Current Astronomy
RIVER BEND ASTRONOMY CLUB NEWSLETTER
NOVEMBER/DECEMBER
2011

M33, The Pinwheel Galaxy, is also known as the Triangulum Galaxy for its location in the constellation Triangulum. This object appears high in the sky for observing during November and December.
Photo by Gary Kronk.

INSIDE THIS ISSUE

River Bend Astronomy club serves astronomy enthusiasts of the American Bottom region, the Mississippi River bluffs and beyond, fostering observation, education, and a spirit of camaraderie.

Elected Officers

PRESIDENT	Bill Breeden
VICE-PRESIDENT	Jeff Menz
TREASURER	Mike Veith
SECRETARY	Mary Hebert

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LEAGUE CORRESPONDENT	Rich Dietz
OUTREACH COORDINATOR	Terry Menz
LIBRARIAN	Rita Breeden

Founding Members
Ed Cunnius · Gary Kronk · Kurt Sleeter · Eric Young

Contacts

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Affiliated with the Astronomical League, dedicated to fostering astronomical education, providing incentives for astronomical observation and research, and assisting communication among amateur astronomical societies. www.astroleague.org

Check out our **online calendar** on the NASA Night Sky Network, a nationwide coalition of amateur astronomy clubs bringing the science, technology and inspiration of NASA's missions to the general public.

Monthly Meetings

Saturday, November 19, 2011 • 7:00 PM
Saturday, December 3, 2011 • 7:00 PM
Saturday, January 21, 2012 • 7:00 PM
For meeting locations, please see our calendar at www.riverbendastro.org.

Looked Up Lately?

Join River Bend Astronomy Club

Want to learn more about astronomy? The members of River Bend Astronomy Club invite you to join. You won't need expensive tools or special skills – just a passion for observing the natural world.

- Meetings offer learning, peeks through great telescopes, and fun under the stars.
- You will receive the club newsletter, *Current Astronomy*, packed with news and photos.
- Get connected with our member-only online discussion group.
- Borrow from the club's multimedia library.
- Borrow from the club's selection of solar telescopes.
- And that's not all! Through club membership you also join the Astronomical League, with its special programs and colorful quarterly newsletter *The Reflector* to enrich your hobby.
- We meet monthly, observe regularly, email news and quips constantly, and generally have a good time. Won't you join us?

Name_____
Address_____
City_____State_____Zip_____
Phone_____
Email address_____
Where did you hear of our club?_____
_____
How long have you been interested in astronomy?_____
Do you have optical equipment?_____
Are you afraid of the dark? ___Yes ___No (just kidding)
I am submitted my application for:
_____Adult Membership(s) ___Youth Membership(s)
$20/year each $15/year each
(18 yrs. and up) (17 yrs. and under)
I enclose a check for $_____ made out to:
Mike Veith, Treasurer, RBAC
Signature_____
Date_____

Mail to: River Bend Astronomy Club
c/o Mike Veith, 1121 St. Louis St., Edwardsville, IL 62025.

Questions? Contact us by email at rbac@riverbendastro.org.

Louis Swift: America's Greatest Astronomer

By Gary Kronk

In the course of my research on my Cometography *book series, I ran across many interesting individuals who spent the better part of their life in the field of astronomy. I think Lewis Swift was one of the most interesting.*

Lewis Swift, Jr. was born on February 29, 1820, under the rural skies of Clarkson, Monroe County, New York. His father was Lewis Swift, Sr. (1784-1846) and his mother was Anna Forbes (1785-1852). Although not much is known of his childhood, it is known that Swift's family owned a farm. Although he most likely did the normal farm boy chores expected of a 19th century youth, an accident occurred when he was 13 that changed all of that. The accident resulted in a broken hip joint, which was ultimately set improperly, and Swift subsequently walked with a limp all of his life. The injury was blessing in disguise, as Swift was unable to do normal farm work and ended up spending more time in school. The result was that Swift read a lot and developed an interest in science, particularly physics.

Although the U. S. Federal Census of 1850 listed Swift as a farmer, he actually spent a lot of time lecturing. In particular, he teamed up with his cousin George L. Swift and gave talks and demonstrations on electricity, magnetism, and the commercial telegraph. The latter subject drew the attention of Ezra Cornell, an American businessman and co-founder of Cornell University. They approached the Chicago Tribune newspaper about the possibility of receiving news from New York as it happened, but the Tribune shot them down because telegraphy "wouldn't pay."

Swift opened a hardware store in 1854. It was noted in one newspaper account of his life that "business was slow, allowing more opportunity for his scientific studies." A year later, Swift became interested in astronomy.

Swift was no stranger to astronomy. As a 13-year-old boy on his father's farm, he witnessed the great display of Leonid meteors on November 13, 1833. Two years later, he saw Halley's Comet with the naked-eye.

The sudden resurgence of his interest in astronomy included the purchase of two books in 1855: Burritts' "Atlas Designed to Illustrate the Geography of the Heavens" and Thomas Dick's "The Practical Astronomer." The latter book gave instructions on building a telescope, and Swift did just that in 1856. This was a 3-inch refractor, the lens of which cost him $5.

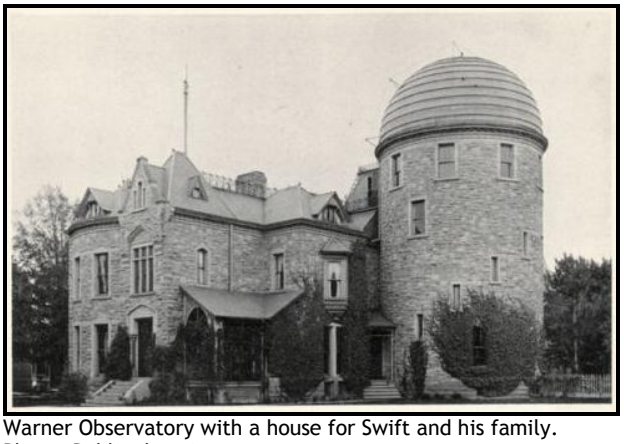
Portrait of Lewis Swift, 1886.
Photo: Public domain.

One of the first comets observed by Swift was Donati's comet of 1858. Swift wrote a letter to the *Astronomical Journal* providing details of his observation, noting the multiple appearance of the tail. Swift became so interested in comets that he began searching for them whenever possible. He made his first discovery on July 16, 1862, independently finding it just three days before H. P. Tuttle. This comet was named Swift-Tuttle and is now known

as the parent of the annual Perseid meteor shower.

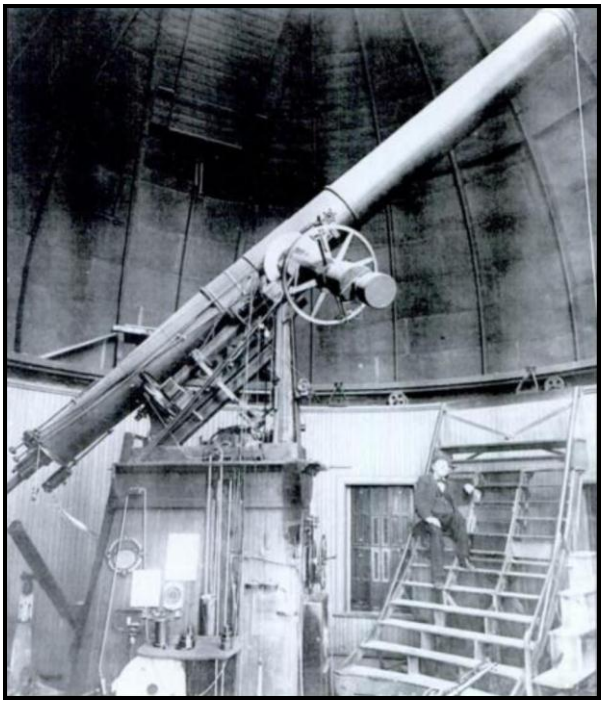
Swift moved his wife and children to Rochester, New York around 1872. Although the Rochester City Directories listed him as working at Swift & Gordinier hardware store during the next few years, Swift was spending almost every clear night observing from the roof of a cider mill. Following the discovery of another comet on April 14, 1877, the Rochester directory also began listing Swift as an astronomer.

Soon after the discovery of another comet on July 7, 1878, businessman H. H. Warner approached Swift with the idea of building an observatory. The deal was made that if the people of Rochester would donate the money for a telescope, Warner would build an observatory to house it. Rochester newspapers soon let everyone in town know what was happening and enough money was raised during 1879 for Swift to buy a 16-inch refractor. Warner Observatory was completed during the latter half of 1880. The observatory included a house for Swift and his family.



Warner Observatory with a house for Swift and his family. Photo: Public domain.

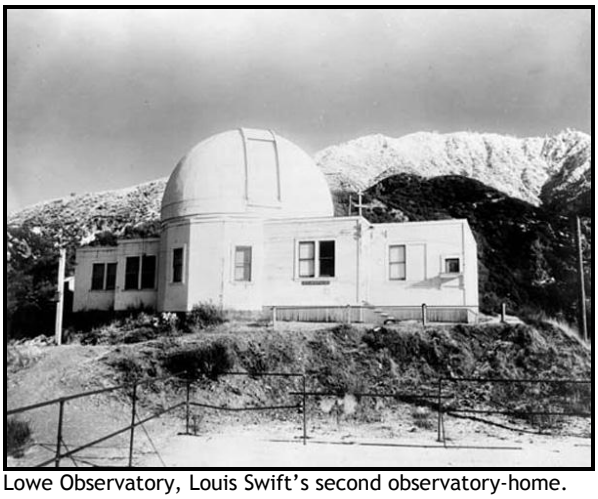
The first comet discovered at Warner Observatory was the periodic comet Tempel-Swift on October 11, 1880. Additional comets were found on May 1, 1881, November 17, 1881, and February 24, 1883; however, Swift was beginning to notice that while searching for comets, his large telescope would pick up star clusters and nebulae that were apparently not previously known to astronomers. As with Charles Messier before him, Swift began to log these objects to avoid being fooled by them in the future. As each one was found, he would enter a description and measure the position, following up within a day or two to see if it had moved or not. If there was no motion, Swift would log another deep sky object, but if there was motion, he would announce a new comet.



Louis Swift's 16 inch refracting telescope inside Warner Observatory. Photo: Public domain.

Swift did not always remain at Warner Observatory. H. H. Warner was going broke in the early 1890s and Rochester was growing and beginning to cause strong light pollution which hampered Swift's observations. During the spring of 1893, Swift was receiving invitations to move elsewhere in the United States. Although it seemed that State University in Boulder, Colorado would house the astronomer, another rich businessman, Thaddeus S. C. Lowe made an offer to build an observatory on Echo Mountain in California.

Swift accepted the offer and moved his 16-inch refractor to this new observatory. His first comet discovery at Lowe Observatory came on August 21, 1895. He also continued working on his catalog of clusters and nebulae. Ultimately, Swift would log over 1300 clusters and nebulae and discover 12 comets during his life.



Lowe Observatory, Louis Swift's second observatory-home. Photo: Public domain.

Swift's time at Lowe Observatory would only last a few years. Although he was initially quite productive, he realized in 1899 that he was losing his eyesight. His wife had died in 1897 and his son Edward, who had assisted him since his later years at Warner Observatory, had moved back east in 1899. By 1900, Swift had sold his equipment and moved to Marathon, New York.

Swift died on January 5, 1913. The January 6 and 7, 1913 edition of dozens of newspapers across the country carried the death notice. Swift had suffered a stroke on New Year's Day. Although most newspapers said he died at his home, "never recovering consciousness following a stroke of paralysis sustained New Year's Day," the Miami Herald Record stated that he died "at the home of his daughter in Marathon." The headlines carried descriptions describing him as "America's Greatest Astronomer".

Swift was a celebrity. Although he was never formally trained as an astronomer, he lived the life of one. Newspapers across the country published quotes from him concerning eclipses, meteor showers, comets, and everything else astronomical. Swift was given an honorary Ph.D. from Rochester University in New York. He was elected a Fellow of the Royal Astronomical Society of England. For his discovery of comets, he received three gold medals from the Austrian Imperial Academy of Sciences, the Lalande silver medal from France, four bronze medals from the Astronomical Society of the Pacific, and $1145 in cash.

Swift was a special person. Despite all of his success, he was always eager to show people the night sky. In fact, when Lowe built the observatory on Echo Mountain, he also built a hotel a short distance away. On cloudy nights, Swift would be talking astronomy to hotel patrons as everyone gathered around the fireplace. Also, whenever heading west to observe solar eclipses, he would always stop in Elkhart, Indiana to visit the family of his brother, Dean. The Elkhart newspapers contain stories of Swift setting up his telescope in the middle of town to let people look at things in the night sky.

Perhaps the best story of Swift's desire to share astronomy with people involves the sculptor Johnston Mundy. Mundy was living in Rochester, New York at a time when his vision was almost gone. Swift was determined to let Mundy see a star again, so he set up a telescope in a dark alley and pointed it at Sirius. Mundy was not able to see a thing. Swift noticed a street lamp burning at the end of the alley, which he thought might just be bright enough to interfere with the observation. So, he ran and put out the flame. Upon repointing the telescope at Sirius, Mundy moved his eye to the eyepiece and exclaimed "I see it, I see it!" Perhaps this story best represents the kind of man Swift was. RBAC

Call for RBAC Leadership Volunteers

By Bill Breeden

The River Bend Astronomy Club has been serving the community for 10 years now. Its members have enjoyed countless hours of enriching astronomical education, camaraderie, and star-struck observing with many types of telescopes and equipment. We are all-too familiar with the great opportunities this club has provided us with in the fascinating science of astronomy.

Our kids have grown up surrounded by our interest in the cosmos, and this club provides a valuable conduit for their continued inspiration and learning. My hope is that this club has provided (and continues to provide) an enriching and encouraging environment in which to bring family and friends and share the excitement of the night sky.

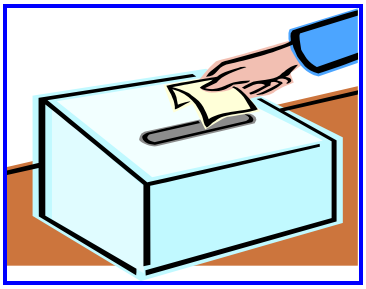
This club can stay fresh, and promote new and exciting ideas.

People need opportunities in which they can serve the community, and a main way to do that is to serve as a leader of a local interest group such as an astronomy club. While it is important to have a group of people step up and take leadership roles, it is equally important for those people to (eventually) step aside and let others step into those roles. This club can stay fresh, and promote new and exciting ideas.

I have a feeling that there are members that are eager to step up and serve the club in leadership roles. Clubs and societies can become stagnant simply because there is not enough turn-over in leadership. It is too easy for the same "good-old-boys club" to just keep running everything, year after year. Let's not let that happen to River Bend. If you are currently serving in a role and would like to step down in 2012, let us know right away so others can be nominated.

Our elections will be held in May 2012, so I am asking you to consider nominating someone, perhaps even yourself, for any position. Here are our four elected positions:

PRESIDENT: Bill Breeden
VICE-PRESIDENT: Jeff Menz
TREASURER: Mike Veith
SECRETARY: Mary Hebert



Please begin submitting nominations at any time. To make a nomination, use the Yahoo! Group or simply make the nomination at a River Bend meeting or event.

The remaining four administrative positions are strictly voluntary and do not require a vote. If you would like to volunteer for any of these positions, contact the current volunteer below and simply ask if he or she would like to step down. If so, he or she will be happy to show you what you need to do.

NEWSLETTER EDITOR: Bill Breeden
LEAGUE CORRESPONDENT: Rich Dietz
OUTREACH COORDINATOR: Terry Menz
LIBRARIAN: Rita Breeden

All eight positions are generally three-year terms. Our club is very informal, and we have never made a big deal out of our voting process. If you would like to serve in any position, let us know! RBAC

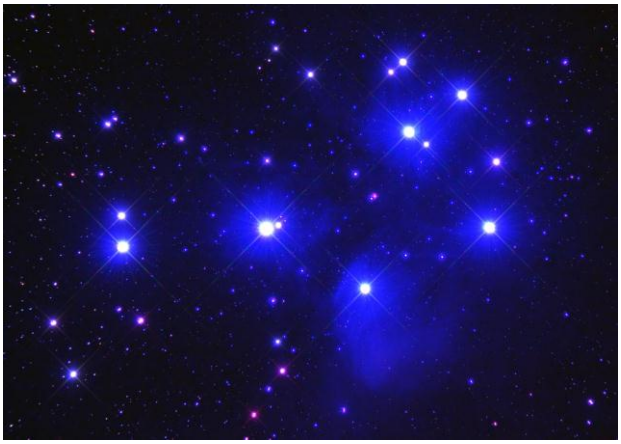
Observe the Pleiades (M45) this Winter

By Bill Breeden

Pick up those binoculars! The Pleiades (M45) look spectacular through binoculars, or even through the finder scope of most telescopes.

Most seasoned observers know why the Pleiades look better in binoculars than through a telescope. This object is simply too big! But how do you explain the concept of "too big" to someone new to astronomy? Counter-intuitively, it has nothing to do with the object's actual size in space.

Size, in our context, has to with how large the object *appears* to us in the sky, as seen from Earth. We call this "apparent size."

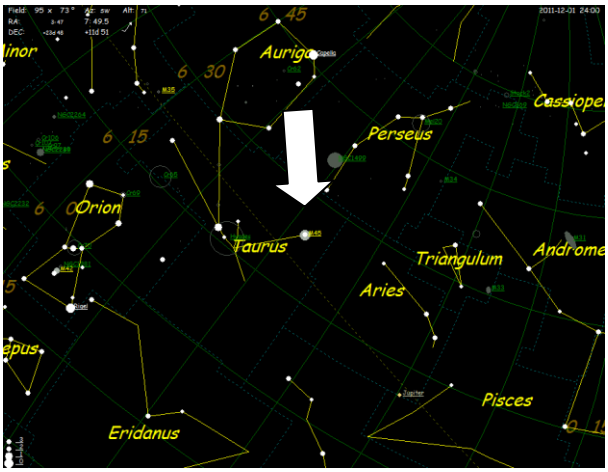


M45 (the Pleiades), an open cluster in Taurus, makes a fine target for your binoculars or finder scope. Photo by Gary Kronk.

If you look up at the full Moon, it spans about ½ degree against the black background of the sky. This ½ degree fits nicely into the field of view of most backyard telescopes.

But what about larger objects? The Pleiades span about 2 degrees of sky, or about the width of four full Moons. Look at the full Moon through your telescope, with your lowest power eyepiece (such as a 26mm). If the full Moon nearly fills the field, you will see that an object the size of M45 would not appear through the eyepiece in its entirety.

Look at the full Moon with binoculars. You will see lots of black space around it. Presto! You have much more "room" in binoculars to observe objects with a larger apparent size.



M45 is located at the center of this star chart, in Taurus, just below the star Capella in Auriga. Image from *Hallo Northern Sky*, © Han Kleijn.

The apparent size of deep-sky objects is important because it allows you to choose the best eyepiece for observation. Most deep-sky objects are smaller than the full Moon's ½ degree, and so appear easily in a low- or medium-power eyepiece. If an object is too large to fit in a low-power eyepiece, binoculars become the instrument of choice. This is certainly the case with M45.

While observing M45, note the gentle nebulosity which surrounds each of the brightest stars in the cluster. The Pleiades is a very nearby open cluster, lying just 440 light-years from Earth. It is also very young, so you are looking at a relatively "new" cluster. Enjoy! RBAC

The Gray Cubicle You Want to Work In

by Dr. Tony Phillips

It's another day at the office.

You're sitting in a gray cubicle, tap-tap-taping away on your keyboard, when suddenly your neighbor lets out a whoop of delight.

Over the top of the carpeted divider you see a star exploding on the computer screen. An unauthorized video game? No, this explosion is real. A massive star just went supernova in the Whirlpool Galaxy, and the first images from Hubble are popping up on your office-mate's screen.

It's another day at the office ... at NASA.

Just down the hall, another office-mate is analyzing global temperature trends. On the floor below, a team of engineers gathers to decode signals from a spaceship that entered "safe mode" when it was hit by a solar flare. And three floors above, a financial analyst snaps her pencil-tip as she tries to figure out how to afford just one more sensor for a new robotic spacecraft.

These are just a few of the things going on every day at NASA headquarters in Washington DC and more than a dozen other NASA centers scattered around the country. The variety of NASA research and, moreover, the variety of NASA people required to carry it out often comes as a surprise. Consider the following:

NASA's Science Mission Directorate (SMD) supports research in four main areas: Earth Science, Heliophysics, Astrophysics, and Planetary Science. Read that list one more time. It includes everything in the cosmos from the ground beneath our feet to the Sun in the sky to the most distant galaxies at the edge of the Universe. Walking among the cubicles in NASA's science offices, you are likely to meet people working on climate change, extraterrestrial life, Earth-threatening asteroids, black holes or a hundred other things guaranteed to give a curious-minded person goose bumps. Truly, no other government agency has a bigger job description.

And it's not just scientists doing the work. NASA needs engineers to design its observatories and build its spacecraft, mathematicians to analyze orbits and decipher signals, and financial wizards to manage the accounts and figure out how to pay for everything NASA dreamers want to do. Even writers and artists have a place in the NASA scheme of things. Someone has to explain it all to the general public.

Clearly, some cubicles are more interesting than others. For more information about the Science Mission Directorate, visit science.nasa.gov. And for another way to reach the Space Place, go to http://science.nasa.gov/kids.

Some of the employees of NASA's Science Mission Directorate may work in gray cubicles, but their jobs are anything but dull. They get to study Earth, the Sun, the Solar System, and the Universe!.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Introducing the *Carbon Stars List* from the Astronomical League

By Bill Breeden

Thanks to Gary Kronk for suggesting adding carbon stars to our lists earlier this year! It's November already and I finally got around to adding them!

Look at the monthly observing lists in the final section of the newsletter, and you will find a new, fifth category of object list prepared for you: The Astronomical League's Carbon Star List!

This list contains 100 of the most interesting carbon stars. Like the other lists, I have included a section of the sky for each month that transit near 10PM. For November, that includes objects with a right ascension (RA) of 0 hours and 1 hour. For December , it's 2 and 3 hours. If you observe each object on the list each month, you can observe the whole Astronomical League Carbon Star List in one year!

Stellar objects are easier to observe from somewhat light-polluted skies, which is one of the main reasons I include double stars in the monthly observing lists. Carbon stars are an interesting alternative to observing double stars.

Carbon stars make fascinating targets for your telescope, either for your own enjoyment or to share at an outreach event. They appear strikingly red, which makes them beautiful to observe. A rich, red star in a field of primarily "white" stars provides a rewarding observing experience. They are generally long-period variable stars, so observing them will reveal their varying brightness as compared to stars in the same field. Carbon stars' atmospheres contain more carbon than oxygen, and they tend to be late-type stars similar to red giants.

Carbon star RV Cygni appears in the center of this image. Note the strikingly red color, and how it contrasts with the rest of the stars in the field. Photo by Gary Kronk.

In these observing lists, you will see each carbon star's name, catalog number, and coordinates in RA and declination (Decl.). This will make finding them easier on star charts and with go-to telescopes. Magnitudes are listed as ranges due to their varying brightness. When looking for each one, assume the star will be at its faintest magnitude to determine how easy it will be to see. These should all be observable from the suburbs, but will look best from darker sites.

The Astronomical League's list also includes each star's period (Per.), which indicates how many days the star takes to go through one brightening and dimming cycle. Lastly, each star's class is listed. Carbon stars are generally in class "C," with further subclasses defined.

My goal with these observing lists is to provide you with ready-made lists of interesting objects, and to make popular lists as accessible as possible. If you observing each object in one category (such as the Messier Objects), you will have observed the entire list in one year! RBAC

RBAC's Monthly Observing Lists

These lists include brighter deep-sky objects that transit near 10:00 PM each month.

November Observing List

Prepared by Bill Breeden

Double Stars (Astronomical League)

_____ 65 Piscium SAO 74295 Const. PSC Type DS RA 00 49.9 Decl. +27° 43' Mag. 6.3 6.3
_____ Eta Cassiopeiae SAO 21732 Achird Const. CAS Type DS RA 00 49.1 Decl. +57° 49' Mag. 3.4 7.5
_____ Gamma Arietis SAO 92680 Mesarthim Const. ARI Type DS RA 01 53.5 Decl. +19° 18' Mag. 4.8 4.8
_____ Lambda Arietis SAO 75051 Const. ARI Type DS RA 01 57.9 Decl. +23° 36' Mag. 4.9 7.7
_____ Psi 1 Piscium SAO 74482 Const. PSC Type DS RA 01 05.6 Decl. +21° 28' Mag. 5.6 5.8
_____ Zeta Piscium SAO 109739 Const. PSC Type DS RA 01 13.7 Decl. +07° 35' Mag. 5.6 6.5

Messier Objects

_____ M31 NGC224 Andromeda Galaxy Const. AND Type GAL RA 00 42.7 Decl. +41 16 Mag. 4.8
_____ M32 NGC221 Companion of And Galaxy Const. AND Type GAL RA 00 42.7 Decl. +40 52 Mag. 8.7
_____ M33 NGC598 Const. TRI Type GAL RA 01 33.9 Decl. +30 39 Mag. 6.7
_____ M74 NGC628 Const. PSC Type GAL RA 01 36.7 Decl. +15 47 Mag. 10.2
_____ M76 NGC650 Little Dumbbell Nebula Const. PER Type PN RA 01 42.4 Decl. +51 34 Mag. 10.1
_____ M103 NGC581 Const. CAS Type OC RA 01 33.2 Decl. +60 42 Mag. 7.4
_____ M110 NGC205 Const. AND Type GAL RA 00 40.4 Decl. +41 41 Mag. 9.4

Caldwell Objects

_____ C001 NGC188 Const. CEP Type OC RA 00 44 24.00 Decl. +85 20 00.0 Mag. 8.1
_____ C002 NGC40 Const. CEP Type PN RA 00 13 00.00 Decl. +72 32 00.0 Mag. 11.6
_____ C008 NGC559 Const. CAS Type OC RA 01 29 30.00 Decl. +63 18 00.0 Mag. 9.5
_____ C010 NGC663 Const. CAS Type OC RA 01 46 00.00 Decl. +61 15 00.0 Mag. 7.1
_____ C013 NGC457 ET Cluster Const. CAS Type OC RA 01 19 06.00 Decl. +58 20 00.0 Mag. 6.4
_____ C017 NGC147 Const. CAS Type EG RA 00 33 12.00 Decl. +48 30 00.0 Mag. 9.3
_____ C018 NGC185 Const. CAS Type EG RA 00 39 00.00 Decl. +48 20 00.0 Mag. 9.2
_____ C028 NGC752 Const. AND Type OC RA 01 57 48.00 Decl. +37 41 00.0 Mag. 5.7
_____ C043 NGC7814 Const. PEG Type SG RA 00 03 18.00 Decl. +16 09 00.0 Mag. 10.5
_____ C051 IC1613 Const. CET Type IG RA 01 04 48.00 Decl. +02 07 00.0 Mag. 9
_____ C056 NGC246 Const. CET Type PN RA 00 47 00.00 Decl. -11 53 00.0 Mag. 8
_____ C062 NGC247 Const. CET Type SG RA 00 47 06.00 Decl. -20 46 00.0 Mag. 8.9
_____ C065 NGC253 Sculptor Galaxy Const. SCL Type SG RA 00 47 36.00 Decl. -25 17 00.0 Mag. 7.1
_____ C070 NGC300 Const. SCL Type SG RA 00 54 54.00 Decl. -37 41 00.0 Mag. 8.1
_____ C072 NGC55 Const. SCL Type SG RA 00 14 54.00 Decl. -39 11 00.0 Mag. 8.2
_____ C104 NGC362 Const. TUC Type GC RA 01 03 12.00 Decl. -70 51 00.0 Mag. 6.6
_____ C106 NGC104 47 Tucana Const. TUC Type GC RA 00 24 06.00 Decl. -72 05 00.0 Mag. 4

Royal Astronomical Society of Canada Objects

_____ RASC110 NGC40 Const. CEP Type PN RA 00 13.0 Decl. +72 32 Mag. 10.2
_____ RASC13 NGC253 Const. SCL Type G-Scp RA 00 47.6 Decl. -25 17 Mag. 7.1
_____ RASC14 NGC772 Const. ARI Type G-Sb RA 01 59.3 Decl. +19 01 Mag. 10.3

_____ RASC15 NGC246 Const. CET Type PN RA 00 47.0 Decl. -11 53 Mag. 8
_____ RASC6 NGC185 Const. CAS Type G-E0 RA 00 39.0 Decl. +48 20 Mag. 11.7
_____ RASC7 NGC281 Const. CAS Type EN RA 00 52.8 Decl. +56 36 Mag. -
_____ RASC8 NGC457 ET Cluster Const. CAS Type OC RA 01 19.1 Decl. +58 20 Mag. 6.4
_____ RASC9 NGC663 Const. CAS Type OC RA 01 46.0 Decl. +61 15 Mag. 7.1

Carbon Stars (Astronomical League)

_____ ALCS1 WZ Cassiopeiae SAO 21002 RA 00 01 15 Decl. +60 21 19 Mag. 6.9 – 11.0 Per. 186 Class C9 (N1)
_____ ALCS2 SU Andromedae GSC 2793:243 RA 00 04 36 Decl. +43 33 04 Mag. 8.0 – 8.5 Per. Irr. Class C6 (Nb)
_____ ALCS3 SAO 109003 (Pisces) GSC 594:778 RA 00 05 22 Decl. +08 47 16 Mag. 8.2 – 8.3 Per. ? Class C (G4V)
_____ ALCS4 VX Andromedae GSC 2794:14 RA 00 19 54 Decl. +44 42 33 Mag. 7.8 – 9.3 Per. 369 Class C4 (N7)
_____ ALCS5 AQ Andromedae GSC 2270:318 RA 00 27 31 Decl. +35 35 14 Mag. 6.9 – 8.6 Per. 346 Class C5 (Nb)
_____ ALCS6 NSV 15196 (Andromeda) SAO 74353 RA 00 54 13 Decl. +24 04 01 Mag. 8.3 – 8.7 Per. 755 Class C1 (Rp)
_____ ALCS7 W Cassiopeiae GSC 368:1824 RA 00 54 53 Decl. +58 33 49 Mag. 7.8 – 12.5 Per. 406 Class C7
_____ ALCS8 Z Piscium SAO 74593 RA 01 16 05 Decl. +25 46 09 Mag. 6.5 – 7.9 Per. 144 Class C7 (N0)

Your articles and photos are always welcome! Send them anytime to this newsletter at rbac@riverbendastro.org.

Tenth-magnitude spiral galaxy M74, in the constellation Pisces, is high in the sky during November and December nights.
Photo taken December 31, 2008 by Gary Kronk.

December Observing List

Prepared by Bill Breeden

Double Stars (Astronomical League)

_____ 32 Eridani SAO 130805 Const. ERI Type DS RA 03 54.3 Decl. -02° 57' Mag. 4.8 6.1

_____ Alpha Piscium SAO 110291 Al Rischa Const. PSC Type DS RA 02 02.0 Decl. +02° 46' Mag. 4.2 5.1

_____ Alpha Ursae Minoris SAO 15384 Polaris Const. UMI Type DS RA 02 31.8 Decl. +89° 16' Mag. 2.0 9.0

_____ Eta Persei SAO 23655 Miram Const. PER Type DS RA 02 50.7 Decl. +55° 54' Mag. 3.8 8.5

_____ Gamma Andromedae SAO 37734 Almach Const. AND Type DS RA 02 03.9 Decl. +42° 20' Mag. 2.3 5.5

_____ Gamma Ceti SAO 110707 Kaffaljidhma Const. CET Type DS RA 02 43.3 Decl. +03° 14' Mag. 3.5 7.3

_____ Iota Trianguli SAO 55347 Const. TRI Type DS RA 02 12.4 Decl. +30° 18' Mag. 5.3 6.9

_____ Struve 331 SAO 23763 Const. Type DS RA 03 00.9 Decl. +52° 21' Mag. 5.3 6.7

Messier Objects

_____ M34 NGC1039 Const. PER Type OC RA 02 42.0 Decl. +42 47 Mag. 5.5

_____ M45 Pleiades Const. TAU Type OC RA 03 47.0 Decl. +24 07 Mag. 1.6

_____ M77 NGC1068 Const. CET Type GAL RA 02 42.7 Decl. -00 01 Mag. 8.9

Caldwell Objects

_____ C005 IC342 Const. CAM Type SG RA 03 46 48.00 Decl. +68 06 00.0 Mag. 9.2

_____ C014 NGC869/884 Double Cluster Const. PER Type OC RA 02 20 00.00 Decl. +57 08 00.0 Mag. 4.3

_____ C023 NGC891 Const. AND Type SG RA 02 22 36.00 Decl. +42 21 00.0 Mag. 9.9

_____ C024 NGC1275 Per A Radio Source Const. PER Type IG RA 03 19 48.00 Decl. +41 31 00.0 Mag. 11.6

_____ C067 NGC1097 Const. FOR Type SG RA 02 46 18.00 Decl. -30 17 00.0 Mag. 9.2

_____ C087 NGC1261 Const. HOR Type GC RA 03 12 18.00 Decl. -55 13 00.0 Mag. 8.4

Royal Astronomical Society of Canada Objects

_____ RASC10 IC 289 Const. CAS Type PN RA 03 10.3 Decl. +61 19 Mag. 12.3

_____ RASC12 NGC891 Const. AND Type G-Sb RA 02 22.6 Decl. +42 21 Mag. 10

_____ RASC16 NGC936 Const. CET Type G-SBa RA 02 27.6 Decl. -01 09 Mag. 10.1

_____ RASC17 NGC869/884 Double Cluster Const. PER Type OC RA 02 20.0 Decl. +57 08 Mag. ~4.4

_____ RASC18 NGC1023 Const. PER Type G-E7p RA 02 40.4 Decl. +39 04 Mag. 9.5

_____ RASC21 NGC1232 Const. ERI Type G-Sc RA 03 09.8 Decl. -20 35 Mag. 9.9

Carbon Stars (Astronomical League)

_____ ALCS9 V Arietis SAO 92853 RA 02 15 00 Decl. +12 14 23 Mag. 8.3 – 10.8 Per. 77 Class C4 (R8)

_____ ALCS10 SAO 129989 (Cetus) GSC 5285:3 RA 02 35 06 Decl. -09 26 34 Mag. 8.2 – 8.5 Per. ? Class C2 (R3)

_____ ALCS11 UY Andromedae GSC 2832:2 RA 02 38 23 Decl. +39 10 09 Mag. 7.4 – 12.3 Per. ? Class C5 (N3)

_____ ALCS12 V623 Cassiopeiae SAO 23858 RA 03 11 25 Decl. +57 54 11 Mag. 7.3 – 8.1 Per. ? Class C4 (R5)

_____ ALCS13 Y Persei GSC 2873:1287 RA 03 27 42 Decl. +44 10 36 Mag. 8.1 – 11.3 Per. 249 Class C4 (R4)

_____ ALCS14 V466 Persei NSV 1223 RA 03 41 29 Decl. +51 30 11 Mag. 8.4 – 8.9 Per. ? Class C5 (N5)

_____ ALCS15 U Camelopardalis SAO 12870 RA 03 41 48 Decl. +62 38 54 Mag. 6.9 – 7.6 Per. ? Class C3 – C6 (N5)