

Saguaro Astronomy Club

Metro Phoenix, Arizona

SACNEWS



March 1995 — Issue #218

v2.17

Messier's Catalogue

by A.J. Crayon

With the approach of the 1995 Arizona Messier (me-sya'; short e, long a and emphasis on last syllable) Marathon, Paul Dickson convinced me it would be a good idea to have an article about the "in's and out's" of the catalogue. Essentially this article is meant to give the reader a little more insight into the making of the Messier Catalogue and what might be helpful to know for a marathon. While there are many book and magazine articles on the subjects none appear to be timed for this event. I would hope that this article would fill both requirements.

Before discussing Charles Messier and his catalogue, let's begin with a journey back to his time; the 1700's. Inventions like electricity, airplanes or automobiles were centuries away. The fire place was used for lighting and heat. Horses were the mode of transportation — manure and all. (Talk about air pollution!) The Industrial Revolution — needed by William Herschel to build his speculum mirrors — was just beginning in England. Nothing was known about galaxies, clusters or nebula. Comets, six planets and stars was the extent of astronomical knowledge at the time.

Then came Charles Messier. He was born on June 26, 1730 in Lorraine France and was the tenth of 12 children. He was curious about astronomy as a boy and his interest was sparked by the Comet of 1744. At that time he worked at the Marine Observatory at the Hotel de Cluny in Paris and was extremely interested in the search for and discovery of comets. So much so that King Louis XV of France nicknamed him 'birdnester,' or ferret of comets. In 1757 he became involved in the search for the return of Comet Halley. Thus his comet discovery career began; and the stage was set for his Wonderful Catalogue. Although Messier did not originally find many of the objects in his catalogue, he was the first to clearly describe them, note their positions in the sky and publish them collectively.

For comet hunting Messier used two main telescopes. At this time there was no Hubble Space Telescope, no Palomar, not even an Alvin Clark. His first telescope, a reflector, had a badly silvered 7 1/2" mirror with a focal

Quick Calendar

Quartzsite Star Party

Quartzsite

Friday–Sunday, March 3–5

SAC Board Meeting

Prior to Main Meeting

7:00 PM, Friday, March 17

SAC Meeting

Speaker: Ralph Aeschliman from Flagstaff

7:30 PM, Friday, March 17

SAC Deep Sky Meeting

January and February *What's Up* Columns

7:30, Thursday, March 23

SAC Star Party

Buckeye Hills Recreation Area

Saturday, March 25

Messier Marathon

Arizona City

Saturday, April 1

length of 32" which was used at a magnification of 100. The other was a 3 1/2" refractor with a 42" focal length and was used at a magnification of 120. None of his telescopes could perform as well as a 3" telescope of today. His comet hunting lasted from 1757 to 1803. During this time he discovered 19 of the 45 comets reported.

In September of 1758, while observing the comet of that year, he "discovered a nebula above the southern horn of Taurus." It appeared so much like a comet, with the exception it didn't move, "that he endeavored to find

SAC Officers

President	Bob Gardner	274-5046
Vice President	Susan V. Pritchard	934-7496
Treasurer	Adam Sunshine	780-1386
Secretary	A.J. Crayon	938-3277
Properties	Pierre Schwaar	265-5533
SACNEWS Editor	Paul Dickson	862-4678
Public Events	Rich Walker	997-0711

others so that astronomers should not confuse these same nebula with comets just beginning to appear.” We all know this as the first entry in the catalogue and is the famous Crab Nebula.

In January of 1759 he found Comet Halley. This discovery brought him fame and distinction. The next year he discovered two more comets and added the second object to his catalogue. This one being a globular cluster in Aquarius. The year 1764 Charles Messier hit pay dirt! He discovered his fourth comet and added another 38 entries to his catalogue, bringing the count to an even 40. A year later he added M41. In 1769, after adding M42 thru M45, he wrote the first catalogue which was published in the 1771 edition of the “MEMOIRS of the Academy of Sciences.”

His comet hunting did not stop with the publication

of the first catalogue. Between 1771 and 1781 he discovered five more comets and observed M46 thru M100, another 55 objects. His friend Pierre Mechain, whom he met in 1774 and specialized in cometary orbit calculations, observed another three more objects and were verified by Messier. The second catalogue, containing these 58 objects, was published in the “CONNAISSANCE DES TEMPS FOR 1784,” published in 1781; the same year Uranus was discovered by William Herschel.

Messier continued to observe after his second catalogue was published, but not as much as before. Possibly because the political climate in France was in a turmoil and science became less important. Also there were larger telescopes in use. He intended to publish these observations, but never did. By 1786 William Herschel, using a much larger telescope, published his first catalogue of

SAC and SAC Meetings

Saguaro Astronomy Club (SAC) was formed in 1977 to promote fellowship and the exchange of scientific information among its members—amateur astronomers. SAC meets monthly for both general meetings and star parties, and regularly conducts and supports public programs on astronomy.

SAC meetings are usually held on the Friday nearest the full moon. This means that over the course of the year, meetings are not held on same week of the month. The same is true of the club’s star parties. Star parties at Buckeye Hills are mostly held on the Saturday of the third quarter moon.

1995 SAC Meetings

Jan. 13
 Feb. 10
 Mar. 17
 Apr. 14
 May 12
 Jun. 9
 Jul. 14
 Aug. 4
 Sep. 8
 Oct. 6
 Nov. 3
 Dec. 9 Party

1995 SAC Star Parties

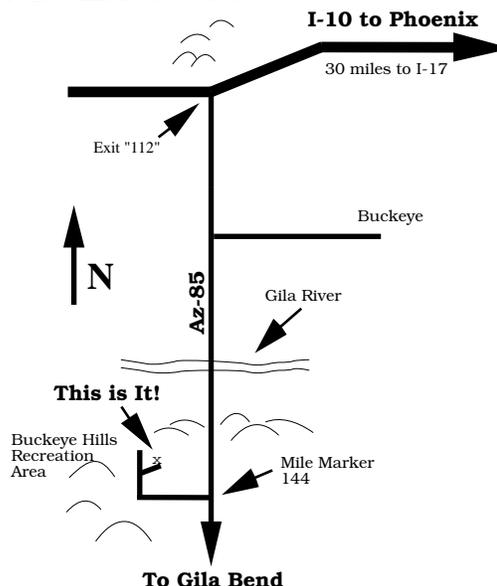
Date	Sunset	Moonrise
Jan. 28	5:56pm	5:15am
Feb. 25	6:22pm	4:00am
Mar. 25	6:41pm	2:50am
Apr. 22	7:05pm	1:30am
May 20	7:26pm	12:10am
Jun. 24	7:42pm	3:00am
Jul. 22	7:36pm	1:40am
Aug. 19	7:11pm	12:20am
Sep. 23	6:24pm	5:15am
Nov. 18	5:25pm	2:40am
Dec. 16	5:23pm	1:25am

Directions to SAC Events

SAC General Meetings 7:30 PM at Grand Canyon University, Fleming Building, Room 105 — 1 mile west of Interstate 17 on Camelback Rd., north on 33rd Ave., second building on the right.

SAC Star Parties at Buckeye Hills Recreation Area Interstate 10 west to Exit 112 (30 miles west of Interstate 17), then south for 10.5 miles, right at entrance to recreation area, one-half mile, on the right. No water and only pit toilets. Please arrive before sunset; allow one hour from central Phoenix.

SAC Deep Sky Subgroup Meeting at John & Tom McGrath’s, 11239 N. 75th St., Scottsdale, 998-4661 — Scottsdale Rd. north, Cholla St. east to 75th St., southeast corner.



1000 objects. Out of respect for Charles Messier he did not list any entries in the Messier Catalogue in his own catalogue.

The count of 110 was reached with Pierre Mechain's observation of another six objects and Messier's observation of M110 which was found in his notes of 1773. But these weren't widely accepted as part of his catalogue until this century.

Before concluding this article there are some well known errors in the Messier Catalogue that need to be discussed. The following is a brief summary of the errors, their accepted corrections and my observing notes.

M 24 — Milky Way star cloud in Sagittarius visible to the naked eye. The cluster NGC 6603 is often suggested. For the Marathon use the star cloud it is visible to the naked eye from a dark site!

M 40 — a double star in Ursa Major, Messier saw no nebulosity here. In the 8" telescope I saw two stars, two plain stars.

M 47 — open cluster in Puppis, Messier had an erroneous position, nearby NGC 2422 fits the description. This cluster has many nice star chains and dark lanes radiating out from a dark central area.

M 48 — open cluster in Hydra, same as above with NGC 2548. This somewhat scattered cluster has a 3-D affect with a variety of magnitude stars.

M 73 — four stars in Aquarius, described correctly by Messier. My first observation of this object says 4 stars, no nebulosity, DULLSVILLE!

M 91 — galaxy in Coma Berenices, one of the real mysteries of the Messier Catalogue. Some thought

Comet Comments

by Don Machholz

(916) 346-8963 CC199.TXT February 8, 1995

The first comet discovery of the year has taken place, but the comet is very faint. Meanwhile, Periodic Comet Borrelly finally fades from view.

Comet P/1995 A1 (Jedicke): This comet was found by Robert Jedicke while using the 0.9-meter Spacewatch telescope from Kitt Peak on Jan. 8. We now know that the comet is periodic, orbiting the sun every 14.4 years, with a perihelion distance of 3.8 AU. It is presently magnitude 18 and fading.

The tenth edition of the *Catalogue of Cometary Orbits (1995)* is now available from the Smithsonian Astrophysical Observatory, 60 Garden St., Cambridge, MA. 02138. This is a 108-page summary of all comets for which orbits have been computed. The orbital elements are given for each comet, along with the new and old comet designations. The cost is \$20.00, \$30.00 for airmail delivery outside North America.

From that catalogue we learn that 878 comets have been observed accurately enough for the orbit to be calculated. A growing percentage of them are periodic, that is, they orbit the sun in under 200 years. Presently, 21% (184 comets) are periodic, some have visited us many times. Therefore, the total number of cometary apparitions is 1444.

As I described last month, established periodic comets now carry a number as part of their designation. Here are some of the more popular comets:

1P/Halley: Probably the most famous comet of all, 76-years, 30 appearances.

2P/Encke: Shortest orbital period: 3.3 years, 56 appearances.

6P/d'Arrest: 6.4 years, due back this summer.

8P/Tuttle: 13.5 years, responsible for the Ursid meteor show, Dec. 22.

9P/Tempel 1: 5.50 years.

10P/Tempel 2: 5.48 years.

19P/Borrelly: Visible in our skies now.

26P/Grigg-Skjellerup: 5.10 years.

29P/Schwassmann-Wachmann 1: Occasionally outbursts by several magnitudes.

45P/Honda-Mrkos-Pajdušáková: Visits us every 5.30 years.

55P/Tempel-Tuttle: 33 years. Responsible for the Leonid meteor shower.

95P/Chiron: A very large distant comet, once thought to be an asteroid.

96P/Machholz 1: 5.24 yrs, shortest periodic comet perihelion distance (.126 AU).

107P/Wilson-Harrington: 4.3 years. Occasionally observed as an asteroid.

109P/Swift-Tuttle: Responsible for the Perseid meteor shower.

19P/Borrelly					
Date	RA-2000-Dec	Elong	Sky	Mag	
02-22	09h10.4m +67°44'	122°	M	11.1	
02-27	09h08.1m +66°52'	120°	M	11.3	
03-04	09h07.3m +65°51'	118°	M	11.5	
03-09	09h07.8m +64°42'	116°	E	11.7	
03-14	09h09.6m +63°28'	114°	E	12.0	
03-19	09h12.4m +62°09'	112°	E	12.3	
03-24	09h16.0m +60°46'	110°	E	12.7	

Orbital Elements	Borrelly (1994I)
Perihelion	1.3651 AU
Perihelion Date	Nov. 01.492, 1994
Argument of Perihelion	353.359°(2000)
Ascending Node	075.424°(2000)
Inclination	030.271°(2000)
Eccentricity	0.6228036
Period	6.88 years
Source	MPC 18259

Grand Canyon Star Party

The Tucson Amateur Astronomy Association (TAAA) has been going to the canyon in the June dark-of-the-moon for what has to be one of the largest public star parties.

The objective of the star party is to maintain an astronomical presence there for two weekends and the week in between. The first year, in 1991, there were seven TAAA members spread out thinly, but there were enthusiastic crowds. The star party has grown every year.

The dates for 1995 are June 17–24, and if you are interested in attending and want a real bed to sleep in, you haven't a moment to lose. June is the Grand Canyon National Park's busiest time, and it is never too early to book a room. Most hotels fill up 3–4 months in advance so you need to act now. Camping is a different story, as sites are available days before your visit. Refer to the phone list below for hotels and camping. The TAAA charges no registration fee—just take care of a place to stay and let us know you are coming (you need to sign liability waivers for TAAA and the National Park Service.)

Housing: For reservations at any of the motels or lodges at the South Rim or for Trailer Village (Camping trailers or RV's) call Fred Harvey Inc. at (602) 638–2401 **as soon as you make your plans!** Expect long telephone waits while making your reservations.

If you can tolerate a 7 mile drive, you can also try the following motels at Tusayan (all area code 602): Squire Inn 638–3515, Moqui Lodge 638–2424, Quality Inn 638–2673, Red Feather Inn 638–2414, 7 Mile Lodge 638–2291.

Camping: To make reservations for campsites at the regular rates (\$10 per night,) call MISTIX at 1–800–365–2267, no more than 8 weeks ahead.

For questions concerning the Grand Canyon Star Party, please call or write to me at: **1122 E. Greenlee Pl., Tucson, AZ, 85719**, home phone **(602) 293–2855** or E-mail to ketelsen@as.arizona.edu.

it a repeat of M58, others thought it a missed comet. Regardless NGC 4548, a nearby galaxy has been accepted. This 11th magnitude galaxy has a 5' diameter; but saying round, pretty faint and small sounds better.

M 102—galaxy discovered by Mechain thought to be a repeat of M110 in Ursa Major—the other real

mystery. Despite the fact that this has not been resolved, the galaxy NGC 5866 in Draco has been accepted for this entry. This 10th magnitude galaxy is elongated in PA southeast, measures 5'X3' and is a little brighter in the middle. It took me 10 minutes to find this one in last year's marathon. It will take much less than that this year!

There are some sky atlases that do not have the accepted Messier designation on some charts. This normally isn't a problem, unless you are doing a Messier Marathon and haven't correctly prepared for it.

Finally, I often wonder how Charles Messier would feel if he saw what his catalogue represented today? And what would he say?

We are very privileged to enjoy the fruits of his labour.

Thanks to Don Machholz for his book *Messier Marathon Observer's Guide*. This guide is distributed and published by MakeWood Products, P.O. Box 1716, Colfax, CA 95713 for \$12.00 + \$2.00 S+H. They are mail out the day received so you should get a copy in about 10 days. Or you can call (916) 346–8963 and use your credit card.

Special thanks to Charles Messier, 1730-1817. We owe you 110!

Bits and Pieces

Coming Events

Star Parties

Quartzsite	Mar. 3–5
Messier Marathon	Apr. 1
Sentinel	Apr. 29
Texas Star Party	May 21–29
RTMC	May 27–29
Grand Canyon	Jun. 17–24

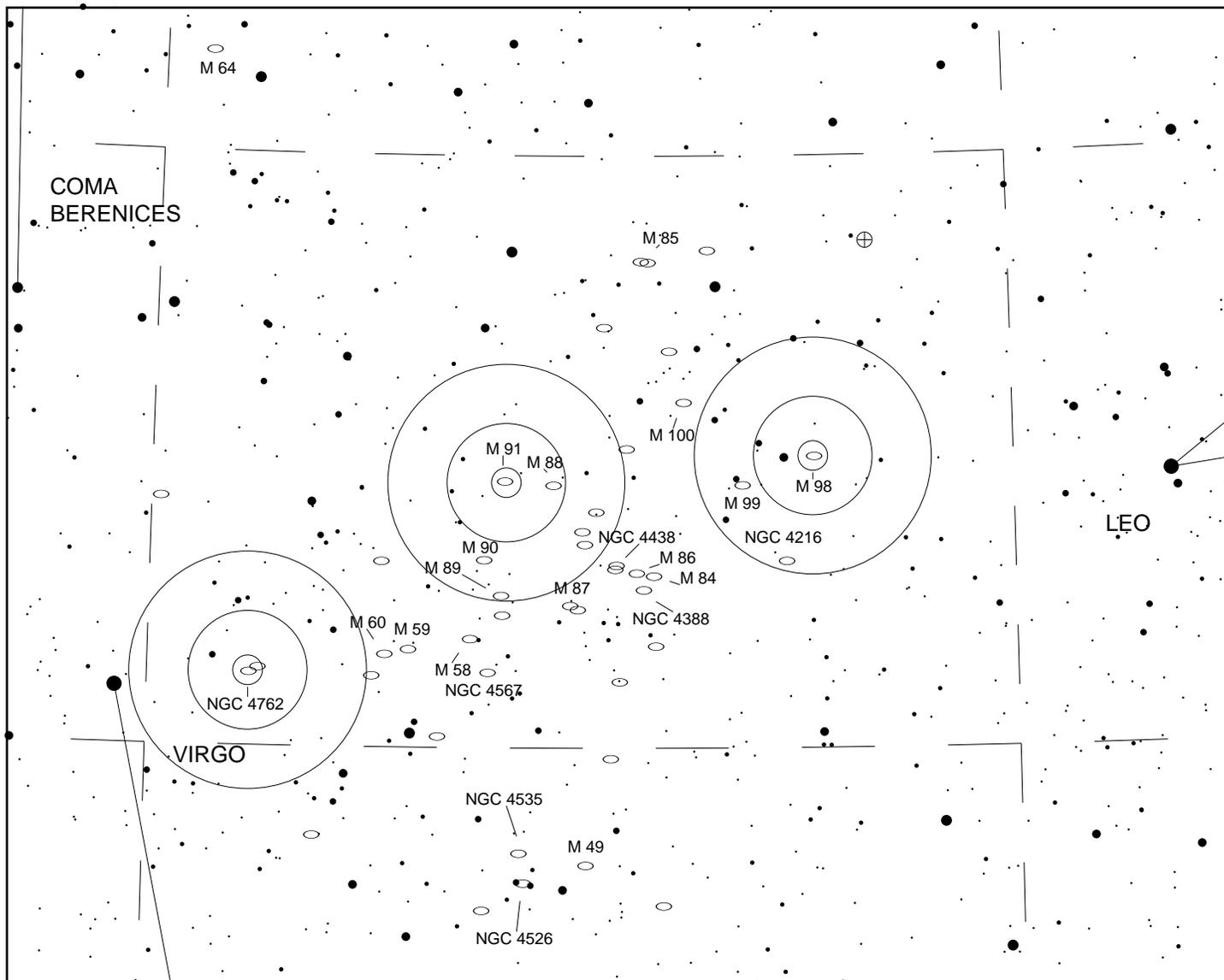
Public Star Parties

Reach 11	Apr. 8
Thunderbird Park	May 6

Such-A-Deal

SUCH-A-DEAL is a place to advertise equipment, supplies, and services related to amateur astronomy. This is a free service for SAC members and friends. SAC is not responsible for the quality of advertised items or services.

For Sale—Celestron C8 heavy duty tripod and wedge with quick release knobs and latitude adjuster. \$175. Celestron eyepieces (1 1/4"): 17mm Plössl, 2X Barlow, 25mm Kellner. \$30 each or all three for \$75. 12 volt Exide Gelmaster battery SPU1 (wheel-chair size) in a case with Exide trickle charger: \$35. Call Ruth Sadler, 942–9764 weekends or after 5 PM.



Virgo Cluster

(Messier and 110 Best NGC Objects)

The above chart might help some of you locate the Messier objects in the Virgo Cluster. Nearly 14% of the Messier catalogue is shown here. If you get done early enough, you might also look at the other objects shown. These seven objects are from the 110 Best NGC Objects list. Writing them down will give you a good start on that observing list. Unlabeled objects are from the Herschel 400 list.

In the chart above, the large concentric rings are the scale of the Tel-Rad circles (the outer circle is 2° and the middle is 1°.) This will help you point the scope in the nearly starless area (stars are down to mag. 9 in this chart.)

SAC Board Meeting

Due to the postponement of the SAC Board Meeting, the meeting has been rescheduled for March 17 at 7 PM. This again is just prior to the main meeting. Meeting attendance is mandatory for elected and appointed SAC officers. Members are welcome and should attend to be more involved with the club.

Minutes of the February Meeting

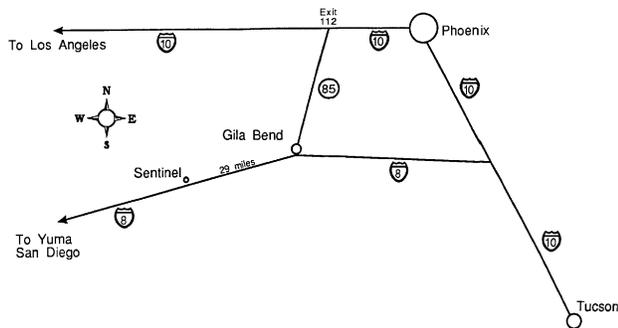
The president opened the meeting and promptly asked for visitors to introduce themselves. None did.

Adam Sunshine gave the treasurers report. The rolls have been purged of members who have not paid their 1995 dues. If you want to continue to belong to SAC then send your dues to Adam.

AJ Crayon discussed the upcoming Messier Marathon, see articles elsewhere in newsletter. The next Deep

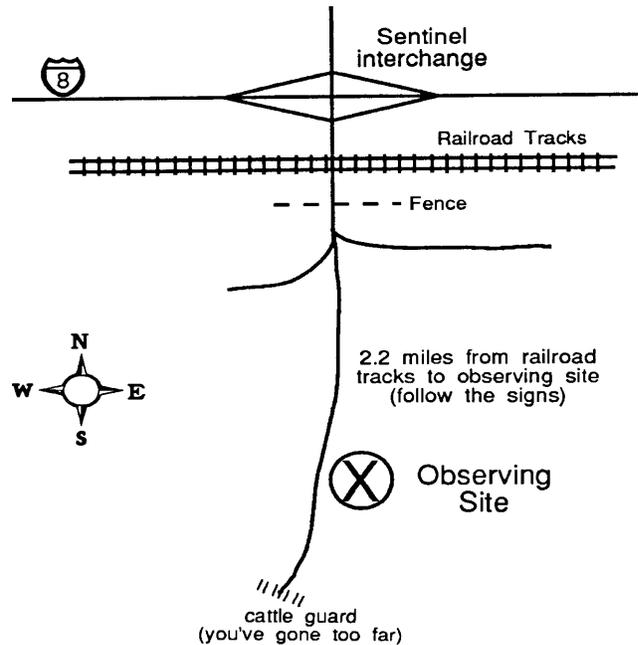
Sentinel Star Party

April 29, 1995



The fourth annual Sentinel Star Party is taking place at the Sentinel Site on April 29, 1994. Sunset is at 7:13 PM MST and moonset is at 7:24 PM MST.

Sentinel is 2 hours southwest of Phoenix; Port-a-Johns will be provided. Plan for cold weather and hunger flying insects during twilight — let's hope we get neither.



Sky meeting will be after the next SAC meeting. The list of objects to discuss are those found in Steve Coe's What's Up column for both January and February.

Pierre Schwaar discussed Mars' current opposition. Call him for viewing conditions or see if you can go to his house to view. He is also scheduling a young moon hunt for March 1st. It will be 14 hours old.

Rich Walker discussed past and future public viewing events. April 8th is at REACH-11 and May 6th, National Astronomy Day, is at Thunderbird Park. We will have more on these two events as the time approaches.

For Show-n-Tell Jerry Rattley discussed the November graze and showed us some of the data that was collected. He announced two new grazes whose paths will cross the Arizona deserts.

Stan Student had an honest-to-goodness light bucket. It was a 20 gallon pail with a lot of wires, cables, copper tubing and a black box or two. Fill it with water. Add another \$400.00 for the CCD chip and you have a complete CCD camera! Then there's the lap top to process the images. After this we were also put through the fastest Messier Marathon ever! He had CCD images all 110 objects on two transparencies — took about 5 seconds! At a much slower pace we saw the first 10 objects on slides from the same images. Stan will show 10 Messier objects per month, that means M11 thru M20 in March. If you have observations be prepared to discuss them with us.

Tom Polakis shared some slides with Venus, Jupiter and moon conjunctions taken from Echo Canyon. This has been an excellent in city photography site for Tom.

At break time there were 40 people in attendance.

After the break the vice president introduced the nights speaker. He was Dan Matlaga from ASU Planetarium, which has two records. It is the smallest permanent planetarium in the USA and largest in Phoenix. He topic was 40,000 years of astronomy and mythology of the constellation of Orion. It was different, but very interesting.

—A.J. Crayon, SAC Secretary

Apologies for Misspellings

It came to the editor's attention during the folding of last February's newsletter that there were some misspelled words, even though the text had been put through a spell checker. Since the newsletter was already printed, it was mailed anyway. Soon after checking why the words were missed, it became apparent that the problem was even more insidious than first thought.

A feature in the spell checker caused spell checking to be turned off after page 4 of the newsletter. This was not especially noticed because the spell checker still checked words that were being deliberately left out of the printed newsletter. After finding the cause of the problem, the spell checker then found a lot more words it suggested changing (words not in its dictionary or misspelled).

Since I have the source code to the spell checker, I fixed it so the problem would not reoccur and forwarded my changes to the maintainer of the program.

What's Up by Steve Coe

March 1995

Lynx

Lynx is one of those constellations that is tough to find. The brightest stars are fourth magnitude and there aren't many of those. I don't actually recognize Lynx, I just know that it is the pretty large area of mostly blank sky which is located north of Leo and Cancer. However, the celestial cat is worth finding. There are several nice galaxies and we will start the tour with the most distant of globular clusters.

NGC 2419 is pretty bright, pretty large, round and much brighter in the middle, it is easy at 100X. At any power up to 270X at the best sights in Arizona there is no resolution into stars, using either my 13" or my old 17.5". All that I can do is view three levels of condensation across a very mottled face on the best of nights. The brightest stars are something like 19th magnitude, so it may take a 40 inch to resolve this distant cluster. It is possible that this globular cluster is actually between galaxies and is not gravitationally bound to the Milky Way. What a spectacular view of Our Galaxy this vantage point must provide. NGC 2419 is at 7hr 38.1min, +38 53.

NGC 2537 is a galaxy which is pretty bright, pretty large, irregularly round, mottled and gradually brighter in the middle at 220X, using the 13". It is at 8hr 13.2min, +46 00.

NGC 2537A is a galaxy which is just east of NGC 2537. It is very faint, small and round. This object is difficult and it comes and goes with averted vision at 220X on a night I rated 5/10 for seeing and transparency.

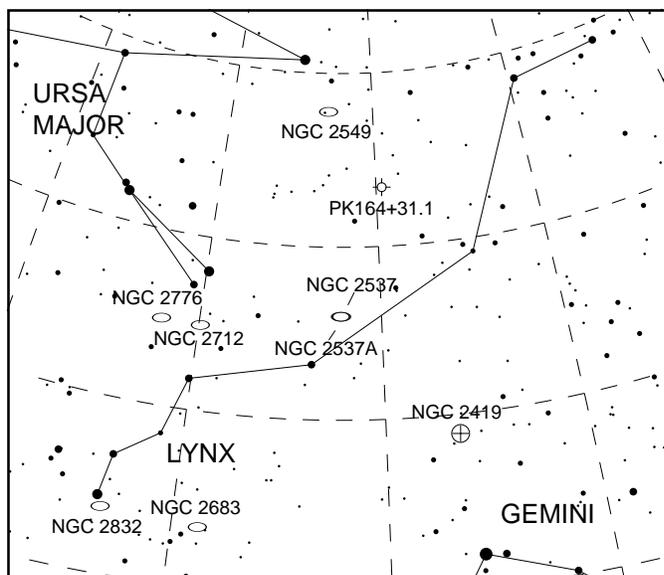
NGC 2549 is a galaxy. I see it as pretty bright, pretty small, much elongated (3 X 1) in PA 0 and suddenly much brighter middle at 220X. It is located at 8 hr 19 min, +57 48.

NGC 2683 is a nice galaxy, my notes say: bright, pretty large, much elongated east-west and much brighter in the middle at 100X. It is at 8 hr 52.7 min, +33 25.

NGC 2712 is another nice galaxy, I described it as: pretty bright, pretty large, much elongated 2.5 X 1 in PA 15, much brighter middle with an almost stellar nucleus at 150X. This galaxy displays a prominent nuclear bulge. NGC 2712 is at 8 hr 59.5 min, +44 55.

NGC 2776 is pretty bright, pretty large, round, has a bright middle with an almost stellar nucleus at 150X. This galaxy has a nice double star 10' south of it, the binary is 7-10mag with 15" separation. It is a nice yellow and light blue in color. NGC 2776 is at 9 hr 12.2 min, +44 57.

NGC 2832 is a galaxy which I see as pretty bright, pretty large, round and much brighter in the middle at 100X in the 13". There are nine very faint companions in the field and the area for one field of view in any direction is mottled from galaxy group members just at the level of detection. These types of galaxy group are a fun way to determine how good the night and your observing skills have become. Look for faint members, then look again on a night you rate better and determine if you see more galaxies. NGC 2832 is at 9 hr 19.8 min, +33 44.



PK 164 +31.1 is a planetary nebula which has been mistaken for the galaxy NGC 2474 in several references. Sky and Telescope April 1981 pg. 368 tells the story and has a picture of the area. In the 13", this planetary is very faint, pretty large, not brighter in the middle and has several stars involved at 100X with the UHC filter. The nebula is faint enough that turning on the very dim red flashlight to make a drawing makes the planetary disappear for a few seconds. I had to memorize the field to draw it. The "P-K" designation comes from the Perek and Kohoutek planetary nebula catalog. This dim planetary is located at: 7 hr 57.8 min, +53 25.

The 1995 Arizona Messier Marathon

April 1, 1995

The Messier Marathon is a test of an observer's observing skill. In spite of the date this year, this is a real event, not an April Fools prank. For a lot of observers this is one night to work through the entire Messier catalogue. Those who take the time to write down their observations can complete their club's Messier Observing award in just one night, or at least get most of it done. Other observers might just be trying to better their count from the previous year. And yet still others may want to just come out and do their own observing programs or watch the people doing the marathon.

Regardless of why they do this, the mission of the marathon is still to view as many Messier objects as the evening, weather, and observing skills permit. The date chosen for this year's event allows the possibility of 109 to all 110 objects being seen.

After the event, awards will be given in recognition of observing efforts. Certificates are awarded to those observing 50 or more objects. Last year, a special certificate was awarded to those observing 100 or more objects since so many people reach that point. Those reaching the highest total will receive a small plaque, suitable for mounting on a telescope, for first, second and third places. Duplicate awards are presented in

case of ties.

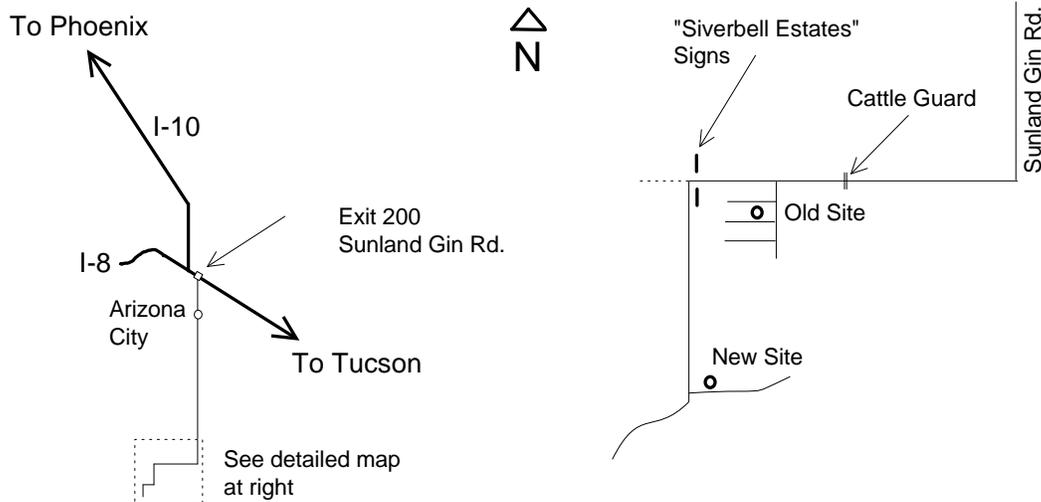
The marathon held at a site near Arizona City, which is nearly halfway between Phoenix and Tucson. A map will be provided in the February and March newsletters on how to get to the site. More details will also appear in the newsletter. The observing list available at SAC meeting possibly as early as the January meeting. The observing list will also be available at the site at the start of the event.

Spending the whole night doing the entire marathon means you have to plan ahead. Remember to bring those warm clothes and late night snacks. During the night you can spend a couple of hours just waiting for more objects to rise. During this time of inactivity, the cold will really get to you, making the night uncomfortable. If you bring extra layers of clothing, you can add layers as you feel colder, rather than going home.

Invitations were sent to all Arizona Astronomy Clubs that are known. We hope for a large turn-out. So plan on being there early to see old friends and make new ones. Last year, the weather in Phoenix was cloudy and many people decide not to attend, but south of Arizona City, the sky was nearly clear with only an occasional cloud.

Results of the Marathon will be sent to all Arizona Astronomy Clubs as well as popular Astronomy periodicals.

The Messier Marathon is being coordinated by A.J. Crayon, the chairman of the Saguaro Astronomy Club's Deep Sky Subgroup. You can contact him at: 13819 N. 37th Avenue, Phoenix, AZ 85023. By phone: (602) 938-3277. Via E-Mail: a.crayon@az05.bull.com.



Take I-10 to exit 200 (Sunland Gin Road.) Turn right (south) after exiting the freeway. After about 15 miles, the pavement ends and about one mile further, the road turns sharply to the west. One mile past the road to the old site, the main road will turn south just after the "Silverbell Estates" signs. Continue for another 2.5 miles. The road will veer off to the west. Immediately to the east is the road to the site. About 100 yards down this road are several large, open areas to the left.

March 1995

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> All Times are Mountain Standard Time </div>			New Moon 4:49 A.M. Mercury at greatest elongation 27° (morning) 1	PAS Meeting Brophy Prep. Physics Lab Venus 0.7°N of Neptune (morning) 2	TAAA Meeting (Tucson) 3	4
5	Saturn at conjunction with the Sun (moves into morning sky) 6	7	8	First Quarter Moon 3:12 A.M. 9	10	11
Sun enters Pisces 12 A.M. 12	13	14	EVAC Meeting (SCC: Rm. PS172) 15	Tomorrow Full Moon 6:26 P.M. 16	SAC Meeting Grand Canyon University, Fleming Rm. 105 17	18
Area code for Arizona outside of Phoenix changes to 520. 19	Vernal Equinox 7:17 P.M. 20	21	Tomorrow Last Quarter Moon 1:10 P.M. 22	SAC Deep Sky Meeting 7:30 P.M. 23	Mars 6.3° E of Beehive Cluster center (retrograde motion ending) 24	SAC Star Party Buckeye Hills (members&guests) 25
Mercury 0.54°SSE of Saturn (morning) 26	27	28	Moon 5.8°NNW of Saturn and Mercury 29	New Moon 7:10 P.M. 30	31	

Deep Sky Meeting

The Deep Sky Group is a Special Interest Group made up of people who like to discuss observing and observing techniques. They particularly like to observe objects out past the Ortt Cloud that's why they're called the Deep Sky Group. The type of objects include stars, nebula and galaxies.

If you are interested in sharing your observations, or are interested in observing techniques, then by all means come join in. The meetings are held at John McGrath's house every other month; directions are elsewhere in this Newsletter.

The group doesn't extend invitations to this meeting. It is not a closed meeting. It is OPEN to all SAC members.

All you have to do is have the interest and follow the directions to the McGrath's.

For the March Deep Sky Meeting we will discuss the objects in Steve Coe's What's Up column for January and February. If you have new or old observations, bring them along. If you have no observations and want to know about observing, then come along.

Newsletter Deadline

Mail items for Such-a-Deal at least two weeks before the end of the month. Articles that need to be published in a timely fashion must be submitted or the newsletter editor notified of the article at least 6 weeks before month they are published. Items arriving too late for an issue will be included in the next newsletter.

Saguaro Astronomy Club Member Services Form

Membership

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

- \$20.....Individual Membership
- \$30.....Family Membership (one newsletter)
- \$100.....Business Membership (includes advertising)
- \$4.....Nametag for members
- \$10.....Newsletter Only

Subscriptions

The following magazines are available to members. Subscribe or renew by paying the club treasurer. You will receive the discounted club rate only by allowing the treasurer to renew your subscription.

Sky & Telescope.....\$20.00 for one year

Astronomy.....\$18.00 for one year

Write your name, address, and phone number in the space below.

Make checks payable to SAC.

Mail the completed form to:

Adam Sunshine
SAC Treasurer
20401 N 30th Drive,
Phoenix AZ 85027



SACNEWS

c/o Paul Dickson
7714 N 36th Avenue
Phoenix AZ 85051

Stamp

First Class Mail