

Saguaro Astronomy Club

Metro Phoenix, Arizona

SACNEWS



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History of the SAC Databases

by Steve Coe

I have been an avid deep sky observer for going on 20 years and anyone who starts down that path will quickly acquire a hunger for information on galaxies, nebulae, star clusters and double stars. This hunger for data first led me to buy an Apple II+ computer in 1980 and then to type in information from Burnham's Celestial Handbook on the best 1000 objects in the sky. I did not do this alone, Bill Anderson and Ken Sikes also entered objects and we quickly learned to double check each other. Bill, Ken and I called our achievement the "Astro-guide" and I still use it occasionally, when I only need the RA, DEC, Magnitude

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and Size of an object. The Astro-guide was useful, but I found I wanted more. Not only more objects, but more info on each deep sky goodie, so I could be certain I had found the correct object.

I sold my Apple and bought a new MS-DOS computer in 1982. All of my IBM clones have been purchased from Rycorn Corp. in Phoenix. The XT clone computer was much more powerful than my Apple and its hard disk storage system allowed larger databases to be explored. It all came together when Bill Anderson acquired the RNGC on 9 track tape from a friend at Ohio State University. We were quickly able to download this data onto our MS-DOS computers and start to use the Paradox database manager program to manipulate the information. At the same time, I got together a group of club members who I thought would be willing to help with a variety of tasks associated with releasing a copy of the database to the public.

Because many users of the data would be using a Tirion Sky Atlas, the most prolific star chart at this time,

Quick Calendar

SAC Meeting

Randall Whitlock on *How to Spot a Meteorite*
7:30 PM, Friday, July 14

SAC Deep Sky Meeting

May and June *What's Up Columns*
7:30, Thursday, July 20

SAC Star Party

Buckeye Hills Recreation Area
Saturday, July 22

we decided to preprocess the data to epoch 2000 coordinates. Fortunately, an article in Astronomy magazine had just released a Basic computer program that would do that very thing. Bill Anderson typed in the program and checked it for accuracy. When we were certain it would return the correct values, all the data was updated to 2000 coordinates.

The major problem from this time is that George DeLange and Bob Erdmann were also interested in a database consisting of astronomical objects. They had decided to sell a commercial database, while the SAC group wanted to have a public offering. Unfortunately, the two groups were not able to smoothly go their separate ways. I will jump to end of the story for a quick update and let you know that the old animosity has healed itself and Bob Erdmann and I have gone scoping together several times

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since we called off the database feud a year ago.

Now, back to the data thrash. I learned at this time that the RNGC is not a very good source of deep sky information. It contains many errors and declares almost one thousand of the NGC objects to be “non-existent.” However, the SAC database construction team made several friends in this time period that helped greatly in assuring the data is as free of errors as possible.

Brian Skiff has worked for many years at Lowell Observatory in Flagstaff. His expertise in finding, identifying and cataloging deep sky objects is tremendous. He provided the SAC team with many resources that helped us to check the accuracy of the data.

Dr. Harold Corwin is the leading expert on the NGC in this arm of the Milky Way. His errata list for the RNGC helped us to avoid carrying forward many problems. As

I had always wanted a double star database that went beyond the binaries in Burnham’s.

time went on, we felt that we were putting together a very worthwhile and useful database.

I now want to list the SAC members who entered data, checked data and really did the work to make it happen. Paul Maxson, Alan Gore, Dean Corn, Bob Dahl, Paul Dickson, Gene Lucas, Mike Willmoth, Jean Goddin, Mike Janes, Jim Knott, John McGrath and Tom McGrath are the team of folks who deserve kudos for many hours spent in front of the computer.

So, we released version 4.0. All the previous versions were either exact copies of the RNGC or added a few objects from Burnham’s Celestial Handbook. Also, several

of the versions before 4.0 were internal to the team and were not ready for public use.

Also, at this time, Dan Ward and A.J. Crayon wrote a program to give out with the database that allowed users to search the files and output a variety of reports. The SACREP program (named for SAC REPort generator) allows the user to search for just one object, a range in RA and DEC or search by constellation. It is MUCH easier to use than a large database manager program and provides some flexibility in how the data is presented and how the user can set up an observing list using the SAC deep sky database. I am certain that many users of the SAC data are thankful to A.J. and Dan for their time and effort.

Version 4.0 provided a good deep sky database with a wide variety of every object type. I put an advertisement in Astronomy magazine, Deep Sky and Observer’s Guide that we would send two 360K diskettes to people who desired the database. The cost was two dollars US and five overseas. We received about 100 “orders” in the first few weeks and a consistent 3 to 5 per week thereafter. Many observers wrote to say “thank you” for the data.

I included a request for anyone who found an error to send them to me and as time went on, we got a list of a hundred or so typos and errors from the original catalogs. This was motivating me to consider a revised edition at a later date, when I got together with Jeff Weintraub. He was typing in all the Non-NGC objects from the recently-released Sky Catalog 2000. I helped him, by starting at the end and going backward. We met somewhere in the middle and started double-checking each other’s entries. Now, I really was ready to do a revised edition.

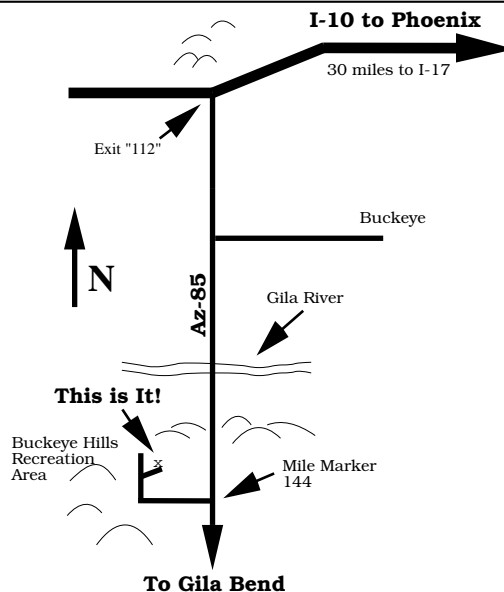
I re-assembled the team and we entered data that was in Sky Catalog 2000 and not in RNGC, such as Notes. After a complete double check, version 5.0 was released and now we really had a solid, well-constructed database

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.



of the latest data. This was 1989 and version 5.0 ran on my "AT" computer for several years. As I did the Herschel 400 and provided observations to the Observer's Guide project, it was info from version 5.0 of the SAC data that I trusted to lead me around the sky.

I decided to put together a mailing to the folks who had received version 4.0 and A.J. Crayon and I wrote a form letter that told of the availability of version 5.0 on one of the "new" 720 K diskettes. To be honest, I did not keep track, but I know that many of the version 4.0 users did sent in another 2 bucks for the upgrade.

At this time Alan Gore decided that he wanted a printout of the brightest objects in the sky, so that he could use it at the telescope. He worked for a few weeks to put together a program to do that and printed a 200 page output that includes all objects brighter than 12th magnitude. This has been very useful to me and I know that lots of people who are not computer users appreciated this printout of the best of the sky. It includes double stars, red stars and the SAC deep sky data.

Well, it would be nice if time stood still, but I did receive some errors in version 5.0 that had made it through our double-check. Also, Dr. Corwin had released the RC3, the Reference Catalog of Galaxies, version 3. It contains information and notes that were not available to version

5.0 and also surface brightness info. He was nice enough to provide me with that information in a format I could easily incorporate into the SAC data and I knew that it was time to consider another release. I also added some of my own observations to non-NGC objects with no description. Also, Alister Ling had gotten me some info on planetary nebulae that was not easily available and I wanted to enter that into the SAC data. Once those additions and changes were completed, version 6.0 arrived; and that is where the SAC deep sky database is today.

This version is incorporated into several other products on the market. The Sky_Map program by Chris Marriot uses the info in the SAC data to add deep sky objects to his shareware planetarium program.

After all this, you would think that was enough, but I had always wanted a double star database that went beyond the binaries included in Burnham's. I got a chance to do just that when Bill Anderson acquired a copy of the Washington Double Star catalog on disk. After considering just how much of this massive catalog would be useful to amateur astronomers, we agreed on some cutoff points and checked to see that the data was good. Dan Ward and A.J. Crayon displayed their dBase skills again and wrote a program to search the data. The SAC double star database was born.

Comet Comments

by Don Machholz

(916) 346-8963 CC203.TXT June 8, 1995

Periodic Comet d'Arrest continues to brighten as it heads south in our morning sky. It reaches perihelion on July 27, while it is closest to the earth at 0.41 AU in early August.

Only one comet has been discovered so far this year, and that was a faint photographic find from Kitt Peak in January. Since 1975, there have been only three other years with so few finds for the first five months of the year. In both 1979 and 1982, a photographic discovery occurred early in the year, followed by a second comet discovery in June. In each case this second comet was a visual find by a Southern Hemisphere observer: William Bradfield of Australia in 1979 and Rodney Austin of New Zealand in 1982. Then in 1985 the first comet discovery didn't take place until May, and that was a visual find by myself. The next was a photographic discovery in June.

There are several reasons for this slow activity. First, there simply may not be any easily discoverable comets coming in right now. This happens from time to time. Although amateurs average 3.3 visual finds per year, some years yield no visual finds, while others show as many as seven discoveries. Secondly, poor weather has prevented thorough searches of the sky from some locations. For example, I've been able to accumulate 90 hours of comet

hunting this year. Although this is at the same pace as in previous years, excessive cloudiness has not allowed me to always search the areas I've wanted to cover. Finally, professional observatories do not consistently carry out the same programs month after month. The Shoemakers, along with other teams surveying the sky, may go several months before getting back to the telescope.

6P/d'Arrest					
Date	RA-2000-Dec	Elong	Sky	Mag	
06-22	21h38.8m +09°31'	117°	M	10.4	
06-27	21h52.7m +09°01'	119°	M	10.2	
07-02	22h06.8m +08°12'	121°	M	9.9	
07-07	22h21.3m +07°01'	123°	M	9.7	
07-12	22h35.9m +05°26'	126°	M	9.5	
07-17	22h50.6m +03°27'	128°	M	9.4	
07-22	23h05.3m +01°02'	131°	M	9.3	
07-27	23h19.7m -01°47'	134°	M	9.2	
08-01	23h33.5m -04°57'	136°	M	9.1	
08-06	23h46.6m -08°23'	139°	M	9.1	
08-11	23h58.8m -11°58'	142°	M	9.1	

Orbital Elements	6P/d'Arrest
Perihelion Date	1995 Jul. 27.36197
Perihelion Dist.	1.34587 AU
Argument of Perihelion	178.0504°(2000)
Ascending Node	138.9874°(2000)
Inclination	019.5232°(2000)
Eccentricity	0.6140404
Period	6.51 years
Source	MPC 20122

I would like to be able to say that all went well, with no problems, but that is tough to do with so many places for errors can creep in. When we precessed the 1950 coordinate to the year 2000, the precession routine did not like the way the data was set up from the Washington Double star catalog. The WDS fed in declinations such as $-00^{\circ} 34'$ in such a way that the answer exceeded 90 degrees! It was quickly discovered that the WDS data was in a different format than the RNGC data and so the precession needed to be changed to deal with negative zero values. The release of version 2.1 of the SAC double star database was a big success and very few errors have been found. I have received a variety of big "thank you's" from double star observers for providing this information.

Well, I have certainly learned a lot about astronomical data, what kinds of information are trustworthy and what to make certain you double check. Even though we have taken many hours to create and re-create the SAC databases, it is certainly worth it when I want to easily and quickly make up an observing list for a sparkling clear Arizona night.

Bits and Pieces

Minutes of the June 5 Board Meeting

In attendance were Pierre Schwaar, Paul Dickson, Bob Gardner and AJ Crayon.

Sites: The sites on the east and west side of the White Tank Mountains were discarded. The east side site was rejected because of severe light pollution and the west side because of distance and position of Phoenix sky glow in the eastern sky. The search will continue if a better site is found that is closer to Phoenix than Buckeye, not too light polluted; not well traveled by non-astronomers and has a minimal of dust. Any suggestions?

AZ Science and Technology Center: Pierre Schwaar has taken the lead to investigate this to determine if there is any mutual interest between our two organizations.

Dues: After a lengthy discussion over a set of voluminous figures provided by Paul Dickson, it was agreed to that the best dues for 1996 be set at \$28.00. This was based on a conservative count of about 65 members and would constitute a break even point. If club membership stays about this number, as it has in the past, then the club would be financially solvent. Going below would cause problems. It was also agreed that there be no advance discount; family membership of \$42.00 and newsletter only of \$14.00 would be continued.

—A.J. Crayon, SAC Secretary

Minutes of the June Meeting

Immediately after opening the meeting our President noted the club Star Party date for June 24th which is

three Saturdays after the meeting instead of the normal two.

Next, visitors were asked to introduce themselves; two did so.

Rich Walker reviewed the last Public Star Party at Thunderbird Park; it was clouded out. There are no more planned Public Star Parties as of the club meeting.

AJ Crayon announced the Deep Sky Group meeting as being after the July meeting. Constellations in Steve Coe's "What's Up" column are Corvus and Coma Berenices and will be discussed.

Now about the dues increase. The President opened the discussion for dues increase for 1996. AJ Crayon recommended the dues for 1996 to be \$28.00, as decided upon at the Board of Directors Meeting held four days before the Club Meeting. There was no response to a request for discussion. The vote, following the motion to do so, was unanimous. Twenty-six members voted for the new dues. There were no nay votes.

Jerry Rattley happily gave a short talk about the just completed Spica graze, which occurred a mere 20 hours or so before our meeting. It was a good graze with a great turn out. He promised a detailed analysis after having more time to study the timings; once they are turned in.

Tom Polakis announced a trip to Kitt Peak for August. The cost is \$20.00 and there's 18 seats available. The seats are available on a first come first serve basis.

For Show-n-Tell Pierre Schwaar first showed a video of Alpha Cancri being occulted by the Moon. Next was another video of the Spica graze. Tom Polakis also showed another video of the same graze, taken from a different station. He also had a slow motion frame advance wherein all could see the star slowly being occulted by lunar mountain peaks. An excellent example of a very close double star.

For the break there were 33 people in attendance and the hottest topic was the videos of the graze.

After the break, Vice President Susan Pritchard introduced the evening's speaker. He was Dr. Peter Wehinger from ASU and known to many SAC members. His topic was the construction of a 16" Ritchey-Chretien for use by ASU Astronomy Students and will be located on the campus. Naturally light pollution, filters and shields were in the discussion. The telescopes activities are available on the Internet at the following address: ccdobs@la.asu.edu.

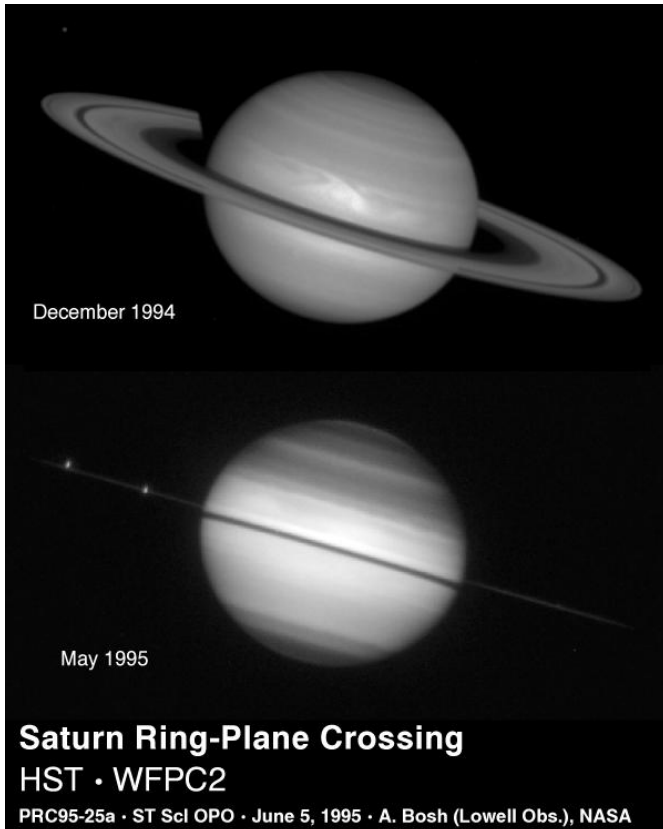
Talking about observing sites, he told the story of a trip to Mauna Kea when the North Celestial Pole crossed the meridian and he could see the Milky Way all around the horizon. [Can I be next to go see this? aj]

After the meeting was over many members, the speaker included, adjourned to a local restaurant for some nourishment and more discussions.

—A.J. Crayon, SAC Secretary

Saturn's Rings Edge-On

In one of nature's most dramatic examples of "now-you see-them, now-you-don't", NASA's Hubble Space Telescope captured Saturn on May 22, 1995 as the planet's magnificent ring system turned edge-on. This ring-plane crossing occurs approximately every 15 years when the Earth passes through Saturn's ring plane.



For comparison, the top picture was taken by Hubble on December 1, 1994 and shows the rings in a more familiar configuration for Earth observers.

The bottom picture was taken shortly before the ring plane crossing. The rings do not disappear completely because the edge of the rings reflects sunlight. The dark

band across the middle of Saturn is the shadow of the rings cast on the planet (the Sun is almost 3 degrees above the ring plane.) The bright stripe directly above the ring shadow is caused by sunlight reflected off the rings onto Saturn's atmosphere. Two of Saturn's icy moons are visible as tiny starlike objects in or near the ring plane. They are, from left to right, Tethys (slightly above the ring plane) and Dione.

This observation will be used to determine the time of ring-plane crossing and the thickness of the main rings and to search for as yet undiscovered satellites. Knowledge of the exact time of ring-plane crossing will lead to an improved determination of the rate at which Saturn "wobbles" about its axis (polar precession).

Both pictures were taken with Hubble's Wide Field Planetary Camera 2. The top image was taken in visible light. Saturn's disk appears different in the bottom image because a narrowband filter (which only lets through light that is not absorbed by methane gas in Saturn's atmosphere) was used to reduce the bright glare of the planet. Though Saturn is approximately 900 million miles away, Hubble can see details as small as 450 miles across.

Credits:

Top photo: Reta Beebe (New Mexico State University), D. Gilmore L. Bergeron (ST ScI) and NASA.

Bottom photo: Amanda S. Bosh (Lowell Observatory), Andrew S. Rivkin (Univ. of Arizona/LPL), the HST High Speed Photometer Instrument Team (R.C. Bless, PI), and NASA.

Arizona's High Power Rocket Launch

July 1 – 3

No Impulse limit Waiver to 28,000 ft

Observing is Free

The Flagstaff launch site is located 22 miles north of Flagstaff on Highway 89. Exit highway one mile north of Wupatki National Monument's north entrance, at Hank's Trading Post. Stay to left, approximately 2.9 miles to launch site. Lodging is available in Flagstaff.

For more information, contact SAC member Jerry Belcher at 938-2932.

The Dilbert Principle

In an admittedly unscientific survey conducted by the creator of the Dilbert comic strip, respondents cited "Idiots Promoted to Management" as their number one concern. Scott Adams notes that this trend is a shift away from The Peter Principle, where capable workers are promoted until they reach their level of incompetence. Now incompetent workers are immediately moved to the area where they can do the least amount of harm — management — without ever passing through a temporarily competent stage. One test of whether you're prime management material, according to Adams, is whether you think the following words are communication or gibberish: "The Business Services Leadership Team will enhance the organization in order to continue on the journey toward a Market Facing Organization (MFO) model. To that end, we are consolidating the Object Management for Business Services into a cross strata team," (actual office memo). (Wall Street Journal 5/22/95 A12) Quoted from NewtNews-049-05Jun95.

Early Report on Results of the **Spica Graze** by Gerry Rattley

Well it happened and we were there to see it. The Gila bend skies were very clear. The seeing was about what you would expect from the Arizona deserts, not good, but passable. Gene Lucas and I arrived Thursday afternoon, and after checking into the Space Age Motel in Gila Bend, went out to the sight and set out the observing stations.

Around 7 PM or so we were done and went back into town for dinner. Several observers arrived around sunset and nearly everyone was there by 10 PM. In all, 29 people came out to observe and time. Four came from Yuma, 6 from Tucson, 1 from Prescott, with the rest being from the Phoenix area. 21 stations timed, with 6 people just viewing. 5 stations video taped the event. At least one station failed to get data, but he gave it a valiant effort (he was video.)

I know of one other expedition to time this graze in Arizona. It was lead by Jim Stamm from the Tucson area. He was to lead about a half-dozen people out to the Dudleyville (between Superior and Oracle on State Hwy 77.) I have not yet called him to find out how he did, but I will and I'll let you know next month.

All of our stations were set out between a quarter-mile south of the predicted limit to about a mile and a half north of it. All stations got data and all had at least two pairs of events (a pair being a disappearance and its associated reappearance.) I do not yet know who got the most events, or if any got more than 4 pairs.

Gene and I went back out to the site Friday morning and measured each station that timed. As we set out the stations we left a lettered cone at each station and piled a half-dozen rocks near the cone. Each cone had a different letter on it (A-S, no Q) and the pile of rocks was sprayed with fluorescent red paint. At graze time, each observer was asked to put one of the red painted rocks from the pile under his telescope so we could locate his position for measuring the next day. This worked successfully, as every station had a red rock clearly moved from the pile to a spot that was well trampled.

Several people wanted to know what they needed to report to me. The information I need to know from you is your telescope size, focal ratio, drive system, eyepiece or power, the time you started observing, the time you stopped observing, the end times for any interruptions to your observing run, and of course your event times to the nearest tenth of a second. Do not try to apply a reaction time to these timings, but it would be nice to know if you feel the timing was good or poor for each event. A good timing will have a reaction time of 0.2 to 0.3 seconds and a poor timing will be worse than half a second.

Also I need to know your timing and recording method (e.g. WWV and tape recorder, camcorder and

WWV audio, or video with a time inserter.)

You can report your scope size to me in inches but I will need to convert it to centimeters for the form. Be sure you let me know what units you are reporting, or I may not know if the 10 you send me means inches or meters!

Some people, including myself, saw the star slowly fade and reappear during this graze. This can and should be reported. This phenomenon wasn't seen for every event, probably due to the geometry of the slopes on the Lunar landscape. For each event just make a note following if it was gradual or happened slowly. These fades were probably due to Spica being a binary. The two components were probably as wide apart as they get. Spica is a very close spectroscopic binary with a period of a little over 4 days. The two companions are about 11 million miles apart and have radii of 4 and 2 million miles respectively. This leaves only about 5 million miles to separate them. Wow, what a central sun that would make! Both stars are several times the mass of the sun and have B-type spectra (Big, heavy, bluish stars.)

Well that's about it. If you have trouble reducing your graze tape and need help, call me, Gerry Rattley at 892-5698. I can answer questions and we can arrange a time and place to get together and get your data off the tape. I will not reduce the tape myself, but I can help you do it. Till next month.

From Dudleyville...

According to a quick summary from Rik Hill, the people timing at Dudleyville were able to get good data from their stations. They also noted that the seeing deteriorated just minutes prior to the starting of events, like it did at Gila Bend.

What's Up

by Steve Coe

July 1995

Hercules

Hercules is a constellation that many novice deep sky observers learn early. There are two bright Messier objects in this constellation and that certainly contributes to the notoriety of this part of the sky. However, if you will look beyond the famous deep sky goodies in the Hero, there are plenty of things to observe beyond Messier's spectacular, but limited, list of non-comets. So, let's check out what can be seen in Hercules.

NGC 6058 is a nice planetary nebula at 16 hr 04.4 min and +40 41. In my 13" it is pretty faint, pretty small, somewhat elongated, and a central section is brighter but not stellar at 100X. This is from a very dark, steady location in the mountains of Eastern Arizona. The central brightening was always seen at a variety of powers up to 220X, but the bright area in the middle was larger than stars outside the planetary. This effect is unique in my experience, has anyone else noticed this?

NGC 6166 is a challenging galaxy located at 16 hr 28.6 and +39 33. It is faint, large, elongated and not brighter in the middle at 135X. This is the central galaxy of the cluster Abell 2199, from a good site I can pick out 8 faint companions within 20' of 6166. The whole field has a "cottage cheese" or lumpy background that denotes lots of unresolved galaxies at the limit of the 13".

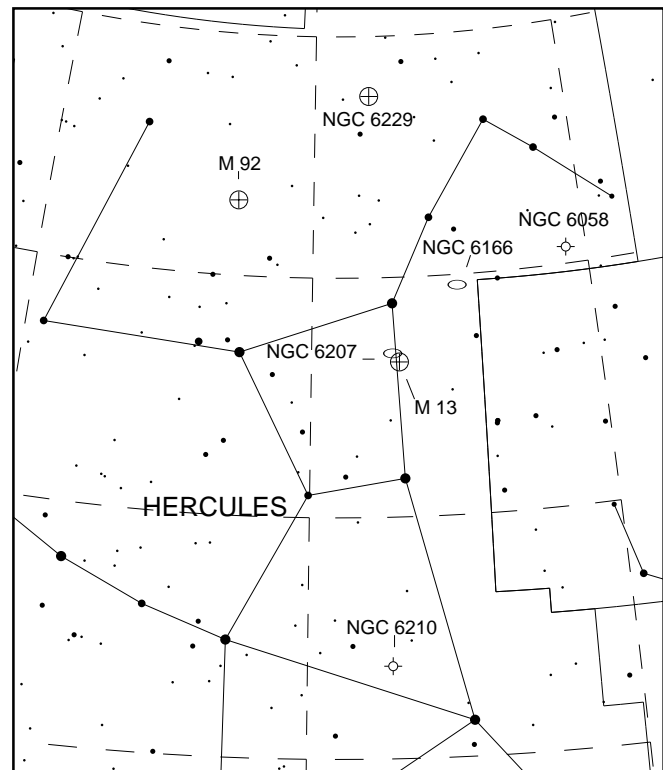
NGC 6205 (M 13) you didn't think I was going to write a "What's Up" about Hercules and not mention M13? I see it as: very bright, very large, little elongated, easily resolved at 100X. From a dark location this object just about exceeds the 25 min field of my 8.8 mm Ultra Wide eyepiece. This gives 220X in my 13" $f/5.6$ and this glorious cluster has streamers out from a blazing core in all directions. Three dark, thin lanes can be seen cutting the core into unequal thirds, I have heard this feature called the "Propeller." I believe this globular gets a lot of press for several reasons: it is easy to find, it is one of the finest globulars, it is easily resolved in small scopes and it comes overhead for the Northern Hemisphere. Sir William Herschel estimated 14,000 stars in the cluster, some hardy soul at Mt. Wilson counted 30,000 on a plate from the 100" Hooker telescope in 1931. Actually, there are about half a million stars in M 13. Wow. It is easily found on the western edge of the asterism called the Keystone, but if you are dialing it in, M 13 is at: 16 41.7 +36 28.

IC 4617 is a difficult galaxy near M 13. I saw it as very faint, small (about 10 arc seconds), little elongated at 135X. On a night I rated 6/10 for seeing and transparency, the 13" would only show it intermittently. This tiny and faint galaxy is almost exactly halfway between

NGC 6207 and the center of M 13. This is a toughie, wait for a good night and use some power. Located at 16 42.1 +36 41.

NGC 6207 is a somewhat easier galaxy near M 13. I saw it as pretty bright, pretty large, elongated 2x1, somewhat brighter in the middle at 100X. It is at 16 43.1 +36 50.

NGC 6210 has been a favorite planetary nebula of mine for years. It is bright, pretty small, elongated and the central star easy at 135X. Averted vision makes this nebula grow in apparent size. I have always seen this beautiful planetary as green, blue-green or aqua in whatever scope I was using. This nebula was discovered by F.G.W. Struve during his double star survey. It is at 16 44.5 +23 49.



NGC 6229 is a globular cluster and I see it as bright, pretty large, round with a brighter middle. On one of the best nights at high altitude, I could resolve four stars at 165X. Two other stars bracket the cluster. The object is just visible as a fuzzy spot in my 10X50 binoculars. William Herschel mistook it for a planetary nebula and marked it as 50 IV, to be included in his group 4 as a planetary. You can see if Herschel's error is one might have made by looking at: 16 47.0 +47 32.

NGC 6341 (M 92) is very bright, very large, much brighter in the middle and a little elongated at 100X. I have always thought that M 92 stands up to comparison with M 13. It shows a blazing core and many lovely chains of stars at 220X. Lord Rosse thought he saw spiral structure in this object with the 72". When I get my 72" working I will be able to check that out at: 17 17.1 +43 08.

Star Party Etiquette

These rules are intended to help maintain access and use of the Saguaro Astronomy Club observing site for as many members and their guests as possible, while preserving the conditions that have brought us out to enjoy the sky. Following these rules will permit everyone to pursue the study and enjoyment of astronomy to the fullest satisfaction.

If you are new to the Club, or it has been a while since you have been to a part party, please take a few minutes to review these basic rules. **Please don't hesitate to ask questions** if anything is unclear.

1. **Do Not Litter!** Everyone shall be responsible for their litter. If you bring it in, take it with you when you leave. Access to the observing site depends upon each member complying with this rule.
2. **No Open Fires Permitted.**
3. **Consumption of Alcoholic Beverages is Prohibited.**
4. **No White Lights after Dark!** Use dim red lights after sundown. Use only the minimum light necessary for safety. If you **must** use lights, please **ask first**, to avoid spoiling someone's night vision or astrophoto. Shield or turn off automatic car door or trunk lights (Pull the fuses if necessary.)
5. **Park Based on your Observing Plan.** Park facing towards the exit, to avoid having to backup using backup lights. If you planning to leave early, park close to the exit. If you do not bring a telescope, park away from observers and walk over. Five MPH is the maximum speed while on observing field to keep dust to a minimum.
6. **Plan Your Departure.** Normal departure times are scheduled hourly after 10 PM. (Astrophotographers please note!) During the winter, departure times usually start an hour earlier. **Use Parking Lights Only — No Headlights, Please!** If leaving at other times, **Please announce in advance** (to save night vision and astrophotographer's tempers), and have someone lead your vehicle out with a flashlight.
7. **Members are Responsible for their Guests.** All non-members are considered "Invited Guests," and must observe the rules.
8. **Bring Observers Only.** Small children and pets generally do not enjoy star parties, and can be annoying to others. Please leave them at home if possible.
9. **Keep Noise to a Minimum.** Please, no loud radios, tape players, CB, CDs, horns, yelling, etc.
10. **Never be the Next to the Last to Leave.** Don't leave someone alone at the observing site. Dead car batteries, vandals...

The above rules are general guidelines. All SAC members and their guests should be considerate and conscious of other members' feelings and conduct themselves accordingly.

Each person must help protect the Club's continuing privilege of access to the observing site by acting in an orderly and responsible manner at all times, by obeying these rules and all other applicable City, County, State, and Forest Service rules and regulations.

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>					Arizona's High Power Rocket Launch July 1-3 Observing is free. See directions in newsletter	
2	3	4	5	6 Tomorrow First Quarter Moon 5:53 A.M.	7 TAAA Meeting (Tucson)	8
9	10	11 Tomorrow Full Moon 3:48 A.M.	12 EVAC Meeting (SCC: Rm. PS172)	13 Galileo: Probe Separation from Orbiter	14 SAC Meeting Grand Canyon University, Fleming Rm. 105	15
16 Neptune at opposition	17	18	19 Last Quarter Moon 4:09 A.M.	20 SAC Deep Sky Meeting 7:30 P.M. Sun enters Cancer 8 P.M.	21 Uranus at opposition	22 SAC Star Party Buckeye Hills (members&guests)
23/30	24/31	25	26 Venus 0.7°N of Neptune (morning)	27 New Moon 8:12 A.M.	28 Mercury at superior conjunction with the Sun (moves into evening sky)	29 Delta Aquarid South Meteors Z.H.R. 20

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%.

- \$20.....Individual Membership (\$28 for '96)
- \$30.....Family Membership (one newsletter) (\$42)
- \$100.....Business Membership (includes advertising)
- \$4.....Nametag for members
- \$10.....Newsletter Only (\$14 for '96)

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.....\$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