The President's Corner

Another All Arizona Messier Marathon is in the books, and it was a resounding success. Special thanks to Rick Tejera and Jack Jones for their efforts to organize and ensure that everything came off without complications. The Moon was a bit brighter and lingered above the western horizon later than we might have liked, but the clear, dark and very transparent sky was favorable compensation. As added bonuses, the breeze abated and the temperature was very comfortable all night long.

It struck me as I was wandering about the field Sunday morning that I've been witness to three distinct epochs of amateur astronomy. When I first reached the point where I could buy my own telescope, the popular instrument was a Newtonian on a German equatorial mount. Think Criterion Dynascope, or if you had the money, Cave. Celestron was well established, but the price of a C-8 in 1974 put those telescopes beyond the realm of "entry level". Refractors basically fell into two categories: department store specials and Unitrons. Aperture was king, however, so good refractors were a rarity. By the late 80's, SCTs were everywhere. Meade had entered the field, competition brought prices down, and the combination of portability, aperture and motorized mounts which could track at the sidereal rate was unbeatable. Then came the large Dobsonian era, soon to be accompanied by the prevalence of high quality refractors featuring ED doublets and apochromatic triplets. These two classes of telescopes, combined with CCD imaging technology, have had a profound effect. Not only are the Newtonians on German mounts gone, I don't recall seeing even one fork-mounted SCT at the airfield. It was pretty much a collection of large Dobs for visual observing or refractors with electronic cameras at their focal planes.

One can only wonder what the next forty years will bring to our hobby.

-- Mike --

mailto:president@saguaroastro.org

http://saguaroastro.org

Quick Calendar:

Tuesday, April 23, ***ATM/Astro-Imaging Meeting***

Friday, April26, ***SAC General Meeting***: Guest Speaker,

Professor Paul Knauth, ASU School of Earth and Space Exploration—Subject to be determined

Wednesday, May 8, ***Arrowhead Elementary School Star Party***

For Info click here: ***http://arrowhead.dvusd.org/images/stories/downloads/Science_flierREV13.pdf*** ***link***

Saturday, May 18, ***Thunderbird Park Public Star Party*** ***link***

Click the *link* below for a complete 2013 Calendar of events:
http://saguaroastro.org/webcalendar/month.php?date=20130301

Inside this issue:
Click Links to jump

Special points of interest:

Click logo to return to page 1

Editor Notes

Hope all who went to the AAMM had a good time, I sure did. This issue documents that triumph. A big three cheers go out to Rick Tejera for running a super Marathon for SAC and the rest of the folks from North America.

Also please enjoy the Bits and Pisces stuff, Last Call, ATM, Being Double Minded & Astro-Images.

AJ has some concerns and notes in his Last Call and Call for Observations. Please consider chatting with him about it, he would really like that.

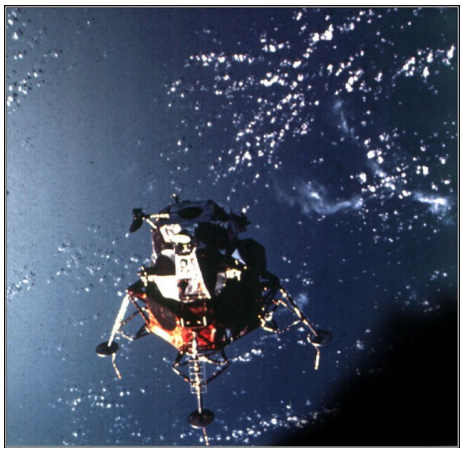
Here's hoping you all enjoy,

Rick Rotramel, Editor

The editor doing the Marathon. Photo by Tom Polakis

Spaceflight Trivia

Can you name the mission involved in this picture below? (see answer on page 5)



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Schedule of Events 2013

SAC Meetings

April 26, 2013
May 24, 2013
June 21, 2013
July 19, 2013
August 16, 2013
September 20, 2013
October 18, 2013
November 15, 2013
December (14?) TBA
(Holiday Party)

ATM / Astro-Imaging Mtgs.

On the Tuesday prior to the SAC Meetings
Tuesday, April 23, 2013 at 6:00 PM
@ Paul Lind's shop (atmgroup@saguaroastro.org)

Major Star Parties

Fredericksen Meadow
Fri/Sat, June 7/8, 2013
http://saguaroastro.org/content/Meadow-Directions.htm

Grand Canyon North Rim
Sat/Sat, June 8-15, 2013
http://saguaroastro.org/content/2013GrandCanyonStarPartyNorthRim.htm

All Arizona Star Party (EVAC)
Fri/Sat, October 4/5 ? (TBA)

Antennas Schwaar-Gaze
Fri/Sat, November 1/2, 2013
http://saguaroastro.org/content/db/antennae-handout.pdf

Outreach Star Parties

Arrowhead Elementary School Star Party
Wednesday, May 8, 2013 Time 6:00-8:00 PM
7490 W. Union Hills, Glendale AZ

Thunderbird Park
Saturday, May 18, 2013
http://www.saguaroastro.org/content/t-bird_2013.pdf

Click logo to return to page 1

Last Call - Ursa Major

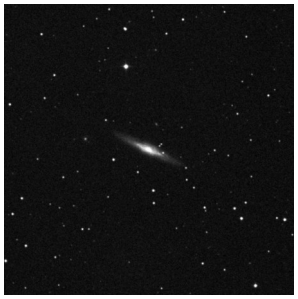
By AJ Crayon

This is the first of two part observing list in Ursa Major. This part covers the constellation from the western most to around 11 hours of right ascension. This puts us about the position of the pointer stars. There are lots of galaxies in this neck of the woods making it a toss up for selections. I hope you liked them.

There has been a problem with this column for the last several months that we need to discuss. The problem is not enough observations are being submitted by the membership and, as a consequence, I have had to resort to using many of my and Steve Coe's observations. This isn't the intent of this column; the intent is for SAC observers to be submitting observations. Actually I don't mind using some of our observations, but it gets to be a problem when they are the large majority.

So the question is what do we need to do about the lack of submitted observations? Should the model for this column be changed and, if so, to what? What about another author with a different intent and another name? How about an imaging column? Let me know your thoughts either in person or via e-mail. Actually let me know if you have even read this far but don't have any comments.

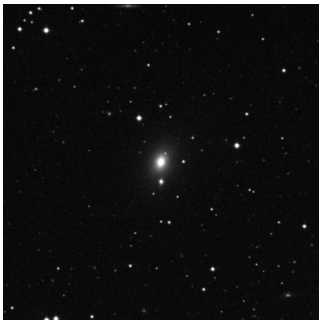
As indicated this will be the first of a two consecutive month study of Ursa Major and its galaxies. This month will cover the western part, meaning from the beginning to about 11 hours of Right Ascension, or to the pointer stars Dubhe and Merak.



The first galaxy is **NGC2654** a barred spiral that has two stars involved. It is a pretty bright mag 11.8 and edge-on at 4.2'X0.8' It is classified as a Sbab system. Discovered by Ernst Temple in 1882.

11" SCT at 127x; Richard Harshaw: Pretty bright spindle with a very rapidly brighter middle; about a 4:1 Aspect ratio. An 11th mag star is 5' N.

11" SCT at 125X; Steve Coe: pretty faint, pretty small, much elongated at 2.5X1, suddenly much brighter middle with a prominent nucleus.



The next galaxy is near Talitha, better known as iota Ursa Majoris and is the elliptical galaxy **NGC2693**. It to is a pretty bright mag 11.8 and has dimensions of 3'X2.1' with a position angle of 160°. William Herschel discovered it in 1790.

8" SCT at 206x; Richard Harshaw: Bright starlike nucleus and faint halo. Tube movement and averted vision helped greatly.

NGC2816 an Sc, which is also known as ***NGC2742*** a Herschel 400 entry, is a rather faint mag 12.1. It is elongated by 2:1 in an 87° position angle. William Herschel discovered it in 1790.

NGC 2816 is probably John Herschel's second observation of NGC 2742. The first came on 8 March 1832 where the galaxy is recorded at its correct position, close to where his father placed it when he found it in 1790. John Herschel called it "vF, pL, R, vgbM, 60"; moon very troublesome. A * 8 m np." (This compares to his father's rather more interesting note, "cB, E near par., er, bM; 4' l, 2' b. I suppose, with a higher power and longer attention, the stars would become visible." William Herschel's "er" means "extremely mottled," which leads to his comment about the stars.)

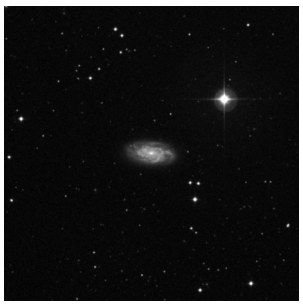
Just three weeks later, on 30 March 1832, John Herschel swept over the area again, this time recording an "F, pmE" nebula 13m 30s to the E at the same N polar distance. There is nothing at that

Click logo to return to page 1

Last Call - Ursa Major (Continued)

position, a fact first noticed by Reinmuth in his 1926 "Die Herschel Nebel."

Since the declination is the same, and the description for NGC 2816 appropriate for NGC 2742, I'm going to suggest that the two nebulae are the same. Even though the RA difference is large, there is nothing else around that John Herschel might have seen that makes more sense to me. Still, I'm not convinced, so I've put colons on the identification. [Dr. Harold G. Corwin, Jr.]

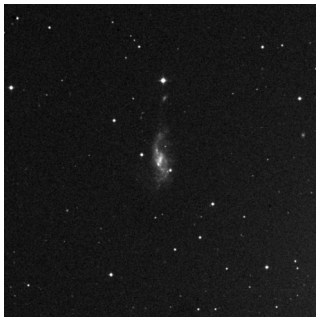


8" SCT at 65x, Richard Harshaw: The galaxy is a faint, long glow (E-W) and badly needs averted vision. A 9th mag star is 5' NW.

16" f4.4 Newtonian, Rick Rotramel: G - fL, pF, elongated patch, no distinct nucleus seen, nebulous.

The next **NGC3259** is up towards the northern part of the constellation. It is an SBbc at mag 12.1, elongated 2:1 and has a gradually brighter middle. William Herschel discovered it in 1791. This galaxy is just to the southeast of the Galaxy Cluster Abell 1017.

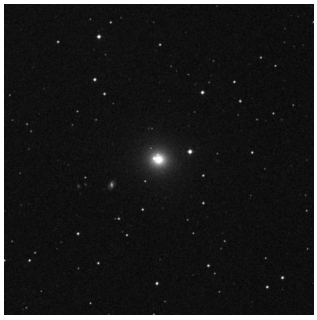
8" SCT at 104x, Richard Harshaw: With tube movement and averted vision, it shows as a very dim, indistinct glow. Several 8.5 mag stars dot the skyscape around here. One lies 10' E.



NGC3264 is listed as an SB galaxy between stars. It is 2.9'X1.2' in 177° position. The 12th mag makes it pretty faint. John Herschel discovered it in 1831.

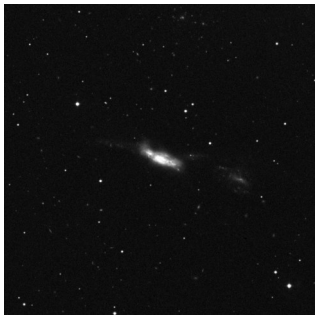
11" SCT at 127x, Richard Harshaw: The brilliant wide double star LDS 2863 lies on the SW side of the field, so you will have to nudge it out of the field to see this very dim and delicate galaxy. The galaxy lies about 4' S of an 11th mag star and shows only a slender oblate nucleus and small halo. A 13th mag star is 1' E, and a 14 mag star 1' SW.

The northern most of this list is **NGC3348** an elliptical that has 15th magnitude UGC 5875 2.6' to the east of southeast. This galaxy is a pretty bright and has a brighter middle. William Herschel discovered it in 1785.

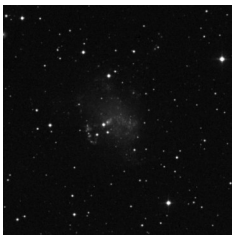


8" SCT at 104x, Richard Harshaw: It is a uniform glow at 104x. At 200x, it jumps out nicely. A 10th mag star ~ 2' NW is an excellent guide to identity.

Next is near 44 Ursa Majoris and is **NGC3448.** It is an early type spiral with a 12.1 mag and size of 5.6'X 1.7'. That makes it pretty large, elongated and has a gradually brighter middle. William Herschel discovered it in 1789.



11" SCT at 127x, Richard Harshaw: This galaxy lies about 15' SSE of 5th mag 44 UMa (which you should nudge out of the field) and lies about 10' SE of a 9th mag star. It is a very difficult splotch, about 70° PA, and about 4:1 in dimensional ratio. It does not brighten much towards the center, but the midline is a little brighter than the edges.



Moving back up northward is the dwarf irregular galaxy **UGC 4305,** also known as Holmberg II.

No observations submitted.

Click logo to return to page 1

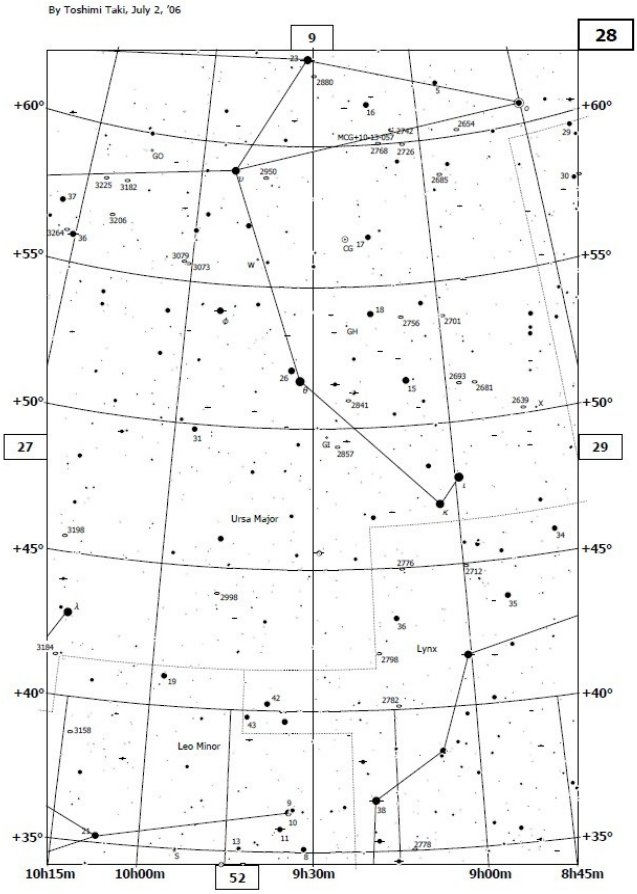
Last Call - Ursa Major

(Conclusion)

Our last entry is the double star **STF 1495**. It has mags 7.2 and 9.5 with a separation of 34.4” in position angle 38°.

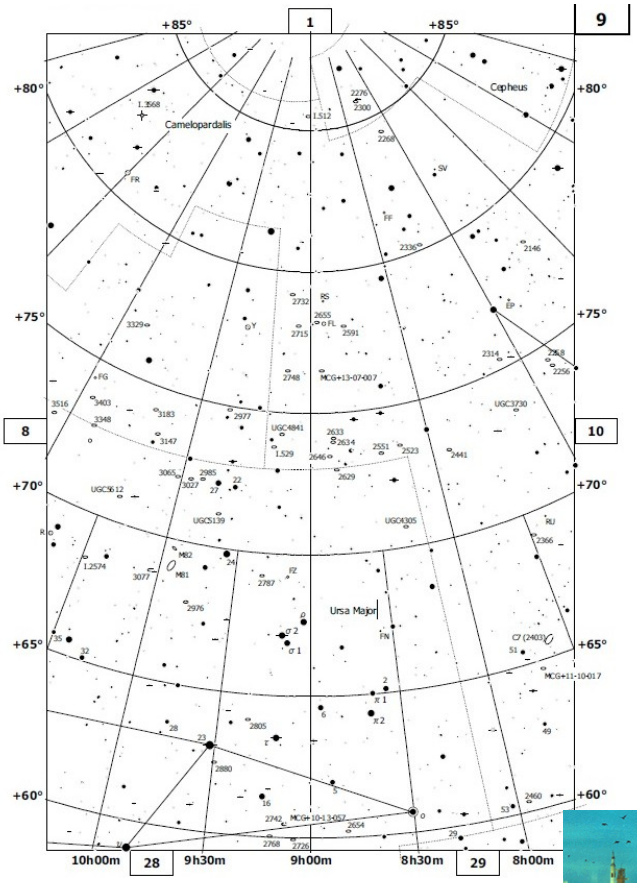
6” refractor at 70x, Richard Harshaw: **Orange** and **Yellow.**

6" f/8 Refractor, at 22mm, Steve Coe: split 100%, **medium Yellow and medium Blue** with good color contrast.



© Taki’s 8.5 Magnitude Star Atlas

http://www.geocities.jp/toshimi_taki/atlas_85/atlas_85.htm



Spaceflight Trivia Answer

Apollo 9:

Launched: March 3, 1969 **Splashed Down: March 13, 1969**

This mission was the first flight test of the Lunar Module, the third critical piece of Apollo hardware. During ten days in earth orbit, the crew undocked, maneuvered and docked the LM and the Command Modules, simulating as closely as possible the conditions that would be encountered when men finally would land on the moon itself.

This mission also tested the Apollo spacesuit, the first to carry self-contained life support rather than being dependent on an umbilical connection.

This was the first Apollo mission where the astronauts were granted the honor, often exercised rather whimsically, of naming their spacecraft. The Apollo 9 astronauts named the Command Module "Gumdrop" and the Lunar Module "Spider."

After *Apollo 8*, Apollo 9 was a bit of an anticlimax, but it was another absolutely necessary step that we needed to take if we were going to place a man onto the moon.

Source: NASA, click on link below.

http://www.nasa.gov/missionpages/apollo/missions/apollo9.html

Right: Rusty Schweickart “stands” on the front porch of the Lunar Module during his EVA in Earth orbit, a photo from inside the LM by James McDivitt.

** Interesting Fact from bio of Rusty Schweickart: Amateur Astronomer* link

Click logo to return to page 1

Call For Observations

By AJ Crayon

For the month of **May** will be the second installment of Ursa Major and is called Ursa Major east because it will cover galaxies in the eastern part of the constellation. Actually the galaxy selections involve galaxies in and a round M101. The first of these is **NGC5422** located almost a degree to the northwest of M101 and is an early type spiral considered to be bright, small and elongated. The second galaxy gets closer to M101 in fact it is so close that parts of it may be in the field at the same time. The galaxy is **NGC5473** a roundish elliptical on the Herschel 400 list. Can you see its brighter middle? The next one is the brightest of the next three. It is **NGC5485** considered bright and roundish. It is paired with **NGC5486** at just 6' to the north. It is faint, small and a little elongated. I suggest going back to NGC5485 before going to **NGC5484** the next one. It is a mere 4' to the northwest. It's an elliptical that is very faint, small and round. Now dip south about 0.5° to **NGC5477** and find M101 about 20' to the west of southwest. It is also faint & pretty large. The last galaxy is on the Herschel 400 list and is the most southern on this list. It is **NGC5474** a late type spiral, bright and large. It's about 45' southeast from M101. That's it, the last of Ursa Major for now.

****

At the last minute I decided to make a change on the month of **June**'s observing list. What we will do is observe some of the brightest barred spiral galaxies in Virgo to see what they look like in our telescopes. Yes we know what they look like from the myriad of pictures taken by SAC imagers as well as those around the country and planet, but what do they look like in our telescopes. Can you see the brighter middle or the bar? What about the spiral arms? Most will be described as bright and large and are in the *Herschel 400* list, so this kind of description can be left off. So here's the list in right ascension order. That will start us with **NGC4216,** which is on the SAC Best of the NGC. It is edge-on and has a brighter middle. Question is how much can you see? Second galaxy is **M 61** or NGC4303. It has had 3 super novae since 1926 and NGC4301 is in the field. Now move on to **NGC4527.** This one has quite a bit of detail in the middle. How much can you see? While speaking of how much can you see have you been able to see the spiral arms as they wind around the bar? Don't forget this on the remaining galaxies. The S-shaped spiral **NGC4535** follows. Along with quite a bit of detail in the middle, it is elongated in a position angle of 0° or due north. Now one of the brighter galaxies is **M 90**. It is elongated about 2:1 but what's the position angle? Do you notice anything different about this one that makes it stand out from the others? Now another of the brighter ones and last of the Messier entries is **M 58**. It is called a fine compact spiral. How much do you agree or disagree? This next one, **NGC4654,** seems to have something questionable about the middle. What do you see here and it isn't the 3 stars nearby? The fairly round **NGC4654** is next. How much can your telescope resolve - the brighter middle, the bar, spiral arms? Take a look at the roundish **NGC4699** and see if you agree. The coarse spiral **NGC5068** follows. It is listed as irregularly round but does this have to do with the coarse part? Note that NGC5087 is in the field. Again, another reminder, that we should be trying to determine how much of the spiral arms we can see and not just these beautiful galaxies. Here's another fine s-shaped double arm spiral - **NGC5247**. Checked my observing list for this one and it hasn't been seen so I'm looking forward to this one not to mention all the others. Continue with **NGC5364**. The description indicates it is round but the dimensions don't support this. Which description best suites your observation? This galaxy is also listed as peculiar with a reference to a small bright nucleus in a smooth center with dark matter. Dark matter? Finally this last of the bright barred gems is **NGC5746**. It is very elongated, almost edge-on, at almost 6:1. In addition to seeing the spiral arms how much of the brighter middle did you see?

OK that's it but there are a few comments that need to be passed along. If you observe these spirals in right ascension order, the order in which they were described, your telescope will slew over 100°. That's a lot but not nearly as much as if they were viewed in increasing magnitude order. Here the slew will be over 240°. But, if you are crazy enough to try this here's the list in increasing magnitude order - M90, NGC4699, M61, M58, NGC4216, NGC5247, NGC4535, NGC5068, NGC5746, NGC4527, NGC4654 and NGC5364. Finally something reasonable – the shortest order. Using this sequence you will slew your telescope less than 90°. So this list is shortest order NGC5247, NGC5068, NGC4699, NGC4527, M61, NGC4535, NGC4216, M90, M58, NGC4654, NGC5364, NGC 5364 and NGC 5746. To determine the distances took my computer 22 minutes and checked some 439,084,801 combinations. Don't know about you but I can't wait to check out these magnificent barred spiral galaxies.

Click logo to return to page 1

Astronomers at the All Arizona Messier Marathon

Photos by Rick Tejera, AAMM Chairman

George Robinson, Rick Tejera & Salvador Aguirre

Lynn Blackburn

The Legore family

George, Salvadore & Gerry

Steve the Wiz Perry

Tom Polakis

Jimmy Ray

Jack Jones

Chris Johnson & Greg Torda

Howard Anderson

Click logo to return to page 1

Bits and Pisces

The March SAC Meeting Speaker

Photo by Susan Trask

Paul Lind of SAC spoke to SAC about "Construction of an Astrograph" (with no hard math)

Starting with the history of astrographs, he then spoke of his first one he built, an 8 incher.

He designed a corrector lens for it too that he made himself in his shop with an electric spinning machine made for grinding and polishing lenses and mirrors.

Next he talked about the construction of his 12.5 incher shown here on the right. It has a carbon-fiber tube and a neat electric focusing unit. It contains three screws that have 100 turns per inch screws that are turned with a stepper motor and a plastic chain.

Photo by Paul Lind

Paul also made a corrector lens for this one too. He designed it with lens designing software and made it in his shop in his home.

Then he showed his home made secondary holder which has various adjustment screws for centering and such.

See some of his images he took with the 12.5" astrograph by clicking on the link below.

http://www.pbase.com/paullind/root

25 Years Ago in SAC

SAGUARO ASTRONOMY CLUB NEWSLETTER — May, 1988, page 6

MORE BITS AND PISCES — by Tom Polakis

The April 22 general meeting opened with hectic trading taking place at the swap tables. Dan Ward announced some of the upcoming events which SAC members might want to attend. They include the May star party which will be held at the Clark's residence in Sedona, and the two major conferences, Riverside and the Texas Star Party. Gene Lucas gave some of the details regarding Riverside. It was also announced that the Buckeye Hills Rifle Range is open for our use for star parties if a volunteer can be found to return the key for the gate the next morning.

After the business portion of the meeting, slides were shown to the group. Steve Coe showed some beautiful examples of simple "camera and tripod" shots. Chris Schur and Ken Burgess followed this with some not-so-simple guided deep sky photos.

After a break, Pierre Schwaar gave a talk about telescope accessories. This included a "pop quiz" dealing with which items are worth purchasing. It was rumored that Pierre rewarded those who scored perfectly on his quiz with Telrad[R] finders.

Bits and Pisces (Continued)

March 22, 2013 SAC Meeting Minutes by AJ Crayon

President Mike Collins called the meeting to order promptly at 7:30pm MST. At this time there were 30 members present and by break time there were 38. First item was for visitors and new members to introduce themselves. Two visitors spoke up.

Treasurer Dwight Bogan started the Business part of the meeting by announcing we have $5535.00 in bank. It doesn't include the money from T-shirt sales during the All Arizona Messier Marathon.

Paul Lind reported a successful ATM held the Tuesday before this evenings meeting.

Jack Jones announced there were some free T-Shirts available for pickup along with some hats.

An announcement and report on the 2013 All Arizona Messier Marathon will be forthcoming.

There was a discussion about a New Member Package that would have timely information about observing sites and other interesting and informative information. Something like this was done some years ago, especially around the time of public star parties. All agreed but no one volunteered. There is a Novice Info web page that may be found at:

http://www.saguaroastro.org/content/novice.htm

A public star party will be held at Thunderbird Park on Saturday, May 18th.

The topic of Restoring The Clark Refractor came up with a request that SAC make a contribution. After a short discussion Steve Coe made a motion for us to donate $1000.00. It was seconded and passed by an over whelming majority.

Mike Collins discussed an e-mail he received about a request for use of pictures taken during the Grand Canyon Star Party North Rim. The request came from the photo editor of Discover Magazine. An additional e-mail was posted requesting the photographer contact the photo editor and grant permission to use the photos.

Steve Coe started Show-N-Tell with a slide presentation with a few images of Comet PanSTARRS and his recent astronomy trip – 13 days of observing from the Antennas site. Of the 13 only 10 were good observing nights.

Tom Polakis showed a number of his images of Comet PanSTARRS taken from the south base of South Mountain. The images contained horizon features that included saguaro cactii. He then smoothly morphed into a slide presentation of the All Arizona Messier Marathon.

David Douglas showed some images of Comet ISON that included 20 frames in motion. The frames clearly showed a tail that had already developed. He estimated its magnitude in the 14 and 15 range. He then showed us some comparative images on his web site that were taken from his backyard observatory called DaHut and dark sites. His observing model is to use images for his observing and to compare what can be captured from his observatory to what can be captured from a dark site. Amazingly, although, the dark site images were clearer and sharper there was not much detail lost from the backyard ones. David's web site may be found at:

http://www.az-douglass.net/astronomy/

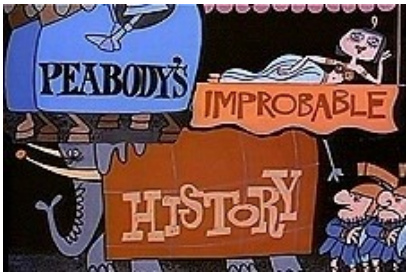
Dwight Bogan showed some piggyback images taken from a site called Wildcat Hill (I went to that site back in 1981 when it was mostly desert vegetation and now it is in middle of sub-divisions). He, also, had some images of PanSTARRS but also showed what could be done with M42 and The Pleiades.

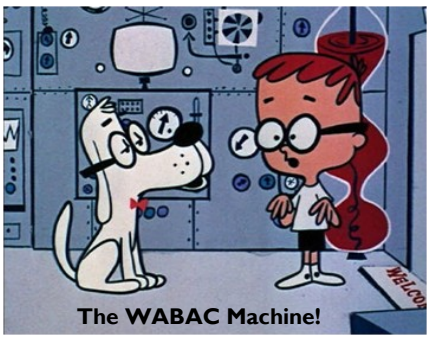
Mike Collins likes to image asteroids and compared his imaging with Messier Marathons.

After the break Tom Polakis introduced the evenings speaker Paul Lind who spoke about his Construction of an Astrograph. Actually he has constructed two, an 8" and a 12.5". He first spent some time discussing the history of astrographs before describing his construction methods. It was an interesting and informative topic. Thanks Paul.

Finally the 50-50 Raffle conducted by Chris Hanrahan. There was $41.00 in the kitty. Pat Goss drew the luck ticket and the winner was none other than Chris Hanrahan. After some mischievous prompting he donated his winnings to the SAC treasury. Thanks Chris.

Click logo to return to page 1





The WABAC Machine!

Where we going today Mr. Peabody?

10 Years Ago in SAC

PAGE 10 SACNEWS VOLUME 27 ISSUE 5

Bits-N-Pisces

Minutes of the April Board & General Meetings

By Jennifer Keller, SAC Secretary

Board Meeting Minutes-April 18, 2003

The meeting opened at 6:30 with President David Fredericksen, VP Steve Coe, Treasurer Paul Dickson, Secretary Jennifer Keller, Newsletter Editor Telrad Tejera, Properties Director Rich Walker, Deep Sky Group Chairman AJ Crayon, Public Events Coordinator Jack Jones, ATM & Double Star Maestro Thad Robosson, Joe Goss and Joe Macke.

Discussed and approved:
Donating $100 along with East Valley Astronomy Club to make a thank you gift to Ray Farnsworth for use of our Arizona City Site for our Messier Marathon, and EVAC's All Arizona Star Party.

Purchasing a Telrad for SAC's loaner scope.

Giving the Newsletter Editor some leeway on the 12-page maximum newsletter rule we tried to establish last board meeting.

Paul Dickson will renew our classroom rental for 6 months at Grand Canyon University.

We will not make SAC project observing awards available to non-members but other clubs may certainly utilize our observing projects giving due credit to SAC i.e.: SAC Best 110 NGC's, etc.

AJ Crayon felt the signs were instrumental in slowing traffic through the observing field at the Messier Marathon; we agreed to also use the red flashing lights next year to mark the entrance. Paul Dickson has the plaque awards for 1st, 2nd & 3rd; Jack Jones will mail all awards that need to be mailed.

After some debate, the issue of turning in the Messier Marathon check sheet to the Chair or Co-Chair before they leave the observing field was tabled. Some discussion was made to extend the deadline to next day, Sunday, with the onus on the participant that slept in or forgot, to get it turned in.

Jack Jones discussed the progress of t-shirts made for the Messier Marathon & The Sentinel Schwaar Gaze--it is turning out to be a great profit to the club and such a good service to the observers.

The meeting adjourned at 7:15

During the regular meeting, board members converged to agree to buy a slide projector that was for sale by a SAC member--$50.00

Minutes of the General Meeting-April 18, 2003

Started promptly at 7:30 by President David Fredericksen. Thirty-nine people present, including two visitors. Paul Dickson gave his treasurer's report, and a plea to renew your membership if you have not. David Fredericksen noted upcoming events including next SAC meeting May 16th & Cherry Road Star Party May 24th. Per AJ Crayon, next Deep Sky meeting will cover Antilia Pixis & Leo Minor. SAC members received their Messier Marathon Awards. Stan Gorodenski will be hosting a Summer Solstice Star Party and Potluck at his Blue Hills Observatory on Saturday June 21st--stay tuned for more news and an invitation. Jack Jones has some MM & Schwaar Gaze t-shirts remaining and notes a profit of $300. The Reeves request volunteers for a school star party for 100 4th graders near Cordes Junction--May 1st. May 10th is SAC's public star party at Thunderbird Park. Per Steve Coe, next month's speaker will be Richard Jakiel, June meeting will be SWAP meet and Show & Tell. Gene Lucas requests volunteers for the Arizona Science Center Astronomy Day. Steve Dodder gave a show & tell of the process of dismantling and dome he acquired for his Stone Haven Observatory in Maricopa--quite a process! He promises a reconstruction show and tell soon.

Our Guest Speaker was Joe Bergeron, Space Artist. A great presentation on the intricacies of space art--beautiful and interesting works--check his website www.joebergeron.com

The meeting adjourned at 9:45 and half of us met afterward at JB's for continued discussion and camaraderie.

Click logo to return to page 1

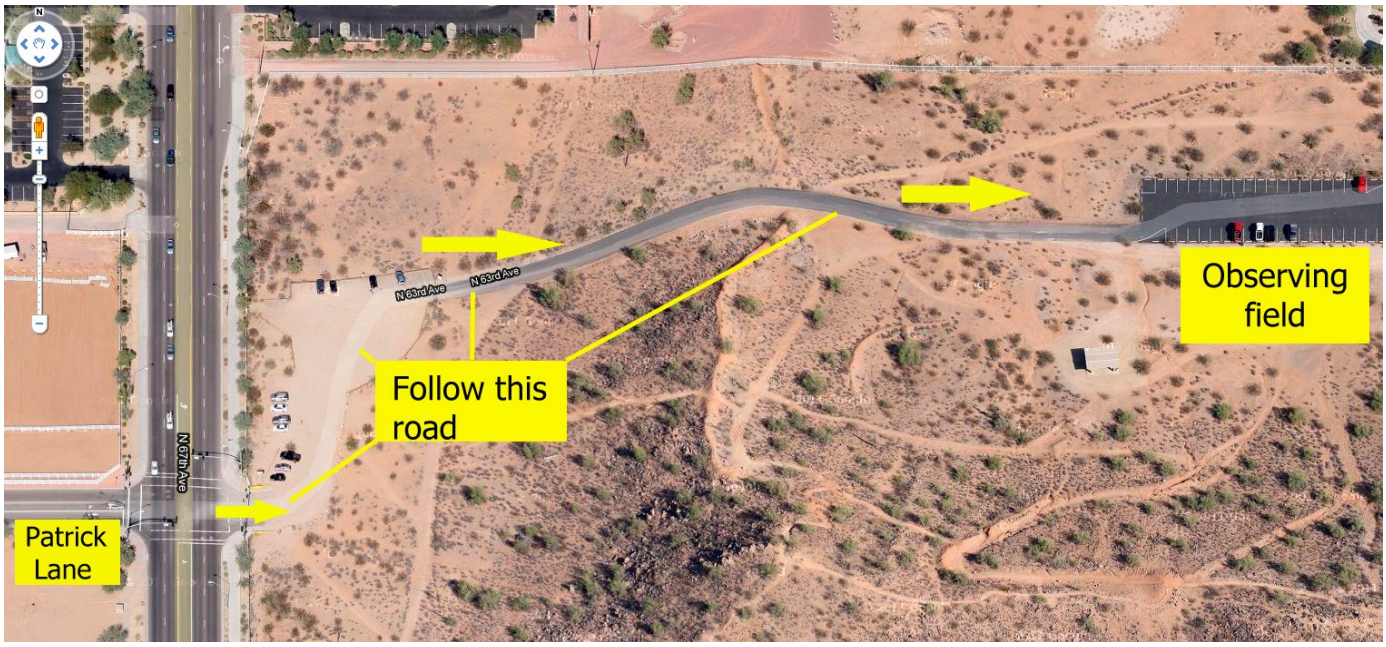
This event is free. Weather permitting.

36th Annual
Public Star Party at Thunderbird Conservation Park

Saturday May 18, 2013
Thunderbird Conservation Park in Glendale
(1.7 miles north of Loop 101 off 67th Ave.)
7:00 pm (sunset 7:25 pm) to 9:30 pm
Hosted by Saguaro Astronomy Club
Sponsored by Glendale Parks & Recreation Department

Members of the Saguaro Astronomy Club will have a variety of telescopes available for public viewing. They will show a variety of astronomical objects including the Moon, Planets, Stars, and Deep Sky Wonders. Members will be glad to answer ques tions you may have about the heavens and astronomy in general.

Please join us for an evening under the stars!
Saguaro Astronomy Club ~ Celebrating 36 years of observing in Arizona



Loop 101 to 67th Avenue. North on 67th Avenue (past the Safeway Supermarket) for 1.7 miles (about 0.7 miles past Deer Valley Rd.) to the west park entrance at Patrick Lane. A road leads from the north end of the parking lot to the observing field. Signs will be posted along the route inside the park.

For more information:
SAC website: http://saguaroastro.org
Glendale Weather Clear Sky Chart:http://www.cleardarksky.com/c/SnCtyWAZkey.html?1

Click logo to return to page 1

And They Build Telescopes

By Rick Rotramel

The monthly SAC ATM meeting of March 19, 2013 was attended by Paul, Al, David Princehouse, Dwight, Gene, Jimmy, Joe G, Lynn, Matt, Robert Brewington, Steve Coe and me.

"My old C-9 and Creaky Equatorial Mount"

David Princehouse bought in his old C-9 and a creaky equatorial mount and hoping to "learn more about it". The previous owner of the C-9 had modified the visual back mounting by mounting a different flange for the diagonal than what usually goes there. It was in a permanent state and could not be removed. All the ATMers studied the situation and tried to come up with a plan to remove the modified visual back.

Orion Sky View mount, David & Gene chat

C-9 with modified visual back/diagonal mount

Finally the ATMers came up with a plan to remove the pesky flange which would not come off! It would involve grabbing a few tools from the shop and applying them with great skill and precision. Luckily I was there to record this great moment in ATMing history! David was amused by the goings on. *Will he ever return?*

Robert & David as Jimmy studies the optics

David with the ATM Stooges and their tools

Takahashi Sky 90mm, 500mm FL, Apo Tinkering

Robert Brewington brought in his scope to see if he can figure out some things on it with the help of the rest of the ATMers. Matt spent some time looking at it and chatted with Robert about the mounting rings and adapters.

Robert gets some opinions from Matt about his scope

Sky Commander Power Cord

Steve Coe needed a new power cord made for his Sky Commander. Some yellow and black wire was twisted together by Paul and Matt. Then Paul soldered the wires up to the plug and the 9V battery holder. And soon Steve had his new power cord.

Steve moved on to his next item to work on, the focuser on his 16" telescope needed some new grease.

He brought into the shop the secondary assembly and went to work applying some lithium grease in the focuser that Paul found in his stuff in the shop. It did the trick.

Epilogue

That's all for this month, see you next time. Remember, if you have a "need" for your telescope, bring it over to Paul Lind's shop at the next SAC ATM meeting on the Tuesday evening before the SAC general meeting and join in on all the fun. Paul will post the date on the SAC-Forum list. Hope to see you there. It's a fun time for all.

Click logo to return to page 1

2013 SAC Officers and Contacts

Board Members

President	Mike Collins (president@saguaroastro.org)
Vice-President	Jennifer Polakis (M24@cox.net)
Treasurer	Dwight Bogan (dbogan3220@aol.com)
Secretary	Richard Harshaw (rharshaw2@cox.net)
Properties	Lynn Blackburn (properties@saguaroastro.org)

Non-board Positions

Novice Group Leader	Steve Dodder (fester00@hotmail.com)
Newsletter Editor	Rick Rotramel (rick.rotramel@honeywell.com)
Webmaster	Peter Argenziano (webmaster@saguaroastro.org)
Public Events	Jack Jones (publicevents@saguaroastro.org)
ATM Group	Paul Lind (atmgroup@saguaroastro.org)
Imaging	Al Stiewing (amst@cox.net)
Deep Sky Group	A. J. Crayon (acrayon@cox.net)
Sketchbook	Rick Rotramel (rick.rotramel@honeywell.com)

OCCULTATION INFO

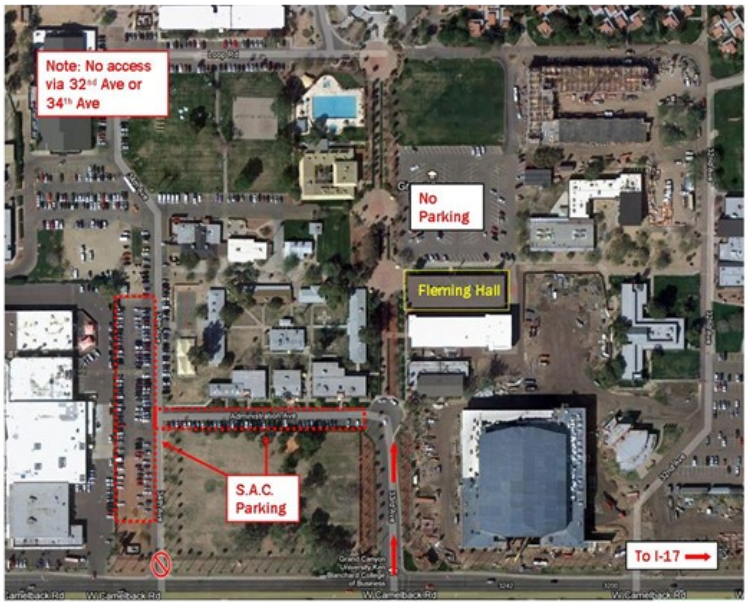
Wayne Thomas has asteroid occultation info for the greater Phoenix Area:

tomwaymas@gmail.com

Gene Lucas has Lunar Total and Graze Occultation info:

mailto:geneluca@ix.netcom.com

Meeting Location: Grand Canyon University is located at 3300 W. Camelback Rd, Phoenix, AZ We meet in Fleming Hall, Room 105, 7:30 PM to 10:00 PM



SUCH-A-DEAL

Ads placed here are free to SAC members. SAC is not responsible for the quality of the advertised items.

If you wish to place an ad here to sell your telescope or astronomy related items, contact Rick Rotramel at: rick.rotramel@honeywell.com

Your Ad Here

Contacting This Issue's Authors

If you wish to write to an author in this month's issue, complaining that they don't know what they are talking about or that they utterly dazzled you with their wordsmith skills, contact them by sending your message to the editor of Saguaro Skies, Rick Rotramel, at: rick.rotramel@honeywell.com

I will then forward your questions, comments or carping to the author who may (or may not) reply.

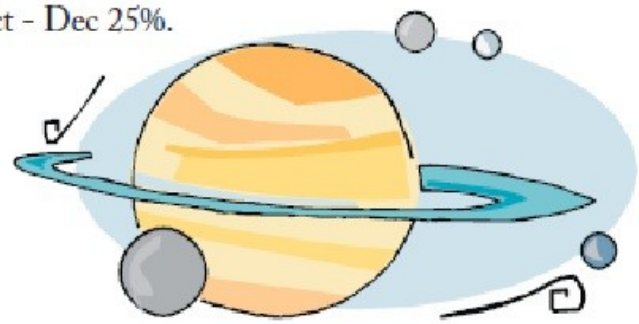
Click logo to return to page 1

Saguaro Astronomy Club Membership Services

Membership -- Memberships are for the calendar year and are pro-rated for new members as follows: Jan - Mar: 100%; Apr - Jun: 75%; Jul - Sep: 50%; Oct - Dec 25%.

- ☐ $32.00 Individual Membership
- ☐ $48.00 Family Membership
- ☐
- ☐ $10.50 Member Nametag (pinned clasp)
- ☐ $12.50 Member Nametag (magnetic clasp)

Nametags will be mailed to address provided below



Please print all information legibly

Name:_____

Address:_____

Address:_____

City:_____

State:_____

Zip Code:_____

Phone:_____

Email:_____

☐ *Check here if this is updated information already on file*

Make check payable to: SAC

Please bring your completed form to a meeting or mail it with payment to:

Dwight Bogan
2529 E. Dahlia Dr.
Phoenix, AZ 85032

Magazine Subscription Information

Effective January 1, 2011, SAC no longer accepts payment for magazine subscriptions to *Astronomy* or *Sky & Telescope*. All new subscriptions and/or renewals should be handled by the individual members directly with the publisher.

SAC on the Internet

SAC has several email lists. To subscribe, simply send an email to the list address with Subscribe on the subject line.

SAC-Announce@freelists.org - Sac Announce is a list used for club announcements. Traffic is usually less than six messages per month.
SAC-Forum@freelists.org - SAC Forum is a general discussion list for members to discuss the club or astronomy in general.
SAC-Board@freelists.org - SAC Board is a list for discussions of club business. If you'd like to see how the club is being run, this is the list for you.
AZ-Observing@freelists.org - AZ-Observing is not a SAC list, but many members participate. This is the list for discussions on observing around the state.

download the PDF version of the monthly newsletter from our website. When the newsletter is published a message will be sent to the email address provided above containing a URL to the current newsletter.

SAC Observing: All Arizona Messier Marathon Report/Results

By Rick Tejera

***click here for a report posted on AZ-Observing: http://www.freelists.org/post/az-observing/AAMM-Update,1**
***click here for pictures of the AAMM by Tom Polakis: http://www.pbase.com/polakis/marathon2013**

Observer	Club	Hometown	Optics	Observed	Notes
Dr. Salvador Aguirre	Astronomical League	Hermosillo, Mexico	6" SCT	109 1/2	Missed M30
Claude Haynes	EVAC	Gilbert	10" SCT	109	Missed M30
Jimmy Ray	SAC	Glendale	11" SCT	109	Missed M30
George Robinson	Astronomical League	Auburn, CA	14 F/4.6 Dob	109	Missed M30, From memory
Don Pfirrmann	SAC/EVAC	Sun City West	15" f/4.5 Dob	109	Missed M30
Jack Jones	SAC	Phoenix	20" f/5 Dob	109	Missed M30
Joan McGue	SAC	Phoenix	8" f/6 Dob	109	Missed M30
David Trogan	EVAC	Mesa	8" SCT	109	Missed M30
Paul Lind	SAC	Phoenix	14.5" f/5 Dob	108	Missed M74 & M30
Ken Sikes	None	Chandler	10" SCT	108	Missed M74 & M30
Rick Tejera	SAC	Glendale	8" f/6 Dob	108	Missed M74 & M30
Mike & Debby Luciano	EVAC	Gilbert	8" SCT	108	Missed M74 & M30
Paul Dickson	SAC	Phoenix	Televue Pronto	108	Missed M74 & M30
Gerald Dubesa	Astronomical League	Roseville, CA	10" f4/7 Dob	107	Missed M72, M73, M30
Ray Vorbeck	SAC	Glendale	8" f/10 SCT	107	Missed M74, M77, M30
Rick Rotramel	SAC	Phoenix	10" f/5.8	107	Missed M72, M73, M30
Edward Thomas	EVAC	Phoenix	11" SCT	107	Missed M74, M77, M30
Shane Eigell	EVAC	Gilbert	8" Newt	107	Missed M74, M77, M30
Paul Bennett	None	Phoenix	Astro Starfire	106	Missed M74, M77, M33, M30
Roger Waters	EVAC	Mesa	18" Dob	99	
Veda Thomas	EVAC	Phoenix	11" SCT	95	
Douglas Wiese	High Desert Astronomy Club	Lake Havasu City	11x80 Binos	94	
Jeff Trogan	EVAC	Mesa	8" SCT	68	
Toni Wiles	SAC	Goodyear	15" f/4.5	66	
Keith & Erik Favreau	SAC	Goodyear	? SCT	64	
Todd Craig	None	Tempe	10 Dob	61	
Bob Pejovic	None	Chicago, IL	6" f/6 Dob	27	
Brain & Brenna Helman	SAC	Peoria	16" Dob	26	
Stephan Cole	EVAC	Chandler	114mm	22	
John Burluras (SP?)	None	Fountain Hills	6" f/6 Dob	20	
Michael Collins	SAC	Chandler	6mm f/1.0	5	Naked Eye
Imagers					
Chris Johnson	SAC	Goodyear	Takahashi TOA-150 - ST-4000XCM - Paramount MX - ACP & ACP Scheduler - 180 second exposure	105	Missed M13, M30, M73, M101, M102 (NGC5866)
Howard Anderson	EVAC	Tempe	10" LX200, ST4000	103	Missed M6, M7, M103, M55, M103, M72, M73, M30

Click logo to return to page 1

SAC Astro-Imaging: (Recent Astro-Images liked by the editor.)

M78

© Image by Albert Barr

"I've been doing a lot of reading lately about PixInsight. Normally I use a combination of PI and Photoshop to process images. I decided to take a crack a redoing an old M78 I shot in the Everglades a few years ago with my one shot color camera, a Starlight Xpress M26C. I am pretty please with the result so I thought I'd share."

http://www.flickr.com/photos/49526053@N04/8598019953/in/photostream/lightbox/

M3

© Image by Albert Barr

"Last night I wanted to test a new electronic focuser I recently bought for my Edge 8. I did 20 minutes of 60 second RGB subs on M3 and refocused each color channel. I am very happy with this device. I think I got the best focus I was ever able to get on the Edge. Here's a link. Thanks."

http://www.flickr.com/photos/49526053@N04/8560503498/in/photostream/lightbox/

M65 & M66

© Image by Albert Barr

"Last night I used my Edge 8 and imaged M65 and M66. I did 2 hours of luminance, all 300 seconds while the moon was still up but it was small, and an hour and a half of 180 second color images after the moon set. Here's a link."

http://www.flickr.com/photos/49526053@N04/8652880100/in/photostream/

Click logo to return to page 1

On Being Double Minded

By Richard Harshaw

April

(To view before the meridian, observe in March; to view after the meridian, observe in May. This column is set to place the stars in convenient locations at 9:00 pm LT.)

With this issue of the Newsletter, I want to start a series of observing articles on the most beautiful (and sometimes challenging) double stars in our Arizona skies. I will feature one or two prime pairs for you to observe, and then list several others that are of great beauty and interest, but not ones that I wish to devote a lot of limited space to. I will be featuring pairs that should be resolvable by almost any telescope of 6-inches or greater aperture, so you don't need a monster Dob to see these jewels!

Fruits of My Labors

Starting in 2011, I began a project to observe the best double stars I had observed up to that time with my SCT's (an 8-inch classic orange tube Celestron C-8, and my current C-11) with my 6-inch Celestron refractor. This refractor is inexpensive by modern standards and although has bad color distortion, is a fine double star telescope (since most of the time color distortion for stars is not a big concern). Over a 16 month period, I observed 3,990 double stars and rated each one for beauty and ease of resolution. The result is a list of 121 first rate pairs and 187 second rate pairs. (I won't bore you with those of third, fourth, fifth and sixth rate.) This column will feature two first rate pairs in detail, and list all the other first-rate pairs and all the second-rate pairs in a table at the end of the column.

This Month's Featured Pairs

The featured pairs for this month are **γ Leo** and **N Hya**.

γ Leo is also known as Algeiba (and 41 Leo and STF 1424, the 1,424th entry on Wilhelm Friederich Struve's 1823 double star list). Algeiba is one of the finest double stars in the sky. The great 19th century amateur the Rev. T. W. Webb wrote of this pair "Very fine object." (*Celestial Objects for Common Telescopes, Vol 2*, page 153). This remarkable system actually consists of *five* stars.

The system is located at 1020.0+1950 (10 hours 20.0 minutes RA, 19° 50' north DEC). It was discovered by William Herschel in 1782, when he measured it at 3" separation at PA 84°. The most recent measurement I have was made in 2008, when it measured 4.4" @ 126°.

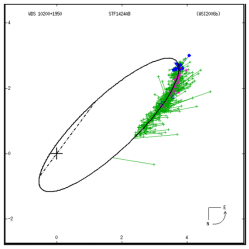
The primary is a spectroscopic binary and is a member of the Gamma Leo group. The A and B stars are both infra-red sources. Here is the *curriculum vitae* for this system:

Primary:	2.37 mag	K0 Giant	Proper motion (PM): +311 -153
Comp B:	3.64 mag	G7 Giant	PM: +316 -161
Comp C:	9.64 mag	—	PM: -502 -43
Comp D:	10.00 mag	—	PM: -11 -25

(The PM data should be read as milliarcseconds per year in RA and DEC. +RA is movement east (increasing RA), -RA is movement west; +DEC is movement north, -DEC is movement south.) From the PM data, it is obvious that C and D are optical interlopers and of no interest to double star astronomers.

In 1958, Rabe computed an orbit and got an orbital period is 618.56 years. The AB orbit was refined in 2006. We now believe the revolution takes 510.3 years, with a semi-major axis (widest separation in the true plane of the orbit) of 4.24".

The orbit is tilted 76° to our line of sight, and the orbit is fairly elliptical, e having a value of 0.845. (A perfectly circular orbit has e = 0; a value of e = 1.00 is a straight line.) Here is the orbital plot I obtained from the Washington Double Star Catalog (WDS), the solution derived by a team of astronomers known as "WSI":



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In these plots, the green points are the actual (historical) observations; the blue and pink ones are more recent and usually obtained from interferometers or photographic/CCD images. The image is inverted (as it would appear in a refractor). The + symbol marks the location of the primary and the dotted line passing through it is the line of nodes (the line at which the orbit is tilted to our line of sight passing through the primary).

The C star is a flare star (AD Leo).

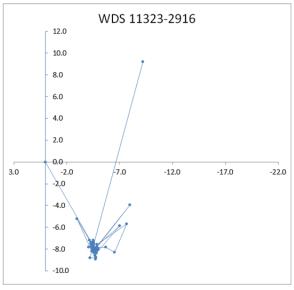
To me, the colors were yellow (primary), white (B), white (C) and maybe white (D). Some observers think B is green, and others report white and white or orange and white. Webb said gold and greenish red (whatever that means!), or yellow and white. What do you see? (For a good article on why there really are not any green stars, check this link: http://www.astronomycafe.net/qadir/q72.html.)

To grasp the immensity of this system, consider this scale model (where the Sun is shrunk down to the size of a Cactus League baseball). The primary would be a large sphere, 69 inches across. The B star would be 30 inches in diameter and lie 0.88 miles away. Got that so far? Add C (63.47 miles away) and D (66.33 miles away), and you can see why C and D are considered optical elements. (In fact, when I plotted their measurement histories, I got more or less straight lines, a dead giveaway that a pair is optical since orbital pairs will trace out ellipses over time.)

According to the orbital plot above, the pair is near maximum separation, so bag it while you can! In 220 years it will be too close for any amateur scope to split.

2° NW of Algeiba is the radiant point of the Leonids (maximum on Nov. 17, with periodic variations in intensity of 33 year—- the debris from comet Tempel-Tuttle 1866 I). Next maximum: 2032.

N Hya is a F8 Main Sequence Dwarf variable star, located at 1132.3-2916. The pair is probably physical (truly binary) as the PM data shows -22 +146 for the primary and -19 +142 for the companion—values too close to be coincidences. Yet there is not enough data yet to solve the orbit.



Here is a plot of the data I made after correction for precession:

As you can see, there is no clear trend yet. You can also see a wild outlier in the upper right quadrant. This measurement proves that even professional astronomers sometimes screw up (in this case, it was Christopher Mayer, and he made this measurement in 1777, so don't give him any flak; he used a 4-inch Newt on a "Dob" like mount with a stopwatch and a ring micrometer, for crying out loud!)

Mayer logged it at 13" @ 315°; the most recent measurement was in 2007, 9.4" @ 210°. Both stars are F-class Main Sequence dwarfs. With our scale model system (the Sun = a baseball), both stars are small, the primary being another baseball, the companion being a 12-inch beach ball, and lying 1.26 miles away. I saw the both as white. What do you see?

The Rest of the Gang

The following table lists the other fine doubles for this month. The format should be self-explanatory, but if you have a question, email me at rhar-shaw2@cox.net. Please allow 24 years for a reply.

Con	List ID	Other	RA	DEC	Magnitudes	Year	Sep	PA
Dra	STF 1573		1149.2	+6720	7.45, 8.33	1999	11.1	178
Leo	STF 1487	54 Leo	1055.6	+2445	4.48, 6.25	2008	6.9	113
Leo	STT 215		1016.3	+1744	7.28, 7.53	2007	1.3	183
LMi	STF 1459		1040.2	+3824	8.34, 8.85	2005	5.4	153
Sex	STF 1466	35 Sex	1043.3	+0445	6.23, 7.13, 8.10	2007 2003	6.9 333.8	240 210
Sex	STF 1457		1038.7	+0544	7.72, 8.25	2005	1.8	332
Sex	STF 1476	40 Sex	1049.3	-0401	7.11, 7.91	2006	2.5	17
UMa	STF 1415		1017.8	+7104	6.66, 7.36, 10.85	2007 1999	16.5 152.7	167 12
UMa	STF 1520		1116.1	+5246	6.51, 7.90	2008	12.8	344
UMa	HO 50		1113.7	+4105	6.47, 8.36	2003	3	35
UMa	STF 1523	Xi MUa;53 UMa; Alula Australis, "the first spring"; AC = POP 1219	1118.2	+3132	4.33, 4.80	2007	1.7	231

Notes: STT 215 has an orbital solution: 670.27 years, semi-major axis = 1.335"; i = 130.4°; e = 0.8

STF 1523 (z UMa)-- William Herschel discovered the binary nature of Xi in 1780. It was the first binary whose orbit was computed (1828) by Savary. It has an orbital period of 59.84 years (Heintz, 1967), with a semi-major axis of 2.53" and retrograde motion. (A more recent orbit has been computed by Brian Mason 1995: P = 59.878y; a = 2.536"; i = 122°; e = 0.398) They were widest last in 1974. Each star is a spectroscopic binary (A-a period is 669.17 days; Bb is 3.98 days). Both are also infra-red stars. A is also thought to have an unseen companion.

Acknowledgement: This research has made use of the Washington Double Star Catalog maintained at the U.S. Naval Observatory.