

# Saguaro Astronomy Club

Metro Phoenix, Arizona

## SACNEWS



May 1995 — Issue #220

v4.20

### Observer Notes: March Star Party

by Jack Jones

Sunset was at 6:41 PM. There was a group discussion going, while waiting for twilight to end and some were still setting up equipment, on stripping and recoating mirrors with enhanced coatings. The consensus seemed to be that enhanced coating would fade over time and you would quickly end up back where you started. Also mentioned was a horror story about a mirror needing to be refigured after getting a new coating because of difficulty in removing the previous coating, causing low spots.

The sky was very transparent with seeing about a 5/10, but it was a little breezy, making it seem colder than it was. It started out about 60 degrees and sank steadily to around 45. High cirrus clouds of the previous wee were totally absent and the big cumulus clouds moving through all day were gone. Limiting magnitude was about 6.0. There were about 6 scopes and 10 people. The largest scope was a 17.5" dobsonian and the smallest an 8" dobsonian.

The Zodiacal Light was very easily seen in the West around 8 PM stretching up about 45° almost to the Pleiades. Bob Gardner said the Gegenschein could possibly be seen about 11 PM, but it never showed itself, probably because of sky glow from Phoenix in the east.

It was a night to see nearby open clusters in our galaxy, with the Pleiades, the Hyades, The Beehive, and Coma Bernices all visible above the horizon at the same time. There was a galactic 3-D effect, with the clusters, the Milky Way, and nearby stars in Orion, Canis Major, and the big dipper high overhead.

Rick Rotramel had his 16" equatorial set up, and Parks 11x80 binoculars on an Astro-Systems cantilever mount. The binoculars stayed right where they were pointed and seemed totally weightless with the mount. No incoming comet could hide from this rig! NGC 2477, a rich open cluster in Puppis, looked like a huge fuzzy ball in the 11x80s. How did Messier miss it? Rick thought he saw a star near the core of M 104, the Sombrero Galaxy, in the 16", but he could not confirm it. The 17.5" was

### Quick Calendar

**Public Star Party**  
Thunderbird Park  
Saturday, May 6

**SAC Meeting**  
Speaker: Pete Manly on *Airborne Astronomy*  
7:30 PM, Friday, May 12

**SAC Deep Sky Meeting**  
March and April *What's Up* Columns  
7:30, Thursday, May 18

**SAC Star Party**  
Buckeye Hills Recreation Area  
Saturday, May 20

tried, but nobody could catch it there either. Where is a 36" when you need one?

With Spica up high, I remembered that Omega Centauri should be visible in March, and it was spotted easily naked eye at about 4th magnitude low in the south, hanging about 5–10 degrees above the horizon. The 17.5" couldn't see it due to an ill-placed Saguaro, but the 16" could and blew it apart at 200x.

Jim VanDyke had built a 17.5" dobsonian using a Coulter mirror and was testing it out. It was an open-truss design and moved very smoothly with no backlash and was rock solid. M 82, an irregular galaxy, showed a lot of texture and M 51 showed spiral arms and a hint of a "bridge" to its neighbor (although they are not in the same plane, they sure looked like it). He took a chance on the Horsehead Nebula in Orion and, lo and behold, there

### 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

# Public Star Party at Thunderbird Park

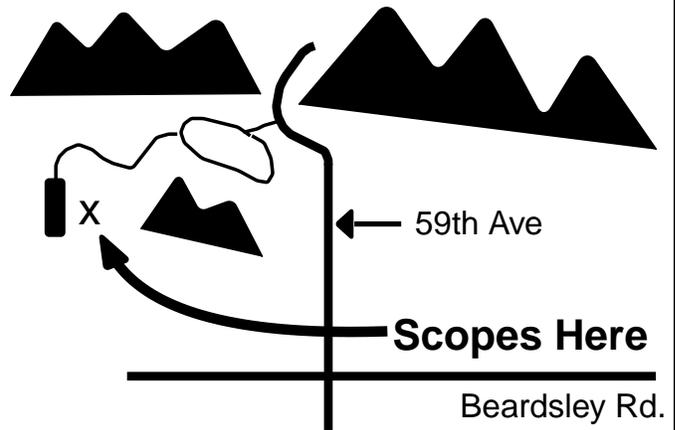
**Saturday, May 6**  
**Sunset to 10 PM\***

Observe the Night Sky

Sponsored by  
Glendale Parks Dept.

Telescopes by Saguaro Astronomy Club  
and other valley clubs

\*Club members bringing scopes should plan  
on setting up beginning at 6 PM



it was to our surprise, large at 150x. He was using a Nagler eyepiece and an Orion Ultrablock filter. He took off the filter and all could still see the Horsehead, a testament to the dark transparent seeing this night.

## Record Setting Marathon by Sam Herchak

This year's Messier Marathon sponsored by the Saguaro Astronomy Club (SAC) was a huge success by any standards. At sunset, fifty-eight telescopes of all types and up to 20 aperture were set up at Arizona City. At dawn, thirty or so still remained.

AJ Crayon, the event coordinator promised M74 would be a difficult object low in the west at sunset but didn't mention clouds! After a terrific clear day, clouds moved in at sunset obscuring M74, 77, 31, 32, and 110 for

most observers. As the night progressed, the clouds crept higher and produced a splendid display of the Zodiacal light beaming up from behind. By 8:30 PM, many people including myself had given up on the sky and were telling stories. Then conditions improved slightly and some people went back to work. I had my doubts but by 9:30 PM, we had beautiful, dark skies that got better as the night went on. Many observers were able to make up M31 and 32 in the pre dawn sky but the other evening objects were lost.

Thirty people officially participated in the Marathon with 13 from EVAC, 8 from SAC, 7 from the University of Arizona, and 4 from the Tucson Amateur Astronomical Association. Two participants even came from the White Mountain Astronomy Group. The most impressive statistic however, is that twenty-two people logged over 100 M objects on this one night.

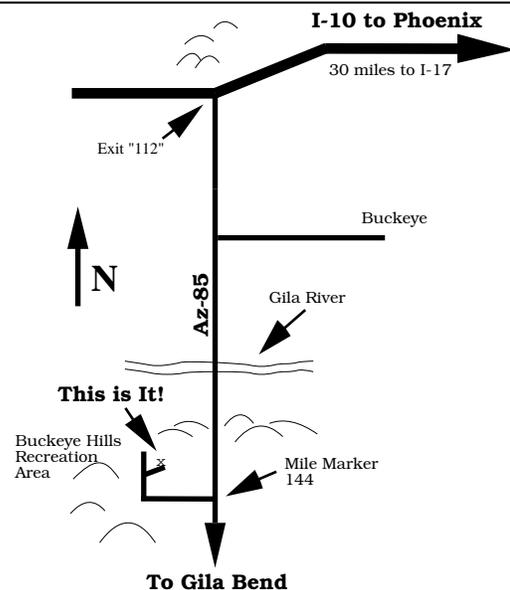
The highest number observed was 107 by three differ-

## 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.



ent individuals; Adam Block & Stephanie Garko from the U of A and Paul Lind of SAC, all of whom used 8 Newtonian reflectors. The highest tally for an EVAC member goes to Don Farley with 106. Equally impressive are first time marathoners Sheri Cahn, Jane Kearney, and Bill Smith. Although a newcomer to observing the sky, Jane found 21 objects with her 20X80 binoculars. Sheri netted 62 before the Virgo Cluster and fatigue took its toll while Bill Smith still managed 79 between his helpful visits to other observers. Congratulations to these winners, the Saguaro Astronomy Club, AJ Crayon, and all the participants who made this a record star party for Arizona.

## Bits and Pieces

### Minutes of the April Meeting

Immediately after opening the Treasurer gave his normal report. Roughly there was \$720.00 in the checking account and \$1175.00 in the savings account.

Rich Walker discussed past and future public star parties. Future ones include National Astronomy Day, May 6th at Thunderbird Park. And a new one put on by the Fountain Hills Parks and Recreation Dept., but no date has been decided upon. Because of the limited week ends available it was suggested that if this were held during the week, that EVAC be requested to assist.

AJ Crayon mentioned the next Deep Sky meeting and went into a mini-Messier Marathon awards presentation. See article elsewhere in this issue — I hope!

Then we discussed the proposed increase in dues. A motion was made and passed that there would be no advanced discounts for 1996 dues. The dues would still be \$30.00 per annum for regular; \$45.00 for family; \$15.00 for newsletter only memberships. The quarterly discounts would still be honored. Rich Walker suggested that members make an effort to talk to visitors, else they will find a more friendly atmosphere to spend their spare time! Steve Coe suggested club fliers at public star parties. Paul Dickson suggested a big decrease in publishing the Newsletter

## Comet Comments

by Don Machholz

(916) 346-8963 CC201.TXT April 9, 1995

With not much comet activity presently, we can look forward to things picking up a bit this summer. Meanwhile, I'm including positions for Periodic Comet d'Arrest (my magnitude predictions are brighter than some sources) and Periodic Comet Chiron. Although

Chiron was discovered in 1977 by Charles Kowal. At that time it was thought to be a minor planet at a large distance. It takes 50 years to orbit the sun, getting as close as Saturn and as far away as Uranus. The diameter is about 130 miles.

6P/d'Arrest					
Date	RA-2000-Dec	Elong	Sky	Mag	
04-23	19h15.7m	+03°23'	100°	M	13.1
04-28	19h26.5m	+04°11'	102°	M	12.9
05-03	19h37.5m	+05°00'	103°	M	12.6
05-08	19h48.6m	+05°49'	105°	M	12.3
05-13	19h59.9m	+06°36'	106°	M	12.0
05-18	20h11.3m	+07°21'	108°	M	11.8
05-23	20h23.0m	+08°02'	109°	M	11.6
05-28	20h34.8m	+08°39'	110°	M	11.4
06-02	20h47.0m	+09°09'	112°	M	11.3
06-07	20h59.4m	+09°31'	113°	M	11.1

95P/Chiron					
Date	RA-2000-Dec	Elong	Sky	Mag	
04-23	11h18.9m	-00°15'	138°	E	15.5
04-28	11h18.2m	-00°07'	133°	E	15.5
05-03	11h17.7m	+00°00'	128°	E	15.6
05-08	11h17.3m	+00°06'	123°	E	15.6
05-13	11h17.2m	+00°11'	118°	E	15.6
05-18	11h17.1m	+00°15'	113°	E	15.6
05-23	11h17.3m	+00°18'	109°	E	15.7
05-28	11h17.6m	+00°20'	104°	E	15.7
06-02	11h18.2m	+00°21'	99°	E	15.7
06-07	11h18.8m	+00°21'	95°	E	15.8

95P/Chiron is quite faint, it has an unusual history and warrants observation by those with larger telescopes.

As Chiron approached perihelion, however, further observations revealed a coma, or very extended atmosphere, forming around the object. At times it even exhibits a faint tail. Chiron has since been classified as a comet; it is the largest comet discovered to date. Although it reaches perihelion next year, it is presently in the evening sky and is a good target for large instruments.

6P/d'Arrest	Orbital Elements	95P/Chiron
1995 July 27.26197	Perihelion Date	1996 Feb. 14.75375
1.34587 AU	Perihelion	8.439422 AU
178.0504°	Argument of Perihelion	339.55286°
138.9874°	Ascending Node	209.38540°
019.5232°	Inclination	006.92994°
0.6140404	Eccentricity	0.3831118
6.51 years	Period	50.73 years
MPC 20122	Source of 2000 Elements	MPC 22797

# What's Up

## by Steve Coe

May 1995

Corvus

The previous two months I have discussed constellations which are not very prominent: Lynx and Sextans. I am doing Corvus for this month and it has always been quite noticeable to me. Once I learned where Corvus is located, its stars formed a memorable pattern for me. Once I started chasing deep sky objects, then the Crow became more prominent; it shares a Messier object with Virgo, it has a nice planetary nebula and lots of pretty bright galaxies. Like so many constellations, however, it never looked like what it is meant to represent to me. If someone can point out the "Crow" within the stars of Corvus, I would love to see it. Unless otherwise noted, all observations are from a 13.1" f/5.6 telescope.

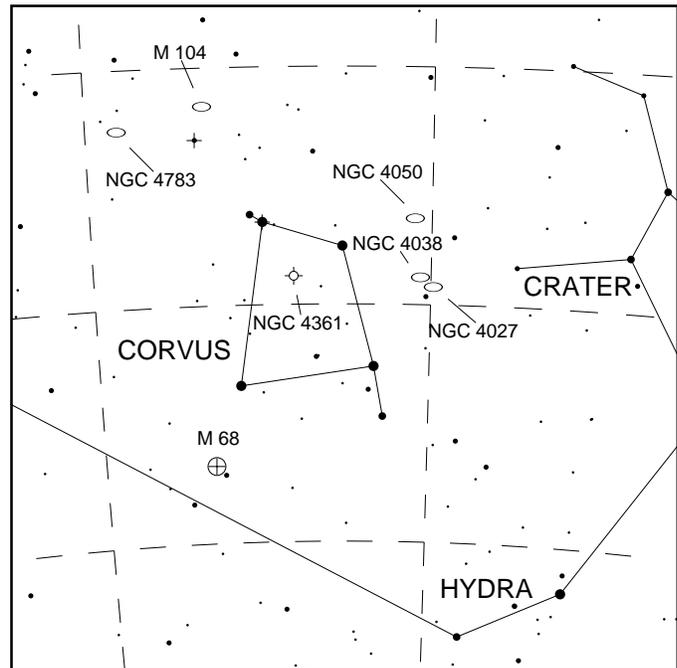
**NGC 4027** is pretty faint, large, elongated 1.5 X 1 in PA 110 and much brighter in the middle at 220X. This galaxy exhibits some nice mottling in the outer section. What I found bizarre is that the central core of this galaxy is elongated in PA 75, much different from the angle of elongation of the main galaxy. I cannot think of another example of an object with a bright core that is skewed in relation to its main body. It is located at: 11hr 59.5min, -19 16.

**NGC 4038-9** shows up as pretty bright, pretty large, irregularly round and somewhat brighter in the middle at 100X. Going to higher powers reveals some of the bizarre nature of this extraordinary galaxy pair. The "shrimp" or "comma" shape of these two interacting galaxies is evident at 165X and 220X. There are several small dark features seen and the entire galaxy pair is very mottled, almost like a sponge, at high power. There are several nice photographs in Burnham's on pages 720 and 721. The gravitational interaction of these two galaxies spews out two thin lines of material that can only be photographed with large scopes, but it did give this pair the name "The Antennae." This pair of colliding galaxies are at: 12hr 01.9min, -18 52.

**NGC 4050** is pretty bright, pretty large, somewhat brighter in the middle. This galaxy is elongated 1.8 X 1 in PA 90 at 165X.

**NGC 4361** is a very nice planetary nebula. My notes say it is bright, large, somewhat elongated (1.5 X 1) in PA 90, and grey in color at 135X. The central star is obvious at all powers. Going to 220X brings out a lumpy, almost "mottled" effect across the face of

this planetary nebula, a strange effect for this type of object. Most planetaries I have seen appear smooth at high powers, this one does not. Look for yourself at: 12hr 24.5min, -18 48.



**NGC 4594** is also **M 104**, and to be perfectly honest, it has precessed over the border into Virgo since its discovery. But hey, it's my article, and I like it in Corvus. Besides, Virgo has enough bright galaxies, she can spare one. In the 13" this object is bright, large, much elongated and has a very bright middle at 135X. Going to 220X brings out the dark lane across the center of this galaxy even more and shows some mottling across the face. There is an 11th mag star to the north of the nucleus. Only long exposure photos show that the dark lane is part of a flattened ring of material around this object that gives it the name "Sombrero Galaxy." It is at: 12hr 40min, -11 37.

**NGC 4783** is pretty bright, pretty small, round and brighter in the middle at 220X. This galaxy is in contact with NGC 4782 and that pair looks like a figure 8. NGC 4783 is a little dimmer than 4782. This pair is at: 12hr 54.6min, -12 34.

### Double Stars in Corvus.

**Delta Corvus** is an easy split at 135X, I see these stars as white and grape-red in color. They are at: 12hr 29.9min, -16 31.

**Struve 1669** is split at 135X, these two sixth magnitude stars are a nice matched white pair. They are located at: 12hr 41.3min, -13 01.

may be achievable. This caught the attendees attention!! After some discussion it was decided that this thought be investigated and a Board of Directors meeting.

At the break there were 22 attendees.

After the break Gene Lucas gave a talk about The Eye in Astronomy. It covered vision, the eye and observing. In the last few minutes Jerry Belcher talked about his rocket and launcher.

# Messier Marathon 1995

by A.J. Crayon

The date, Saturday, April 1, 1995 was no April Fool's joke; it is the Messier Marathon and was chosen on this date, rather than earlier because it was felt the weather would be more favorable. For the three days prior it was very clear. However, just in time for the Marathon, late in the afternoon, clouds formed low on the western horizon.

With observing buddy and family friend for many years David Fredericksen, I caravanned to the site; The Silver Belles Estates, west of Arizona City, AZ. We arrived around 5:30 to find cars, mobile homes, a Port-a-John and many telescopes already set up — waiting.

Around sunset there were 55 telescopes, a half dozen binoculars, tents and campers. The bad news was that bank of clouds had risen to about 15° above the horizon, and were just lingering there. By evening twilight three more scopes had arrived and were set up, making this the largest gathering in Arizona! The clouds obviously blocked M74, M77 et al, so I announce I would start with M42, M43 and M45, getting a head start and hoping to have some time in the morning to see these targets as early risers. Others patiently waited for the clouds to dissipate. The Marathon was on!

We watched a thin crescent moon slide behind the clouds and set. We could see the Zodiacal Light, rising from behind the clouds to its apex at our central meridian.

I got into the marathon order, starting with M79, getting those objects in the sucker holes and ignoring the early setters. A decision for which I paid in the morning hours.

Before completing Ursa Major there were clouds all over the sky, stopping everyone. Discussing this revolting turn of developments, Tom Polakis boldly predicted the sky would be clear to the meridian in two hours. He was more than correct, the sky completely cleared of clouds within an hour and there wasn't a sign of them until I drove to work Monday morning!

Around midnight, some observers not in the marathon begin to politely and quietly leave, without headlights. They deserve a big thanks for not disturbing marathoners, observers and astrophotographers. It is during this time that Dave and I navigate the Virgo Cluster. Don Machholz's *Messier Marathon Observer's Guide* is a real help. This grouping was soooo easy with the book it was a cinch to complete. In fact I used it the entire marathon and highly suggest it to anyone — experienced or not. (I don't get a kick back from Don for that statement.)

By 1:30, M13 and M92 were completed, low on the northeastern horizon. This means I am waiting for objects to rise above the horizon. It was time to take a break and roam the observing grounds for some socializing. There's thirteen observers from EVAC; eight from

SAC; seven from the University of Arizona Astronomy Club; four from TAAA and two from White Mountains Astronomy Group, a new organization. A veritable pot-pourri of clubs, optics and Arizonans. It was great, real great!!

1995 Messier Marathon Results			
Count	Name	Optics	Club
107	Adam Block & Stephanie Garko	8"N	U of A
	Paul Lind	8" f/4.5N	SAC
106	Stephen Alden & Janna Scott	4"Genesis	TAAA
	Don Farley	10"SCT	EVAC
	Bernie Sanden	12.5f5+N	SAC/EVAC
105	Carl Anderson	8" f/6N	TAAA
	Jason Harris	10"N	U of A
	Frank Kraljic	16"N	EVAC
	Heather McFarland	10"N	U of A
	Rick Rotramel	16" f/4.4N	SAC
	Don Wrigley	8"SCT	EVAC
104	Bob Gardner	10"N	SAC
	Robert Kearney, Jr	8"SCT	EVAC
	Ken Reeves	10"N	SAC
103	AJ Crayon	8" f/6N	SAC
	John Durham	10" f/4.5N	EVAC
	David Fredericksen	12.5" f/6N	SAC
102	Sam Herchak & Anne Beeby	13.1"N	EVAC
101	Jack Jones	10" f/4.5N	SAC
96	Flynn Haase	80mmRef	U of A
95	Gene Fioretti & Christopher Fioretti	17.5" f/4.5N	White Mountain
92	R. Mark Elowitz	8"SCT	U of A/TAAA
79	Bill Smith	8"SCT	EVAC
62	Sheri Cahn	8"SCT	EVAC
50	Randy Peterson	6"N	EVAC
21	Jane Kearney	20X80binos	EVAC

Getting on into the early morning hours, 2:00am, I had 35 more to go and Dave had 40 left. The summer Milky Way is a breeze and in an hour and a half we cut our counts down to 8 and 10 respectively and, as I remembered, the early setters. Around this time fatigue had already been a factor and contributes to some errors, which we can ill afford.

With twilight fast approaching, someone calls out M30 rising over a hill, I get M30 as it is just rising. An observer drops by to look at it and comments, "that's the same hill as in my scope!" It was a lot funnier then than now.

Around morning' twilight everybody is scrambling to get those last ones. I help Dave lift and move his 12" Dob about 10 feet so he could find the Andromeda galaxy around his car. He gets M31 and M32. I have to wait a few minutes for it to rise a little higher, and can only see M31 — missing M32 and M110. Both Dave and I finish with the same count, 103 objects.

By 6:00, with all the check off lists collected, Dave and I leave for home, happily exhausted!

The check off lists are used to determine awards and participation. Having 58 telescopes at an Arizona Star Party is a record for our state! It is gratifying to see the Messier Marathon attract this kind of enthusiastic interest. There were 30 participants that turned in their lists, which means not everybody did the marathon. But this is just what it is all about—OBSERVING and enjoying each other's company!! From the following table observing 107 objects took first place, 106 took second and 105 took third. Plates are being awarded to all of those observers. Certificates are being awarded to those with 104 to 50. Note that the awards are nicely spread amongst participating clubs.

For the record, we had the most observers with over 100 objects, 22 people. Two new clubs attended the marathon, University of Arizona and White Mountain Astronomy Group.

In the past three years of marathons the following people have continually finished in top positions Bob Gardner, Frank Kraljic, Paul Lind and Bernie Sanden.

The next Messier Marathon will be held on Saturday, March 23, 1996. Mark your calendars, start your preparations and reserve your spot, the prospect of bagging ALL 110 objects is possible! See you there.

Thanks to all who attended!

## The Spica Graze in June

by Gerry Rattley

On Friday morning, June 9, 1995, at just after midnight a grazing occultation by the Moon of the first magnitude star Spica will occur across south central Arizona. The graze path runs from just north of Gila Bend to Coolidge. It comes in from the west and goes out to the east. The time of central graze will be 12:11.5 AM local at Gila Bend and 12:13 AM local at Coolidge.

After recently going out to look at the roads in these areas, Gene Lucas and myself, Gerry Rattley, have decided that the old highway north out of Gila Bend is by far the best location for observing is event. It is a quiet agricultural road with very light traffic and broad shoulders. To get onto this road from Highway 85 (the main

street through Gila Bend), turn north about 900 feet west of the overpass at the northeast end of Gila Bend. There is a sign there pointing you to Arlington. Also there is a "WSR" sign (probably the sand and gravel company just down the road). The road is paved.

The Moon's altitude during this graze will be about 24 degrees, with an azimuth of 237 degrees, putting it out in a southwesterly direction. The Moon will be 79% illuminated going toward full. The cusp angle is slightly dark but peaks in the area will be lit up. It will not be difficult to time though at it is a first magnitude star. Spica is a triple star, but circumstances are not favorable for resolving components on this graze. However, if you do witness a secondary event, please note it and time it if possible.

Everyone is encouraged to come out to view this event, but in order to do timings you will need a tape recorder and a radio that can receive WWV, the international/universal/standard time signal (watches are not accurate enough). Your station will be preselected and measured for you. If you stay home in Phoenix you can watch an occultation of the star (a dark limb disappearance and a bright limb reappearance). South of Coolidge, e.g. Tucson, they will see a miss, the star will pass south of the Moon.

An update on this article and more on how to do timings will appear in next month's newsletter. It would be helpful for planning purposes if I know you are coming out to the event, either observing or timing, so I will keep a sign-up sheet going around. You can call me, Gerry Rattley, at (602) 892-5698 or Gene Lucas at (602) 837-3718 for more information or to sign-on. You can still show up at the last minute if you like, I will set several extra stations out for unexpected arrivals. Do not be late though, you'll need at least an hour to get a station assignment, find your station and get your equipment working.

For reference to this graze see the *Observer's Handbook 1995* (RASC), pages 116, 119, and 121. Also see the article "Lunar Occultation Highlights for 1995" in the January issue of *Sky & Telescope*, pages 80-82. An article on this graze will appear in the June issue of *Sky & Telescope*.

### 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**—Orion Ultrascopic Eyepieces. 35mm \$90, price new \$135; 25mm \$75, price new \$99.95; 20mm \$60, price new \$89.95; 15mm \$60, price new \$89.95. Call Jim Waters 554-8789 8-5 PM.

# May 1995

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		Mercury 1.9°SSE of the Pleiades (evening)	Eta Aquarid Meteors Peak: 4 P.M. Z.H.R. 40-50 Radiant rises just before dawn	<b>PAS Meeting</b> Brophy Prep. Physics Lab	<b>TAAA Meeting</b> (Tucson)	Astronomy Day <b>Public Star Party</b> Thunderbird Park
	1	2	3	4	5	6
First Quarter Moon 2:43 P.M.				Mercury at greatest elongation 22° (evening)	<b>SAC Meeting</b> Grand Canyon University, Fleming Rm. 105	
7	8	9	10	11	12	13
Sun enters Tauris 2 A.M. Full Moon 1:48 P.M.			<b>EVAC Meeting</b> (SCC: Rm. PS172)	<b>SAC Deep Sky Meeting</b> 7:30 P.M.	Tomorrow Pluto at opposition	<b>SAC Star Party</b> Buckeye Hills (members&guests)
14	15	16	17	18	19	20
Last Quarter Moon 4:36 A.M.	Earth passes through the plane of Saturn's rings			Mars 1.0°NNE of Regulus (evening)		
21	22	23	24	25	26	27
	New Moon 2:27 A.M.					
28	29	30	31	All Times are Mountain Standard Time		

## 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.

# June 1995

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
All Times are Mountain Standard Time			June 1: Jupiter at opposition (moves into evening sky)	<b>PAS Meeting</b> Brophy Prep. Physics Lab  1	<b>TAAA Meeting</b> (Tucson)  2	3
Mercury at inferior conjunction with the Sun (moves into morning sky) 4	5	First Quarter Moon 3:25 A.M. 6	Tomorrow Giovanni Cassini born 1625 7	Tonight 6/9 12:04 A.M. Lunar Grazing Occultation of Spica 8	<b>SAC Meeting</b> Grand Canyon University, Fleming Rm. 105 9	10
11	Full Moon 9:03 A.M. 12	13	<b>EVAC Meeting</b> (SCC: Rm. PS172) 14	15	16	Mercury 1.1°N of Aldebaran (morning) 17
Mercury 3.6°S of Venus (morning) 18	Last Quarter Moon 3:00 P.M. 19	20	Summer Solstice 1:36 PM Sun enters Gemini 4 P.M. 21	<b>Grand Canyon Star Party June 17-24</b>		<b>SAC Star Party</b> Buckeye Hills (members&guests) 24
25	Charles Messier born 1730 26	New Moon 5:50 P.M. 27	28	Mercury at greatest elongation 22° (morning) 29	30	

## Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.-Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

# July 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>						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23/30	24/31	25	26	27	28	29

## Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.–Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

# August 1995

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
All Times are Mountain Standard Time					<b>SAC Meeting</b> Grand Canyon University, Fleming Rm. 105	
		1	2	3	4	5
6	First Quarter Moon 5:53 A.M. 7	8	<b>EVAC Meeting</b> (SCC: Rm. PS172) 9	Full Moon 11:15 A.M. Sun enters Leo 4 P.M. 10	Yesterday Earth passes back through the plane of Saturn's rings 11	Perseid Meteors Peak: 6 A.M. and 9 P.M. Z.H.R. 60+ 12
13	14	15	16	Last Quarter Moon 8:03 P.M. 17	18	<b>SAC Star Party</b> Buckeye Hills (members&guests) 19
Venus at superior conjunction with the Sun (moves into evening sky) 20	21	22	23	24	New Moon 9:30 P.M. 25	Mars 2.0°NNE of Spica (evening) 26
27	28	29	30	31		

## Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.–Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

# September 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>					<b>TAAA Meeting</b> (Tucson)  1	First Quarter Moon 2:04 A.M.  2
3	4	5	Friday Full Moon 8:37 A.M. Mercury at greatest elongation 27° (evening) 6	<b>PAS Meeting</b> Brophy Prep. Physics Lab  7	<b>SAC Meeting</b> Grand Canyon University, Fleming Rm. 105  8	9
10	11	12	<b>EVAC Meeting</b> (SCC: Rm. PS172)  13	<b>SAC Deep Sky Meeting</b> 7:30 P.M.  14	Yesterday Saturn at opposition (moves into evening sky)  15	Last Quarter Moon 2:09 P.M. Sun enters Virgo 10 P.M. 16
17	18	19	20	21	Autumn Equinox 5:14 A.M.  22	<b>SAC Star Party</b> Buckeye Hills (members&guests)  23
New Moon 9:54 A.M.  24	25	26	27	28	Mercury 4.5°SSW of Venus (evening)  29	30

## Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.–Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

# October 1995

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
First Quarter Moon 7:36 A.M. 1	2	3	Yesterday Mercury at inferior conjunction with the Sun (moves into morning sky) 4	PAS Meeting Brophy Prep. Physics Lab 5	SAC Meeting Grand Canyon University, Fleming Rm. 105 6	7
Full Moon 8:51 A.M. 8	9	10	EVAC Meeting (SCC: Rm. PS172) 11	12	13	14
15	Last Quarter Moon 9:27 A.M. 16	17	18	19	Mercury at greatest elongation 18° (morning) 20	All-Arizona Star Party Arizona City 21
Orionid Meteors Peak: 10 P.M. Yesterday Z.H.R. 25 22	New Moon 9:35 P.M. 23	24	25	26	27	28
29	First Quarter Moon 2:18 P.M. 30	Sun enters Libra 2 A.M. 31	All Times are Mountain Standard Time			

## Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.–Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

# November 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>				<b>PAS Meeting</b> Brophy Prep. Physics Lab	<b>SAC Meeting</b> Grand Canyon University, Fleming Rm. 105	
			1	2	3	4
		Full Moon 12:20 A.M.	<b>EVAC Meeting</b> (SCC: Rm. PS172)	<b>SAC Deep Sky Meeting</b> 7:30 P.M.		
5	6	7	8	9	10	11
			Last Quarter Moon 4:41 A.M.	Saturday Saturn's ringplane passes across the Sun	Leonid Meteors Peak: 1 A.M. Tomorrow Z.H.R. 10-storm	<b>SAC Star Party</b> Buckeye Hills (members&guests)
12	13	14	15	16	17	18
Venus 1.3°N of Jupiter (evening)	Wednesday Mercury at superior conjunction with the Sun (moves into morning sky)	Alpha Monocerotid Meteors Z.H.R. 5-100+ Peaks about every 10 years, last was 1985	New Moon 8:42 A.M.	Pluto at conjunction with Sun (moves into morning sky)	Yesterday Sun enters Scorpius 7 A.M.	
19	20	21	22	23	24	25
		First Quarter Moon 11:29 A.M.		Sun enters Ophiuchus 3 A.M.		
26	27	28	29	30		

## Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.-Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

# December 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>					<b>TAAA Meeting</b> (Tucson)  1	2
3	4	5	Full Moon 6:27 P.M.  6	<b>PAS Meeting</b> Brophy Prep. Physics Lab  7	Edwin Hubble born 1889  8	<b>SAC Party</b>  9
10	11	12	<b>EVAC Meeting</b> (SCC: Rm. PS172)  13	Last Quarter Moon 10:33 P.M.  14	Yesterday Geminid Meteors Peak: 3 A.M. Z.H.R. 110  15	<b>SAC Star Party</b> Buckeye Hills (members&guests)  16
Tomorrow Sun enters Sagittarius 9 A.M.  17	Jupiter at conjunction with Sun (moves into morning sky)  18	19	20	New Moon 7:22 P.M.  21	Ursid Meteors Peak: 10 P.M. Z.H.R. 15-50+  22	23
24/31	25	26	27	First Quarter Moon 12:06 P.M.  28	29	30

## Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.-Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

## 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

## 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

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

### SACNEWS

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

Stamp

First Class Mail