



Desert Skies

Tucson Amateur Astronomy Association

Volume XLIII, Number 2

February, 1997



Calendar of Events

BEGINNERS LECTURE: February 7, at 6:30 pm at the Steward Observatory Auditorium - room N210. This month's topic is The Moon, by John Kalas.

GENERAL MEETING - February 7, 7:30 pm at the Steward Observatory Auditorium -room N210. Topic is Member's Night.

YOUNG ASTRONOMERS CLUB - Please contact Terri Lappin 579-0185 if you are interested in teaching this group.

BOARD OF DIRECTORS MEETING - February 13, 7:00 pm at the Conference Room at Flandrau Science Center.

STAR PARTIES & EVENTS:

February 8: TIMPA + Empire Ranch

February 11: Davis Bilingual

February 21: Lakeside for WOW

Newsletter Schedule: Deadline for articles: Friday, February 14. Printing: Monday, February 24. Folding Party: Tuesday, February 25. Mailing: February 26. The newsletter is scheduled to be in the mail at least one week prior to the following month's General Meeting.

Cover: In Memory of Carl Sagan and Clyde Tombaugh

TAAA Home Page: <http://www.primenet.com/~lwilson/taaa/taaa.html>

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TAAA Mission Statement

We are a resource for anyone interested in astronomy. It is our mission to nurture a person's natural curiosity about the night sky. By giving people a knowledge and understanding of astronomy, we enhance their enjoyment of the sun, moon, and stars. Through our public activities and school evening observing sessions, we bring astronomy to persons of all ages. Our regular meetings and observing sessions offer members a forum to meet others with similar interests and experiences and to learn from one another.

2. Find your membership class and its rate. Add the Family Membership rate to this if applicable.
3. If you desire membership in the Astronomical League or magazine subscription(s), add the appropriate amounts to your membership rate. If this is a renewal, include the renewal notice if possible. Be sure to identify which options you are paying for.
4. Write one check, payable to TAAA, and send it to the address given above.

Call the Treasurer if you have any problems.

Send Address Changes to:

TAAA
Attention: "ADDRESS CHANGE"
P.O. Box 41254
Tucson, AZ 85717

Desert Skies Publishing Guidelines

All articles, announcements, news, etc. must be submitted by the newsletter deadline listed above. Materials received after that date will appear in the next issue. All submissions are retained by the editor unless prior arrangements are made. Partial page article submissions should be submitted on Wordperfect compatible files on a floppy. Full page articles, artwork, and photos should be camera ready. We will not publish slanderous or libelous material. Send articles, announcements, etc. to:

TAAA - Desert Skies
PO Box 91316
Tucson, AZ 85752-1316

OR email: [nialehman@aol.com](mailto:ninalehman@aol.com) or nlwagner@aol.com

Membership in the TAAA

Regular membership	\$ 23
Senior (over 60) membership	\$ 21
Add for Family membership	\$ 5
Add for Astronomical League	\$ 2
Add for Sky & Telescope	\$ 27
Add for Astronomy Magazine	\$ 20

Rates for membership are given above. Family Membership includes two adults plus minor children. Members may subscribe to Sky & Telescope or Astronomy Magazine (or both) at the time of membership renewal, saving substantially over the regular subscription rates. To assure we understand what you are paying for, please identify which class of membership and what options you want. Send one check made payable to TAAA to cover both membership and magazine subscription(s) to:

Tucson Amateur Astronomy Association
Attn: Renewals
P.O. Box 41254
Tucson, AZ 85717

4 Easy Steps to Membership Renewal

1. Pay your dues 2-3 months early. Your month of membership expiration is listed on your newsletter mailing label.

Desert Skies is published monthly by the Tucson Amateur Astronomy Association, P.O. Box 41254, Tucson, Arizona 85717

President's Message

I begin writing this president's message after hearing of Clyde Tombaugh's death only a few hours ago. For many amateur astronomers, Clyde was a hero. It was his drawings of Jupiter and Mars, using a 9" reflector he made, that got him an observing position at Lowell Observatory which ultimately led him to discover Pluto. This discovery took the dedication of an amateur astronomer who compared many photographic plates before finding the one moving object that would be Pluto. For a superb telling of Clyde's discovery and his life, I recommend David Levy's book "Clyde Tombaugh - Discoverer of Planet Pluto". Some members of the TAAA had a chance to meet Clyde back in 1983 when he visited Tucson and gave a benefit lecture at the Flandrau Planetarium. Clyde's passing, along with Carl Sagan's death

just before Christmas, leaves amateur astronomers across the nation saddened.

We have scheduled a star party at the model airplane site which was talked about at the January meeting. Look for an article about this star party in this issue of Desert Skies.

Last month a survey was sent to all members. We have not heard from 80% of our membership. Lots of good ideas are coming out of the surveys and we want to hear more from our members. If you've lost your survey, pick one up at the February meeting. The surveys will be tallied up towards the end of February.

Clear Skies, Terri

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Meeting News

Beginner's Lecture: The Moon

BY JOHN KALAS

This month's Beginner's Lecture will be presented by John Kalas, Member-at-Large of the TAAA. To many experienced amateur astronomers, the Moon is a nemesis which only interferes with deep sky observing. But to solar system enthusiasts, the Moon, with ever changing views, is a fascinating world to explore through a telescope. This talk will review the basics of lunar observing, its phases, its topography, eclipses and photography.

*

This Month's Lecture: Member's Night

This month members will be given a chance to talk about projects they are involved in. Only one person has reserved a time slot. Andy Keefer will be talking about the telescope project that students at Booth-Fickett Magnet School have been working on and will also tell us something about meteors. Member's nights are considered the best of our lectures by many TAAA members. We need a few more presentations for a complete program. Please contact Terri Lappin or Larry Wilson (phone numbers elsewhere) if you want to give a presentation. It can be almost any length but we may need to limit it to 20 minutes.

*

Nominating Committee

It is nearing that time of the year when we need to elect officers for the TAAA. This month we need to select our nominating committee. Three people serve on this committee but only Jim Kessel has volunteered so far. If you are a dues paying member and would like to be on this committee with Jim, contact a board member. This committee serves until the end of the May elections and is responsible for finding members to fill vacant positions on the board. The nominating committee will be looking for at least one new board member this year. This is an important committee and is a temporary assignment. Please think about serving!

*



Rememberance

Clyde Tombaugh

BY DAVID LEVY

Clyde Tombaugh, one of the astronomical giants of the 20th century, died on Friday, January 17. He had suffered from congestive heart failure and was on oxygen for the last several years. Memorial services were scheduled for Thursday, January 23, at New Mexico State University in Las Cruces.

Born in 1906 in Streator, Illinois, Clyde became interested in astronomy through his uncle. In 1928, armed with a home made 9-inch f/9 reflector of superb optical quality, he made sketches of the planets, particularly Jupiter and Saturn. He sent copies of these sketches to Lowell Observatory, just to get their comments. In reply, V.M. Slipher, then Lowell's director, offered him a position at the observatory with the new 13-inch f/5 photographic camera. His mission: to take photographs of the sky in search of Percival Lowell's elusive planet X. A few months after he arrived, Slipher also assigned him the task of scanning the plates with a blink comparator. During the summer of 1929, Clyde recast the program for more efficient searching. On February 18 at 4 pm, Clyde was scanning a pair of plates centered on Delta Geminorum, when he noticed a 17th magnitude speck of light shifting from plate to plate exactly as a trans-Neptunian planet should.

On March 13, 1930, Lowell Observatory announced the discovery of the planet that would eventually be named Pluto to the world. But far from the ending, the discovery was only a beginning for Clyde. He continued the search for another 15 years, discovering a comet, 5 open clusters, a globular cluster, a supercluster of galaxies stretching from Andromeda to Perseus. In 1932 he discovered a nova in Corvus that had exploded a year earlier. While writing his biography, I uncovered the existence of the long forgotten discovery in his plate log. A subsequent check of more than 350 patrol plates at Harvard, which I did in the summer of 1989m, revealed that this star had gone into outburst an additional 9 times between 1931 and 1980, and on March 23, 1990, 59 years to the day after its first recorded outburst, I made the first visual observation of the star, now called TV Corvi, in outburst.

After Clyde took a leave of absence for war-related navigation teaching, he was dismissed from Lowell in 1945, ostensibly for financial reasons. He began work in 1946 at White Sands Proving Grounds to develop the optical tracking telescopes for the fledgling space program. Some ten years later he founded the Astronomy program at New Mexico State University. After retiring in 1973, Clyde maintained a very active profile, giving lectures frequently. Between 1985 and 1990 he crisscrossed the continent, giving lectures to

raise funds for the Tombaugh Scholars program at New Mexico State.

So much for Clyde's accomplishments. Until the end, Clyde was an incredibly interesting person to be around. Famous for his puns, his command of the intricacies of the English language was astonishing. On January 17, 1997, astronomy lost one of its most colorful figures. If planet Pluto were sentient, it would take note of the loss of the man who unveiled its existence to our world almost 67 years ago. *

Carl Sagan Memorial Service

A Carl Sagan Memorial Service in the Tucson area was discussed at the last TAAA meeting. As of the date of this newsletter, there is no information on the date, place or time. *

Statement by NASA Administrator Dan Goldin on the Passing of Astronomer Carl Sagan

Date: 96-12-20 12:43:02 EST

From: NASANews@hq.nasa.gov

"All of us at NASA are saddened by the passing of Carl Sagan. For more than three decades, Dr. Sagan was an eloquent, passionate voice for the sciences that he so ably advanced.

As much as any scientific figure of our time, Carl described for an entire generation -- the generation of the Space Age -- the true wonders of the Universe around us. His unbelievable ability to explain the complexities of space and space exploration inspired people to look up into the night sky in wonder. Through such efforts as the television series 'Cosmos' and his recent book, 'Pale Blue Dot,' Carl reached - and touched --millions around the world.

He was a pioneer of the idea that life could exist on Mars, years before NASA was able to uncover evidence of potential early life on the Red Planet, and he was an important voice in our Mars science programs for many years. He was an early champion of the idea that the two leading spacefaring powers, America and Russia, should work together in the exploration of space.

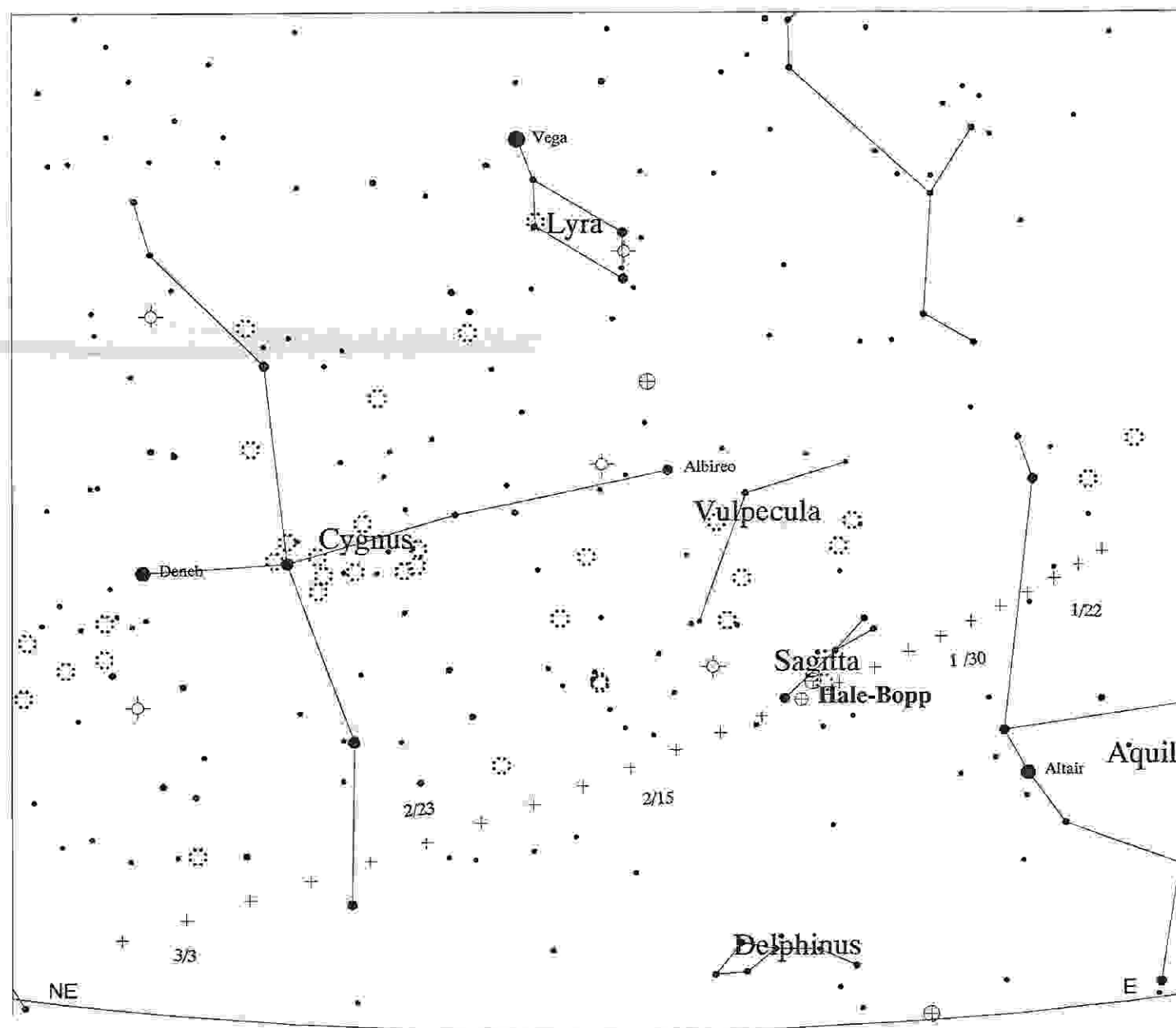
He also was at the forefront of constructing humanity's first messages to the stars, which even now are hurtling out of our Solar System aboard the Pioneer and Voyager spacecraft. Carl himself likened the effort to the launching of a message in a bottle on the interstellar ocean. We will remember his vision, his eloquence, and his intellect, and we will miss him." *

Comet Hale-Bopp for February

Comet Hale-Bopp is spotted as it moves through the rising summer Milky Way in February. The points plotted are for **5:30 am local time**. The labelled point and horizon are for the meeting and new moon date of February 7th. Unlike the plot indicates, later in the month it appears higher in the sky. Be sure to check it out, particularly under a dark sky as it is starting to show tail and structure visible in binoculars. Plotted using the shareware version of Earth Centered Universe (ECU).

Dean Ketelsen

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Dark Skies for February

1997 FEBRUARY

DARK SKIES (no twilight, no moonlight) for Tucson in 24-hour MST: 18=6pm, 20=8pm, 22=10pm, 0=12am
RISE, SET, VISIBILITY for sun and bright planets: rise for morning object, set for evening object

Fr/Sa 31/ 1	19:21 - 1:23	Mo/Tu 10/11	21:55 - 5:48	Fr/Sa 21/22	Full Moon
Sa/Su 1/ 2	19:22 - 2:22	Tu/We 11/12	22:59 - 5:47	Sa/Su 22/23	- - -
		We/Th 12/13	0:01 - 5:46		
Su/Mo 2/ 3	19:23 - 3:21	Th/Fr 13/14	1:00 - 5:45	Su/Mo 23/24	19:39 - 19:39
Mo/Tu 3/ 4	19:23 - 4:21	Fr/Sa 14/15	1:56 - 5:44	Mo/Tu 24/25	19:40 - 20:32
Tu/We 4/ 5	19:24 - 5:18	Sa/Su 15/16	2:50 - 5:43	Tu/We 25/26	19:40 - 21:26
We/Th 5/ 6	19:25 - 5:51			We/Th 26/27	19:41 - 22:20
Th/Fr 6/ 7	19:26 - 5:50	Su/Mo 16/17	3:39 - 5:42	Th/Fr 27/28	19:42 - 23:16
Fr/Sa 7/ 8	19:27 - 5:50	Mo/Tu 17/18	4:26 - 5:42	Fr/Sa 28/ 1	19:43 - 0:12
Sa/Su 8/ 9	19:41 - 5:49	Tu/We 18/19	5:08 - 5:41	Sa/Su 1/ 2	19:43 - 1:09
		We/Th 19/20	- - -		
Su/Mo 9/10	20:49 - 5:48	Th/Fr 20/21	- - -	Su/Mo 2/ 3	19:44 - 2:07

									COMET	
Weekend	Sun	Sun	Mercury	Mars	Jupiter	Saturn	HALE-BOPP	Vi=Visibility		
Sa/Su	Set	Rise	Rise Vi	Rise Vi	Rise Vi	Set Vi	Rise Vi			
1/ 2	17:56	7:15	5:57 4	21:54 0	6:41 6	21:51 1	4:32 2	-3 brilliant		
8/ 9	18:02	7:10	6:08 5	21:27 0	6:20 5	21:26 1	4:13 1	0 conspicuous		
15/16	18:08	7:03	6:19 7	20:57 -1	5:58 3	21:02 2	3:55 1	3 moderate		
22/23	18:14	6:56	6:28 -	20:23 -1	5:35 2	20:38 2	3:39 0	6 naked eye limit		
1/ 2	18:20	6:48	6:36 -	19:47 -1	5:13 1	20:15 3	3:28 0	9 binoculars limit		

By Erich Karkoschka

Star Parties & Events

Tucson International Modelplex Park Association February 8, 1997

At the January meeting, Terri discussed a possible observing location close to Tucson. This site is operated by the Tucson International Modelplex Park Association who have leased 160 acres from the City of Tucson. TAAA board member John Polacheck contacted them about using a part of their park for our activities. We have been invited to observe from the location on the night of February 8th. A group from the TAAA will be meeting at the site about an hour before sunset. This will allow us to see the site before it gets dark. The site is about 6 miles west of the Desert Museum. A map will be available at the February meeting or can be mailed if you contact Terri Lappin. The road is paved except for the last couple of miles. These are on county maintained roads that should be in good condition. *

Davis Bilingual Learning Center February 11, 1997

There will be a star party at the Bilingual Learning Center, 500 W. St. Mary's Rd. Set up will be at 6:00 pm to start at 6:30 pm. We need 4 or 5 telescopes for 1st and 2nd graders. There will be a sign up sheet at the next meeting. See Ken Pryor for more details. *

Lakeside Park Star Party for WOW Program February 21, 1997

A star party will take place at Lakeside Park located on Stella Road just east of Pantano Road. This is part of the Wonderful Outdoor World (WOW) program for kids 9 through 12 years old. This is a nationally funded program which lets urban kids camp out in city parks with lots of adult supervision. The event will take place at ramadas 5 and 6

which are located near the center of the park. Set up time is 7:00pm with observing from 7:30 to 8:30pm. A sign up sheet will be available at the February meeting.

In December a star party was held at another park and it was quite a successful event. The police and fire departments were on hand to talk with the kids and adults. After the star party, a wonderful story teller did his part to settle the kids down before they headed off to sleep in tents that had been put up at the park. This is a great program for kids who would otherwise sit at home in front of a TV or be out on the streets. Bring out your telescope for this very worthwhile cause. *

International Dark Sky Association March 28-29, 1997

The 9th Annual International Dark Sky Association (IDA) open meeting for all professional and amateur astronomers will be held on March 28-29. Any interested persons are invited to attend. Additional information will be available in the March Issue of Desert Skies. *

Messier Marathon March 8, 1997

The 1997 Messier Marathon will be on March 8, 1997. Details will be available in the March newsletter. *

New Mexico Road Trip 4-6 April 1997

A few TAAA members are planning a road trip to New Mexico the first weekend in April. The original purpose of the trip was to visit the Trinity Site, where the first atomic bomb was detonated. It is opened only the first Saturday in April and October. If you look at a map and see where the

entrance to the site is located, it was decided to add a visit to the VLA radio observatory on the Friday before. I am also negotiating a visit to the Apache Point telescopes in the mountains above Alamogordo for late Saturday, and a visit to the National Solar Observatory is a possibility as well. If you are interested in joining our caravan (please provide your own transportation and lodging), give me a call at 293-2855 and I'll fill you in on all the details! -Dean *

Grand Canyon Star Party Update 7-14 June, 1997

If you are planning to attend the star party this June, you should be thinking about making your plans soon for two reasons. First, because of all the publicity we got this year from *Astronomy* and *Sky and Telescope*, we are at an all-time high for requests for information, and I expect our biggest crowd of astronomers ever. Second, if you were hoping to get a motel room, they usually start getting in short supply about now. So nail down your plans now!

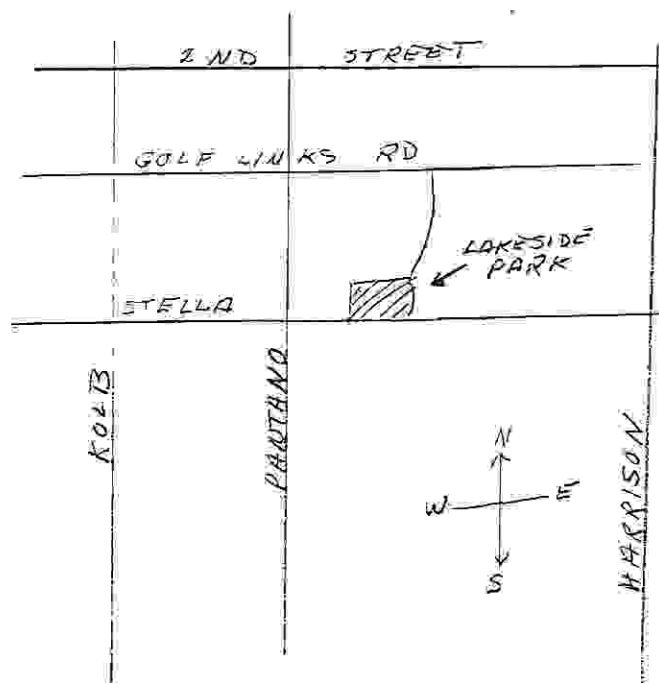
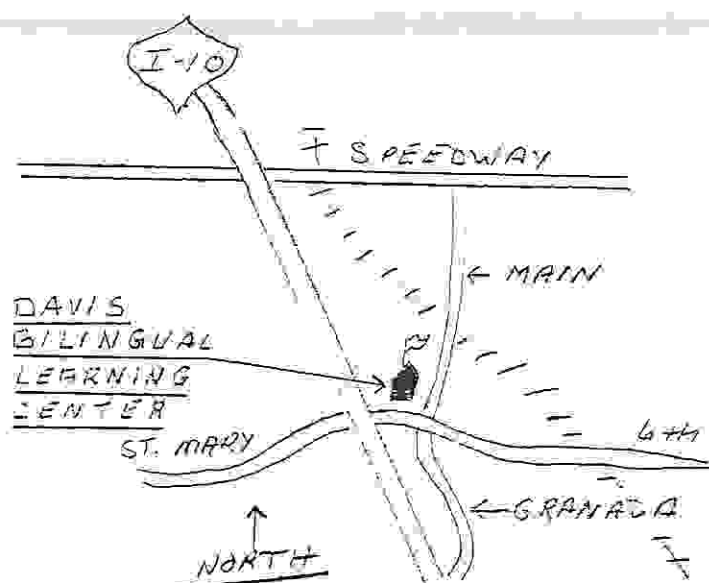
The publicity has helped a lot in getting out the word about the Grand Canyon. Usually the little paragraph outlining the date and place is just coming out and we are still usually weeks from getting the first requests for info. As of January 20th, I have mailed out 20 letters and sent out 25 e-mails telling about the event, places to stay and copies of the description of last year's star party. Reference last month's

Desert Skies for general information regarding making lodging plans. The hard place to get a room is at the rim - for that you need to call Fred Harvey, Inc and wait in line on the telephone. That phone number is (303) 297-2757. The wait is typically at least 20 minutes, so plan accordingly. It sometimes helps to call as soon as they open, which I believe is at 7am MST. Unfortunately, if you want an RV site with hookups at Trailer Village, you need to call Fred Harvey also.

Camping is no problem - you still have a couple months till you are allowed to make reservations for June, so hang tight for making those calls and look for an upcoming issue for those numbers. For motel rooms in Tusayan (7 miles south of the rim) refer to the January newsletter or call me at home for some of those phone numbers.

The rumors I am hearing is that John Dobson has other commitments this year, but David Levy has promised to stop by! We already have 2 new twilight speakers lined up among our new-found attendees. No firm plans yet for the North Rim, but we think we can pull it off with a set of rotating astronomers in charge of that locale. There is still some interest in the possibility of a small presence at Phantom Ranch - look for news on that front in the near future. Please let me know if any of you have questions I can answer about this event. But do make your plans now!
Dean 293-2855 *

Maps



Observing Reports

WINTER'S ALBIREO

The star Sirius greets us blazing like a white diamond on these crisp February evenings mid way above the southern horizon. In contrast a rather faint 5th magnitude star is one of Canis Major's other gems. This dim 5th magnitude star system is known by it's Herschel (h) designation of h3945 and can be found in his *Catalogue of 10,300 Multiple and Double Stars*. Sir John Herschel son of the famous Sir William Herschel traveled to South Africa to observe the southern heavens and that's where he discovered the binary system of h3945.

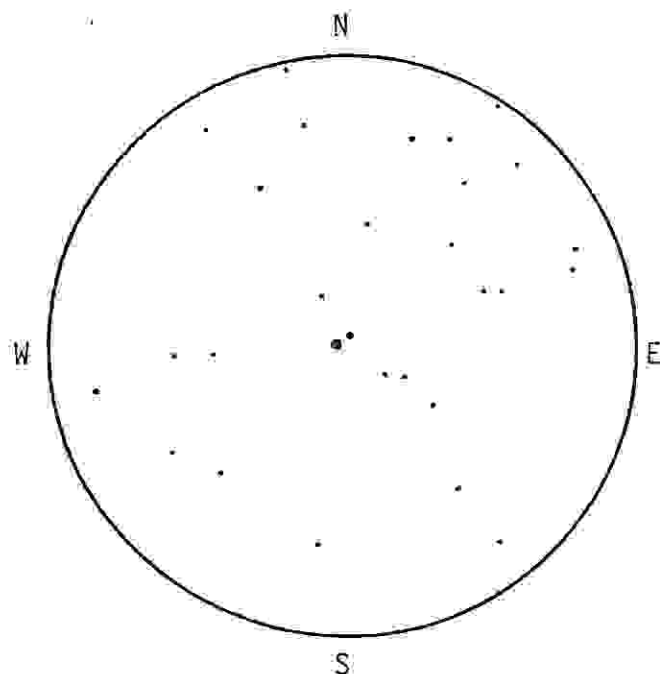
The primary of h3945 is an orange giant star very similar to Aldebaran in Taurus, but it lies almost five times farther away from us at distance of 310 light years. It has a diameter of 36 suns, and a luminosity of 114 suns. Because it is expanding it is cooler than our Sun with a temperature of 4300°K and a spectrum of K4III. Not much can be found on the size or luminosity of the companion, but it has a spectrum of F0V making it slightly hotter than our Sun and probably a little larger also. The magnitudes of these two stars are 4.8 for the primary and 6.8 for it's companion. The separation of this pair is 26.6" making it quite resolvable in small low power telescopes and tripod mounted binoculars.

The companion can be found at a P.A. of 55°. The separation and position angle have been decreasing very slowly since 1837. In my 60mm refractor h3945 reminds me of a dimmer version of Albireo in Cygnus. I like to use about 30x to see the fine hues of orange and aqua. I have noticed that reflecting telescopes tend to show the colors slightly paler. I see yellow-orange and green with a 6" reflector. How about you what colors do you notice? At the next star party why not do a comparison yourself amongst the various telescopes present.

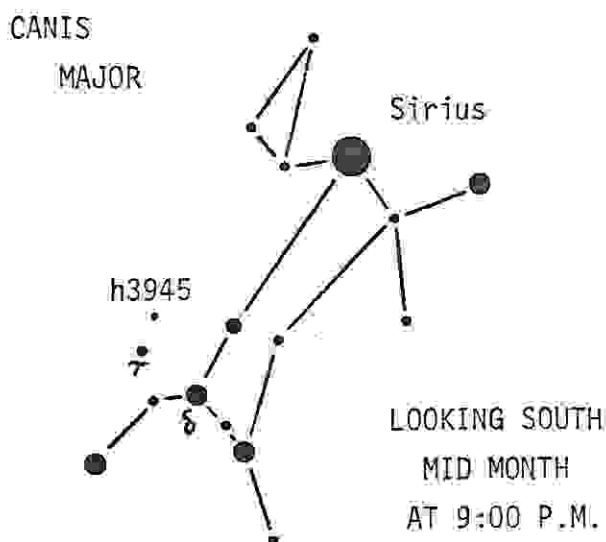
To locate h3945 first start at Sirius then move southward to Wenen, Delta (δ) Canis Majoris from there move your finderscope slightly northeast to Tau (τ) Canis Majoris, there you will notice a cloudy patch surrounding τ, this is the star cluster NGC 2362. Now from τ go northward two degrees to 5th magnitude h3945. Use a low power eyepiece (30x-50x) and enjoy.

The Winter sky is peppered with bright luminaries, but this dim binary system is sure to please any who may brave the cold and gaze at this little gem in Canis Major.

By Jeff Brydges



h3945 as viewed with a 60mm refractor at 30x.



Observing at Empire Ranch

BY BOB GENT

Since the skies were clear and the moon was less than three days old, I decided to drive to the Empire Ranch observing site on January 11, 1997. When I arrived about 5:15 pm, there were already four telescopes set up. John and Jana Gross brought their 33-inch f5 Dob, and it was quite a magnificent site. I also met Bob Andress, a TAAA member who was a former planetarium director in Ohio. He was quite helpful and gave me several tips on variable star estimating. As it was getting dark, three more vehicles arrived.

Seeing was good, and I managed several dwarf nova magnitude estimates for the AAVSO. It was the first time I had done magnitude estimates from dark skies and the star fields looked strange because there were so many bright stars in the fields. Next I began scanning for deep sky galaxies, clusters, and nebulae, and I was able to observe dozens of the Messier objects in my six-inch scope, and the views were very sharp. A little later, John Gross gave me an awesome view of the M81 and M82 galaxies through his 33-inch scope. Among other wonders, intricate details of the dust lanes in the M82 galaxy were easily visible.

The weather was a real challenge. I'd guess that the temperature was somewhere near 28 degrees or so. There was snow on the ground not too far from the site, and the wind was really chilly. In fact, wind gusts kept blowing my star charts off the table. Despite my winter coat and extra clothes, I was getting too cold. I didn't want to leave so early, but I departed about 9:30 pm. Next time I observe in January at Empire Ranch, I'll be sure to dress even warmer. I'll use my snowmobile suit! All things considered, my first observing session at the TAAA site was quite successful. I hope to see many of you there in the months ahead. We are certainly fortunate to have such an excellent site with dark skies. *

What's New at Flandrau

BY MICHAEL TEREZONI

Current Flandrau Science Center planetarium shows are "Through the Eyes of Hubble", "Comets are Coming" and "Under Arizona Skies". "Through the Eyes of Hubble" is narrated by Star Trek's Dr. Beverly Crusher, Gates McFadden. Included in the show are observations of Comet Shoemaker-Levy 9's crash into Jupiter, atmospheric storms on Saturn, the birth and death of stars, colliding galaxies, evidence of the existence of black holes and many other discoveries that may shed light on the fate of the cosmos itself. Spectacular large screen video effects highlight this show. "Under Arizona Skies" explores constellations and planets in Arizona's amazing night skies. As you might imagine, "Comets Are Coming" will discuss the recent bright opposition of Comet Hyakutake, and the upcoming, hopefully brighter opposition of Comet Hale-Bopp. Written by TAAA's David Levy, "Comets are Coming" is being shown by planetariums across the USA to educate the public and get them ready for Hale-Bopp. For More Information on Flandrau Planetarium and Laser Show Dates and Times Please Call: (520) 621-STAR.

Flandrau Web Links:

Flandrau Science Center has been on the Web for over a year. You can reach us at: <http://www.seds.org/flandrau/>

Flandrau has two links of interest to amateur astronomers. For basic regional (good for Phoenix and Tucson) sky information go to the Astronomy News and Skywatcher's Guide site at: <http://www.seds.org/flandrau/cosmic.html>

For Comet Hale-Bopp information (and links) go to: http://www.seds.org/flandrau/HB_view.html

Flandrau Astronomy News Line

Want to find out what's going on in the sky but don't want to call Sky and Telescope's astro line long distance? Try Flandrau's Astronomy News line at: 520/621-4310. *

News from NASA: Nearly All Large Galaxies Host Massive Black Holes!

BY BOB GENT

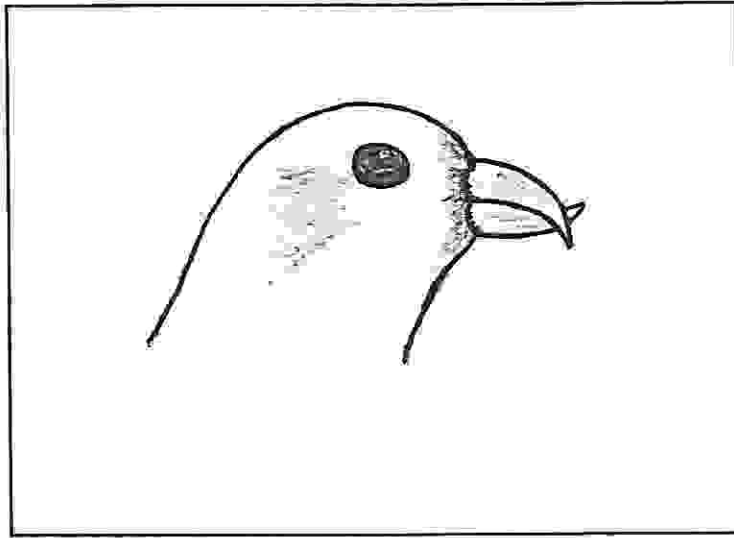
In a news conference on January 13, 1997, an international team of astronomers suggested that nearly all galaxies may harbor super massive black holes which once powered quasars. This conclusion is based on a census of 27 nearby galaxies carried out by NASA's Hubble Space Telescope and ground-based telescopes in Hawaii. The findings, being presented today at the 189th Meeting of the American Astronomical Society in Toronto, Canada, provide insights into the origin and evolution of galaxies, as well as clarify the role of quasars in galaxy evolution.

The astronomers concluded that super massive black holes are so common, nearly every large galaxy has one. They also calculated that a black hole's mass is proportional to the mass of the host galaxy. A galaxy twice as massive as another would have a black hole that is also twice as massive. This discovery suggests that the growth of the black hole is linked to the formation of the galaxy in which it is located. The scientists also found that the number and masses of the black holes found are consistent with what would have been required to power the quasars. "We believe we are looking at 'fossil quasars' and that most galaxies at one time burned brightly as a quasar," says team leader Doug Richstone of the University of Michigan.

Among other observations, massive black holes were detected in NGC 3377, NGC 3379 AND NGC 4486B. Two of the black holes "weigh in" at 50 million and 100 million solar masses in the cores of galaxies NGC 3379 (also known as M105) and NGC 3377. These galaxies are in the "Leo Spur", a nearby group of galaxies about 32 million light-years away and roughly in the direction of the Virgo cluster. Located 50 million light-years away in the Virgo cluster, NGC 4486B possesses a 500-million solar mass black hole. It is a small satellite of the galaxy M87, a very bright galaxy in the Virgo cluster. M87 has an active nucleus and is known to have a black hole of about 2 billion solar masses. It remains a challenging puzzle as to why black holes are so abundant, or why they should be proportional to a galaxy's mass. *

Crossing Bills and Disciplines

By NORMAN SANKER



Roger Tory Peterson died in 1996. His 1934 Field Guide to the Birds revolutionized birding, field guides and nature study in general. I learned after his death that RTP was an amateur astronomer in addition to being the world's foremost bird-watcher.

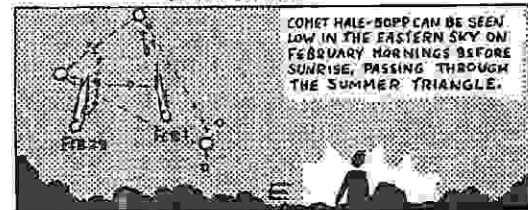
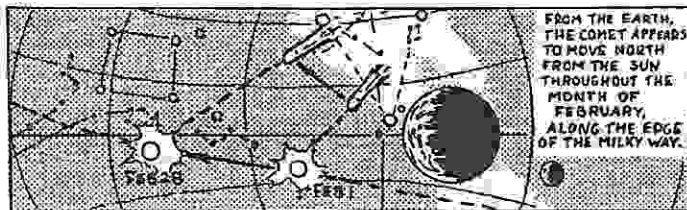
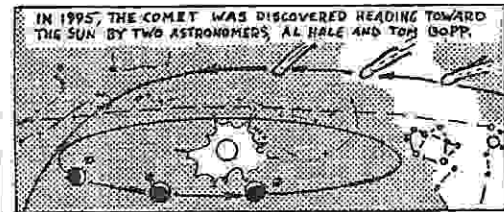
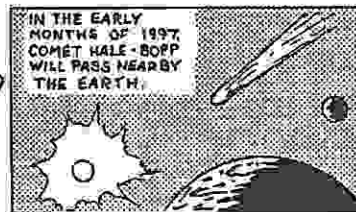
I, too, am both birder and astronomer. I always encourage my birding companions to take their binoculars and spotting scopes out under the stars. I'm taking this opportunity to encourage my fellow TAAA members to explore a current, Tucson, bird phenomenon.

The Old Pueblo has been invaded by red cross bills! Usually found at high elevations or farther north, an apparent failure of the pine cone crop has scattered cross bills throughout the lowlands. Anywhere in town where coniferous trees can be found --- parks, cemeteries, campus, maybe your back yard --- the birds are there.

Red cross bills are about the size of a house sparrow, bigger than the also-reddish house finch. Their upper mandible curves down, the lower curves up and they actually cross at the tip --- an adaptation for extracting seeds from cones. The males are brick-red with dark wings and forked

tail, females greenish. Look for them at Reid Park at the top of pine trees or hanging acrobatically from the cones. (Reddish birds on the ground are almost certainly house finches.) They chirp sharply while flying from tree to tree and make a distinctive "clicking" sound when feeding on cones. A small telescope will give you an unforgettable look at these unique visitors. *

Starman



<http://www.cyberdrive.net/~starman>

TAAA Board of Directors Meeting - January 6, 1997

Minutes of the TAAA Board of Directors Meeting 1/6/97

Location: Flandrau Planetarium Conference Room, University of Arizona

Officers/members in attendance:

Teresa Lappin, Larry Wilson, Gary Rosenbaum, Dave Harvey, John Polachek, Dwane Niehaus, Ingrid Säber, Dean Ketelsen, Steve Krisman,

Call to Order: 7:07 p.m.

Agenda: Events/meetings:

Star Parties: February 1 - Empire Ranch
February 8 - TIMPA & Empire Ranch
February 11 - Davis Bi-lingual
February 21 - WOW Kids

Meetings:

February 7 - General Membership - Members Night -
Beginners Lecture - John Kalas?
March 7 - General Membership - Pat Woida - Tucson High
Telescope
Beginners Lecture - OPEN.

A Spring/Comet Star party for the general public was discussed to be held at Old Tucson(?) on or near March 29th.

Gary Mechler's email was discussed regarding a possible Carl Sagan Memorial Service to be held somewhere in Tucson. Interested party's should contact Gary Mechler.

Grand Canyon Star Party: Dean Spoke briefly about the upcoming Grand Canyon Star party this spring - for further information contact Dean Ketelsen.

AL/Starry Night Festival: Teresa Lappin spoke on behalf of Bob Gent about the planned Astronomical League "Starry Night Festival" being given by the Western Region Conference of the Astronomical League. Dates for the event are planned as October 24 & 25.

Nominating Committee: Several names were suggested as candidates for the nominating committee. These persons will be contacted in the next few weeks to see if they are willing to serve.

TIMPA: A protracted discussion of the possible new site for the club's 16" reflector at TIMPA was held. Still to be investigated was lease information, insurance, and zoning issues.

30" Report: Teresa and Gary discussed the possible use by Steward Observatory of the club's 30" optics in Steward's 40" telescope on Mount Lemon. If Steward is willing to go along with this proposal, the club would have access to the telescope on a limited basis until the club's own observatory is constructed at which time the club would recall the optics. A motion was made by Harvey to approve the proposal for submission to Steward Observatory, seconded by Dean Ketelsen, and unanimously approved.

Old Business: Teresa spoke on results of the club survey noting that only 20% had been returned. Dean reported that the 30" Optics had been moved from Dwane Niehaus's storage to the Club's storage locker. Teresa spoke on the 4th avenues street fair's request for a "mission statement". The statement was reviewed and a motion was made by Harvey to approve it as stated, seconded by Polachek and unanimously approved.

TAAA Mission Statement

We are a resource for anyone interested in astronomy. It is our mission to nurture a person's natural curiosity about the night sky. By giving people knowledge and understanding of astronomy, we enhance their enjoyment of the sun, moon, and stars. Through our public activities and school evening observing sessions, we bring astronomy to persons of all ages. Our regular meetings and observing sessions offer members a forum to meet others with similar interests and experiences and to learn from one another.

Meeting Adjourned at 9:04 p.m.

Desert Skies Classified

WANTED: 1.52 inch diameter (minor axis) secondary mirror for Newtonian telescope. Call Frank at (520) 825-5540 or email fcathell@aol.com. (02-97)

FOR SALE: Eyepiece; Celestron 12mm focal length, excellent condition; \$35.

Solar prominence viewer suitable for Celestron C5; C8, etc.; has set of occulting discs for different sizes of solar image and hydrogen-alpha filter. Uses Herschel sedge to reduce excess light and heat; \$275.

Maksutov telescope, 3 inch aperture, star diagonal and eyepiece. Good optics. Can be mounted on your camera tripod. Suitable for spotting scope, photoguide scope, finder, astronomical telescope, or telephoto lens (f/10). Light weight aluminum construction; takes standard 1 1/4 inch eyepieces. Approximately 800mm E.F.L., \$195. 9 inches overall length with star diagonal in place.

Celestron 4" refractor; fluorite objective lens, star diagonal included. Heavy duty mounting. Excellent condition, \$1,500. For more information or to see contact Duane Niehaus, at 797-4189. (03-97)

TRADE: Pro Optic 32mm Plossl eyepiece (1.25" dia) for any similar Plossl eyepiece in the 15mm to 22mm range. Call Frank at (520) 825-5540 or E-mail at fcathell@aol.com for details or questions. (04-97)

FOR SALE: Professional electronic flash, Honeywell 770, very powerful, a guide number for film speed of 25, F80, and flash duration down to 1/50,000 at 18 inches, automatic flash, \$200. Call Gil Friedman at 571-1662. (05-97)

Your ad will run for 4 months unless specified. Month and year of last appearance is last item of ad. For additions or changes to this list, call Nancy or Nina at 579-1382 or email to ninalahman@aol.com or nlwagner@aol.com.