Sky in March. You'll have a great chance to see **Mercury** in March: on the **11th** it'll be just two Moon-widths from **Mars**, low in the western twilight; on the **19th** it will be at its highest, about a thumb-to-little finger spread above the setting Sun; and on the **21st** it'll be at the same altitude as **Saturn**, 5° away. Saturn will set around 8 p.m.

Meanwhile, bright **Venus** passes 4° N of **Neptune** at 5 a.m. on the **7th**, and 3° N of **Uranus** at 2 a.m. on the **19th**. **Jupiter** rises at 6 a.m., and on the **26th** it'll be less than a degree S of the **Moon**. The **Sun** will be up all month, but only in the daytime.

The **Moon** will occult (i.e., pass in front of) **Aldebaran**, the bright yellow eye of *Taurus (the Bull)* at 7:45 on the **4th**. You can see it via naked eye, binocular or telescopic observing.

The full Moon undergoes a slight penumbral eclipse that will peak around 11:30 p.m. on our meeting night, the **12th**. (A penumbral lunar eclipse involves the Moon passing through Earth's faint outer shadow, or *penumbra*; it is far less vivid than the other, umbral eclipse in which the Moon passes through Earth's dark inner shadow, or *umbra*.) The southern half of the Moon may change color slightly during eclipse on the 12th -- and then again, it may not. If not, it'll be about as exciting as watching grass grow..

If you haven't seen the March issue of *Astronomy*, by all means do so. Beg, borrow or steal a copy to see its 27

three-dimensional images of Moon craters, the surface of Mars, Jupiter's moon Io, and other wonders of the universe as you've never seen them before. The March issue also highlights **Melotte 111**, the roughly V-shaped star cluster and asterism that forms "Berenice's Hair" (Coma Berenices). Too large to fit into a telescopic field of view, Mel 111 is lovely in any binoculars. Easy to find, it's located 1/3 of the way from the triangle of stars that form the hindquarters of *Leo (the Lion)* and the handle of the Big Dipper.

Also, get **Larry H.** or **John Wallace** to show you the "Smiley Face" cluster of galaxies in *Virgo (the Maiden)*.

* * *

People You Should Know: Larry Higgins. That FRAC exists at all is due to Larry Higgins. It's his creation, and everything it has become in the short space of one year is the result of Larry's personality and vision.

Larry is what once was referred to as a *Renaissance Man* -- a "jack of all trades, master of many." He is equally proficient at working on a faulty telescope, cleaning or collimating mirrors, building a Dobsonian mount for a 4-1/2" reflector or a dew shield for a 10" Dob, making the night sky come alive for newcomers to stargazing, and discussing astronomical topics and the universe with children and seasoned veterans alike. He is, in short, a remarkably gifted leader who possesses many talents, not the least of which is the ability to elevate the people around him to his level rather than talking down to them. Larry has a wonderful knack for making people feel important.

Having said all that, I hasten to point out that, without the facial hair, he bears a striking resemblance to a skinned possum;

being around him can be an ordeal when he has recently enjoyed a spicy meal; and he treats any pronunciation of *Uranus* other than "YOOR uh nuss" as a straight line for what has by now become very stale scatological humor.

Still, he is the best of us, and I don't envy whoever assumes the presidency of FRAC when Larry eventually steps down. He will be a very tough act to follow.

* * *

Recording Deep-Sky Observations

article by **Art Russell**

(Editor's Note: This article from the May '97 *Observer* is being reprinted for the benefit of our growing number of members who are pursuing their Messier pins but joined FRAC after the article appeared. Art does a wonderful job of telling you how to observe deep-sky objects -- what to look for, and how to describe and record what you see.

Incidentally, these are guidelines and suggestions, not Messier requirements.)

A. Basic Data. date, location, observing instrument, eyepieces (magnification), and filters used (if any).

B. General Observing Conditions. 1. weather; 2. transparency (estimate the limits of visual magnitude directly overhead, whether naked-eye or telescopic); and 3. seeing. (Test for atmospheric turbulence over your observing site by viewing the slightly out-of-focus image of a star or planet: "poor seeing" is evidenced by a rapidly shimmering image, "good seeing" by a slow, rippling image, and "superb seeing" by a dead calm image. Rate your seeing on

a scale from 1 [worst] to 5 [best]).

C. General Questions (respond only to those questions which apply to the object under observation): 1. Sketch the object. (A picture is worth a thousand words.) 2. How did you find the object? Was it easy or difficult to find? Where there any bright stars, double stars, or other notable objects nearby? 3. How difficult or easy was the object to see once you found it? Did it require averted vision, or could you observe it directly? 4. Was there anything unusual or peculiar about the object? 5. How large was the object? (If possible, use arc minutes and arc seconds.) What was its shape? If not round, (a) How was it oriented in the sky, and (b) What, if any, earthly objects did its shape suggest? 6. Could you resolve individual stars? How many? 7. What color was the object and/or individual stars within it? How bright was it, and how bright were the individual stars? 8. Were some parts of the object brighter than others? How did the brightness change with distance from the center? 9. Were there any dark areas indicating the possible presence of a dark nebula? 10. What was the best magnification for observing the object?

D. Questions Specific to the Object Under Observation:

Open Clusters. 1. Was the cluster (r), *rich* with 100+ stars, (m) *moderately rich* with 50-100 stars, or (p) *poor* with less than 50 stars? 2. Were the stars in the cluster (a) detached from the surrounding star field and concentrated toward the center, (b) detached but weakly concentrated toward the center, (c) detached with no concentration toward the center, or (d) not well detached from the

surrounding star field? 3. Was any nebulosity present? Does a nebula filter suggest that there may be a bright nebula associated with the cluster?

Globular Clusters. 1. Were there any chains of stars? 2. How centrally located were the resolved stars? Compare the size of the unresolved glow with the distribution of the resolved stars.

Bright Nebulae. 1. At high magnification, does the nebula (a) remain, (b) resolve, or (c) disappear? 2. Does a filter improve contrast and/or expand the apparent size of the nebula?

Planetary Nebulae. 1. Using the Vorontsov-Velyaminov scale, describe the appearance of the nebula: (a) stellar, (b) smooth disk (bright center, uniform brightness, traces of ring structure), (c) irregular disk (irregular brightness, traces of ring structure), (d) annular (ring structure), (e) irregular form (similar to a diffuse nebula), or (f) anomalous form (no regular structure).

Galaxies. 1. Was there a nucleus? If so, what was its size, shape and brightness? 2. Were there any bright spots outside the nucleus to possibly indicate the presence of star clusters or nebulae? 3. Was the galaxy's surface (a) mottled, or (b) smooth? 4. Were the edges of the galaxy (a) clearly defined, or (b) vague? 5. Were there any dust lanes? Spiral arms?

##

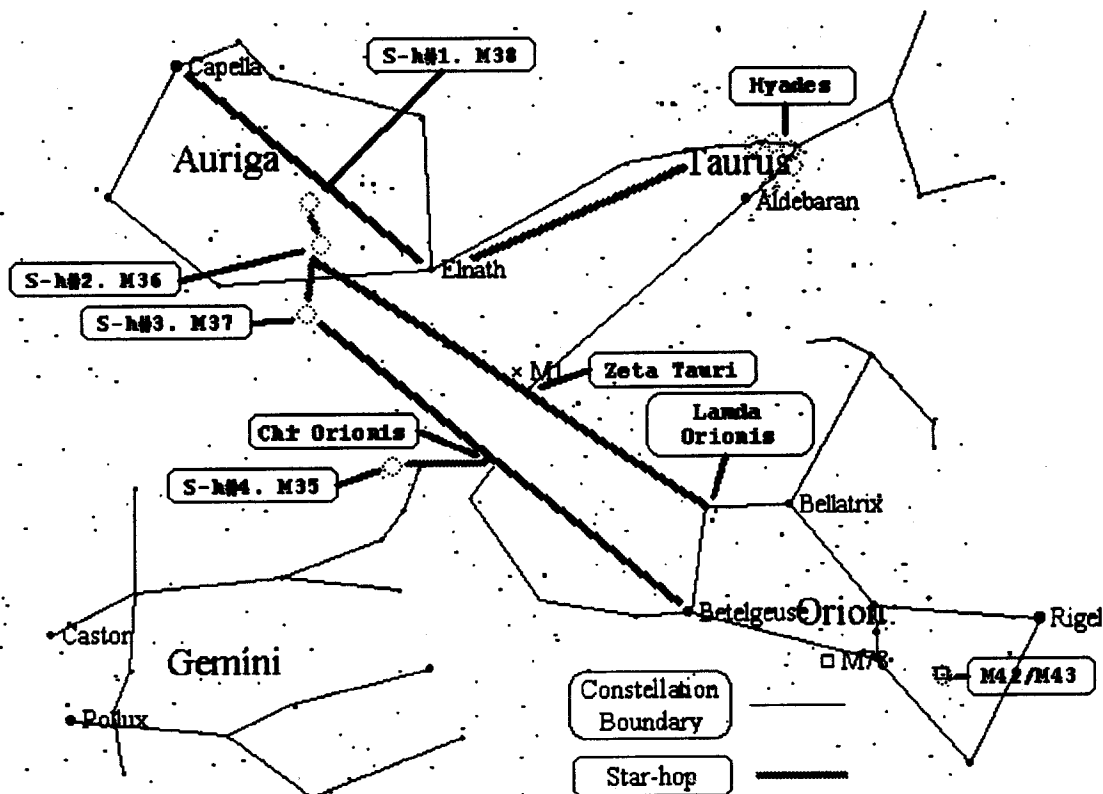
Beginners' Star-Hop: February, 1998

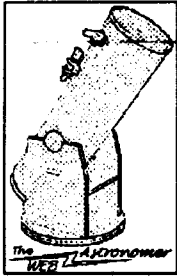
By Art Russell

This month we'll take a hard look at open clusters. With that in mind **Messier** open clusters: **M35**, **M36**, **M37**, and **M38** are well situated for viewing this month.

Star-hop #1. Let's start back in the constellation **Taurus** at the **Hyades** star cluster. As we run out along the right leg that the cluster forms, we can extend a line to the star **Beta (β) Tauri**, **Elnath**, which marks the tip of the right horn of the mythological figure, **Taurus**, the **Bull**. From there we extend a line to the bright yellow star in the constellation **Auriga**, **Capella**, **Alpha (α) Aurigae**. Not quite half the distance between **Elnath** and **Capella**, and off to the left of our line you'll find **M38**, **NGC 1912**. In the same field of view you may also see a dimmer open cluster, **NGC 1907**, but you won't be deceived, because **M38** is much more apparent. In a moderate size scope at a moderate magnification I saw an "X" shaped alignment of stars apparent in center of cluster. How about you?

Star-hop #2. Our next star hop takes us to **M36**, **NGC 1960** in the constellation **Auriga**. Getting to **M36** from **M38** is relatively easy since they are only about 2 1/2 degrees apart. This means that you'll only have to move your eyepiece only a little bit to the south-east in this instance. If you need a different method, then start at the star **Lambda (λ) Orionis**, the head of **Orion** the Hunter, the constellation **Orion**, and extend a line past **Zeta (ζ) Tauri** (take time again to stop and look at **M1**, the **Crab Nebula**, **NGC 1952**, [see last month's star-hop]) for a distance a little more than that between **Lambda Orionis** and **Zeta Tauri**. Once again you'll find the bright open cluster **M36**. I first saw **M36** on the same evening that I first observed **M38** and recorded that at 62.5X **M36** was easy to find as it is in the same field of view as **M38**.





The Web Astronomer by Gil Shillcutt

Planetary Nebulae

These days, I am often reminded that I'm getting older. My joints creak a little more than they used to, packing up the scope seems to take a little more out of me. Heck, I don't even have to do anything the night before to have to pay for it in the morning. Mid-life bloat is settling in, and I'm aware that I'll always struggle to keep fit.

Stars go through their own aging process as well (mid-life bloat being the common thread). As a star ages, it consumes the hydrogen it started out with through thermonuclear fusion. When it runs out of this fuel, its core contracts, becoming hotter and more dense, creating greater pressure. As this happens, helium then starts to fuse.

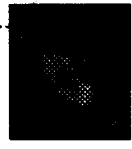
Last month, we examined what happens to massive stars when this happens. With average, sun-sized stars, the path to old age is much different from massive stars. As the star moves from its main-sequence hydrogen-burning stage to a helium-burning older star, the increased temperature and pressure from the burning of helium causes the star to expand. As it does this, the outer layers of the star cool, and appear to redden as a result. These "red giant" stars are truly tremendous, often having a diameter as large as Mars' orbit. As with all things, though, the helium-burning stage of the star must come to an end as well, and it is in the next phase that planetary nebulae are created.

On Bruce Balick's Planetary Nebula page, located at <http://www.astro.washington.edu/balick/WFPC2/>

we find that once the helium in a red giant has been consumed, carbon and oxygen are left as ash. This core rapidly contracts underneath the swollen red giant. As this happens, the outer hydrogen and helium layers of the star contract as well. This time, though, the temperature and pressure are insufficient to re-ignite nuclear fusion of left over materials (carbon and oxygen) in the core. However, the increasing temperature and pressure of the contracting outer layers of the star are enough to ignite fusion in these layers. No longer confined by the outer layers of the star, the energy given off by this process blows off the outer layers of the star. It is this blown-off outer layers then, that are what make up a planetary nebula. The aged star, now devoid of fusible material, is now a white dwarf, a searing apparition that radiates at between 50,000 to 100,000 degrees. This intense radiation is absorbed by the now-expanding outer layers of the star, and is re-emitted in very specific wavelengths, corresponding to the materials that make up the nebula.

Balick also goes to some length to describe some of the current theory and models that are being developed as a result of HST imaging results. Of particular interest are the "bi-polar" planetaries (of which M 2-9 is an example), and "FLIERS", small, reddish disturbances in the planetary envelope (of which the ring ends of NGC 7009, the Saturn Nebula, is an example)

As it turns out, there are only 4 planetaries in the Messier catalog. However, there are hundreds in the NGC catalog. So far, 1500 of these faint fuzzies have been discovered. Astronomers estimate that there are on the order of 10,000 of them in the Milky Way. This should not discourage the amateur, though. On the Planetary Nebulae Observer's Home Page



NGC 7009

and Starbase Café site, located at: <http://www.blackskies.com/>, has many tips on the observational characteristics of planetaries. Armed with this web site, you learn that planetary nebulae emit primarily in the green light of the Oxygen III band, at a wavelength of 5007 angstroms, and the red light of Hydrogen Alpha, at 6563 angstroms. Further discussions of the emissions of planetaries explain why it is that they often appear green - the dark adapted eye is most sensitive to light around 5000 angstroms, making the green of OIII appear as the primary color seen.

Filters are a must for observing these objects, and the page does a great job of delineating the types of filters that are effective for observing planetary nebulae (along with other uses for those filters). Lumicon's UHC, OIII and Hydrogen Beta filters are given special attention, but other filters, such as narrow-band light pollution filters are discussed as well. Finally, there is a list of 13 observing tips for hunting planetary nebulae. Number 13 reminds us of what this is all about, ENJOY! Just ask Art Russell or Rich Jakiel about it the next time they're complaining about the "miserable little piece of ____ (your favorite expletive here)" that they have observed recently.

Observing Schedule

February

21st Orientation At Villa Rica: 5pm sharp
Newcomers and Public Welcome and Orientation. 5 sharp. Villa Rica. Moon rise 1:50 am wanning crescent. For more information, contact Phillip Sacco, 404-296-6332 E-mail: ppsacco@mindspring.com.

28th Deep Sky Event , Villa Rica: Dusk
I don't expect the following Deep Sky Events to be here, so if it has been a while since you made it to VR, come see the face lift, and enjoy what may be the last of the severe weather sessions.... For more information, contact Phillip Sacco, 404-296-6332 E-mail: ppsacco@mindspring.com.

March

21st Orientation At Villa Rica: 5pm sharp
Newcomers and Public Welcome and Orientation. 5 sharp. Villa Rica. The Orientation will be followed by a viewing session, weather permitting. Moon Rise 12:37am 3rd quarter moon For more information, contact Phillip Sacco, 404-296-6332 E-mail: ppsacco@mindspring.com.

26-30 Peach State Star Gaze
LOCATION: Camp McIntosh, Indian Springs State Park
Call Ken Poshedly at (770) 979-9842 for info and registration.

Star-hop #3. Our third and final Messier object in Auriga, is **M37, NGC 2099**. **M37** is about 4 degrees south-east of **M36** and forms the apex of the left leg of an equilateral triangle formed with **M36** at the top and the star *Elnath* at the apex of the right leg of the triangle. A second way to get to **M37** is to start at the star *Betelgeuse, Alpha (α) Orionis*, in the constellation Orion. From there, extend a line through the star *Chi (γ) Orionis* to a distance about equal to that between *Betelgeuse* and *Chi Orionis*. You should find **M37** prominent in that location. In a moderate sized scope with moderate magnification, **M37** had a distinct star in center which appears warmer in color than the rest. Rich field with many stars.

Star-hop #4. Our fourth star hop takes us to the constellation Gemini and another Messier object, the 5.3 magnitude open cluster **M35, NGC 2168**. **M35** is harder to find than the other Messier objects we've looked at this month, so don't be surprised if it takes you a bit longer to find it. However, once you do, you'll enjoy this large, rich cluster. **M35** sits alone in the farthest most north-western corner of Gemini. One of the easiest ways to find **M35** is to start at the star *Chi Orionis* in the constellation Orion and extend a line through the star *1 Gemini* for a distance equal to only 1/3 that between *Chi Orionis* and *1 Gemini*. At that point you won't miss **M35**. Additionally, in the same field of view as **M35** you may see a dim patch of light (depending on the size of your scope) to the southwest of the cluster. This is the very rich open cluster **NGC 2158**. Unfortunately, it shines at about 11th magnitude and is harder to see. Take a look if you can find it. I first saw **M35** in a moderate sized scope at moderate magnification and noted that it had a rich field with distinct apparent structure. Additionally, it seemed to have three point stars in center of the cluster.

We're here to help! Here's how to reach us:

Address for New Memberships, Renewals, Magazine Subscriptions, and Book Orders:

Atlanta Astronomy Club
3595 Canton Road, Suite A9-305
Marietta, GA 30066

Atlanta Astronomy Club Information Line: 770-621-2661

Internet Home Page: <http://stispb.gtri.gatech.edu/astroxt/atlastro.html>

Officers, Board, and Committees:

Art Russell	President	404-373-4119
Rich Jakiel	VP, Program Chairman	
Phil Sacco	VP, Observing Chairman	404-296-6332
	Beginner's Interest Group	
Pat Sammons	Treasurer	770-949-9715
	Subscriptions & Books	
Tushar Thrivikraman	Newsletter Editor	770-270-0742
Ginny Mauldin-Kinney	Recording Secretary	770-414-9383
David Hanon	Board of Directors	706-937-3593
James Monroe	Board of Directors	770-972-5605
	Schools Outreach Coordinator	
Kemper Smith	Board of Directors	770-974-5035
Tom Crowley	Board of Directors, Chairman	770-233-6886
Joe Sheppard	Board of Directors	770-784-7592
	ATM Special Interest Group	
Don Hall	Board of Directors	770-938-8139

artRussell@mindspring.com
deepsky@mindspring.com
ppsacco@mindspring.com

Psammons@aol.com

kthrivi@emory.edu
kinneys@atl.mindspring.com
dhanon@mindspring.com
jmonroe007@aol.com

kemper@mindspring.com
0002015032@mcimail.com
joeshep@mindspring.com

donhall@mindspring.com

Standing Committees

Ken Poshedly	Peach State Star Gaze Chairman	770-979-9842
Tom Buchanan	Light Pollution Chairman	770-587-0774
Doug Chesser	Club Graphics	770-457-5743
Richard Jakiel	VIP Coordinator	
	Assistant Program Chairman	
Alex Langoussis	Publicity	770-429-8384
Mark Banks	Dark-Site Obs Chairman	404-257-2766
	Sdwk Astronomy	
	Special Interest Grp	
Chrissy Mondell	Hospitality and Refreshments	
Lynn Crowley	Beginner's Contact and Socials	
Stephen Blalock	AAC Webmaster	770-924-6314

ken.poshedly@mindspring.com

chesser@abraxaxis.com
deepsky@mindspring.com

aleko@mindspring.com

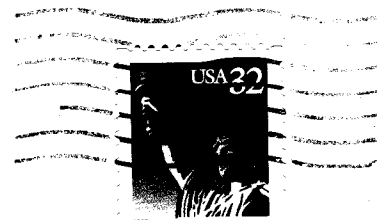
0002015032@mcimail.com
stephen.blalock@gtri.gatech.edu

The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

FROM:

Tushar Thrivikraman
3629 Winbrooke Lane
Tucker, Georgia 30084
kthrivi@emory.edu



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 the **ASTRO** discussion list on the Internet: **ASTRO@Mindspring.com**. Also visit our Internet home-page: **<http://stispb.gtri.gatech.edu/astroxt/atlastro.html>**

9805
Dr. William E. & Louise Warren 1212 Everree Inn Rd. Griffin, GA 30224

30224XB755 20
36236X3600

