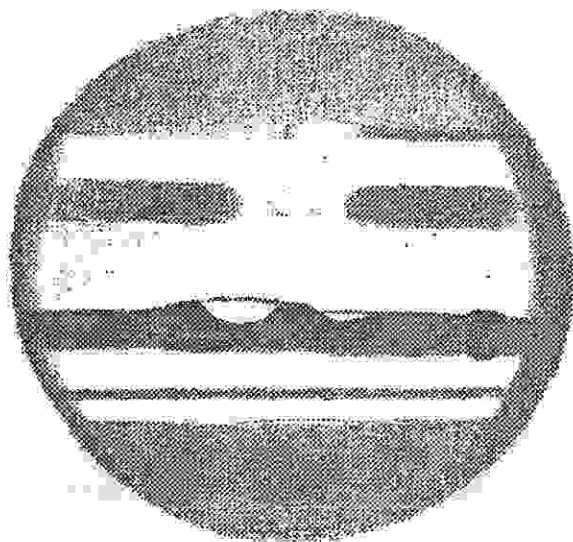


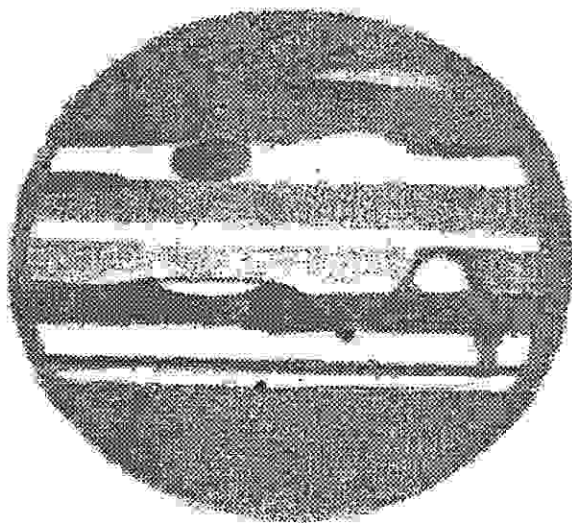
Desert Skies

May, 1994

The Newsletter of the Tucson Amateur Astronomy Association (TAAA)



No.12
APRIL 25, 1993
4" F/8.6 refractor
219x
Seeing: 4-5
Trans: 5.0



No.15
May 22, 1993
4" F/8.6 refractor
219x
Seeing: 5-6
Trans: 4.75

SKY CREST OBSERVATORY
Sweetman

Don't forget the International Dark-sky Association (IDA) annual meeting this Saturday, 30 April - details enclosed!

GENERAL MEETING - Friday, May 6, 7:30 pm at the NEW Steward Observatory Auditorium - room N210. May's speaker is Dr. Tom Gehrels, who will be talking about "The Beauty and Danger of Comets and Asteroids."

6:45 pm - pre-meeting "Beginners lecture" by Teresa Lappin will be "Mercury and Venus -- Inferior Planets." All are welcome! ("old" Steward obs. room 204). See enclosed map for directions!

EXECUTIVE MEETING - Thursday, May 12th, 7:30 pm at Flandrau Science Center's Conference Room

30" TELESCOPE DESIGN, LAND & FUNDRAISING MEETING - Wednesday, March 18, 7:30 pm at the home of Sharon and Duane Niehaus - call 797-4189 for directions.

STAR PARTIES: 3 May - Star Party at Blenman School
7 May - **Public Star Party as part of Astronomy Day at Park Mall.**
10 May - **Annular Eclipse Party at Flandrau Science Center.**
13 May - Star Party at Castlehill Day School.
14 May - **TAAA Spring Picnic at Vega-Bray Observatory.**
17 May - Star Party at Agua Caliente Elementary School.
20 May - Smithsonian Star Party at Gilbert Ray Campground.
EVENTS: 30 April - **IDA annual meeting, Hotel Park Tucson, 9am.**

Next Newsletter Deadline - March 18

COVER: With Jupiter at opposition, now is the time to get out and observe the giant planet in order to detect possible visible changes caused by the SL-9 collision in July. These drawings by Michael Sweetman show many fine details in the north equatorial band during last year's opposition.

TAAA EXECUTIVE

President	Dean Ketelsen	293-2855
Vice-President	Terri Lappin	579-0185
Executive Sec.	Rob Nyberg	745-0710
Recording Sec.	Sharon Niehaus	797-4189
Treasurer	Duane Niehaus	797-4189
Member-at-Large	Bob Goff	790-1452
Member-at-Large	Dave Harvey	797-2512
Chief Observer	Mike Terenzoni	887-3226
Mem. Coord.	Gary Rosenbaum	579-0185
Past President	Tim Hunter	299-2972
Newsletter	Dean Ketelsen	293-2855

MEMBERSHIP IN THE TAAA

Individual	\$20.00/year
Family	\$25.00/year
Senior Citizen (over 60)	\$18.00/year

Sky & Telescope subscription (optional) \$20.00 (as of July, 1992)

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. It is best to pay your dues 2-3 months before your membership actually expires.

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 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. a) Decide if you want Sky & Telescope, then add \$20 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.

May's Featured Speaker - Dr. Tom Gehrels

"The Beauty and Danger of Comets and Asteroids"

Dr. Gehrels will give us an update on the Spacewatch program, which involves the search for near-earth asteroids (NEAs). In the 10 or so years the program has been active, over 60 NEAs have been found. The motivation for starting Spacewatch and the techniques used will be discussed, as well as plans for expanding to a larger telescope.

Tom's life reads like an adventure novel. His autobiography "On the Glassy Sea, an Astronomer's Journey" was published in 1988. Born in the Netherlands, as a teenager suffered under Nazi occupation and lost an older brother in a concentration camp. As the war was winding down, he escaped to England and served in special airborne services in Europe and the Far East. He received his Bachelor's degree from Leiden University in 1951 and his Ph.D. from the University of Chicago on determining asteroid brightnesses and their solar phase relationship. After 5 years as a research associate at Indiana University and McDonald Observatory, he joined the University of Arizona, where he has been a professor since 1967.

His research interests include minor planets, comets, and satellites; polarimetry and space exploration. Dr. Gehrels organized a program of photopolarimetry at the U of A and served as principle investigator for such a device on Pioneers 10 and 11. Since 1981, he has used CCD techniques with a 36" telescope in searching for asteroids and comets.

Beginner's Lecture

Mercury & Venus---Inferior Planets

No...inferior isn't used here to judge quality but it is used to indicate that these planets are within the orbit of the Earth. Venus will be in the evening sky this month and is joined by Mercury by the end of the month. At this month's lecture I will discuss both planets.

The Beginner's Lecture starts 45 minutes before the start of the regular meeting. See you at 6:45pm on May 6th in room 204.

TAAA Elections

If this is May, it must be time for annual Executive board elections. Unfortunately, as is usually the case, volunteers to run for election are scarce. Luckily, everyone on the board, save one, has offered to continue to serve. This is the current lineup:

President	Dean Ketelsen	Treasurer	Duane Niehaus
Vice-President	Teresa Lappin	Member at Large	Bob Goff
Recording Secretary	Open!	Member at Large	David Harvey
Executive Secretary	Rob Nyberg		

Mostly what is needed is someone to be available and provide input to the operation of the TAAA. Official duties include keeping a record of the general meetings for the historical record. If you want a hand in seeing the Club get better, call your favorite executive member and nominate yourself! Elections will be held after the break of the May meeting.

Dues Increase - Up For A Vote!

As was mentioned at the April general meeting, the executive discussed the raising dues at the recent executive meeting. A motion was made and passed (one executive member opposing the motion), that individual dues be raised to \$25/year and senior (over 55) dues be raised to \$23/year, with Sky & Telescope an option for both classifications. Current dues are \$20/year (\$18 for seniors). Our current financial status is shown below:

Costs per member:

	1992/93 expenses (143 members)	1993/94 expenses (200 members, extrapolated to July 1994)
Member Benefits	\$13.53	\$ 7.78
Overhead	\$ 3.15	\$ 7.28
Other expenses	\$ 1.45	\$ 3.27
Total cost per member	\$18.13	\$18.33

The decrease in member benefits came as the result of mailing the newsletter at bulk rates. The increase in overhead is the result of a better insurance policy. It's coincidence that the decrease was offset by the increase this year.

Of the yearly \$20 dues, over 90% goes into the operation of the TAAA and our programs. With 200 members, the TAAA has just over \$300/year for additional expenses. The executive's general feeling is that when expenses are within 90% of what we receive from dues that we look to reduce expenses and/or consider raising the dues. This was done last year and the switch to bulk mail was the result. We do not feel that any significant further reductions can be made without reducing our membership privileges and/or our programs.

As per our constitution, this increase must be ratified at a regular meeting by a 2/3 vote of the membership present. This motion will be voted on at the May 6th meeting. Changes in the dues rates would take place at the beginning of our fiscal year, July 1st. If you have comments, please contact an executive member.

The Exec's Continuing Search for Land

The Executive Committee has been looking into a number of land possibilities that have been offered to us. One was a gift of land near Portal (too far away), an acreage near Bisbee (too far, too near Naco where security would be nearly impossible), and a lot in Dragoon (very near adjoining houses). The Exec conducted some field investigations on the 17th of April with a trip to the Dragoon area. There are several possibilities in the area, mostly running about \$2,000 per acre for raw land. Some BLM sites were also looked into in the area. The search continues...

We are planning additional trips to the Sonoita and Arivaca areas. If you are interested in joining the group or know of sites available, call your favorite executive member.

Automatic Donation Continues

Our land fund has continued to grow steadily the last 6 months thanks to the generosity of a few TAAA members. Contributing \$5 to \$100 are S. Alden, E. Blair, D. Ketelsen, H. Roth, E. Vega, R. Goff, R. West, T. Lappin, G. Johnson, L. Solomon, D. Harvey, B. Becker, A. Hoag, M. Terenzoni, A. Meyer, and M. Finerty for a total income of \$330 per month. Thank you all for your support!

If you would like to join them in making a small, pain free electronic donation every month, contact Brad Becker at 881-7999 (days). Steady growth of the land fund is a large driver in the Exec's search for an observing site, so show us your support by making a contribution!

40th Anniversary Banquet

A very special occasion is upon us!

**September 10, 1994
Viscount Suite**

Fred Whipple, director emeritus of the Smithsonian Astrophysical Observatory and for whom Whipple Observatory is named, has agreed to be our banquet speaker. (See the related article "The Early Years" to see why Fred Whipple was chosen.) Fred Whipple's "dirty snowball" theory, which he announced in the 40's, is still the accepted theory of comet composition. Details about the banquet will be in next month's newsletter. Tickets will probably be available next month as well.

Fred Whipple lives in Massachusetts and TAAA will be paying his round trip airfare to Tucson and hotel stay for him and his wife. The cost of banquet tickets will not cover these expenses. If you would like to make a monetary contribution to help offset these expenses, please speak to our Treasurer, Duane Niehaus.

The Early Years

In March of 1954 five people met at the home of Earl and Kathryn Burch to organize a group of amateurs into a club. As a result of this little gathering, the organization we all know and love as the Tucson Amateur Astronomy Association came into existence (our actual name was "Tucson Amateur Astronomers" back then).

In April 1954 our first "official" meeting was held. By the end of the first year our membership had grown to 46 paying members. Our first star party was held in November 1954 in the Burch's yard where Earl gave a demonstration of his home made planetarium. Coffee, hot chocolate and donuts were served...sounds like fun! In our early years we received strong support from Dr. Edwin Carpenter, head of the University of Arizona astronomy department and Steward Observatory. The TAAA has always had a good relationship with Steward Observatory, a relationship which was first established by these early members of the TAA(A).

Remember the space race...who would make it to space first...the Russians or us? (This writer was born several years after the launch of Sputnik so I don't remember a thing!) With this race came the Moonwatch Program. This program was established by Fred Whipple, then director of the SAO and on staff at Harvard University in Cambridge, Massachusetts. Moonwatch served to coordinate mostly amateur astronomers into a network of 280 observing stations around the world to monitor the orbits of the early artificial satellites. Today, satellites pass overhead and we take little notice of them except when they ruin an otherwise perfect photograph of M42.

At our September 1956 meeting the TAA(A) joined the Moonwatch Program, establishing a relationship with the SAO. Fifty people joined the TAA(A) Moonwatch efforts the in first year. Our group, station 003-032-111, received a Prime A rating and was one of the top three stations in the US. In fact, a majority of the TAA(A) efforts were related to the Moonwatch Program. We received funds from Hughes

Aircraft to finance 13 wide field telescopes for our station which was located just south of Steward Observatory. This was prior to the SAO having an observatory in the area.

In October 1968 Mt. Hopkins Observatory was opened in the Santa Rita Mountains south of Tucson. In 1981, Mt. Hopkins Observatory was changed to Whipple Observatory to honor Whipple on his 75th birthday. It is with Whipple Observatory that the TAAA has held several public star parties over the past few years.

Our 40th Anniversary will be marked with a banquet dinner at the Viscount Suite and a lecture. An unofficial sub-group of the executive was given the task of choosing a speaker. For this search we did not want to limit ourselves to local people; we thought for a 40th anniversary we should find a speaker that we would otherwise not be able to hear. Several were considered, including Sally Ride and Carl Sagan, but we wanted someone with a connection to the TAAA and our activities over the past 40 years. Fred Whipple was chosen because of his efforts in orchestrating the Moonwatch Program which allowed early TAA(A) members to make a significant contribution to astronomy and space sciences, and because of our current ties with the Whipple Observatory public star parties. We hope members of the TAAA enjoy our selection.

Grand Canyon Star Party Update

Don't forget to make plans for this event, June 4th - 11th, co-sponsored by the Tucson Amateur Astronomy Association and the National Park Service. Even without the scenery, it is a fantastic place to observe the heavens. If you want to attend, it is not too late.

At this late date, rooms are not available unless you would like to call around for no-show cancellations at 4pm (Vicki and I are batting 1.000 for doing this several times over the last few years). Campsites are generally available even in the early morning for that night. We have been given 9 campsites this year, and some of them are still available, particularly early in the event. Please call me ASAP (293-2855) if you would like one of these free campsites. If you have already made camping reservations, let me know and I can get you assigned to our "astro section" of the campground, where it will hopefully be quieter into the late morning.

I am also looking for volunteers to give twilight slide shows to keep the public entertained between sunset and observing time. If you have a story to tell, or a project to tell us about that would be of interest to the general public, let me know and I will give you a public forum. It is a lot of fun!

The response we have been getting is slightly less than in previous years, so if you have been on the fence, so to speak, we need you! The Grand Canyon is a great place to observe, and I think the event is getting better every year. We have an observing site to ourselves behind a locked gate, so we can now leave our scopes set up during our stay. We are not fighting car headlights like we were years ago. And our twilight talks are improving with time as well. Public outreach is what this club is all about, and you will never find a friendlier, more appreciative public than what the Grand Canyon offers. It is a lot of fun and the observers that go tend to be repeaters. Ask them about it and they will talk you into going! See you there!

IDA Annual Meeting on 30 April

For those of you concerned about light pollution (as we all should be) the International Dark-Sky Association is holding its annual meeting on Saturday, 30 April at the Hotel Park Tucson on East Grant Road starting at 9am. Come early for coffee and socializing. As always, it should be an interesting meeting with several people coming from out of state to give presentations. Due to the expense of the meeting room, a \$20 registration fee is being charged, \$10 for limited income attendees. Come see what you can do and what others are doing to take back the night!

TAAA Spring Picnic is May 14th!

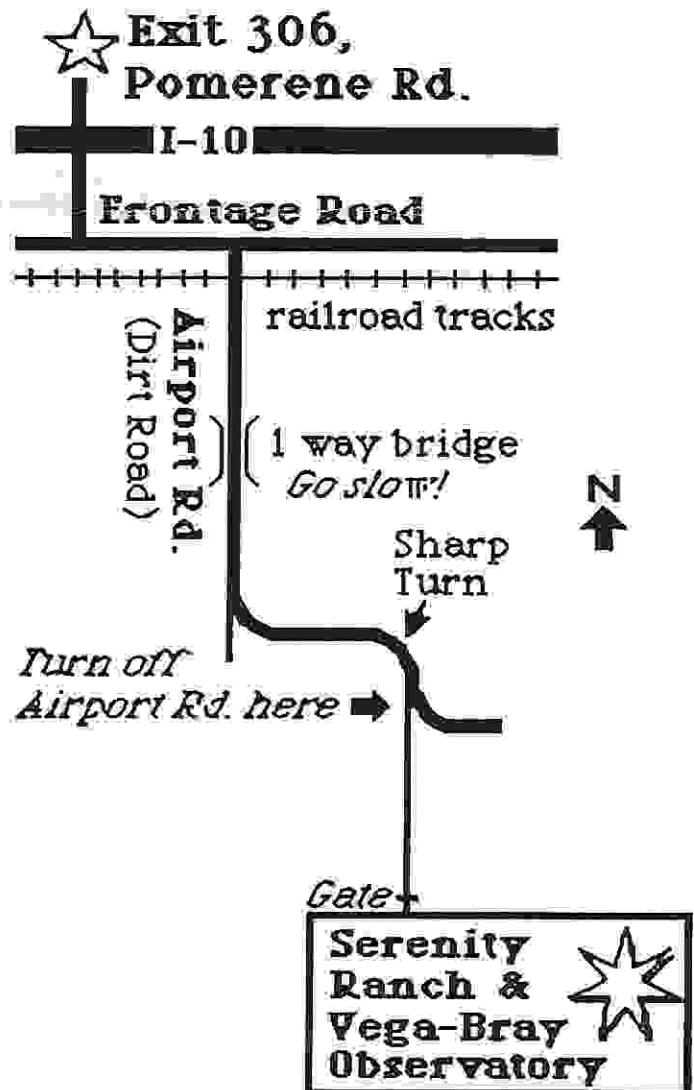
Eduardo Vega has again graciously offered the use of his observatory near Benson as the site for this year's event. For those of you who have never been there, it is a wonderful place for our annual gathering. It is part science center, part museum, and best of all has all the comforts of home with restrooms and a cool room (at least this time of year).

There are a variety of activities possible. For those arriving early, fishing at the lake (catch and release only), canoeing, badminton, and general exploring is all possible. For those arriving for the eats, a grill and drinks will be provided thanks to Eduardo. Bring something to grill and a dish to share.

This year is a special event - the Vega-Bray Observatory is dedicating their new 20" Maksutov-Cassegrain telescope, by my reckoning the third largest in the world. The optics of Eduardo's "ultimate telescope" were finished by Max Bray of Phoenix and the mechanics by Ralph Nye of Flagstaff, both scheduled to be present at dedication.

There will also be a program - a friend of Ed's, Dr. Osama Abdelatif, will present a slide show "the Sound and Light Show by the Pyramids, at the Plateau of Gaza, by the Sphinx" at dusk. It should be very interesting. And of course, the observing will be going on all night long with the wide variety of observatory scopes, as well as those brought by members.

If you need a ride and would be interested in carpooling, call Dean for matchup to a member near you. This is the astronomical highlight of the year - don't miss it!!



Messier Marathon April '94

Hazel Lawler

Those of us who attended the Messier Marathon near Arizona City were treated to a night long tour of celestial objects as the constellations drifted by overhead. Clouds had threatened late in the afternoon, accompanied by some brisk wind, but as twilight commenced the skies cleared and with telescopes pointed skyward the race began.

We started with M76-a small planetary in Perseus sometimes referred to as a miniature Dumbbell Nebula. The UHC filter is helpful here. Next was M34 and on down the list. Many people shared telescope views all evening giving each other breaks in their Messier search. The fast moving Comet McNaught-Russell was found in the constellation Auriga being round with a fuzzy edge and having no tail. The Ring Nebula was superb, M13 was outstanding, but Omega Centauri was beyond words.

When I traveled through the Virgo Cluster I found NGC 4526 and with dark skies and my 17" Coulter at 150X I could see the supernova. Since I star hop, I'll simply say its between two stars just east of M49. Very obvious and Leon Knott confirmed my sighting.

At one time during the night a large slow moving meteor with a brilliant flash was seen. It was said to be of green color. I did not see this face on but the flash was the brightest I have seen, lighting up the whole landscape. Many small meteors were seen all night.

Steve Alden accompanied by Les Reese and Janna Scott found 101 Messier Objects with his Tele-Vue Genesis. This refractor provides crisp views with pointy stars. The open clusters are especially impressive. Although I found only 81 myself, that night I was up and down my ladder 400 times and got plenty of exercise. We all agreed it was fun. (editor's note - There was a 4 way tie for the winners - Manfred Alber, Leon Knott, Frank Kraljic and Don Wrigley, all of EVAC, observed 107 Messier objects. Paul Dickson of SAC and TAAA tied for second at 106 objects.)

At dawn there were a few people left and apparently it was cold because a thermometer read 33 degrees? To me it didn't seem that cold!?

Attending from Tucson were Rob Nyberg, Nick, Glenn, Steve Alden, Les Reese, Janna Scott and myself. If any others were there I did not see them and I apologize. These meets with the Phoenix and EVAC clubs should not be missed. A good time seemed to have happened for everyone. So next time come join in the fun. Old friends met, new friends were made. All fellow amateur astronomers, all enjoying a night under the stars.

PS. My husband, Dick, transports my Coulter and me, making it possible to enjoy this rewarding hobby. Thank you.

Congratulations David!

Well, David Levy, our very own comet hunter has done it again and then again. With the Shoemaker team at Palomar, 1994d was observed on March 14th, discovered on the 23rd and recovered on April 3rd. And then on April 15th, from his backyard he discovered 1994f, 16 hours after Takimizawa did in Japan, thus it is known as comet Takimazawa-Levy 1994f. The later is nearing perihelion this month and should brighten to 8th magnitude. Some positions are provided:

Takamizawa-Levy 1994f

Date	RA	DEC	MAG
Apr 24	21 18.02	+12 20.5	9.3
Apr 28	21 14.28	+16 25.7	9.1
May 2	21 09.20	+21 35.2	8.9
May 6	21 02.20	+26 35.2	8.7

Good job David - keep up the good work!

MIZAR - A BEGINNER'S DOUBLE

The Big Dipper is probably the most observed star pattern in the northern hemisphere. Most of its stars are fairly bright, second magnitude or so, and it forms an easily recognizable shape of a dipper, with four stars making up the "Bowl" and three in its "Handle". The middle star in the handle, named Mizar, and pronounced (MY-zar) shines at a combined magnitude of 2.1 and it is a fine double star for small telescope users.

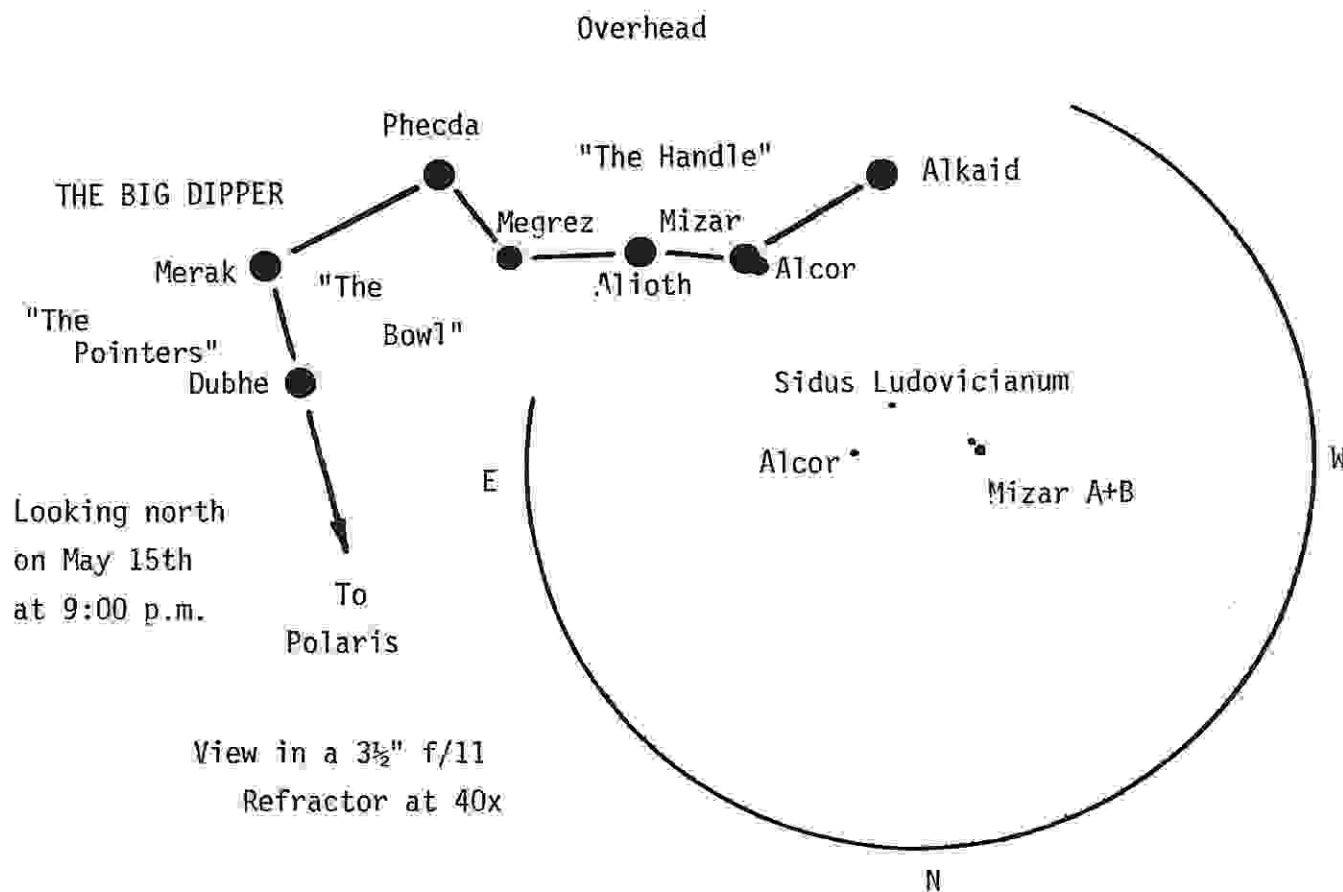
Mizar was the first double star to be discovered. It was observed in 1650 by the Italian astronomer Giovanni Battista Riccioli. It has often been the first double star many amateur astronomers observe also, because its easy to find and resolve in small telescopes, requiring only 50x for a nice split. The two stars which comprise Mizar are main-sequence stars with spectra of A2 for Mizar A, and A7 for Mizar B. The total mass of this system is about four Suns. Mizar A the primary has a magnitude of 2.4 and the companion 4.0, both fairly bright stars. The separation of the two stars is 14.4" at a P.A. of 151°. Over the past two centuries the position

angle of Mizar has changed only 8" suggesting a very great orbital period, possibly on the order of 10,000 to 14,000 years. The distance to Mizar is about 74 light years. To me both stars appear white in my 2.4" refractor at 50x, but there has been some discrepancies in the reported color of the companion by noted astronomers. What colors do you see with your telescope?

Two more stars are visible in the field of a low power telescope. One is Alcor, a fourth magnitude star with a spectrum of A5. The other is an eighth magnitude star known as Sidus Ludovicianum, or Ludwig's star, so called that by a German astronomer in honor of his king, Ludwig the 5th in 1723. The astronomer had mistaken this star for a possible planet.

So this month as the nighttime temperatures begin to warm, allowing prolonged observing opportunities, turn your attention to the middle star in the Big Dipper's handle and enjoy this celestial sight.

Jeff Bridges



A Different Type of "Radio" Astronomy

by
Keith Schlottman

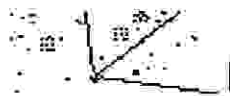
Although I am a CPA by trade, I enjoy scientific pursuits in my spare time. My two passions are Amateur Radio and Amateur Astronomy. As I learn more about each of these great hobbies, I find that the similarities between them go far beyond the use of the word "Amateur" in their names. Amateur Radio, or "ham" radio as it is normally called, can be a wonderful enhancement to an amateur astronomer's enjoyment of the hobby. The February issue of *Sky & Telescope* contains a letter from a reader pointing out one use of ham radio - it can provide an excellent safety aid to the astronomer who is out alone in the dark by keeping a communications link to the rest of the world. But the use of amateur radio provides far more opportunities to the astronomer who enjoys technological challenges. Here are a few ways that ham radio is currently being used:

1. Hams get just as excited about a good meteor shower as we astronomers do. This is because meteors create ionization trails in the upper atmosphere which allow certain radio signals to refract back to the earth. "Meteor Scatter" is the term used to describe this form of propagation and many hams have made contacts over great distances using it.
2. Don't you wish that someday you might walk on the moon? Well, we may never get that chance but ham radio operators do the next best thing - they do "Moonbounce"! This form of propagation is also called "Earth-Moon-Earth (EME)" and is usually done with morse code. Radio Astronomy dishes in Puerto Rico and Canada have been used for EME and many hams have their own EME antenna arrays. A few months back, amateurs using the 46-meter dish at Algonquin Radio Observatory alternated between EME contacts and listening for the lost Mars Observer during a ham radio contest!
3. Satellites have been used by hams for many years now. Amateur radio operators have privately financed (yes, it is possible to build and launch a satellite without government funds) many "Orbiting Satellites Carrying Amateur Radio (OSCAR's)". These satellites have transponders which allow operators to carry out two-way communications in a variety of modes, including voice, morse code, and packet. Packet radio allows hams to use their computer, similar to using a telephone modem. To contact satellites, you need to be able to track them, which means learning about things like apogees, perigees, etc.
4. Hams in outer space? No, we're not talking about Martian Thanksgiving here - there are numerous opportunities to actually communicate with astronauts on ham radio! Many Space Shuttle missions include licensed hams who communicate with less fortunate earthbound amateurs on both voice and packet. During a recent mission, STS-58, I was able to hear the Shuttle astronauts on both voice and packet using a simple hand-held unit, but I was not lucky enough to get my signal through to them. The Russian MIR cosmonauts are always licensed hams, and are quite active since they tend to be up there for a long time! These contacts are logged by the astronauts, and they will send you a "QSL" card confirming your contact to impress your friends.


Are you getting interested yet? There are so many areas to ham radio that one person can't even begin to do them all. The licensing process is really quite simple - you don't even need to learn morse code anymore. The codeless technician license can be obtained by passing a simple written exam, and all of the questions and answers are available for pre-exam preparation. A codeless technician license gives you all frequency privileges above 30 megahertz, which is where virtually all of the activity described above takes place anyway! There are free licensing classes and exam sessions available in Tucson. If you think ham radio sounds like fun, pick up the phone and give me a call at 290-5883 in the evening and I will give you more details. Hope to meet you on the airwaves! 73 de KI7RK (bye from Keith).

Blenmann School Star Party

Blenmann School, at the corner of Tucson and Pima, has asked us to hold a star party for a 5th grade class on Tuesday, May 3rd. Please arrive around sunset (~6:45) and park in the playground field. There should be someone there to tell you where to set up. Call Dean, 293-2855, if you can help out at this star party.



OBSERVER'S REPORT



For the second straight year the skies appeared hopelessly cloudy for the Messier Marathon. However, things did clear up for some good viewing later in the evening. 180 people showed up for the Smithsonian star party on the 16th. 20 club telescopes made for an excellent turnout. Clear skies prevailed until sunset, when clouds intervened to leave only the brightest objects visible. The star party at Ironwood elementary on the 12th attracted five club telescopes for the 25 parents and children who showed up. One of the parents who showed up was one of the author's of the book *"The CCD Cookbook"*!

May brings one of southern Arizona's most anticipated astronomical events of the decade, the annular eclipse Tuesday morning, May 10. Southern Arizona has ring side seats for viewing this celestial spectacle, with the town of Bisbee right on the northern limit of "annularity". May's solar eclipse will be the best eclipse for the southern half of the state until the year 2071! However, 18 years from now, the sun will again be covered in dramatic fashion here in Arizona. During this "2012" eclipse, also in May, northern Arizona gets the best show, with a spectacular "ring of fire" at sunset. For both this year's eclipse and the one in 2012, the moon is not big enough in the sky to completely cover the sun, covering about 89% of the sun's area. If you measure the sun's diameter being covered by the moon, the sun will then be 94% eclipsed along the path of annularity. Because not all of the sun is blocked by the moon, at no time can anyone look at the sun without risking permanent eye damage. During the eclipse the sun should be treated with the same caution as on any other sunny day. The danger from blindness is still there since the surface of the sun will still be visible. A direct view of the sun is only possible if a safe solar filter is used in a safe way. Unfortunately some people don't heed this warning and after directly viewing the sun find out they've become victims of "eclipse blindness", having permanently burned blind spots in their eyes. The blind spots can be circles, rings or crescents depending on the shape of the eclipsed sun. In the worst cases complete blindness in one or both eyes occurs.

Even when using safe solar filters caution must be practiced. Observers are **strongly** advised to check solar filters for scratches, pinholes and

any kind of damage *each time* before use. If the sun appears brilliant in any way through the filter don't look! This is a sure sign the filter material has been damaged. Throw the filter away immediately!! Since solar filters can be easily damaged it's often wise to buy backup viewers. This way if one filter has been damaged you aren't out of luck. Also, make sure, especially with children, that any eclipse viewer used completely covers both eyes. Although this is common sense, small children must be watched and supervised carefully when allowed to look through solar filters. Finally the only safe kind of solar filter is one that fits over the front of a telescope. For years cheap telescopes often came with solar eyepiece filters (ones that screwed into the eyepiece to block the sun's light). Heat build up from the unfiltered objective lenses would crack these filters, instantly blinding the unsuspecting beginning astronomer. If any members own these dangerous filters, please throw them away!

Whatever you choose to view with, be outside ready to go by 7:30 a.m. The eclipse starts at 7:42 a.m. for Tucson, and a minute or so later for the Bisbee, Douglas area. Maximum eclipse is at 9:05 a.m. with the sun at 44° in altitude. The eclipse ends at about 10:42 a.m.. Through a telescope the eclipse will be most interesting near the northern and southern limits of annularity. Here the lunar mountains will break the sun's light into "Bailey's Beads" for the greatest period of time anywhere on the path. In the southwest U.S. Venus will be visible 28° "below" and east of the sun. I am especially interested at what time Venus first becomes visible, and if the planet Mercury is visible in binoculars or with the naked eye (Mercury will be about halfway between the sun and Venus). Unfortunately, Jupiter will have set and so won't be available. If you can't make it to the path of annularity, please join me at Flandrau Science Center for an "eclipse party" with the public. Both Flandrau and the club are receiving great publicity from the eclipse, and any help at Flandrau the day of the eclipse will be greatly appreciated. Finally don't forget about the partial lunar eclipse on the 24th. Maximum eclipse will be at 8:36 p.m. with the moon 14 degrees above the horizon. Until next month, clear skies!

Michael Terenzoni

ASTRONOMY DAY & SOLAR ECLIPSE CELEBRATION at PARK MALL

MALL DISPLAY & STAR PARTY

The TAAA will be celebrating Astronomy Day on Saturday, May 7th. This is a few days before the annular solar eclipse on May 10th, so we will have solar eclipse glasses available for the public to purchase. For the first time the TAAA will be having a public star party at Park Mall. Why the mall? The reason for Astronomy Day is to "bring astronomy to the people" and a shopping mall is the place to be.

TAAA members are needed during regular mall hours (10am to 9pm) to help answer questions. This event will be publicized on radio, so we may have a long line of people wanting to get solar eclipse glasses. We will need someone to watch the TAAA "Astronomy Challenge" table. The "Astronomy Challenge" is a 25 question quiz which tests a person's knowledge of general astronomy. Try it yourself! We also have a ten question version for youngsters. We will also have a display about the upcoming Comet Shoemaker-Levy 9/Jupiter impact and we will have our own "Comet TAAA" on display in the morning. Comet TAAA is a classroom project that has been used several times by Sharon Niehaus and other teachers in the Tucson area. Kids love it and they learn what comets are made of. Tanya Borg, a science teacher at Castle Hill Country Day School, has agreed to make our comet. Other displays about light pollution and general astronomy will be at the mall.

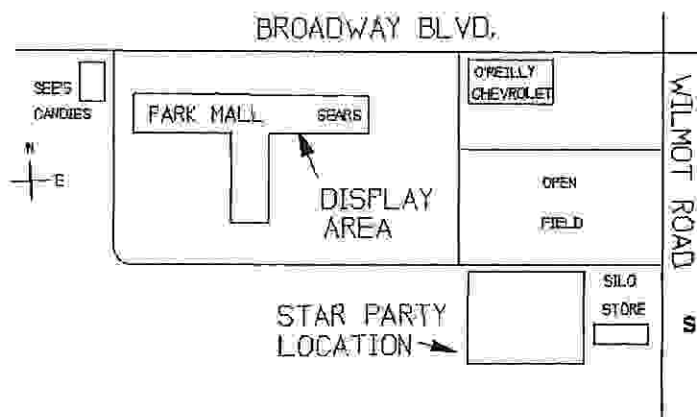
Members are also needed before (7:00am) and after regular hours (9:00pm) to help set up/tear

down the display. Call Teresa at 579-0185 if you need details or want information about what time volunteers are most needed.

Of course, this is also a chance to talk to each other and members of the public about this fascination hobby that we're all hooked on. We know that astronomy can be fun. While many people have a genuine interest in looking at the night sky, they think astronomy is difficult to understand and involves expensive equipment and lots of math. We want to make the public aware that it is fun and that the TAAA is the local organization which can help foster a general interest in the night sky into a new hobby.

The star party is scheduled to begin at 7pm and most of the public will leave by 9pm when the mall closes. Observing from this location shouldn't be much different than observing from the Flandrau Science Center which we have done many times. We may have a large turnout of public people because of the radio announcements. Park Mall Management has agreed to turn out all the lights in one of the overflow (Christmas season) parking lots. This parking lot is located behind the old "Handyman Building" and east of the Silo store on Wilmot Road. Enter the Park Mall entrance off of Wilmot and the parking lot will be on the south side of the road...follow the signs.

Teresa (579-0185)



Astronomy Day- Eclipse Display & Star Party

**Park Mall
Saturday, May 7th**

Display:
set up 7am, take down 9pm

Star Party:
7pm - 9pm

Upcoming Events

Annular "Eclipse Party"

- When: 10 May, 1994. 6:30-7:10 a.m. setup (the earlier, the better); "Eclipse Party" from 7:30-10:45 a.m.
- Where: Flandrau Science Center, University of Arizona
- Phone: 621-4515, contact event coordinator Michael Terenzoni.

Flandrau Science Center has asked the TAAA and Stellar Vision Astronomy Shop to be part of a public "eclipse party" the morning of the eclipse. Set up

will be out on the sidewalk in front of the Science Center and on the grassy "mall" area across the street. TAAA donation buckets will be out and the club is already receiving large amounts of publicity because of the event. So, if you are not traveling to the path of annularity, please bring your scope or just yourself to Flandrau eclipse morning. Any help dealing with the public is appreciated. Please call Michael Terenzoni at Flandrau (621-4515) if you intend on coming out.

STAR PARTY AT GILBERT RAY PICNIC AREA Friday, May 20

For the past five years the TAAA has held several star parties for attendees of the Smithsonian Institution's New Astronomies Seminar and we're doing it again on May 20th. This year we will be at a different location...the Gilbert Ray Picnic Area in the Tucson Mountain Park...it should be a quieter location than Sabino Canyon. Another change is that the Smithsonian will be paying the TAAA \$100 which will go towards our general programs or the Land & Telescope Fund.

A sign up sheet will be at the May 6th meeting. The Smithsonian Institution will be providing a box dinner for us, so if you want one you must sign up or otherwise let Terri know you will be attending. Call me at 579-0185. A map is elsewhere in the newsletter. We will be setting up at either the first or second ramada.

More information at the May meeting.

Plan on getting to the picnic area by 6:00pm to set up telescopes. Then sit down with the group for a boxed dinner. After that it's observing time! If you plan on skipping the box dinner, plan on arriving before 7:30. Dan Brocius plans to lock the gate so we don't have headlights blinding us. The seminar attendees will have spent an entire week in the classroom hearing lectures by prominent astronomers in the Tucson area and will be anxious to see something through a real eyepiece! According to surveys, the star parties we have hosted in past years have been one of the highlights of the seminar. We always come across as very friendly and knowledgeable and TAAA members enjoy it too!



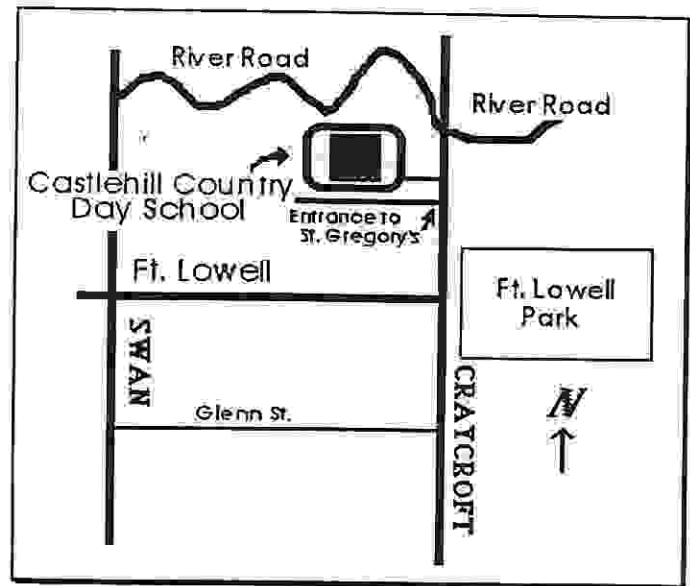
Upcoming Events

Castlehill Day School Star Party

- When: Friday 13 May, 1993 6:40 p.m. setup., star party from 7-9 p.m.
- Where: Castlehill Country Day School, 3231 N. Craycroft Rd, off of River Road.
- Phone (office): 795-0008. *Star Party Coordinator-Tanya Borgues.*

This star party at a day school on the northeast side of town is being organized by teacher Tanya Borgues. Tanya is a teacher looking for new ways to teach hands-on astronomy, so if you know of some activities that work well with elementary age children, feel free to share them with her. If you intend on helping with the star party call coordinator Tanya at 326-7418 so she can better plan this event. At present, about 100 people are expected to show up. Set up will be in the large playground beside the parking lot on the

northwest side of the school. Tanya said she would "be there" to greet members. For directions refer to the map below.

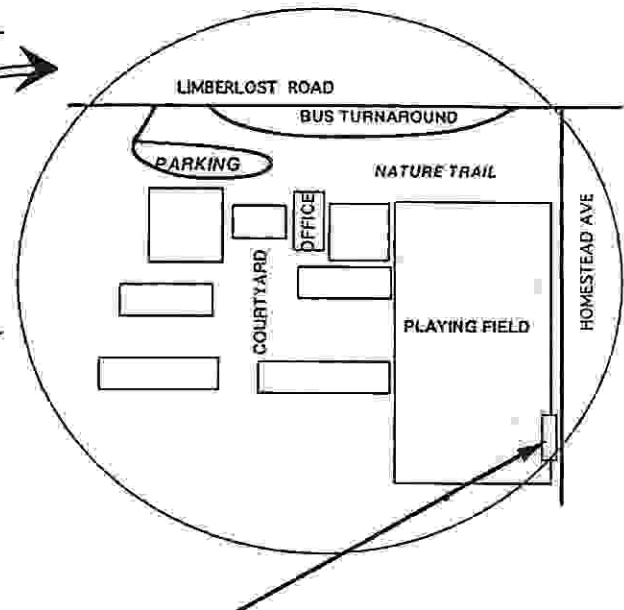
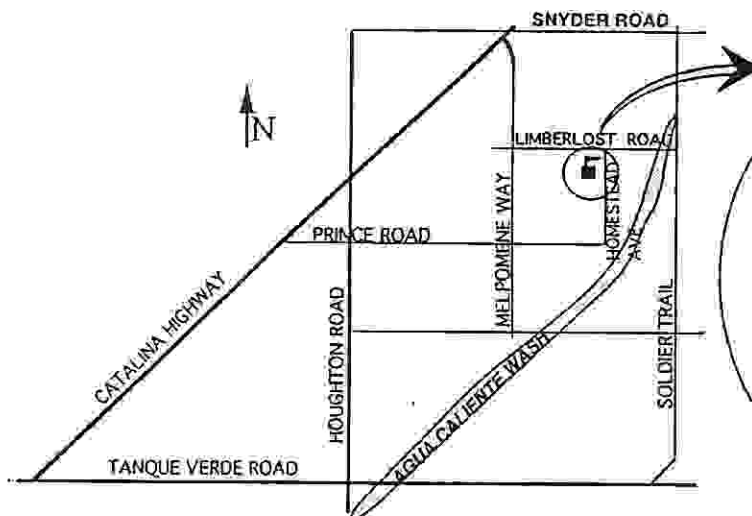


Agua Caliente Elementary School Star Party

- When: 17 May, 1993 6:15 p.m. setup., workshop and picnic at 6:30 p.m., star party at 7:30 p.m.
- Where: Agua Caliente Elementary School, 11420 E. Limberlost Road.
- Phone (school office): 749-2235. *Star Party Coordinator-Karen Allen: 749-5744*

At this star party at an elementary school on the far northeast side there may be upwards

of 100 kids and parents present. A picnic will be held at 6:30 which will include a workshop presentation by TAAA members on "How To Choose And Use Your Telescope". Basically the parents and school want to be shown how to use the telescopes they have, and how not to buy a telescope. Several members will be needed to help with this informal "picnic-workshop". If you intend on helping with the workshop or star party please call coordinator Karen Allen at 749-5744 so she can invite the proper number of children and parents. For directions refer to the map below.



GATE WILL BE UNLOCKED AND OPEN.
GUESTS WITH TELESCOPES WILL BE
ALLOWED TO DRIVE ONTO THE FIELD
TO SET UP.

TAAA Executive Meeting Minutes - 7 April, 1994

Present were Dean Ketelsen, Gary Rosenbaum, David Harvey, Duane and Sharon Niehaus, Teresa Lappin, Bob Goff, Mike Terenzoni, and Rob Nyberg. Meeting convened at 7:35

1. Land Search - A land search meeting was scheduled for 13 April at the Niehaus' to define policy. We have been offered an acreage near Portal as a donation, but it was determined to be too far away, as is a piece of land for sale near Bisbee. A trip to the Dragoon area to inspect a trailer lot and other possibilities was scheduled for the 17th.

2. Liability Insurance - More and more we are being required to have a liability policy in effect for holding public events. We have gotten two quotes, though the coverage is not quite the same for each. One sells for nearly \$1000, the other for \$580. We will get quotes for comparable coverage, including a third quote, and get the least expensive policy in force before the 7 May events.

3. Astronomy Day Activities - We will be at Park Mall all day and have an evening star party in their parking lot. Hopefully the increased attendance and additional publicity will offset the less than perfect site. Terri is in charge of arrangements and organizing the work crew and will have something in the Newsletter. She was given the ok to purchase 1000 solar viewing glasses for \$600 for sale at the Park Mall event as well as at U of A activities.

4. Raising Dues - The financial report presented by Teresa and Duane demonstrated that the TAAA is spending virtually all incoming membership money towards Club operations. Liability insurance will be an

additional charge which we cannot afford without raising dues. Nomination was made and passes with one no vote to raise dues across the board by \$5. Basic membership will now be \$25, Family membership \$30, senior membership \$23. Membership will vote on the change at the May meeting.

5. Treasurer's Report - Total treasury is \$27,000. Land fund is at least 2/3 of that or \$18,000 minimum.

6. Annular Eclipse Trip - Teresa is organizing an informal trip to the northern limit. Several people signed up at the last meeting to carpool to the site. Many others are on their own or are heading to the Planetarium for the public observing.

7. Elections - May elections are coming up. Sharon is not renewing her services for Recording Secretary, so the search is underway for a replacement. Of the several named, only Jeff Brydges agreed to consider running. Teresa suggested restructuring the Executive into some new positions and change of duties. Restructuring was tabled for future discussion.

8. Upcoming Events - Elizabeth Roemer is the June speaker, July is a member's night - only months scheduled. Upcoming star parties were discussed.

9. Other Business - Rob wanted to continue the monthly raffles we have been holding. David Harvey volunteered a Koenig II 40 mm eyepiece as a prize for the next one. Tim Hunter recently donated a 10" Newtonian to the club and there was some discussion to use it as a possible fall raffle prize.

Meeting adjourned at 10:05.

Desert Skies Classified

Want to Trade: I am interested in trading my Celestron 11x80 binoculars for a pair of 20X80 binoculars. If interested, call Gilbert Friedman at 571-1662.(6-94)

For Sale: Lumicon 1-1/4" Deep Sky filter \$40.00, Lumicon 48mm H-ALPHA filter \$30.00 (never used). Call evenings 797-1693, ask for Mike. (7-94)

Wanted: Elliptical diagonal mirror, 1/8th to 1/10th wave flat, 1.83 - 2.14" minor axis. Call Andy Meyer between 6 and 9 pm, 742-4549. (7-94)

House for Sale: w/ astronomical observatory on 1 acre site in Green Valley. 3 BR, 3 Bath, swimming pool, 2400 sq ft. Observatory is 12'X12' building with 2 meter motorized aluminum dome, cement pier ready for your telescope - Dark Skies! Owner is TAAA member Randy Quiroz, price \$245,000. For further information, call Everett Real Estate, Green Valley, 625-8998 - MLS#11253.(8-94)

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 Dean, 293-2855.

Correction

The following errors appeared in Jeff Brydges' Carbon Stars article in last month's Newsletter. The declinations for the follow stars should be:

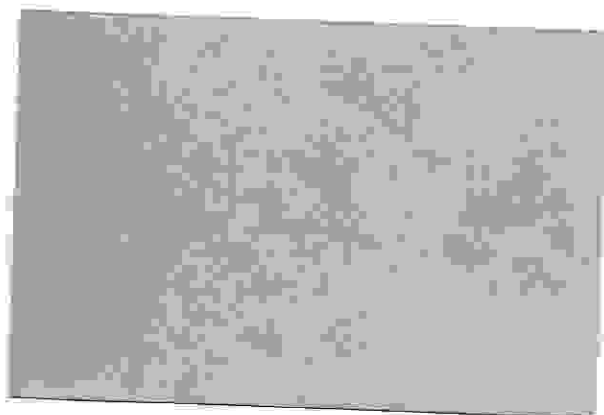
R Leporis	-14 48'
Y Canum	+45 26'
S Cephei	+78 37'
TX Piscium	+03 29'

Right Ascensions for these stars were okay.

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

Forwarding and return postage guaranteed
 Address Correction requested

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DARK SKIES for Tucson (in MST)

1994 MAY no twilight
 no moonlight

Su/Mo	1/ 2	8:35pm - 12:56am
Mo/Tu	2/ 3	8:36pm - 1:33am
Tu/We	3/ 4	8:37pm - 2:06am
We/Th	4/ 5	8:38pm - 2:38am
Th/Fr	5/ 6	8:39pm - 3:09am
Fr/Sa	6/ 7	8:40pm - 3:40am
Sa/Su	7/ 8	8:41pm - 4:00am

Su/Mo	8/ 9	8:42pm - 3:59am
Mo/Tu	9/10	8:43pm - 3:58am
Tu/We	10/11	8:44pm - 3:57am
We/Th	11/12	8:45pm - 3:56am
Th/Fr	12/13	9:10pm - 3:55am
Fr/Sa	13/14	9:58pm - 3:54am
Sa/Su	14/15	10:43pm - 3:53am

Su/Mo	15/16	11:25pm - 3:52am
Mo/Tu	16/17	12:04am - 3:51am
Tu/We	17/18	12:41am - 3:50am
We/Th	18/19	1:18am - 3:49am
Th/Fr	19/20	1:55am - 3:48am
Fr/Sa	20/21	2:33am - 3:47am
Sa/Su	21/22	3:15am - 3:46am

Su/Mo	22/23	- - -
Mo/Tu	23/24	- - -
Tu/We	24/25	- - -
We/Th	25/26	- - -
Th/Fr	26/27	8:59pm - 9:15pm
Fr/Sa	27/28	9:00pm - 10:07pm
Sa/Su	28/29	9:01pm - 10:52pm

Su/Mo	29/30	9:02pm - 11:31pm
Mo/Tu	30/31	9:03pm - 12:06am
Tu/We	31/ 1	9:04pm - 12:39am

Erich Karkoschka

TAAA Meeting Location

