

Saguaro Astronomy Club

Metro Phoenix, Arizona

SACNEWS



February 1998 — Issue #253

v1.26

The Diffuse Nebulae Complexes of the Southern Winter Sky

by Richard Jakiel

The article is from the March, 1996 issue of *Focal Point* (Vol. VIII, No. 10). It is reprinted with permission from the author. The *Focal Point* Home Page is at: <http://www.mindspring.com/~kemper/fp.htm>. The author's E-mail address is: jakiel@crl.com.

Diffuse nebulae are not randomly strewn about in the sky, rather they are confined to a narrow region centered on the Galactic Plane. A particularly fascinating area for telescopic study can be found in the southern winter Milky Way. Stretching in a huge arc from the Orion Nebula (M42) to the Vela Supernova Remnant (SNR) in the far south there are three major diffuse nebulae "complexes". These can be roughly defined as the **Orion**, **Seagull**, and **Vela SNR-Gum** nebulae complexes. This collection of nebulae includes some real showpieces, along with objects that will test the largest telescopes and most seasoned deep-sky enthusiasts.

The "Orion Complex"

By far the most familiar to northern observers is the Orion Complex of diffuse nebulae. This includes the wonderfully intricate *Great Orion nebula*, the "*Dagger*" (with the *Horsehead*), *Pi* (π) or *Flame Nebula*, *Barnard's Loop* and a host of smaller and/or lesser known nebulae. Perhaps the best place to start is with *M 42*, the *Orion Nebula*. The most famous diffuse nebula in the sky, a tremendous amount of material has been written about its observation. Regardless of how much is "written", by far the best way to experience the Orion Nebula is through detailed observation. When possible, spend some "quality time" observing and *drawing* this wondrous structure. Look at it through a variety of eyepieces, filters and even telescopes. In time, you will begin to really appreciate the awesome nature of this object, plus the added bonus of improving your observation skills.

Much less has been written about nearby *NGC 1973-*

Quick Calendar

SAC Meeting

Speaker: Derald Nye: *Eclipse Chasing*
7:30 PM, Friday, February 13

SAC Star Party

Buckeye Hills Recreation Area
Saturday, February 21

5-7. This pretty nebula surrounds several bright stars and is located less than 1/2 degree north of *M 42/43*. It is easily visible in even rather modest backyard telescopes. Closer inspection will reveal several dark lanes that subdivide the nebulosity in brighter knots, hence the multiple NGC number designation. Just off the southern outskirts of *M 42* lies the pale glow of *NGC 1980*. Like *NGC 1973-5-7*, it suffers from the proximity of the dazzling *M 42*, but its delicate glow is well worth the effort.

The area surrounding Zeta Orionis (ζ) is also well known to deep-sky observers and a favorite target for astrophotographers. Extending southward from it is the faint emission nebula, *IC 434*. The *Horsehead Nebula* or *B33*, is a dark nebula that obscures part of the glowing nebula. In pre-filter times, the Horsehead was considered a challeng-

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DIM MOMENTS
IN
**AMATEUR
ASTRONOMY**
by Paul Dickson

From Jan 1984 and Dec 1986 SACNEWS

SO THERE I
STOOD AFTER
SETTING UP...

...WAITING
FOR POLARIS
TO RISE...

ing object, visible under only the darkest skies with sharp, clean optics. Filters have made a world of difference, especially the hydrogen-beta (*H-Beta*) and to a lesser degree, the narrow band nebula or UHC filter. With a *H-Beta* filter, the Horsehead is a fairly easy object with a medium sized scope under dark skies. Larger instruments will reveal the distinctive shape plus subtle variations in *IC 434*. Nearby, *NGC 2023* and *IC 435* are small patches of bright nebulosity surrounding brighter illuminating stars.

Lying just east of lies the beautiful emission nebula, *NGC 2024*. Easy to photograph and richly detailed in medium or larger scopes, none-the-less this object is often ignored. This may be partially due to brilliant which can overwhelm its delicate diffuse glow. If you carefully place just out of the field, the nebula will become much more obvious. This nebula is over 20 arc-minutes across and is dissected by a series of dark rifts. The most prominent

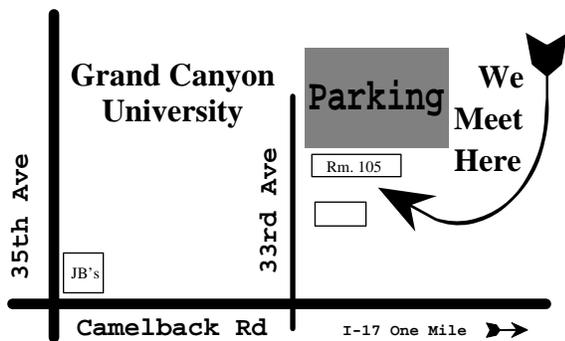
runs nearly north-south, with numerous indentations and side branches. The pattern of dark rifts had lead to interesting names as the *Pi* (π) and *Flame Nebula*, though I believe the most unusual name is the *Tank Track Nebula* courtesy of Arizona Deep-Sky observers...

Of all the nebulae in the Orion Complex, by far the most challenging to observe visually is the very large, extremely faint arc of nebulosity better known as *Barnard's Loop*. Discovered by E.E. Barnard photographically in the late 19th century, this is part of an immense shell of hydrogen gas that covers much of constellation. This giant shell is thought to be a product of the intense solar winds derived from the class O and B stars in the region. Though fairly easy to photograph, this object is far more difficult to observe. A rich field telescope coupled with a nebula filter and dark, contrasty skies are recommended

Continued on page 6...

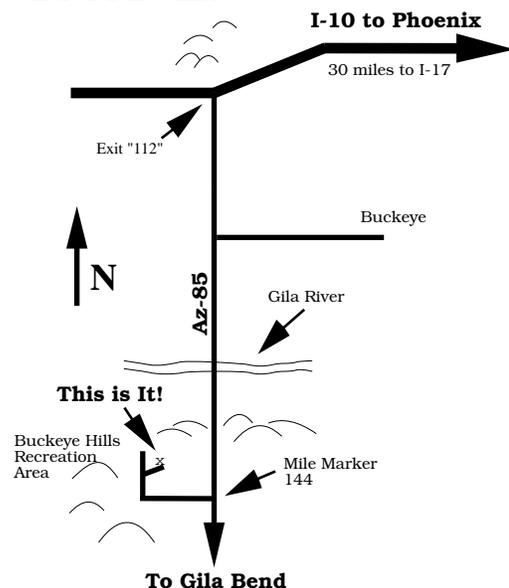
Directions to SAC Events

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.



Comet Comments

by Don Machholz

(530) 346-8963 CC234.TXT January 7, 1997
<http://members.aol.com/cometcom/index.html>
 DonM353259@aol.com

No new comets have been discovered lately, but there's still plenty of old comets to go around! The year 1997 will probably be remembered as the Year of Comet Hale-Bopp. Meanwhile amateurs visually discovered three new comets, and the SOHO satellite- while imaging the solar vicinity- found over two dozen comets crashing into the sun.

1995 O1 (Hale-Bopp)					
Date	RA-2000-Dec	Elong	Sky	Mag	
02-01	05h13.7m	-62°03'	89°	E	8.4
02-06	05h07.9m	-61°19'	89°	E	8.5
02-11	05h03.3m	-60°33'	88°	E	8.5
02-16	04h59.8m	-59°45'	87°	E	8.6
02-21	04h57.3m	-58°57'	86°	E	8.7
02-26	04h55.6m	-58°08'	85°	E	8.8
03-03	04h54.7m	-57°20'	84°	E	8.9
03-08	04h54.6m	-56°33'	83°	E	9.0
03-13	04h55.1m	-55°48'	82°	E	9.0

C/1997 J2 (Meunier-Dupouy)					
Date	RA-2000-Dec	Elong	Sky	Mag	
02-01	20h26.1m	+35°49'	54°	M	11.6
02-06	20h35.1m	+35°12'	52°	M	11.6
02-11	20h43.9m	+34°38'	50°	M	11.6
02-16	20h52.3m	+34°08'	49°	M	11.6
02-21	21h00.3m	+33°41'	48°	M	11.6
02-26	21h08.1m	+33°17'	47°	M	11.7
03-03	21h15.5m	+32°56'	46°	M	11.7
03-08	21h22.7m	+32°37'	46°	M	11.7
03-13	21h29.5m	+32°21'	46°	M	11.7

Each issue of Comet Comments (CC) can be found at <http://members.aol.com/cometcom/index.html>. This Web Site also contains the previous issue of Comet Comments and updates on my comet hunting program. Here newsletter editors can retrieve CC if their copy gets lost in the E-Mail. I now have a second Web Site, you can find it at <http://members.aol.com/donm353259/index.html>. At

this location you can find comet positions for several months at a time, a portion of what I write as Comets Recorder for the Association of Lunar and Planetary Observers. Finally, please note that my telephone area code has now changed to 530.

Comet Hale-Bopp, as seen from the earth, continues to move northward and toward the sun in the evening sky. Those living in the southern portions of the United States have a final chance to observe it. **Comet Meunier-Dupouy** travels though our morning sky. **Periodic Comet Hartley 2** and **Periodic Comet Temple-Tuttle** (disappearing fast!) remain in our evening sky.

COMET HUNTING NOTES: Of the last 100 visual comet discoveries, 23 were made by amateurs using refractor telescopes. The smallest was Genichi Araki's 3" scope to find **Comet IRAS-Araki-Alcock**. Toshio Haneda used a 3.3" refractor to find his comet and three other instruments were from 4.8 to 5.2 inches in diameter. The remaining 18 refractors were 6" in size, with William Bradfield finding 12 comets since 1975 (and two before) with his 6" telescope.

103P/Hartley 2					
Date	RA-2000-Dec	Elong	Sky	Mag	
02-01	02h09.0m	-01°01'	78°	E	8.8
02-06	02h33.3m	+00°11'	79°	E	9.1
02-11	02h56.7m	+01°21'	80°	E	9.3
02-16	03h19.1m	+02°28'	81°	E	9.6
02-21	03h40.6m	+03°32'	82°	E	9.9
02-26	04h01.0m	+04°30'	82°	E	10.2
03-03	04h20.5m	+05°24'	82°	E	10.5
03-08	04h39.0m	+06°12'	82°	E	10.8
03-13	04h56.6m	+06°54'	82°	E	11.1

55P/Tempel-Tuttle					
Date	RA-2000-Dec	Elong	Sky	Mag	
02-01	01h21.4m	+30°10'	79°	E	9.8
02-06	01h18.1m	+23°00'	70°	E	10.0
02-11	01h16.3m	+18°13'	63°	E	10.1
02-16	01h15.1m	+14°47'	56°	E	10.2
02-21	01h14.3m	+12°12'	50°	E	10.3
02-26	01h13.7m	+10°09'	44°	E	10.5
03-03	01h13.2m	+08°27'	38°	E	10.7
03-08	01h12.7m	+07°01'	32°	E	11.0
03-13	01h12.3m	+05°46'	27°	E	11.3

Orbital Elements

Object:	Hale-Bopp	Meunier-Dupouy	Hartley 2	Tempel-Tuttle
Peri Date:	1997 04 01.1370	1998 03 10.4365	1997 12 22.0242	1998 02 28.1034
Peri Dist:	0.914008 AU	3.051015 AU	1.03172 AU	0.976639
Arg/Peri (2000)	130.5787°	122.6755°	180.7240°	172.4930°
Asc Node (2000)	282.4653°	148.8429°	219.9547°	235.2568°
Incl (2000):	089.4268°	091.2731°	013.6191°	162.4861°
Eccentricity:	0.995085	1.000760	0.700391	0.905507
Orbital Period:	~2500 years	Long Period	6.39 years	33.23 years
Reference:	MPC 30738	MPC 30738	MPC 29880	MPC 30244
Epoch:	1997 12 18	1998 03 08	1997 12 18	1997 12 18
Absol Mag/"n":	-1.0/4.0	4.0/4.0	8.0/6.0	10.0/10.0

1998 Arizona Messier Marathon

A.J. Crayon and Rick Rotramel

Saturday, March 28, 1998

Sunset: 6:47 PM Twilight Begins: 4:58 AM
Moonset: 7:45 PM Sunrise: 6:21 AM
Twilight Ends: 8:10 PM Moonrise: 7:39 AM

The Saguaro Astronomy Club is pleased to announce the 1998 All Arizona Messier Marathon. The date is Saturday, March 28, 1998 at a site south of Arizona City, AZ, the same place as the 1997 All-Arizona Star Party. See map for details.

By now we all know about this all night session to observe the entire 110 objects in the Messier Catalogue. This year the heavens are well placed to give us optimal chances to bag the entire catalogue!

This is the largest observing session in Arizona and has produced the best attended Marathons on record. Those of you with access to the internet can verify this by checking out the following site:

<http://www.seds.org/messier/xtra/marathon/results.html>

We looked at the possibility of setting a record for the Guinness Book of World Records, but encountered some problems. For instance, breaks had to be taken by all and at the same time. We thought that one port-a-john would seem to cause an undesirable bottle neck. Hence the record thought was dropped. But we will still have

the port-a-john for your relaxation. It can be used at your leisure.

A note about the site: It is managed by Ray Farnsworth and we should thank him for allowing us use of the site.

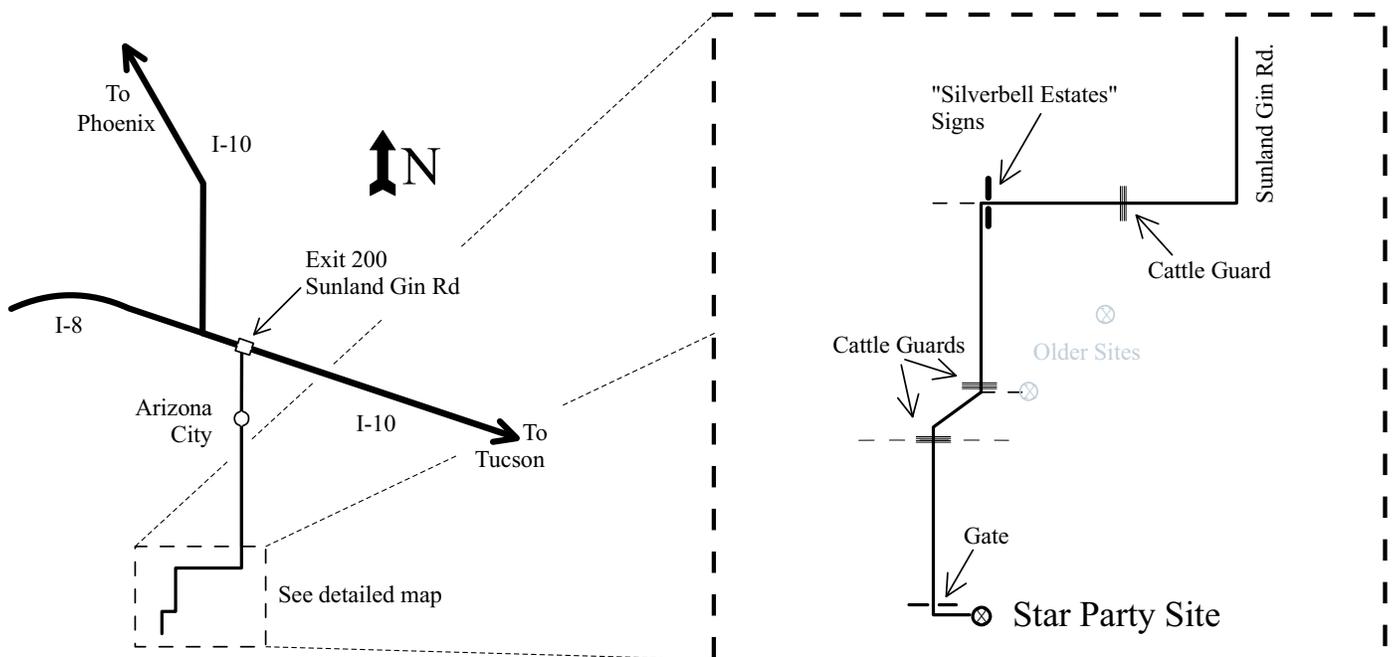
If you plan on attending, first watch the weather and plan to show up BEFORE sunset. Better yet, arrive well before sunset to give yourself more time to setup and visit with others.

Evening objects that are hard to find are M74 and M77. The most difficult morning object should be M30. This year we are blessed with the best chance of bagging all 110 objects. So be prepared with red flash lights, nourishing refreshments and an observing plan.

Awards, same as in the past. Plaques for mounting on telescope for 1st, 2nd and 3rd highest totals. Certificates for 50 or more seen. In order to qualify for awards you need to get an observing form, fill it out, check it off as you marathon along and turn it in before leaving the site. The cost of awards will have to be supported by your club.

Observing forms will be available at your club meeting or at the site from the coordinators.

Not interested in the marathon? Don't fret, come anyway! Many show up to gab, observe, or take astrophotographs. So don't miss this rare opportunity.



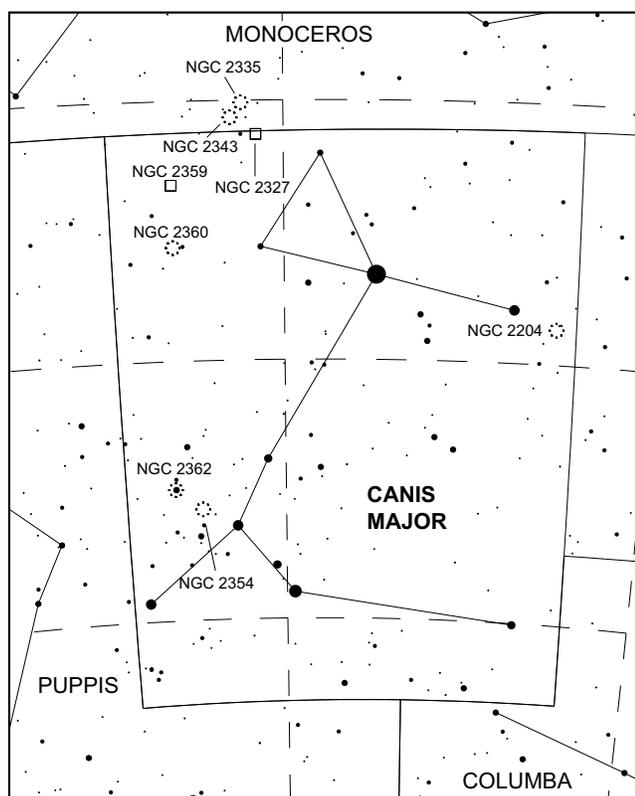
Directions to the site: Take I-10 to exit 200 (Sunland Gin Road.) From here it is about 29 miles to the site. Turn right (south) after exiting the freeway. After about 15 miles, the pavement ends and about one mile further, the road turns sharply to the west. After another four miles, the main road will turn south just after the "Silverbell Estates" signs. Three miles past the signs, the road will veer off to the west, and five miles further, the road will pass through a gate. Turn left immediately after the gate and continue for another 2/3 of a mile, driving over a fence. The site is to the right.

Fuzzy Spot

by Ken Reeves

Canis Major February 1998

Canis Major is a well known constellation in the winter skies, and contains the brightest star in the sky outside of our sun. Sirius, shining at a brightness of about -1.5 appears so bright mainly because it is so close to us, only 8.7 light years, and the 5th closest (according to Burnham, I'm sure that other very faint stars have been discovered since then). It is only about 23 times the luminosity and 1.8 times the diameter of the sun, not a very large star. The other claim to fame of Sirius is the white dwarf companion, Sirius B. So far I have not been able to see the companion, but I haven't given up yet. If trying to find the companion, make sure you don't want to observe anything else for a while since you definitely will lose your night vision.



Sitting in the heart of the winter Milky Way, this is open cluster country interspersed with some nebulosity. So here are some fun objects to observe, plus a large challenging nebula complex on the Canis Major/Monoceros border.

NGC 2204 (06h15.7 $-18^{\circ}39'$) This is an open cluster on the far west end of the constellation. In the 10" scope, I considered it not at all obvious with about 10-11 stars over some haze. Star pattern around cluster forms a cross shape. Take some time and study this one close, I will on my next observation.

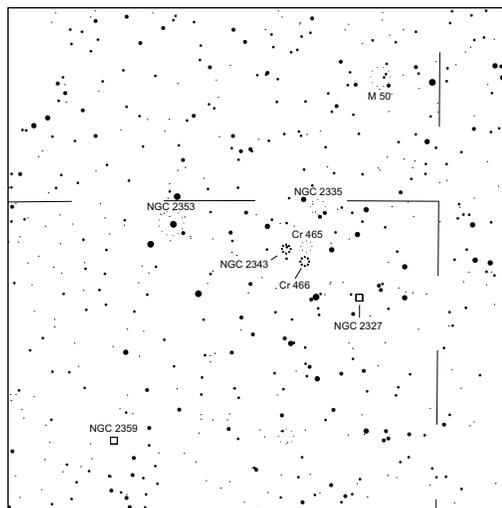
NGC 2354 (07h14.3 $-25^{\circ}44'$) This nice open cluster is near Delta Canis Major, and is very large, not real bright, pretty loose with and estimated 40-50 stars. There are some

nice arcs in the cluster, 3 bright stars in center, and a couple of doubles.

NGC 2359 (07h17.8 $-13^{\circ}13'$) Here is a break from the open clusters with a nebula. Using the UHC filter, I saw this as somewhat bright, pretty large, with the brightest portion around a grouping of 6 stars. It extend south to another star where it abruptly ends, but turns west-southwest. Definite mottling was seen, as was some fainter nebulosity to the north, but this is not well defined. Some general fuzziness seen all around. Very nice nebula well deserving of Best NGC. Very dark to the south of nebula.

NGC 2360 (07h17.8 $-15^{\circ}37'$) Here is another cluster which is somewhat large, pretty bright, very rich, and somewhat condensed. There is 1 prominent bright star, 4 levels of stars and about 90 stars with a lot of straight line groupings. The overall shape is sort of a maple leaf pointing to the east. To the west-northwest is a very prominent star just out of field. Averted vision does not bring out any more stars, therefore it must be pretty well resolved. This is a real nice cluster with some nice voids, easy to find.

NGC 2362 (07h18.8 $-24^{\circ}57'$) This is a very fun cluster, and one of the first objects I observed. Here is that very first observation from my front yard, I considered it as "fairly easy to find. Tau Canis Major is right in the center. Kind of triangular shaped. One of the first non-major objects I have been able to find from the city."



For the tough object, look for the **Seagull Nebula** on the border of Canis Major and Monoceros. This includes nebulosity **2327** (07h04.3 $-11^{\circ}18'$), **IC-2177** and **Ced-90**. Also open clusters **2335**, **2343**, **Cr-465** and **Cr-466** are involved. The whole complex covers about 3 fields of view at 50X. The UHC filter is really important for this area. Ced-90 is very prominent around a bright star, elongated north/south and between 2 other stars. Proceeding north-northwest a very faint and very very large nebulosity follows a chain of star, then turns northeast to a pair of bright stars and clusters Cr-465 and 466. At this point, the nebula brightens up and continues north-northwest to cluster 2335. This is an amazing complex that I didn't think I would be able to see. My final notes were "really need a 35mm Panoptic, and 2" UHC filter and a hood over my head."

Herschel 400 Objects

2204, 2354, 2360, 2362

SAC's 110 Best of the NGC Objects

2359

Continued from page 2...

for success. During the 1993 Winter Star Party (WSP), I observed a large, faint arc of light with a 4 1/2-inch *f*/4 telescope with O III and H-Beta nebula filters. I was able to follow its ghostly glow for over 6°, and it varied between 3/4 to 1° wide. Although difficult, it was more a function of dark skies and contrast rather than the use large aperture.

Around the “Seagull”

The *Seagull* or IC 2177, is a large, luminous arc of gas that straddles the Canis Major/Monoceros border. Recent references classify it as a “probable supernova remnant” or SNR. Also designated as *Gum 2*, it may be affiliated with the Gum Complex farther to the south. An interesting target for astrophotographers, it bears considerable resemblance to a “seagull in flight”. The *Seagull* can be found by starhopping north from Sirius to Theta (θ) Canis Majoris, and then proceeding about 2.5 degrees due east. This will bring you to the southern section of the nebula. On the southern tip of the *Seagull* is *Cederblad 90*, a small, moderately bright diffuse glow surrounding a seventh magnitude star. Moving northward, another bright “knot” in IC 2177 is *NGC 2327*. This is a small reflection nebula that surrounds a 10th magnitude star. Along the northern “wing” of the Seagull lie a number of small clusters embedded in a rich star field. These are a delight to the eye and help enhance the view of this subtle nebula.

Nearby, lies one of the most unusual nebula of the winter sky. Designated as *NGC 2359* it can be best located by starhopping 4.5 degrees west of M47 along an irregular line of 6th and 7th magnitude stars. It has also been designated as *Gum 4*, though it is not part of that complex. This nebula has a most bizarre shape that has engendered some original nicknames. Perhaps the most descriptive is “*Thor’s Helmet*.” The central bubble (“the helmet”) is actually a shell of gas blown out from the Wolf-Rayet star W-R-7. Two other partial “shells” are also visible, the brighter projections in the east form “the horns,” while the more subtle shell remnants in the west form Thor’s “hair.” These structures are best seen with an O III filter and make an exquisite sight in a medium sized or larger telescope.

The Extensive Gum Nebula Complex

This is a gigantic diffuse nebula + supernova remnant complex that covers a major portion of the southern winter milky way. Even larger than the Orion Complex, The “Gum Nebula” spans *well* over 30 degrees! It was discovered photographically by the Australian astronomer Colin S. Gum back in 1952. Much of the nebula complex is too faint to be detected visually, though many of brighter parts have “NGC” and other designations. Some of the brighter fragments can be found quite close to Seagull nebula region (which also may be a northerly extension of the complex.) One of these is *Sharpless 2-301* (= *Gum 5*), a small patch of nebulosity nearly 7 1/2 degrees south

of IC 2177. In my 13.1-inch (O III filter), it appeared as a bright, “wedge” shaped glow measuring less than 10' across.

If you want a greater challenge, try the nebula/open cluster complex *Sharpless 2-302* (= *Gum 6*). The nebula quite faint and requires the combination of dark skies, clean optics and filters for visual detection. Two sparse open clusters — Bochum 5 and 4 are associated with this nebula. Far more pleasing to the eye is *NGC 2467* (= *Sharpless 2-311* or *Gum 9*), a beautiful nebulous cluster in a rich star field. This object is about 3 degrees southeast of M93, in Puppis. This object is quite remarkable and bears a striking resemblance to the Lagoon Nebula (M8). Other observers liken it to the “Pacman” (NGC 281) in Cassiopeia. Easily visible in small telescopes, larger instruments reveal an irregularly round nebula superimposed on a rich open cluster. With an UHC or O III filter, dark rifts and low contrast filaments and condensations may be visible.

Near the “center” of the Gum Nebula complex is a most remarkable structure — the *Vela Supernova Remnant* (SNR). It is not actually part of the Gum Nebula, but a separate entity. Unfortunately, its true identity is often confused with the Gum, and in many references and star atlases it is misidentified. This unique object forms a huge curved arc nebulosity over six degrees long, with many intricate side branches and filaments. This SNR covers several times the area of the much better known Veil in Cygnus, and will fill many low power fields of view. Good observations of this object are spotty at best, especially since it is not listed in *any* of the better known observing guides. The Vela SNR has been branded as “..very faint, only visible on photographs..” which is most certainly *NOT* the case. Deep-sky observer David Riddle using a 15-inch scope and O III filter describes the main section as “...a long filament, over 4 degrees long, brightest on the western end. A prominent” hook “defines the eastern end. It is about as bright as the Veil Nebula as seem in an 8-inch scope.” Alex Langoussis calls the complex the “Energizer Nebula” ...as it “keeps going and going..” Veteran observer Tom Polakis noted the ..intricate detail of the filaments, and its resemblance to the Veil, but on a much larger scale. Large scopes may reveal all the major filaments plotted in the *Uranometria 2000*. The general consensus is that the Vela SNR is quite similar to the famous Veil Nebula, except the surface brightness is at least one magnitude fainter.

Moving east from the Vela SNR, are some particularly bright fragments of the Gum Nebula. One of my personal favorites is *NGC 2736*. On March 1, 1835 John Herschel discovered this beautiful object from his Cape of Good Hope observatory. He described it as an “extraordinary long ray of excessively feeble light”. In medium or larger scopes, *Herschel’s Ray* is visible as a ghostly streak of light nearly 20' long and only 30" wide. Observing from the Florida Keys with my 13.1-inch scope, I observed a delicate shaft of light spanning across the field at 135x.

Plainly visible without a filter, it was very distinct and showed some interesting secondary structure with an UHC filter. *Herschel's Ray* bore considerable resemblance to a narrow comet tail, or an edge-on galaxy but without the nuclear hub.

Several other brighter "fragments" of the Gum nebula are visible in this region. *NGC 2626* is a small diffuse patch of nebulosity less than 5' across. Another small patch (*Gum 15*) surrounds a 6th magnitude star in the sparse open star cluster *Cr 197*. Somewhat easier to observe is *Gum 23*, a moderate sized, weak glow located 1.5° due south of Herschel's Ray. All these objects are best observed with nebula filters and moderate or larger sized telescopes. Other fragments of the Gum Complex extend into the Eta Carinae region. If you have access to dark southern skies, take some time and explore these lesser known nebulae of the winter Milky Way.

Bits and Pieces

February Club Meeting

The speaker for the February club meeting will be Derald Nye, a long-time eclipse chaser. He will talk about solar eclipses.

Minutes from the January Meeting

President Paul Dickson open the first meeting of the year. He invited any visitors to sign the guest book and mentioned that they would receive a complementary issue of the next newsletter. Fred Tretta introduced himself as a visitor and a former member. Gene Lucas reminded all of us that Fred was the first president of the club. Welcome back, Fred.

The current and former treasure fought it out over who would give the treasure report. The new treasure, Jack Jones, lost and gave his first report (and survived it).

Next, A.J. Crayon talked about Deep-Sky activities in the group. He invited all to the deep sky meeting at the McGraths house. He also discussed the upcoming Messier Marathon on March 28, at the same site as last year. He then awarded Michael Lerch a plaque for completing the Messier catalog. Good work Michael. Finally, A.J. put on his salesman outfit and managed to peddle 4 more of the SAC 20th year T-shirts.

Steve Coe then talked about the two very successful novice group meetings and mentioned that he would have another one in the April or May time frame. He also talked a little about the eclipse cruise. There are only a few remaining openings, mainly due to cancellations.

Adam Sunshine and Gene Lucas mentioned that on January 15th at 6:39 PM (Phoenix time) there will be a minuteman launch from Vandenberg. There should be good possibilities of seeing that from Phoenix.

For show and tell, Chris Schur discussed a new film he has been using, Kodak Express PMJ X40 (hope I got that right). This film is very red sensitive. He then showed us some very beautiful pictures taken with this film along with some taken with other films.

At the break there were 47 people present.

Following the break Vice President Gerry Rattley introduced Paul Knauth, a club member and a geology professor at ASU. His presentation was on astro-biology, the search for life, primarily DNA based, in the universe. He talked about early life on Earth, meteorite gathering and investigation on Antarctica, and finished with some "way out" theories floating around. A very informative and interesting presentation.

Paul adjourned the meeting after which 20 of us headed over to JB's.

—Ken Reeves, SAC Secretary

Minutes from the Board Meeting on January 16

The January board meeting was called to order at 7:45. In attendance was Paul Dickson, Gerry Rattley, Jack Jones, Adam Sunshine, A.J. Crayon, and Ken Reeves.

Paul gave a membership status, which is doing well this year. The membership is normally where we are in February. We currently have 86 members, at the end of 1997 we had 110.

A.J. said that all notices have been sent out to the Astronomy Clubs for the Messier marathon. There was some discussion about moving the marathon in future years. EVAC is talking about giving up the All-AZ Star Party after 1998. The Prescott Astronomy Club may start a Northern Arizona Star Party. All of this is still up in the air. There is some concern about overlapping star parties between Messier Marathon, Sentinel Star Gaze, and Northern Arizona Star Party. If the Messier Marathon falls in April, then the Sentinel Star Gaze will be in May.

On Treasurer notes, Jack Jones will publish the budget for 1997 in the newsletter by the April newsletter. The board will review this to see if any changes will be needed. All copies of the Observers Handbook have been sold and no more will be ordered. For 1999, we will look into working with the Astronomy Shoppe for ordering the Observers Handbook in order to gain better control on volume purchases. There is talk about moving some of the Treasurer workload to the Secretary. Jack Jones will identify any new activities that can be transferred. The Secretary will be an alternate for the treasure at the meeting. A second receipt book will be used for this and will stay with the Secretary. Insurance is paid up until July 1998. The room rent is paid up to March 1998. The Treasurer will pay additional room rent in February.

Much discussion was done on upcoming speakers. There are lots of possibilities, and we should be in good shape for this year.

We discussed possible new sites for the star par-

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. All insertions must be submitted in writing.

Wanted: 8" Telescope, Mirror, or mount. Please call Fred Tretta, 979-8478.

ties since Buckeye may become unusable with the nearby prison. We decided that A.J. and Ken will investigate possibilities along the Agua Caliente road near old highway 80. This is about 10 miles further than Buckeye Hills park. Gerry Rattley will investigate the sites that Pierre Schwaar has identified.

Jack Jones mentioned that we need to set up a meeting and presentation at the Arizona Science Center planetarium. Jack and Gerry will coordinate with EVAC to set up a joint meeting there, with the date TBD.

It was mentioned that there are three SAC scopes, one of which is a small Pierre Dobsonian. As a goal for 1998, we will try to locate these scopes. Along the same line, we talked about buying general purpose items for the club, such as filters. More discussion is needed on this topic.

The next board meeting was set for April 3 at Ken Reeves' house. The meeting was adjourned at 9:55.

—Ken Reeves, SAC Secretary

President's Column by Paul Dickson

You may think that that Richard Jakiel's article and Ken Reeves' Fuzzy Spot column (both this month's and last month's) are together by design. The truth is, they are together by accident.

Fourteen month's ago I asked Richard if I could use his article in SACNEWS. He agreed and I put it on the queue for being used in the newsletter. It wasn't until just a week ago, when I was clearing out all the used articles from my "new" directory, that I came across the article, still unused.

After adding the article to this newsletter, I started work on the star charts for Ken's article. It wasn't until I had both Richard's and Ken's articles both in the newsletter, that I realized how they overlap each other.

SAC vs. EVAC

There is somewhat of a minor rivalry between SAC and EVAC. Occasionally, discussions of which club is "best" boil down to choices of apparent strengths and weakness of the two clubs. I thought I would take a look at the membership of both clubs to see how geography played a roll in determining the "best" club.

I spent a couple of hours one Saturday morning comparing of EVAC's and SAC's membership from each club's

most recent membership info. Looking at the results, it appears that "locality" is the dominate reason for choosing one club over another.

For my results, I broke Metro Phoenix into 5 areas. For SAC they are: West Valley (west of Phoenix), Phoenix (the city only), Scottsdale (including Carefree, Cave Creek Fountain Hills, and Paradise Valley), Tempe (including Chandler), and Mesa (Gilbert, Apache Junction, and Gold Canyon).

For EVAC, I made a few changes. West Phoenix is everyone west of Central Ave. and East Phoenix includes Paradise Valley.

For the purposes of direct comparisons, I will include SAC's data broken up by EVAC's East and West Phoenix groups.

SAC

West Valley	25	22%
Phoenix	47	41%
Scottsdale	15	13%
Tempe	10	9%
Mesa	10	9%
Outside Area	8	7%

Outside Areas included: Black Canyon City, Kingman, Payson, Texas, Tucson, Yuma

EVAC

West Phoenix	9	6%
East Phoenix	22	16%
Scottsdale	36	26%
Tempe	30	21%
Mesa	36	26%
Outside Area	8	6%

Outside Areas included: Australia, Eloy, Maricopa, Payson, Sun Lakes, Yarnell

For a more direct comparison between SAC and EVAC, here's SAC's data with EVAC's definition of areas:

SAC

West Phoenix	45	39%
East Phoenix	27	23%

For those interested, only 11 people are members of both SAC and EVAC.

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.

February 1998

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	First Quarter Moon 3:55 P.M.	Clyde Tombaugh Born 1906	PAS Meeting Brophy Prep. Physics Lab	TAAA Meeting (Tucson)	7
8	9	Tomorrow Full Moon 3:24 A.M.	EVAC Meeting (SCC: Rm. PS170)	12	SAC Meeting Grand Canyon University, Fleming Rm. 105	14
15	Sun entered Aquarius 5 A.M.	17	Tomorrow Last Quarter Moon 8:29 A.M.	Mir Space Station Launched (1986)	20	SAC Star Party Buckeye Hills (members&guests)
Mercury at superior conjunction (moves into evening sky)	Anniversary of Supernova 1987A	Yesterday Jupiter at conjunction with Sun (moves into morning sky)	25	New Moon 10:28 A.M.	27	28

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.

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.....\$27.00 for one year
- Astronomy.....\$20.00 for one year

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

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

Jack Jones
SAC Treasurer
2313 W Sierra
Phoenix AZ 85029

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 the same week of the month. The same is true of the club's star parties. Star parties at Buckeye Hills Recreation Area are mostly held on the Saturday of the third quarter moon.

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. See inside for a map to the meeting location.

1998 SAC Meetings

Jan. 9
Feb. 13
Mar. 13
Apr. 10
May 8
Jun. 12
Jul. 10
Aug. 7
Sep. 11
Oct. 2
Nov. 6
Dec. 5 Party

1998 SAC Star Parties

Date	Sunset	Moonrise
Feb. 21	6:18PM	3:40AM
Mar. 21	6:39PM	2:23AM
Apr. 18	6:59PM	1:08AM
May 16	7:19PM	11:54AM
Jun. 20	7:37PM	3:27AM
Jul. 16	7:34PM	2:10AM
Aug. 15	7:12PM	12:57AM
Sep. 12	6:37PM	11:45PM
Oct. 10	6:00PM	10:32AM
Nov. 14	5:27PM	3:48AM
Dec. 12	5:22PM	2:35AM

SACNEWS

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

Stamp

First Class Mail

Inside:

- The Diffuse Nebulae Complexes of the Southern Winter Sky by Richard Jakiel
- Dim Moments by Paul Dickson
- Comet Comments by Don Machholz
- Fuzzy Spot by Ken Reeves
- President's Column by Paul Dickson

SAC Meeting — February 13
SAC Star Party — February 21