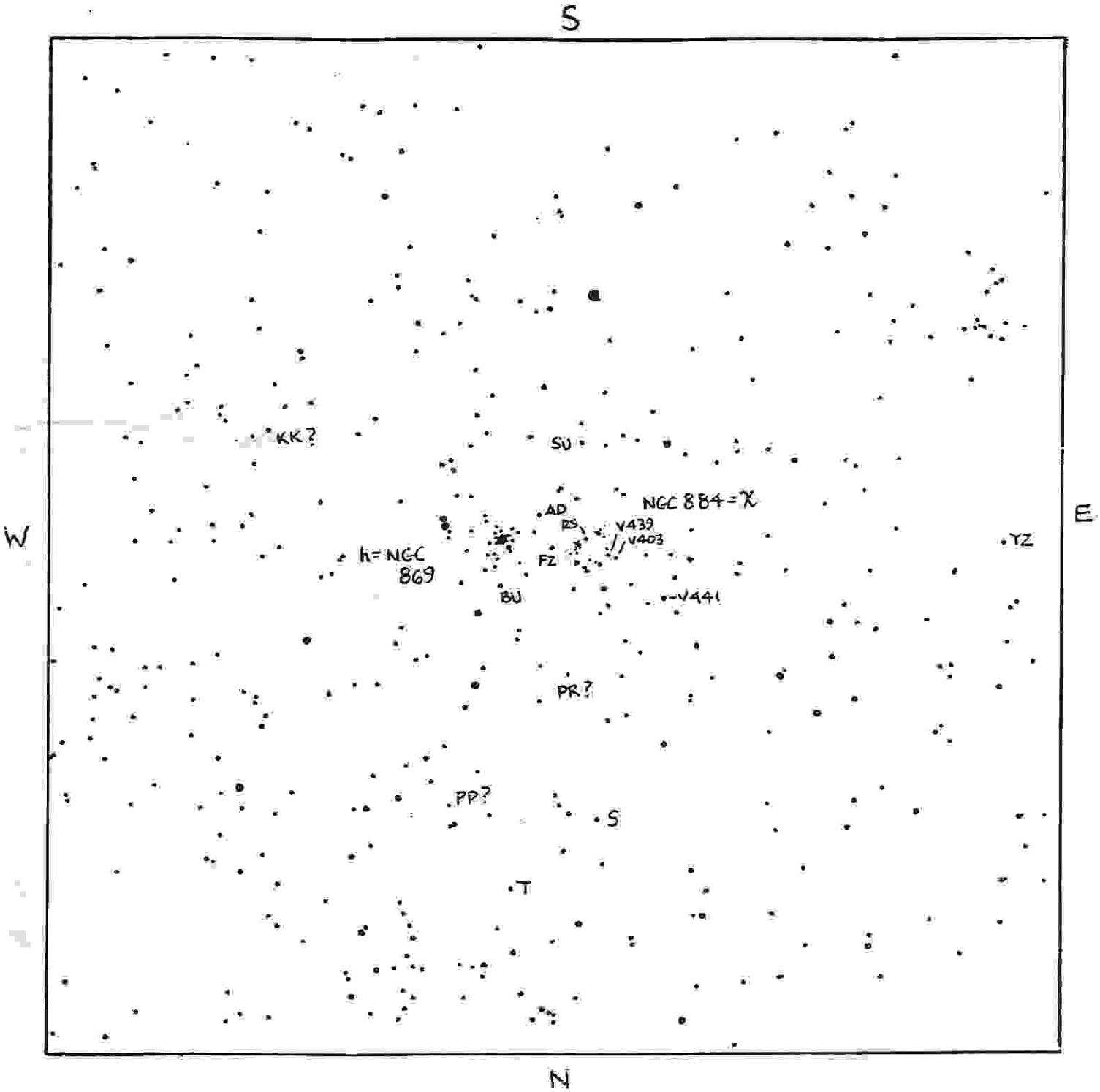
Desert Skies

Tucson Amateur Astronomy Association

Volume XLII, Number 12 December, 1996



ENVIRONS OF THE DOUBLE CLUSTER A BINOCULAR VIEW

Calendar of Events

BEGINNERS LECTURE- There will be no beginner's lecture this month.

GENERAL MEETING - Friday, December 6, 7:30 pm at the Steward Observatory Auditorium -room N210. Topic is **Small Body Tales** by Dr.Dan Davis.

YOUNG ASTRONOMERS CLUB - Due to personal circumstances, Nina Lehman will not be able to teach the young astronomers club anymore. TAAA is looking for a volunteer for this effort.

BOARD OF DIRECTORS MEETING - Thursday, December 5, 7:00 pm at the Conference Room at Flandrau Science Center.

STAR PARTIES & EVENTS:
December 7 - Empire Ranch
December 11 - Holiday Party
December 13 - Christopher Columbus Park
December 14 - Empire Ranch

Newsletter Schedule: Deadline for articles: Monday, December 9. Printing: Monday, December 16,. Folding Party: Tuesday, December 17. Mailing: Wednesday, December 18. The newsletter is scheduled to be in the mail at least one week prior to the following month's General Meeting.

Cover: Member Jeff Brydges provided this sketch of the Double Cluster, between Cassiopeia and Perseus. See his article on page 10.

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

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Membership in the TAAA
Individual $23.00/year without Astronomical League Membership
Family $25.00/year with Astronomical League Membership
Senior Citizen (over 60) $23.00/year

Sky & Telescope subscription (optional) $27.00. Rates for membership in the TAAA are given above. Members may subscribe to Sky & Telescope at the time membership renewal, saving more than 25% off the cost of a regular subscription. The subscription term must match your membership period.

Send one check, made payable to: Tucson Amateur Astronomy Association, to cover both membership and subscription to:
TAAA
PO Box 41254
Tucson, AZ 85717

Send Address Changes to:
TAAA
Attention: "ADDRESS CHANGE"
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.
2. If you want Sky & Telescope:
   a) add $27 to your membership rate.
   b) include Sky & Telescope's renewal notice, if possible.
3. Write one check, payable to TAAA.
4. Send it to: TAAA
   P.O. Box 41254
   Tucson, AZ 85717

Call the Treasurer if you have any problems.

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: ninalehman@aol.com or nlwagner@aol.com

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President's Message

The holidays are always filled with lots of craziness. Between the shopping and out of town visitors, the last thing you need is to fit another party into your schedule. That's why this year's TAAA Holiday Party will be held relatively early in the month. On Wednesday, December 11th, members of the TAAA will gather at the China Rose Restaurant for good eating and a fun time. The China Rose is owned by Tim Hunter's wife, Carol. Recent remodeling has expanded the restaurant which now includes The Sky Room. In this case, it could have been called the Night Sky Room! The ceiling is filled with stars and there are paintings of astronomical objects on the walls. It really is a unique experience dining in the Sky Room at the China Rose! In addition to dinner, we are trying to line up some slide presentations. If you wish to show slides of TAAA activities or other astronomical topics contact John Polacheck to make arrangements. John is also handling all RSVPs and requests you send him a check to hold your reservations. See an announcement in this newsletter about this event.

This month marks the beginning of Project ASTRO in Tucson. I am very pleased with the response that we have from TAAA members for this project. At least 9 members have signed up to participate. This compares with about the same number of astronomers from the Kitt Peak offices. All in total, 20 astronomers and over 25 educators are part of the project so far. By the time you read this newsletter we will have met our partners, all who have some role in education. I have been paired with someone from the elementary school I attended (many!) years ago. This should be exciting! A lot of work has been put in by Gary Sowinski, the TAAA Project ASTRO Coordinator. He has gathered teaching tools and put together at least four teaching kits covering four different astronomical topics. This should make our job easier since most of the hard work (the gathering of resources) has already been done. I hope the other 8 TAAA members will share their experiences with the rest of the TAAA. Over the next three years, more members need to become involved in Project ASTRO to make it a success.

For the last few years, Nina Lehman has been the teacher for the Young Astronomer's Club which ran concurrently with the regular TAAA meeting. Nina has asked to be relieved of this responsibility and I have accepted her resignation. I am sure the youngsters who participated in the club will miss her. If you would like to serve as the leader for the Young Astronomer's Club, let me know.

Finally, in this newsletter you will find an updated membership list. All the addresses and phone numbers should be correct, but if you find an error please notify Gary Rosenbaum.

Clear Skies!
Terri *

TAAA Holiday Party

Wednesday, December 11 7:00pm

The China Rose

5101 E. Speedway

Friends and Family Welcome

Ex-president of the TAAA, Tim Hunter, and his wife, Carol, will be our de facto hosts. The Star Room is newly remodeled with astrophotos and ceiling constellations. Food, as always, will be excellent. Bring lots of cheer and a few slides to share with the group.

RSVP to John Polacheck at the December 6th meeting or by mail at 6841 N. Skyway Dr., Tucson, AZ 85718. Include a check payable to "China Rose". Cost is $10 per person for a buffet dinner and non-alcoholic drinks (includes tip). Limited to 100 people. For more information call: 544-8152.

We are sure to have a good time!
Make your reservations soon!

Club News

December's Speaker: Dr. Don Davis

Dr. Don Davis will speak on: Small Body Tales: Origin and Evolution of Asteroids, Trojans and Kuiper Belt Objects

This month's lecture will be presented by Dr. Don Davis of the Planetary Science Institute and is titled Small Body Tales: Origin and Evolution of Asteroids, Trojans and Kuiper Belt Objects. The small bodies of the solar system are the debris left over from the formation of our planetary system and as such, they contain many clues as to the processes that shaped our solar system. In this months talk, Dr. Davis will outline our present understanding of the formation and evolution of asteroids, Trojans and Kuiper Belt Objects and will compare these populations to identify similarities and differences. Finally, we will be shown the relationship of these small body reservoirs to the comets and Near-Earth asteroids that frequent the inner solar system and constitute the projectiles that occasionally hit the Earth.

Donald R. Davis is a Senior Scientist and Director of the Planetary Science Institute in Tucson, Arizona. He received his Ph.D. in Physics from the University of Arizona, Tucson, in 1967 and then accepted a position developing software for returning the astronauts to Earth as part of the Apollo real-time computer system in Houston. After the Apollo 13 mission he returned to Tucson to resume scientific research.

His research interests are in studies of asteroid collisional evolution, planet formation processes, lunar origin, evolution of planetary ring systems and dynamical studies of planetesimals in the early solar system. He also participates in observational programs to obtain physical data on small bodies of the solar system and carried out an infrared search for a hypothetical population of small bodies orbiting interior to Mercury's orbit. He was also the Principal Investigator of a project to study the role of near-Earth asteroids in the Space Exploration Initiative and contributed to advanced mission planning studies for the exploration of small bodies; the NEAR mission that NASA is currently flying is the embodiment of a concept studied in the late 1970s by Dr. Davis and colleagues.

In the education field, Dr. Davis has a Lifetime Teaching Certificate for the Arizona Community College System and has taught introductory courses in astronomy, both planetary science and stellar astronomy, at Pima Community College in Tucson. He also lectures at the University of Arizona Astronomy Camp on the topic of celestial mechanics using computer software to illustrate many basic motions of celestial objects. Dr. Davis has also taught graduate level celestial mechanics at the University of Arizona and gave seminars on orbit determination theory, as well as lectured in undergraduate astronomy courses. *

Holiday Party

The TAAA Holiday Party will be on Wednesday, December 11th at 7:00 PM in the Star Room of the China Rose Restaurant. Location: 5101 E. Speedway Blvd. Dinner: buffet and non-alcoholic drinks. Cost: $10.00 per person (includes tip). Friends and family welcome. RSVP and include a check payable to "China Rose." Reservations can be made by mail. Or, your last chance, at the December TAAA General Meeting (c/o John Polacheck, 6841 N. Skyway Dr., Tucson, AZ 85718). For more information call: 544-8152. Space is limited to the first 100 who respond.

Ex-president of the TAAA, Tim Hunter, and his wife, Carol, will be our de-facto hosts. The Star Room is newly remodeled with astro photos and ceiling constellations. Food, as always, will be excellent. Bring lots of cheer and a few slides to share with the group.

WE ARE SURE TO HAVE A GOOD TIME...MAKE YOUR RESERVATIONS SOON ! ! ! *

JANUARY NEWSLETTER DEADLINE

Please note, that due to our members (including your editors) taking time out to vacation at Christmas time, the deadline for inputs for the January 1997 issue of Desert Skies is Wednesday, December 11. This leaves Nina and Nancy only 3 days rather than the usual 7 days for putting it together, and getting it into the hands of the printers. Please make a special effort to get your inputs in to us early. The earlier the better.

We shall be glad to start working on it anytime prior to December 11. Thank you.

Nancy Wagner and Nina Lehman, Editors, Desert Skies. *

1997 Calendars and Other Goodies

We will be selling the Astronomy Magazine/Planetary Society Exploring the Universe 1997 wall calendars at the December meeting. This wall calendar measures 13.5" X 10.5" and features 13 astronomical images. Included are descriptions of celestial events for many dates, plus room for writing in family activities or appointments. We sold half our supply last month, so this may be your last chance to buy yours. They are only $10! *

Astronomy Magazine Subscriptions

Gary will be accepting money for Astronomy magazine subscriptions at the December meeting. The regular subscription rate is $34.95, but by ordering through the TAAA your cost is $20. In the past we collected subscriptions only at the end of the year, but with changes at Kalmbach Publishing we will be able to accept subscriptions at any time of the year. If your subscription is due to expire you can renew through the TAAA. While it isn't absolutely necessary, it does help to have a renewal slip or the mailing label from your magazine to ensure your current subscription is renewed. *

Project ASTRO in Tucson: A Snapshot

I am overwhelmed by the enthusiasm for Project ASTRO in Tucson and the willingness of astronomers, particularly those from the TAAA, to volunteer their time and talents. We have 23 rock-solid partnerships lined up for this year. Our goal was to establish 20-25 partnerships, so in terms of pure numbers, we are in good standing.

As I write this, the ASTRO workshop is ten days away. When you read this, the workshop will be over and the real work of supporting ongoing partnerships will be unfolding. I'd like to thank the TAAA for their support in bringing project ASTRO to Tucson and especially Terri Lappin and Gary Sowinski for their hard work on ASTRO's behalf. This is an exciting project with benefits for all who participate. I have already benefited by getting to know many of you and I look forward to our increased, ongoing partnership in the future.

With thanks,
Suzanne
Director, Project ASTRO-Tucson/NOAO *

Special Interest Groups

A Unique Opportunity

My name is Jim Collins – I'm a grad student at the U of A. I'm operating two observing programs, one doing UBV photometry of white dwarf stars, and one searching for extra-solar planets. I'm wondering if any of your members would be interested in lending me a hand working at the 61-inch on Mt. Bigelow and the 60-inch on Mt. Lemmon. In the past, I've traditionally recruited undergraduates to help me out, but their participation tends to be rather sporadic. My hope is that one of your folks would be willing/able to make a more long-term commitment to these projects. My other angle on this is that I'm President of the UA branch of The Society for Amateur Scientists (SAS). Take a look at the home page that the SAS national organization has created at: http://www.thesphere.com/SAS/home.html. I figure that by actively involving the amateur astronomy community, I can get my graduate work done more easily while addressing the goals of SAS as well.

I'm currently scheduled to observe on Nov 15, 16 & 17 (Fri Sat & Sun) and Dec 7 & 8 (Sat & Sun), but more nights will be added soon. I'd like to try to coordinate scheduling on this with whoever in your organization is
interested in participating. A very intensive effort is also planned for the extra-solar planet search from May 14-29 and from Jun 13-27. There is a good possibility that whoever helps out with the UBV photometry will get their name on a publication; there is also a lesser chance of co-authorship on an extra-solar planets paper for whoever wants to help with that. I'll completely train whoever wants to help (though I'm hoping he/she will have some amateur observing experience). The main thing that I'm looking for is someone who is willing to devote the time necessary to get the work done. (It would also be nice if they had a truck, since the roads up at the observatories get pretty bad during the winter.)

I'm attaching, below, the Scientific Justification section of a recent observing proposal that describes the UBV photometry work. The extra-solar planets work is described at: http://www.iac.es/galeria/hdeeg/tep/tephome.html and http://www.iac.es/galeria/hdeeg/tep/jenam.html.

Scientific Justification

We propose continued work toward obtaining accurate UBV photometry of a large
sample of hot DA white dwarf stars using the Catalina Photometer and the 61-inch telescope. Our sample includes stars that are known to be EUV and soft X-ray sources; most were selected from the ROSAT all-sky survey completed February 1991.

Accurate flux normalization at long wavelengths is an essential component in the analysis of EUV or soft X-ray photometric data. This is most simply achieved from accurate and precise visual magnitude measurements. In order to deal with the vastly increased number of hot white dwarfs which have soft X-ray and EUV fluxes, we have assembled a list of hot DA white dwarfs with V < 16.8 that are accessible with the 61-inch telescope.

This type of photometry is also useful for determining the luminosity functions of white dwarfs, their distances, and other characteristics not yet observed (unseen companion stars, light variability, accretion systems, etc.)

A second NASA-sponsored EUV all-sky survey has recently been completed using the Extreme Ultraviolet Explorer; this has increased the number of hot white dwarfs that are known to be EUV and soft X-ray sources to ~ 200. Many of these stars are previously unknown white dwarfs for which no photometric data has ever been obtained. Additionally, virtually all known DA white dwarfs with effective temperatures above 22,000 K are potential candidates for detection aboard ROSAT with either the British Wide Field Camera (WFC) in the 50 Angstrom to 300 Angstrom EUV bands or at shorter wavelengths with position sensitive proportional counters (PSPC) on the German-American X-Ray Telescope.

Results from our program will be used as part of several ongoing programs by Holberg for the analysis of ROSAT data and in conjunction with UV (IUE) and optical spectroscopic programs aimed at refining the effective temperatures and gravities of many of these stars. Results from this program will also help to define the white dwarf luminosity function in conjunction with Liebert's program to obtain spectroscopy of the Palomar-Green Survey white dwarfs. This program is a continuation of the photometric work on hot white dwarfs conducted by Kidder, Holberg and Mason (1991, AJ 101, 579) and by Cheselka, Holberg, Watkins and Collins (1993, AJ 106,2356) in which UBV photometry was published for 128 white dwarf stars.

We have pursued this observing program for the last three trimesters, and have obtained photometry for 23 of our targets, despite having been plagued by bad weather during most of our nights. *

Dark Skies for December

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

Sa/Su 30/ 1 18:45 - 22:29	Tu/We 10/11 18:47 - 5:48	Sa/Su 21/22 5:12 - 5:54
	We/Th 11/12 18:49 - 5:48	
Su/Mo 1/ 2 18:46 - 23:21	Th/Fr 12/13 19:53 - 5:49	Su/Mo 22/23 - - -
Mo/Tu 2/ 3 18:46 - 0:14	Fr/Sa 13/14 20:59 - 5:50	Mo/Tu 23/24 - - -
Tu/We 3/ 4 18:46 - 1:07	Sa/Su 14/15 22:05 - 5:50	Tu/We 24/25 Full Moon
We/Th 4/ 5 18:46 - 2:02		We/Th 25/26 - - -
Th/Fr 5/ 6 18:46 - 2:58	Su/Mo 15/16 23:10 - 5:51	Th/Fr 26/27 18:54 - 19:28
Fr/Sa 6/ 7 18:46 - 3:56	Mo/Tu 16/17 0:13 - 5:51	Fr/Sa 27/28 18:55 - 20:20
Sa/Su 7/ 8 18:46 - 4:56	Tu/We 17/18 1:15 - 5:52	Sa/Su 28/29 18:55 - 21:13
	We/Th 18/19 2:16 - 5:52	
Su/Mo 8/ 9 18:47 - 5:46	Th/Fr 19/20 3:16 - 5:53	Su/Mo 29/30 18:56 - 22:05
Mo/Tu 9/10 18:47 - 5:47	Fr/Sa 20/21 4:15 - 5:53	Mo/Tu 30/31 18:57 - 22:58

Weekend Sa/Su	Sun Set	Sun Rise	Mercury Set Vi	Venus Rise Vi	Mars Rise Vi	Jupiter Set Vi	Saturn Set Vi
30/ 1	17:17	7:06	18:11 6	4:45 -3	0:33 1	20:03 -1	1:44 1 -3 brilliant
7/ 8	17:17	7:11	18:28 5	4:59 -2	0:21 1	19:43 -1	1:16 1 0 conspicuous
14/15	17:19	7:16	18:42 4	5:13 -2	0:08 1	19:22 0	0:49 1 3 moderate
21/22	17:22	7:20	18:43 4	5:27 -2	23:53 1	19:02 1	0:23 1 6 naked eye limit
28/29	17:26	7:22	18:09 -	5:41 -1	23:38 1	18:42 3	23:57 1 9 binoculars limit

Vi=Visibility

By Erich Karkoschka

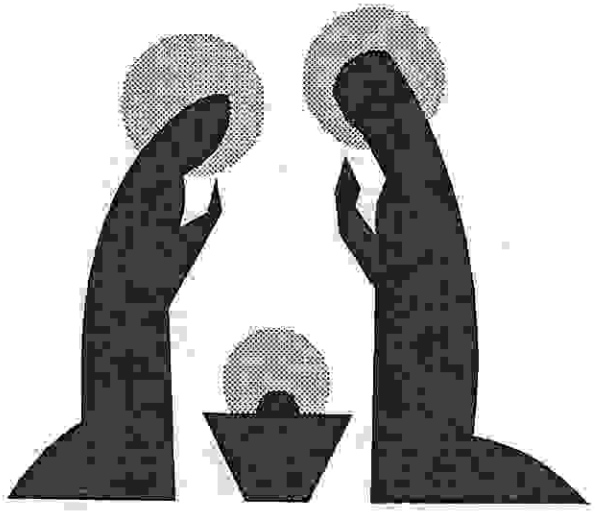
Star Parties & Events

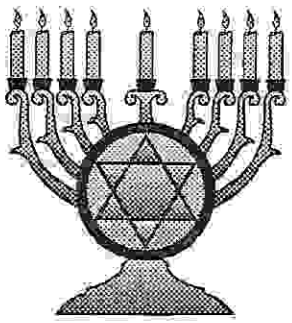
Holiday Party
December 11

Our Holiday Party is bound to be a blast. See the special announcement elsewhere in this issue. *

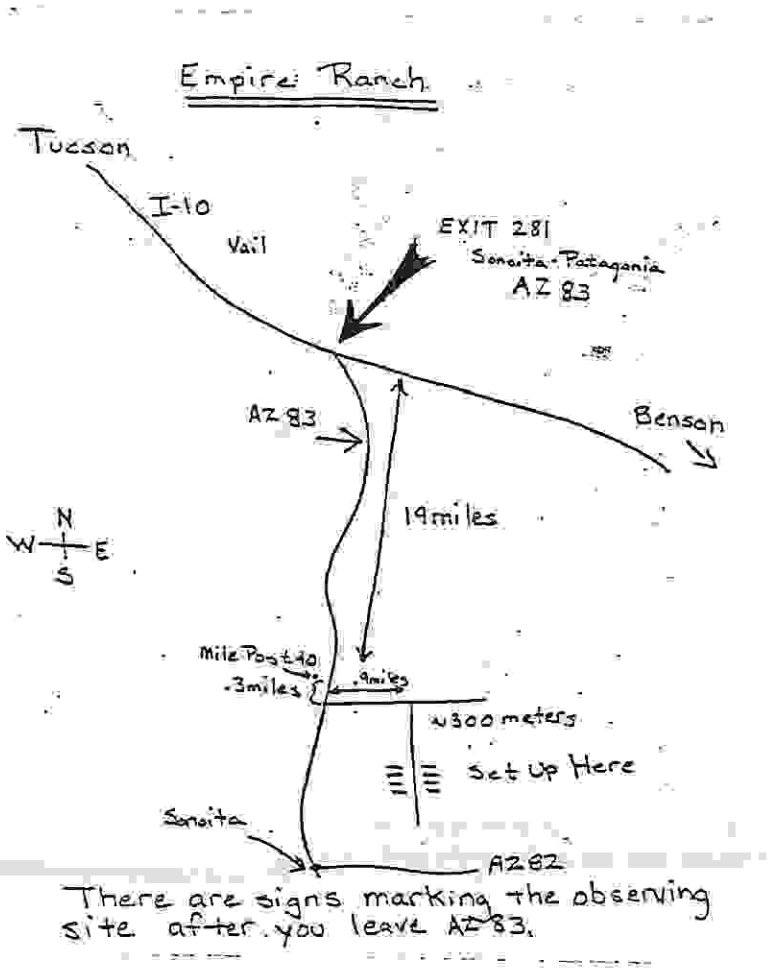
Christopher Columbus Park
December 13

A star party is scheduled at Christopher Columbus Park (also known as Silverbell Park) located at 4600 N. Silverbell Rd., for about 30 kids. This is part of the Wonderful Outdoor World (WOW) program for kids 9 through 12 years of age. The program lets the kids campout overnight at various parks around town with lots of adult supervision. Set up time is 7:00 pm, with observing from 7:30 to 8:30 pm. Look for Ramada #2 which is located near the lake. A sign up sheet will be at the meeting. *





Maps


Empire Ranch
Tucson
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19miles
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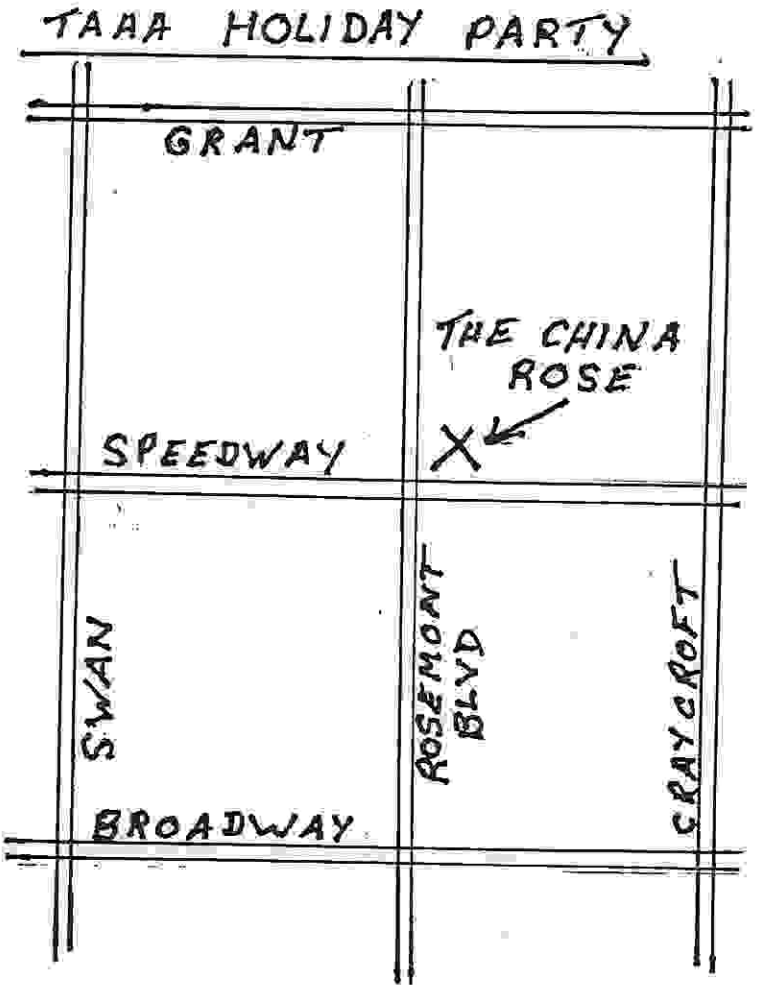
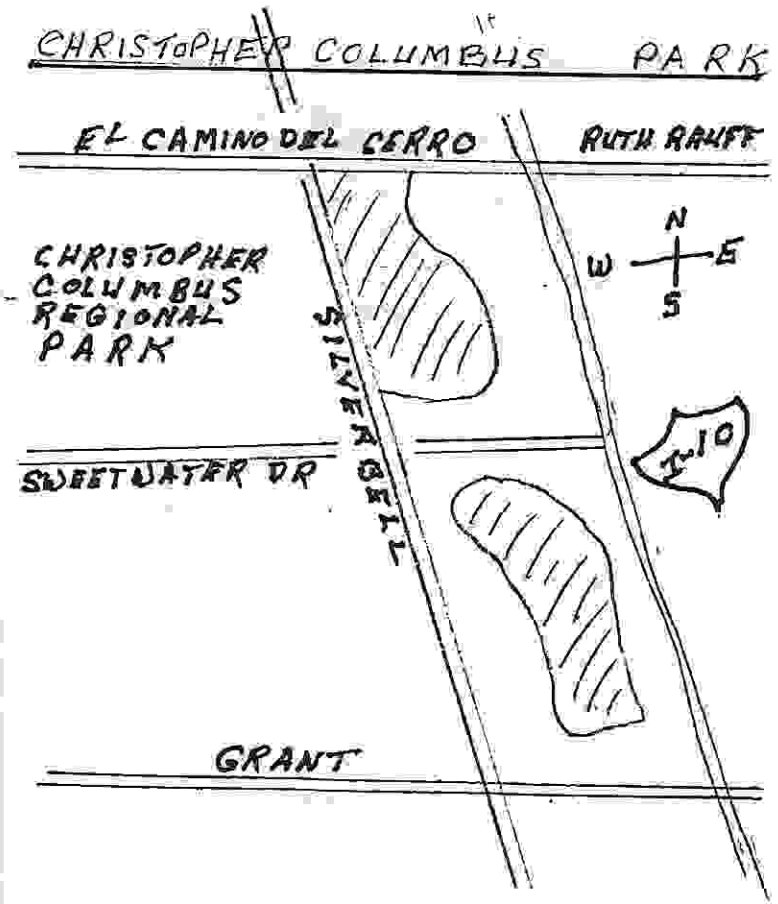
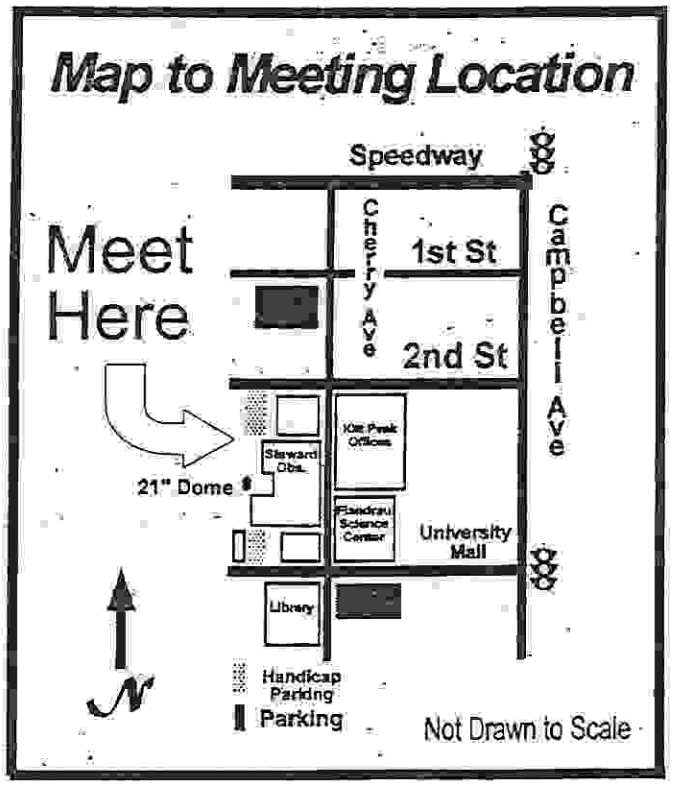
Set Up Here
Sonoita
AZ 82
There are signs marking the observing site after you leave AZ 83.


TAAA HOLIDAY PARTY
GRANT
THE CHINA ROSE
SPEEDWAY
SWAN
ROSEMONT BLVD
CRAYCROFT
BROADWAY


CHRISTOPHER COLUMBUS PARK
EL CAMINO DEL CERRO
RUTH RAUFF
CHRISTOPHER COLUMBUS REGIONAL PARK
N
W
E
S
SILVER BELL
I-10
SWEETWATER DR
GRANT


Map to Meeting Location
Meet Here
Speedway
Cherry Ave
1st St
2nd St
Campbell Ave
21" Dome
Steward Obs.
Kitt Peak Offices
Flandrau Science Center
University Mall
Library
N
Handicap Parking
Parking
Not Drawn to Scale

Notes From Other Clubs

NEW SKY SHOW *(WRITTEN BY TAAA'S DAVID LEVY!)* "COMETS ARE COMING!"

Flandrau's new planetarium sky show "Comets Are Coming!" starts November 29. "Comets Are Coming!" presents an exciting theme for audiences of all ages, highlighting the discoveries of Comets Hyakutake and Hale-Bopp, and showing the effects of past impacts from Comet Shoemaker-Levy 9 and other historically significant comets.

Written by famed comet hunter and TAAA's own David Levy, "Comets Are Coming!" combines superb narration and special effects with actual interviews from the comet discoverers themselves. "Comets Are Coming!" educates audience awareness of comets, their origin, and their observation. The dramatic night sky provided by Flandrau's space theater provides a stunning natural backdrop.

NEW HOLIDAY LASER SHOW "HOLIDAYS IN LIGHT"

Flandrau's new holiday laser show, "Holidays In Light" starts Dec. 6. This original show by award winning Flandrau laserist Josh Peters combines multi cultural holiday themes with traditional winter laser imagery. Enjoyable for the whole family, this spectacular laser-light show uses the latest in laser imagery in conjunction with conventional light effects and of course, the stunning star images and realistic night sky provided by Flandrau's Minolta Mark IV projector. *

The A.L.P.O. Needs Coordinators

The Association of Lunar & Planetary Observers has several positions open for Solar Section Coordinators. Two of our Coordinators who have served for over a decade, are taking advantage of the current solar activity minimum, and have decided to move on. As a result Coordinator positions are now open. We are looking for people with an interest in solar activity. Mostly this entails the collection of observations from amateur astronomers around the world, giving them guidance, and writing summaries of observations for the Journal of the A.L.P.O. The observations made by ALPOSS members are morphological in white light and H-alpha and not sunspot counting (which is done expertly by the AAVSO already). As the only present Coordinator in the Solar Section, I will be glad to offer the new candidate whatever help they need to get going. It would be most convenient if the new Coordinator were from the southwest U.S. You can find out more about the ALPO and the Solar Section at:

http://www.lpl.arizona.edu/alpo.

If you are at all interested please contact:

Rik Hill
rhill@lpl.arizona.edu
621-1039 during days and 721-0123 at night
or
Harry Jamieson - Director ALPO
104145.754@CompuServe.COM *

HOSTING ALCON '99 ?

The TAAA is a member of over 200 clubs of the Astronomical League. In 1999, the League needs a host association and location for their yearly national convention. I propose that the TAAA and Tucson host this convention. Is this a lot of work? You better believe it!

But running a national convention can be a very rewarding experience, too. We would have lots of distinguished visitors, astronomical vendors, and a chance to meet friends from across the country. I served as the chair of ALCON 95 in 1995, and I had a great time. I'm ready and willing to give it another try.

Before we accept a project of this magnitude, I think we need the approval of the TAAA board of directors and membership. Also, we're going to need lots of help. We will need volunteers to serve on the convention planning committee. If we can't find enough help, we will not be able to properly organize the convention.

Here's my proposal. If you'd like to help and you think this is a good idea, please let me know. Send me an e-mail note, sign up at a meeting, or write me at home. If we have sufficient volunteers, I'll then bring it to the TAAA board and membership for your approval. Thanks for considering this request.

Wishing you clear skies and bright stars,

Bob Gent, TAAA Astronomical League Correspondent
Western Region Representative
3661 N. Round Rock Drive
Tucson, Arizona 85750-2080
(520) 721-5060
e-mail: RLGent@aol.com *

1997 Arizona Messier Marathon

The Saguaro Astronomy Club will again sponsor the Messier Marathon for 1997. The site is planned for Arizona City, AZ and the date, Saturday, March 8, 1997.

This is the same place that all the All Arizona Star Party was held during October 1996. More information is forthcoming, so don't forget to read the January 1997 issue of Desert Skies.

Don't forget to mark your calendars for this event. *

Observing Reports

Dust Storm Swirls at Martian North Pole

(Press Release: November 1, 1996; Photo No.: STScI-PRC96-34)

Two Hubble Space Telescope images of Mars, taken about a month apart on September 18 and October 15, 1996, reveal a state-sized dust storm churning near the edge of the Martian north polar cap. The polar storm is probably a consequence of large temperature differences between the polar ice and the dark regions to the south, which are heated by the springtime sun. The increased sunlight also causes the dry ice in the polar cap to sublime and shrink.

Mars is famous for large, planet-wide dust storms. Smaller storms resembling the one seen here were observed in other regions by Viking orbiters in the late 1970s. However, this is the first time that such an event has been caught near the receding north polar cap. The Hubble images provide valuable new insights into the behavior of localized dust storms on Mars, which are typically below the resolution of ground-based telescopes. This kind of advanced planetary "weather report" will be invaluable for aiding preparation for the landing of NASA's Pathfinder spacecraft in July 1997 and the arrival of Mars Global Surveyor orbiter in September 1997.

Top (September 18, 1996) - The salmon colored notch in the white north polar cap is a 600-mile (1,000 kilometer) long storm – nearly the width of Texas. The bright dust can also be seen over the dark surface surrounding the cap, where it is caught up in the Martian jet stream and blown easterly. The white clouds at lower latitudes are mostly associated with major Martian volcanos such as Olympus Mons. This image was taken when Mars was more than 186 million miles (300 million kilometers) from Earth, and the planet was smaller in angular size than Jupiter's Great Red Spot!

Bottom (October 15, 1996) - Though the storm has dissipated by October, a distinctive dust-colored comma-shaped feature can be seen curving across the ice cap. The shape is similar to cold fronts on Earth, which are associated with low pressure systems. Nothing quite like this feature has been seen previously either in ground-based or spacecraft observation. The snow line marking the edge of the cap receded northward by approximately 120 miles (200 kilometers), while the distance to the Red Planet narrowed to 170 million miles (275 million kilometers).

Technical notes: To help compare locations and sizes of features, map projections (right of each disk) are centered on the geographic north pole. Maps are oriented with 0 degrees longitude at the top and show meridians every 45 degrees of longitude (longitude increases clockwise); latitude circles are also shown for 40, 60, and 80 degrees north latitude. The color images were assembled from separate exposures taken with the Wide Field Planetary Camera 2.

Credit: Phil James (University of Toledo), Steve Lee (University of Colorado) and NASA

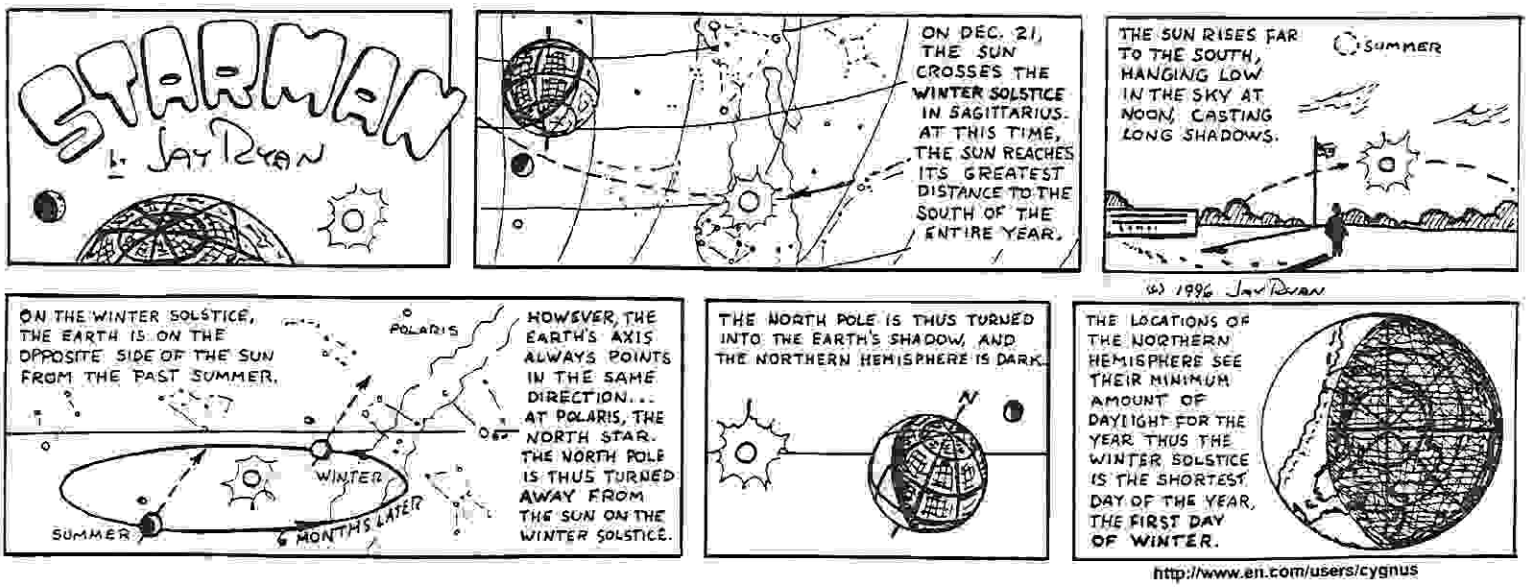
Image files in GIF and JPEG format and captions may be accessed on Internet via anonymous ftp from ftp.stsci.edu in /pubinfo.

	GIF	JPEG
PRC96-34	Mars Dust Storms	gif/marsds96.gif jpeg/marsds96.jpg

Higher resolution digital versions (300 dpi JPEG) of the release photograph are available in /pubinfo/hrtemp: 96-34 (color) and 96-34bw.jpg (black/white).

GIF and JPEG images, captions and press release text are available via World Wide Web at http://www.stsci.edu/pubinfo/PR/96/34.html and via links in: http://www.stsci.edu/pubinfo/Latest.html or http://www.stsci.edu/pubinfo/Pictures.html. *

Starman



h and χ Persei

Or as it is more commonly known by amateur astronomers the 'Double Cluster'. High overhead on these cold Winter's nights spans the Milky Way stretched out through Perseus and Cassiopeia. What we are seeing is the next spiral arm of our galaxy out from the Sun's location. This spiral arm is the 'Perseus Arm', and it contains many young hot blue stars, hence numerous galactic star clusters are found in this region of the sky.

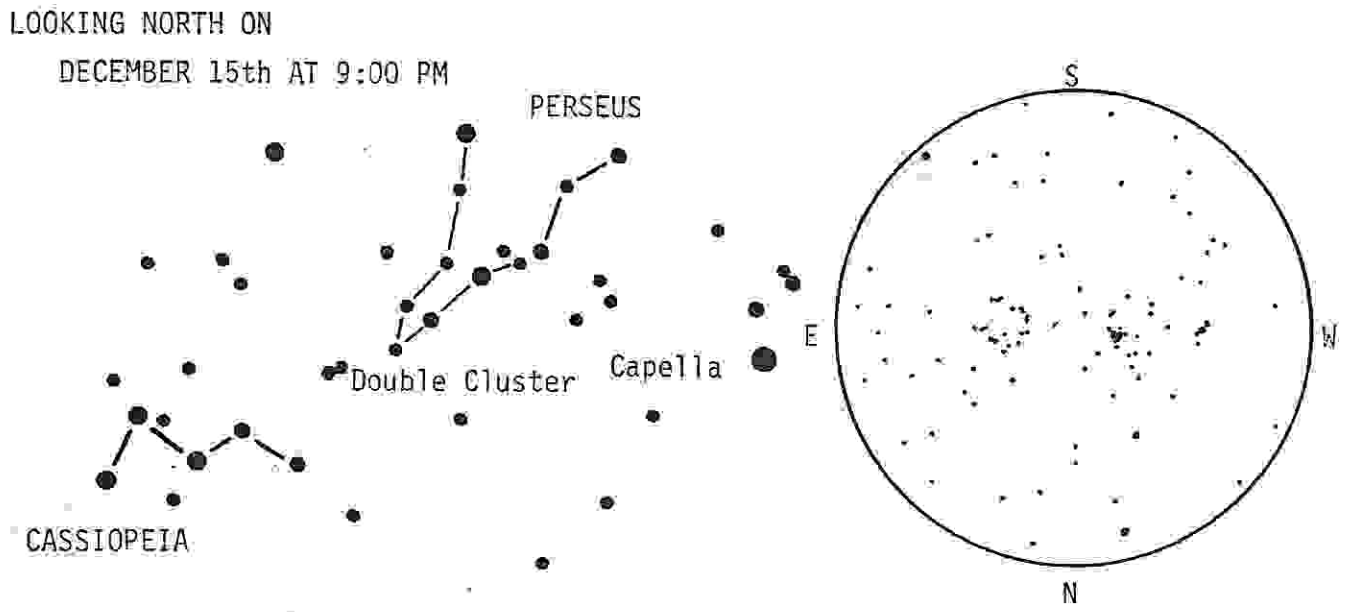
The Double Cluster was first reportly observed by the Turkish astronomer Hipparchus in the 2nd century B.C., he called it the 'cloudy spot'. Then Johann Bayer later assigned them as 'h and Chi (χ) Persei' in his stellar catalogue entitled Uranometria. The Double Cluster lies at the heart of a gigantic cloud of young stars spanning 750 light years across called the Perseus OB 1 Association. The cluster h Persei is NGC 869 and χ Persei is NGC 884. Both are fairly bright glowing at about fifth magnitude which makes them visible to the unaided eye as a misty spot midway between Perseus and Cassiopeia. Each of these clusters has an apparent diameter of the Full Moon about ½° across. At the distance of about 7,300 light years this makes their true diameters about 60 light years across, which is huge by galactic cluster standards. NGC 869 and NGC 884 are in close proxcimity to each other with only 50 light years separating them. These clusters contain about 300 stars each but in the telescopic field it seems like a thousand are present.

Both are made up of very young stars their ages are 3 million years for NGC 869 and NGC 884 is slighty older at 6 million years. All the stars visible in our binoculars and small telescopes are supergiant and giant stars of immense proportions and great luminosity, rivaling such stars as Deneb, Rigel, Betelgeuse, and Antares. The brightest star in NGC 869 shines at magnitude 6.6 and has a luminosity of 60,000 suns. Although it compares to Rigel in luminosity it lies eight times further away and is dimmed by interstellar gas and dust so it appears much fainter to us. Some red supergiants are also visible in the telescopic field, they are marked by their variable designations on the accompanying chart. These are equal to Antares and Betelgeuse in luminosity, or as bright as 10,000 suns. The total mass of these clusters is about 5,000 suns and they have a combined luminosity of 200,000 suns.

To locate the Double Cluster look high overhead and find the constellation of Cassiopeia, it looks like an 'M' this time of year. Then move eastward along the Milky Way toward Mirfak, Alpha (α) Persei. You should notice a dim fuzzy spot with your eye halfway between Cassiopeia and Perseus.

The Double Cluster is always a spectacular sight repaying your constant observation no matter what type of optical instrument you use. It is one of those objects you never tire of, but always peer at with awe.

By Jeff Brydges



The Double Cluster in a 2.4" refractor at 20x.

TAAA Board of Directors Meeting - November 7, 1996

Minutes of the TAAA Board of Directors Meeting 7 November 1996
Officers/Members in attendance:
Tom Burdon, Dean Ketelsen, Teresa Lappin, John Polacheck, Gary Rosenbaum, Larry Wilson.
Agenda: Events/Meetings:
Star Parties: December 07 Empire Ranch
December 13 Silverbell Park (for WOW kids)
December 14 Empire Ranch
Meetings: December 06 Beginner's Lecture (open)
Regular Meeting - Don Davis
December 11 Holiday Party at China Rose
January 03 January Lecture - Jill Bechtold
February 07 February Lecture - Member's Night
J.Polacheck reported on the search for a suitable public star party site to replace Sabino Canyon. The Desert Museum and Old Tucson have shown interest.
Treasure's Report:
October Total Income: $1,297.55 Year's Total Income: $15,251.72
October Total Expense: $1,695.90 Year's Total Expense: $ 9,560.79
October Net Income: $ -398.35 Year's Net Income: $ 5,690.93
J.Polacheck moved to accept the yearly profit and loss as written. Seconded by D.Ketelsen. Accepted unanimously.

Fundraising: J.Polacheck spoke on setting up a plan and time-table for conservatively investing the clubs money. He feels the club needs to set a goal to have the funds required for the projected dark-sky site. He will present a draft plan at the next meeting.

Tom Burdon proposed a plan to raise money by selling pre-paid long distance phone calling cards with the TAAA logo. Plan was rejected due to risks involved and needed marketing commitment.

Survey: T.Lappin presented a draft of a survey to determine the club membership's opinion's about future projects and operation of the club.
Old Business: Discussion concerning the 30" telescope and it's construction and placement.

Desert Skies Classified

FOR SALE: 80mm f11 refractor, ALT-AZ mount, hard maple tripod, star diagonal, terrestrial Porro prism, sun filter, 3 Ploss eyepieces, $500. Call Jeff Brydges at 888-0591. (12-96)

FOR SALE: Meade LX200 HP f/10 10" scope with V3.34 software. Very good condition and ready for deep sky viewing or astrophotography. Includes $1,700 worth of accessories. Asking $3,500 OBO. Phone Jim Waters, Phoenix AZ, EVAC Member at (602) 554-8789, 8:00 to 5:00 pm. (12-96)

FOR SALE: (1) Freq. Drive Corrector. input: 12VDC 1.0A output: 115VAC 7W Freq adjustable from 50-65Hz Hand Paddle with Fast/Slow buttons 40/63Hz, and map light 12VDC accessory plug on unit. Low battery indicator. $100 OBO. (2) Stepper Motors. Manuf: Fuji Electric Co. Ltd. Model: GPF2945-2A (PM type) Step angle: 1.8deg Volts: 1.8DC Current: 4.8A/Phase 6 wires $20 OBO for both. Contact Enrique, 520-882-9525, home, 520-318-8226, work or email: chavez@noao.edu. (01-97)

FOR TRADE: Three telescopes: (1) - 6-inch f8 reflector, DOBS mount; (2) - 6 inch 44.3 RFT reflector with a 2-degree field of view. DOBS mount; (3) - 60mm Celestron refractor, alt-az. Mount. Want to trade all three for a 4-inch refractor with alt-az mount. Call Gilbert Friedman at 571-1662. (01-97)

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 prominance 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)

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 ninalehman@aol.com or nlwagner@aol.com.