

# Saguaro Astronomy Club

Metro Phoenix, Arizona

## SACNEWS



June 1996 — Issue #233

v5.20

## Mirror Cleaning Procedure

by Jack Jones

I have used several different procedures to clean mirrors, but they are mostly experimental and involve special materials and techniques. The following procedure is the classic tried-and-true and easiest method for cleaning an aluminized Newtonian-type astronomical mirror.

Note: Cleaning a mirror is a very personal thing. Do only what you think best for your particular circumstances. For example, if your mirror is still under warranty, follow the instructions in the owner's manual.

Mirror size: I'm assuming a 4-13" mirror.

Frequency: If something is not necessary, it is best to refrain from doing it. You know what they say, "If it ain't broke..." A good guideline is to never clean the mirror, and go from there.

Get ready the following materials and equipment (or equivalent):

Absorbent cotton, 100% USP sterile, 2 oz. roll. Dish soap, Dawn Free (clear)—has no perfumes or dyes. Distilled water (the type for steam irons or batteries), 1 gallon. Turkey baster, glass or one with a good air stream—look in the Yuppie utensil store in the Mall

Cleaning a mirror is like chinese cooking. Everything must be ready to use and the action must be continuous with no interruptions. Turn off the phone and lock the door. Perform the following steps with no pauses during or between steps.

1. Blow off the mirror with the baster; you probably don't even need to clean it. If you still think you must, then remove the mirror from its cell.

Note: Some mirrors cannot be removed from their mounting boards. If the mounting board is bare wood, you do not want to get it wet. Either seal the wood with water sealer or epoxy paint, or be careful with the water.

2. Run a light stream of water in the sink to room (and mirror) temperature and place the mirror under the stream at a slight angle, propped up on a folded hand towel or large sponge so the water runs fully across it and

### Quick Calendar

#### SAC Meeting

Speaker: John Spenser, *The Great Comet Crash*  
7:30 PM, Friday, May 31

#### SAC Star Party

Buckeye Hills Recreation Area  
Saturday, June 8

#### Grand Canyon Star Party

Grand Canyon  
Saturday, June 8-15

#### Dugas Star Party

Dugas  
Saturday, June 15

#### Public Star Party — Reach 11

Tatum & Union Hills  
Saturday, June 22

#### SAC Meeting

*Swap Meet*  
7:30 PM, Friday, June 28

down the drain. Always beware of that faucet: it's a killer. This is another place you can stop. If you feel the mirror is clean enough after rinsing, skip Step 3, which involves using soap.

Note: NEVER touch the cotton that will be touching the mirror with your fingers! Pull straight out from the

### SAC Officers

Area Code (602)

President	Gerry Rattley	892-5698
Vice President	Steve Coe	789-7786
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DIM MOMENTS  
IN  
**AMATEUR  
ASTRONOMY**  
by Paul Dickson

AN OBSERVING  
SESSION IN  
THE MIDDLE OF  
NOWHERE IS  
INTERRUPTED...

..BECAUSE  
YOU'VE  
STUMBLERD INTO  
A DRUG  
STAKE-OUT.

end of the roll and use the underside which has not been touched! (Or your mirror will always have a hazy cast to it and you—as most other mirror-cleaners do—will wonder why.)

3. Wet a medium-sized piece of cotton and apply a few drops of dish soap. Waft the cotton in back-and-forth strokes over the entire surface. (Waft means to lightly move as if on a buoyant medium - look it up.) The running water will gradually rinse the soap from the cotton as you do this but that's OK. Discard the cotton, and either repeat or go ahead and rinse the mirror thoroughly. On the larger sizes, trying to rinse the back of the mirror is where a mishap can occur. It is not necessary to turn the mirror over to rinse the back, so let's avoid it altogether. Make sure the front is fully rinsed of soap by wafting another wad of cotton without the soap this time. Rinse

some more.

4. Turn off the water and tip the mirror up almost to the vertical this time, watching out for that faucet. Pour the distilled water onto the top edge of the mirror and down the face of the mirror. This displaces the high-mineral content water that would permanently spot the mirror if allowed to dry. Pour enough distilled water to give it full coverage. Splashing is OK, it helps rinse the back.

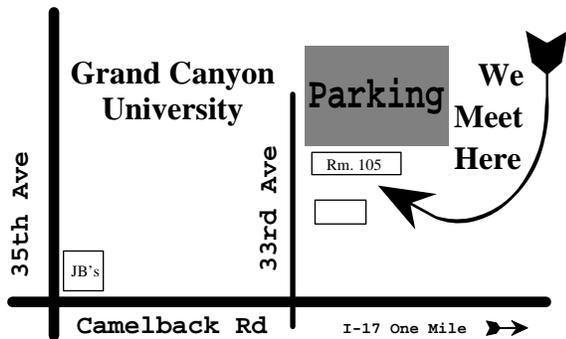
5. Prop the mirror up on a folded towel and allow the distilled water to dry completely. If it's a diagonal, I shake it like a thermometer to get most of the water off. (You can try that, but if it goes flying across the room, don't blame me.) You now have a clean mirror.

**Questions:**

1. **How often should I clean my mirror?** Normally, as far as a vacuum-deposited reflective optical coating less

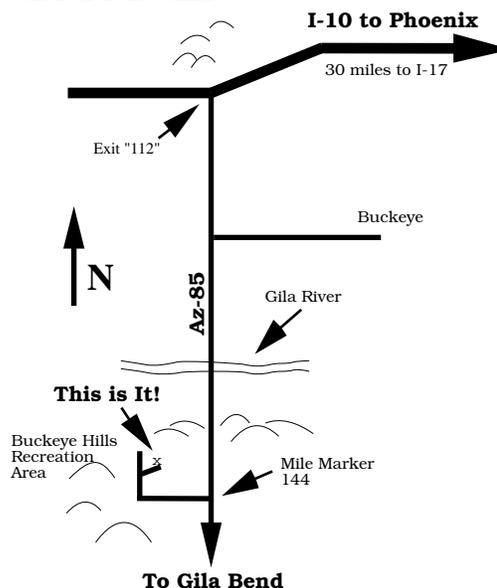
## Directions to SAC Events

**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 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.

**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.



than a micron thick is concerned, if something is not necessary, it is best to refrain from doing it. A good guideline is to never clean the mirror and then proceed from there. However, city-dwelling and seashore telescope mirrors actually benefit from a periodic (3-4 mo.) removal of pollutants. This can extend the life of the coating. Some specialty coatings, like Beryl, are really tough stuff, though, and you can leave them out in the rain (well, not quite).

2. **What about mirrors larger than 13''?** A 10'' fits in the bathroom sink. A 13'' fits in the kitchen sink. Some 16-to-20-inch mirror owners have been known to get right into the bathtub with them. Over 20'' hey, ask the man who owns one.

3. **Should I use canned air, alcohol swabs, lens cleaner, lens tissue, lens brushes, facial tissue, cosmetic (cotton or synthetic) puffs/balls/pads, acetone, bleach, or sulfuric acid to clean my mirror?** No.

4. **What happens if tap water is allowed to dry on the mirror?** Permanent polka-dots.

5. **Is alcohol OK?** Alcohol is fine. This may be tried

between steps 3 and 4 only, if you notice (after normal cleaning) any haze or mottling when looking down the tube with the light just right. Just before Step 4, with the mirror still at a steep angle, slowly and carefully pour alcohol down the face of the mirror. (Use either full strength 91% alcohol, or the alcohol/distilled water mixture recommended in your particular owner's manual. Remember alcohol is a solvent. Do not get any on the back of the mirror as it will erase or smear any markings or QC stamps there. The trick is to get FULL coverage on the front yet don't get any on the back. I use an absorbent washcloth as a dam at the top and the baster to squeeze alcohol on the extreme upper portion of the mirror, and then pour from the bottle to get the rest. Follow immediately with distilled water (Step 4) to avoid deposition of dissolved solids!

6. **What happens if I do accidentally drop the mirror?** Then disregard this entire procedure. Actually, re-coating a mirror is really inexpensive — replacing a mirror is not. Most of the labor cost in a telescope goes into machine- and hand-figuring of the mirror blanks. Making a mirror takes from dozens to hundreds of hours, depend-

nitude 11. Try to get out to see it before it fades. You'll find it in the evening sky, south of Regulus.

# Comet Comments

by Don Machholz

(916) 346-8963 CC214.WPS May 7, 1996  
DonM353259@aol.com

1995 O1 (Hale-Bopp)					
Date	RA-2000-Dec	Elong	Sky	Mag	
05-22	19h35.8m	-15°37'	128°	M	7.2
05-27	19h32.5m	-15°11'	133°	M	7.1
06-01	19h28.6m	-14°44'	139°	M	6.9
06-06	19h24.2m	-14°17'	144°	M	6.8
06-11	19h19.3m	-13°50'	150°	M	6.7
06-16	19h13.8m	-13°21'	155°	M	6.6
06-21	19h07.8m	-12°52'	161°	M	6.5
06-26	19h01.5m	-12°23'	165°	M	6.4
07-01	18h54.7m	-11°53'	168°	M	6.3
07-06	18h47.7m	-11°23'	168°	E	6.2
07-11	18h40.5m	-10°54'	165°	E	6.1

22P/Kopff					
Date	RA-2000-Dec	Elong	Sky	Mag	
05-22	18h57.2m	-15°46'	137°	M	7.9
05-27	19h02.4m	-15°46'	140°	M	7.7
06-01	19h07.2m	-15°51'	144°	M	7.5
06-06	19h11.2m	-16°00'	148°	M	7.2
06-11	19h14.6m	-16°14'	152°	M	7.4
06-16	19h17.2m	-16°33'	156°	M	7.1
06-21	19h19.2m	-16°58'	160°	M	7.0
06-26	19h20.7m	-17°28'	165°	M	7.0
07-01	19h21.7m	-18°03'	169°	M	6.9
07-06	19h22.3m	-18°41'	174°	M	6.9
07-11	19h22.7m	-19°22'	167°	E	6.9

29P/Schwassmann-Wachmann 1					
Date	RA-2000-Dec	Elong	Sky	Mag	
05-22	10h17.4m	+05°20'	93°	E	12?
05-27	10h18.5m	+05°15'	89°	E	12?
06-01	10h19.8m	+05°09'	84°	E	12?
06-06	10h21.4m	+05°01'	80°	E	12?
06-11	10h23.1m	+04°52'	75°	E	12?
06-16	10h25.0m	+04°42'	71°	E	12?
06-21	10h27.0m	+04°31'	67°	E	12?
06-26	10h29.3m	+04°18'	63°	E	12?
07-01	10h31.7m	+04°05'	59°	E	12?
07-06	10h34.2m	+03°50'	55°	E	12?
07-11	10h36.8m	+03°35'	51°	E	12?

Comet Hale-Bopp (C/1995 O1) and Periodic Comet Kopff are within a few degrees of each other in the southern morning Milky Way. Both should be visible in binoculars. Much fainter is Periodic Comet Schwassmann-Wachmann 1, which often shines at magnitude 16. It has recently outburst, attaining mag-

## Orbital Elements

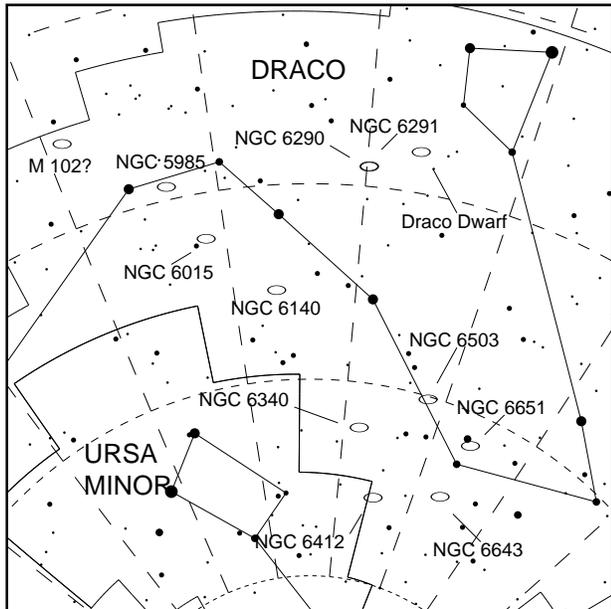
Object:	Hale-Bopp	Kopff	Schwassmann-Wachmann 1
Peri Date:	1997 04 01.14561	1996 07 02.19980	1989 09 09.63574
Peri Dist:	0.9140971 AU	1.5795617 AU	5.7484583 AU
Arg/Peri (2000)	130.592227°	162.83487°	046.24130°
Asc Node (2000)	282.47087°	120.91329°	312.82689°
Incl (2000):	089.42807°	004.72143°	009.38499°
Eccentricity:	0.9950784	0.5440739	0.0440579
Orbital Period:	3000 yrs.	6.45 yrs.	14.75 yrs.
Reference:	MPC 26879 (3-26)	MPC 22032 (1991)	MPC 23105 (1994)

# What's Up by Steve Coe

Draco

June 1996

I have had a chance to take a look at the Cambridge Atlas of Galaxies, thanks to Gerry Rattley for bringing this two volume photographic atlas to the Deep Sky meeting. A.J. Crayon and I were both struck by the



wild variety of galaxy shapes. From the smooth and almost bland ellipticals to beautiful and symmetrical spirals and strange shapes that challenge astronomers to determine how gravity created this form. I am increasingly fascinated by the abundant variety of Nature. Whether looking at animals, molecules, planets or galaxies; it seems that the wide-ranging list of possible shapes and sizes never ends. The same can be said for telescopes, so let's haul out that scope, regardless what it looks like, and view the variety of galaxies that lie on the eastern side of the constellation Draco.

**NGC 5985** is pretty bright, large, elongated 2 X 1 in PA 15, little brighter in the middle, and very mottled at 150X in my 13" scope. This large galaxy has a pretty low surface brightness. It is located at 15 hr 39.6 min

and +59 20.

**NGC 6015** is pretty bright, pretty large and much brighter middle. At 135X there is a faint star involved in the south side. It is at 15 hr 51.4 and +62 19.

**NGC 6140** is at 16 hr 20.9 and +65 23. I saw it as faint, pretty small, little elongated in PA 90, and very little brighter in the middle. The little galaxy is not much at 100X.

**NGC 6290** and **6291** are an interacting pair of galaxies. They are at the limit of the 13" even at the best of sites. They can be detected at 135X, but no definite shape can be determined, just a shapeless glow. If you are looking for a challenge, try 17 00.9 +59 00.

**NGC 6340** is pretty faint, pretty small, round, much brighter in the middle at 135X. There is a double star on the north side. Look for it at 17 10.4 +72 18.

**NGC 6412** is at 17 29.6 and +75 42. I saw it as pretty bright, large, somewhat brighter middle and round. There are two stars involved. It looks very mottled and grainy at 135X.

**NGC 6503** seems pretty bright, large, much elongated 3X1 and somewhat brighter in the middle at 100X. This nice edge-on is located at 17 hr 49.4 min and +70 09.

**NGC 6643** can be found at 18 19.8 +74 34. In the 13" it was pretty bright, pretty large, elongated 2 X 1 in PA 45, and somewhat brighter in the middle at 100X. It is very mottled and there is a double star on the west side.

**NGC 6651** is a challenge at 18 24.3 +71 36. It was extremely faint, pretty large, little elongated 3X2, not brighter in the middle at 100X. This is one of the dimmest objects I have ever been able to confirm seeing with the 13" and that was on a night I rated 10/10 at 8000 ft. in the mountains of eastern Arizona.

The **Draco Dwarf (UGC 10822)** is very faint, large, and elongated 1.5X1 at 60X. There are 10 stars involved across the face of the galaxy. I do not know if these stars are truly members of this nearby Local Group Galaxy. It is just a grainy lump at even this very low power and I was using a dark cloth over my head at an excellent site on a night rated at 8/10 for transparency. I was using a 38mm Erfle eyepiece in a 2" barrel. So, if you are going to chase this very low surface brightness object, put in your lowest power and give it a try at 17 20.2 +57 55.

ing on the size of the blank, the pocketbook of the consumer, and the standard of quality of the manufacturer. And you want to hold it over a porcelain sink with wet hands? Well just be careful and watch what you're doing.

This article was posted on the sci.astro.amateur newsgroup about a year ago, but has since been rewritten to incorporate comments received and other improvements.

## Swap Meet at June Meeting

There will be a swap meet at the June SAC meeting. If you have astronomical stuff lying around, no longer of

interest to you, bring it to the meeting. Maybe you can sell or trade it with someone else.

## 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.

# Dugas Star Party

A.K.A.

The "I Can't Make It To The Grand Canyon" Star Party

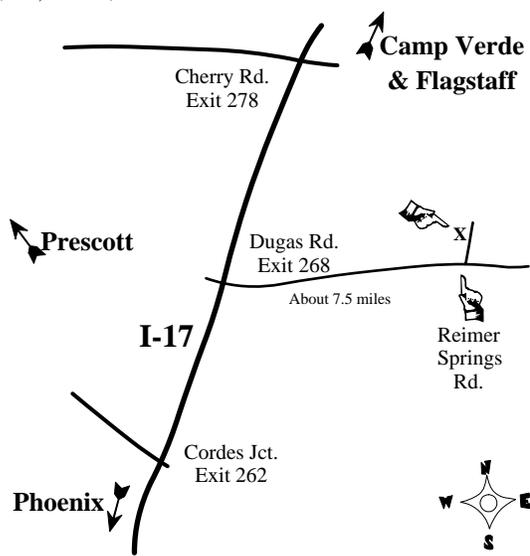
Saturday, June 15

For those of you who don't have the time to get to the Grand Canyon, here is a much closer star party also held at high altitude.

The Dugas site has been used a long time by SAC. For those living in north Phoenix, the site isn't much further than Buckeye Hills, but since it's at 4000+ feet in altitude, it will be much cooler. Bring warm clothes and insect repellent. There are tentative plans for a port-a-pottie on site if a company can be located to deliver it.

From Interstate 17, go about 7.5 miles east on Dugas Rd. Turn left at Reimer Springs Road. This

will be the only road that goes left for several miles. After turning left, follow the road over the ridge (about 300 yds) and you are at the site.



## SAC's 110 Best of the NGC

At the April SAC meeting, copies of the book *SAC's 110 Best of the NGC* was shown and all copies sold out. A second printing of Paul Dickson's 126 page book was made, and all copies were sold within a month. A third printing has now been done and copies will be available at the May SAC meeting. The price is \$5 if purchased at the SAC meeting. It is now four dollars more to have a copy mailed. If you write a check, please make it payable to SAC.

This book provides finder charts for all of SAC's Observing List: 110 Best of the NGC. If you use this book to take notes about each object, you can turn it in to receive the 110 Best of the NGC plaque. Each object is presented in a field six degrees on a side. This book also provides you with a little information about each object, including references to other book for pictures and data.

This observing list is a list of Deep-Sky objects to observe after finishing the Messier Catalog. A lot of these objects are good enough that they should have been in Messier's Catalog. For a comparison, the Caldwell Catalog, recently published in *Sky & Telescope*, has 33 objects in common with this list.

If you can take your copy of the book and some order forms to the Texas Star Party or the Riverside Telescope Makers' Conference (RTMC), please do so. Paul Dickson can provide you with extra copies of the order forms.

All money collected after paying expenses goes to the club.

## Bits and Pieces

### Coming Events

#### Star Parties

Grand Canyon	Jun. 8-15
Dugas	Jun. 15
All-Arizona	Oct. 11-12

#### Public Star Parties

Reach 11	Jun. 22
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## Administrivia

This is the place where I tell you a little about how the publishing of SACNEWS is going. There have been some changes in the past year. The most significant is that the SAC mailing list (i.e. labels) is now maintained by the SACNEWS editor (once again). When I started in this position, the editor usually took care of the labels, but since I did not have a PC nor a printer, I could not print the labels.

Well things change. Last August I got a PC and this year the new treasurer did not have a PC. So I took over maintaining and printing of mailing labels. Of course things were not that easy, as some of you are aware. Between the old treasurer, the new treasurer and myself, some renewals got lost. They were recorded, but that fact wasn't reflected in the list I was maintaining. This was finally straightened out by the March SAC meeting. The next time we switch treasurers, this shouldn't be a problem.

#### Milestones

In the publishing of SACNEWS I have passed three milestones (or are they millstones). When I published

last December's newsletter, it brought the total number of SACNEWS newsletters I have published to one more than any previous SACNEWS editor. Previously, Gerry Rattley had been involved with the publishing of SACNEWS for 5 years, 11 months. With this issue, I'm at 6 year and 6 months and still going.

Another milestone that I've reached is, with this issue, I have done more than one-third of all SACNEWS newsletters. Just think, in another six and a half years I'll have done half of all the newsletters.

The third milestone occurred with the March newsletter. Issue #230 was the 75th SACNEWS newsletter I published. This means I have less than two years before my 100th issue. At least I already have enough "Dim Moments" to last that long. Which brings me to the next topic.

**Need Articles**

For the last year I have been fortunate to have a collection of articles waiting to be published. Well, the queue is now empty. I need articles to fill otherwise blank pages. I will accept just about anything related to amateur astronomy. Even if you are a beginner, you can still write an article.

An article could be written about an observing session/star party. There is a SAC handbook in its preliminary design stage. Maybe a number of articles could be written for the beginner, with the articles finally being placed in the handbook.

# SACNEWS Puzzle #2

## Answers

by Paul Dickson

CLAP C  
 CB LUV  
 CALM COT  
 GO A PACE  
 SPEC

Let's try a second batch. Each letter again refers to the first letter of a constellation. The puzzle is to figure out what constellation shares all of its borders with the given constellations. These are also sorted north to south.

# SACNEWS Puzzle #1

## Answers

by Paul Dickson

CCD  
 DUCAL CUP  
 PAPA  
 SAFE PAT  
 PIG HOE

I got one correct response from Jack Jones.

**CCD = Ursa Minor.**

Cepheus, Camelopardalis, Draco.

**DUCAL CUP = Camelopardalis.**

Draco, Ursa Major, Cepheus, Auriga, Lynx, Cassiopeia, Ursa Minor, Perseus.

**PAPA = Triangulum.**

Andromeda, Perseus, Aries, Pisces.

**SAFE PAT = Cetus.**

Sculptor, Aquarius, Fornax, Eridanus, Pisces, Aries, Taurus.

**PIG HOE = Tucana.**

Phoenix, Indus, Grus, Hydrus, Octans, Eridanus.

## Grand Canyon Star Party '96

South and North Rim

June 8-15

If you need a room to stay in, you had best start NOW. If you can stand the 7 mile drive to Tusayan, there are also a number of motels there. Campsites are generally available a day or two ahead of time (\$10/night). RV parking with a full hookup is available in Trailer Village (\$17/night). Again, early reservations are advised.

If you need further information, or to let us know you would like to volunteer by bringing a telescope, PLEASE let us know at the address below. The space in the observing field is limited and we need to know how many folks we have coming that are bringing scopes. Be sure to have some housing plans before you let us know you are coming!

For **South Rim information**, write: Dean Ketelsen, 1122 East Greenlee Pl., Tucson, AZ 85719, (520) 293-2855 [ketelsen@as.arizona.edu](mailto:ketelsen@as.arizona.edu)

For **North Rim information**, write: Deloy Pierce, P.O. Box 674, Farmington, UT, (801) 451-8215

**South Rim Lodging:** (all area code 520) All rim lodging or Trailer Village (Fred Harvey, Inc) 638-2401 Campsites (MISTIX — no more than 8 weeks in advance) (800) 365-2267. Housing in Tusayan (7 miles south of Grand Canyon): Squire Inn 638-2681, Moqui Lodge 638-2424, Quality Inn 638-2673, Red Feather Lodge 638-2414, and Seven Mile Lodge 638-2291.

**North Rim Lodging** — (801) 586-7686 North Rim Camping (MISTIX — no more than 8 weeks in advance) (800) 365-2267.

# June 1996

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>						Full Moon 1:49 P.M.	
	<div style="border: 1px solid black; padding: 5px;"> <b>Monday, June 10:</b>            Mercury at greatest elongation 23.7°            (morning)            Venus at inferior conjunction            (moves into morning sky)         </div>					Saturday Last Quarter Moon 4:07 A.M.  <b>TAAA Meeting</b> (Tucson)	<b>SAC Star Party</b> Buckeye Hills (members&guests)
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>Grand Canyon Star Party</b>            June 8–15         </div>			<b>EVAC Meeting</b> (SCC: Rm. PS172)	Yesterday Mars 4.1° of Pleiades (morning)	Tomorrow New Moon 6:38 P.M.	<b>Dugas Star Party</b> Dugas, Arizona	
Mercury 3° of Mars (morning)			Tomorrow Sun enters Gemini 10 P.M.	Summer Solstice 7:25 P.M.		<b>Public Star Party</b> Reach 11	
June 23: First Quarter Moon 10:25 P.M. June 30: Full Moon 9:00 P.M.	Yesterday Mercury 1.5° of Venus (morning)			Galileo flies by Ganymede at 500km	<b>SAC Meeting</b> Grand Canyon University, Fleming Rm. 105	Yesterday Venus 4° of Mars (morning)	

## 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 prorated as follows: Jan - Mar 100%, Apr - Jun 75%, Jul - Sep 50%, Oct - Dec 25%.

- \$28.....Individual Membership
- \$42.....Family Membership (one newsletter)
- \$100.....Business Membership (includes advertising)
- \$4.....Nametag for members
- \$14.....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 club treasurer to renew your subscription.

- Sky & Telescope.....\$24.00 for one year
- Astronomy.....\$20.00 for one year

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

Make checks payable to SAC.  
Mail the completed form to:

Regina Lawless  
SAC Treasurer  
5808 E Turquoise,  
Scottsdale AZ 85253

## 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.

### 1996 SAC Meetings

Jan. 5  
Feb. 2  
Mar. 8  
Apr. 5  
May 31  
Jun. 28  
Jul. 26  
Aug. 30  
Sep. 27  
Oct. 25  
Nov. 22  
Dec. 14 Party

### 1996 SAC Star Parties

Date	Sunset	Moonrise
Jan. 20	5:48pm	8:50am
Feb. 10	6:08pm	12:10am
Mar. 16	6:36pm	5:16am
Apr. 13	7:02pm	4:00am
May 11	7:16pm	2:34am
Jun. 8	7:33pm	1:15am
Jul. 6	7:43pm	11:57pm
Aug. 10	7:16pm	4:46am
Sep. 7	6:43pm	2:26am
Oct. 5	6:06pm	1:11am
Nov. 2	5:35pm	11:54pm
Dec. 7	5:21pm	5:02am

**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

### Inside:

- Mirror Cleaning Procedure by Jack Jones
- Dim Moments by Paul Dickson
- Comet Comments by Don Machholz
- What's Up by Steve Coe
- Dugas Star Party — June 15
- SACNEWS Administrivia by Paul Dickson
- SACNEWS Puzzle #1 Answers
- SACNEWS Puzzle #2 by Paul Dickson
- Public Star Party — June 22