



East Valley

Astronomy Club

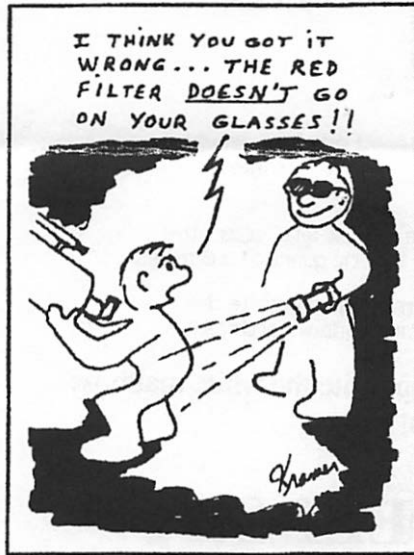
President	Tom Harvey	998-0035
Vice-President	Ted Heckens	827-1524
Treasurer	Bob Kelley	451-7319
Newsletter	Bill Smith/Roy Halverson	831-1520/844-9563

March

Newsletter

1992

EDITOR'S NOTES



Arizona skies have not been the best for the last few months, but hopefully weather will improve (at least in the days around the new moon). Being optimistic, I've included a list of ideas on page 4 to make observing sessions more enjoyable for everyone.

This list was given to me by Bob Kelley at our Feb. business meeting. It includes excellent suggestions for all of us to follow. Speaking for myself, there are at least one or two I have bent if not broken. I'm sure that several others will also admit the same thing. Each of us has done it out of ignorance, not maliciousness. Please read them carefully and pass them on to anyone you plan on inviting to join us. Clear skies here we come!

MARK YOUR CALENDAR EVAC BUSINESS MEETINGS

March 18- SCC RoomPS 172
 Guest Speaker -Steve Coe
DEEP SKY STAR PARTIES
 March 7th - (see map page 2)
 April 4th - joint SAC/EVAC
 Sentinel Arizona-see map inside
LOCAL STAR PARTIES
 March 28th - Cave Creek Site
 Call Bob Kelley for instructions.

EVAC NEWS

by Roy Halverson

SHORT TAKES:

Mike Janes will supply an annotated bibliography of databases and other electronic goodies of interest to astronomers in an upcoming newsletter.

Carl Lorson has become the custodian of the club's astronomical library. More information about its holdings and the method for accessing the books will appear in a later newsletter.

Because of the number of EVAC members from Scottsdale, the March 28 star party will be at a site off Carefree Road. Those who attend should meet at the junction of Pima Road and Carefree Highway and caravan from there to the site. A map will be available at the March business meeting.

EVAC will hold a joint star party with the Saguaro Astronomy Club on April 4th at the Sentinel site, 20-30 miles west of Gila Bend. A map will be available at our next business meeting.

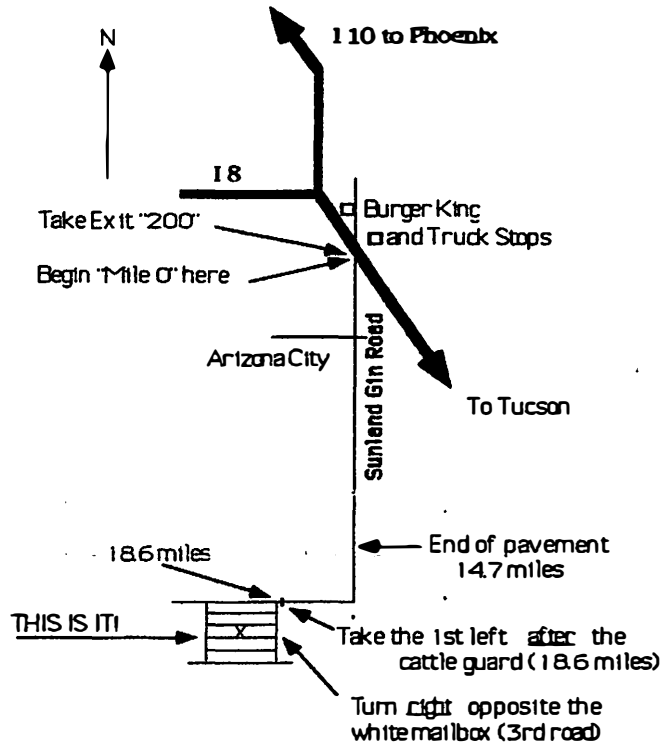
Frank Kraljic's trip to the Holbrook area to hunt for meteorites has been set for May 9. He plans a star party in conjunction with the hunt. Call him at 991-5105 for further details.

Dark Skies Problem Solved in Tucson Area

The Tucson city ordinance regulating outdoor lighting has resulted in an urban environment nearly ideal for amateur astronomers.

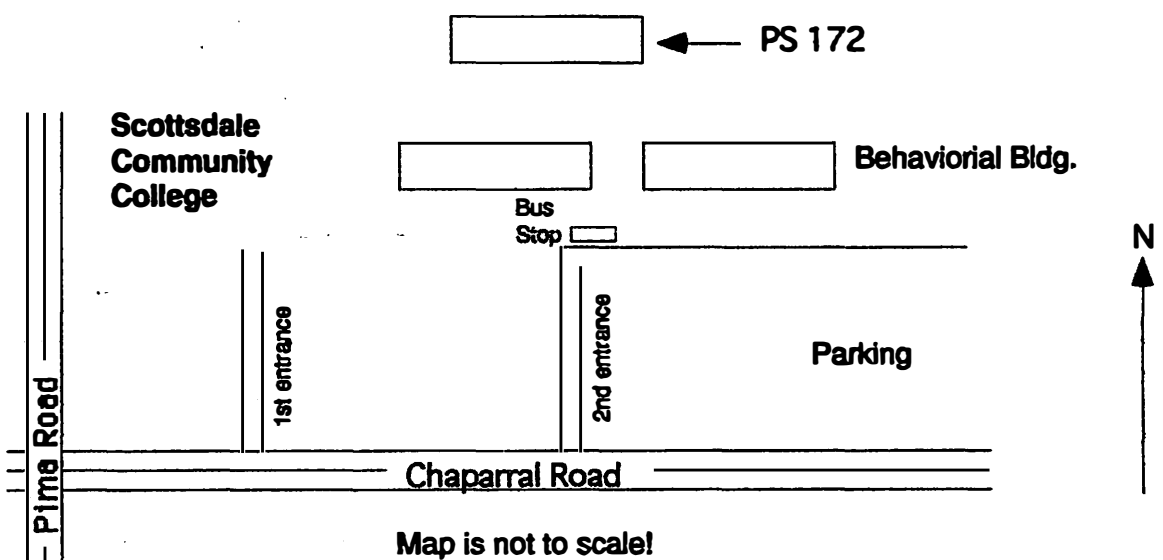
Jim McGaha of the International Dark Sky Association (IDA) described effects of the legislation and urged the club to support similar rules at the February meeting of EVAC. He claimed that 5.5 magnitude stars can be seen with the naked eye from his backyard.

cont'd on page 5

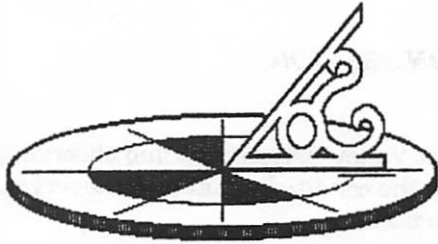


Believe it or not, they named the street opposite the white mailbox:
MOON CHILD!!

MARCH 7th - DEEP SKY



Next business meeting March 18th
Room PS 172
The speaker will be:
Steve Coe



March Highlights 1992 by Byron Scott

Calendar

<i>Date</i>	<i>Day</i>	<i>Event</i>
02	Mon.	Moon passes 4.0° North of Venus
04	Wed.	New Moon—Ash Wednesday—Full Moon in March is sometimes called Lenten Moon.
05	Thur.	First day of Ramadan
06	Fri.	Moon passes 4.0° North of Mercury
09	Mon.	Asteroid Vesta at opposition Mercury is at greatest elongation east
12	Thur.	First Quarter Moon
16	Mon.	Moon at perigee Corona Australid meteors
18	Wed.	Full Moon
20	Fri.	Vernal Equinox
26	Thur.	Last Quarter Moon
28	Sat.	Moon at apogee

A gathering of the planets (Mars, Venus, and Saturn) will occur during the early morning March sky. The first day of March will include a crescent Moon, which will create a striking sight.

MARCH FLASHBACK

The first docking in space was achieved by Neil Armstrong and David Scott, in Gemini 8, on March 16, 1966.

SALE

TELESCOPE - 10 inch f/6.3 S.C.T. with glass solar filter and other extras. Upgrading to a larger scope and must sell. Excellent condition and only \$1500. Call Michael Janes. 945-5431.

SINGLE-AXIS DRIVE CORRECTOR. Made by Meade, but will work with any telescope using 110 volt power source. Call Bill Smith 831-1520. \$60.00.

Please submit your items for sale to the newsletter editor.

ETIQUETTE FOR EVAC OBSERVATION SESSIONS

by Bob Kelley

These rules are intended to help maintain access and use of the East Valley Astronomy Club observing site for as many members and their guests as possible, while preserving the conditions that permit everyone to pursue the study and enjoyment of astronomy to the fullest satisfaction.

If you are new to EVAC, or it has been a while since you have been to an observing session, please take a few minutes to review these basic guidelines. Please don't hesitate to ask questions if anything is unclear. Call Bob Kelley at 451-7319.

If you invite guests to star parties which are not public star parties, please read #1 carefully.

- 1) Members are responsible for their guests. Please provide a copy of this article before departure. *Members must accompany the people they invite and help them understand and follow the rules. Deep sky star parties are not generally for guests because of the serious observing and astrophotography taking place.*

Invited guests are to be as responsible for their behavior and practices as members. Everyone should have a good time if everyone knows the procedures. Please accompany all guests.

- 2) Use dim red lights after sundown. It takes 15-20 minutes to allow your eyes to adapt to the dark. Even a brief encounter with white lights will ruin it. Also, those attempting astrophotography can have a 20-60 minute guided photo spoiled by extraneous lights.

Shield or turn off car door or trunk lights (pull fuses if necessary). Use red flashlights at all times. If you must use lights, please ask first, to avoid spoiling someone's night vision or astrophoto.

- 3) Park based on your observing plan. Park facing towards the exit to avoid using your backup lights.

If planning to leave early, park away from observers and point your car towards your exit path.

- 4) Departure times are normally on the hour. Astrophotographers please note!

Use parking lights only – no headlights please. If necessary, have someone help lead your vehicle out with a flashlight.

- 5) Those arriving after dark need to drive slowly and turn off headlights.

Drive 5-10 miles per hour and use parking lights because someone may be in the middle of a 60 minute astrophoto and it will be instantly ruined by bright headlights.

- 6) Remember, the peace and quiet of the skies should be maintained by keeping loud noises to a minimum.

Radios, tape players and horns can disturb others. Please use carefully.

- 7) Being the last to leave can be frustrating or even dangerous.

Unexpected occurrences can happen, such as, dead batteries or vandals. The last two observers should make every effort to leave together.

EVAC NEWS *cont'd*

The IDA is the brainchild of Dr. David Crawford whose efforts led to lighting conditions favoring amateur astronomers in Tucson.

Thirty-two Arizona cities have outdoor lighting codes, but few have been effective as the one in Tucson. In this metropolitan area, Phoenix, Glendale, Apache Junction, Scottsdale, Mesa and Paradise Valley have such ordinances. All of the counties in the state have passed legislation limiting outdoor lighting.

But light pollution remains all too common. McGaha said that Los Angeles can be seen from Kitt Peak, and club members will recall that the lights of Phoenix can be seen from the club's southern site.

Low-pressure sodium lighting is the ideal solution, McGaha said. These lights, in fixtures that direct the light earthward, eliminate the bulk of the problem. Mercury vapor lamps, often used for security lighting, are among the major culprits primarily because the light source allows much of the illumination to shine skyward.

McGaha said low-pressure sodium lamps have the additional advantage of lower power usage per unit of light output. City councils and utility boards should be more easily persuaded to use that light source because of the lower cost.

Because many of these lighting codes were passed in the mid-'80s, McGaha said, many enforcement agency personnel are unaware of their content. Persistence by informed citizens pays, he said.

But astronomers incensed by glaring lights in their neighborhood should first negotiate with their neighbors to eliminate easily fixable problems, then attempt to persuade city officials, he said. See the information sheet from the International Dark Sky Association beginning on the next page if you have a problem.

McGaha concluded his presentation with a description of his observatory with its 24-inch Newtonian and some absolutely glorious slides of CCD-based images of clusters and planets.



"That's not a black hole....the cap's over the lens!"

INTERNATIONAL DARK-SKY ASSOCIATION

3545 N. Stewart, Tucson AZ 85716 U.S.A.

How To Talk To Your Neighbor Who Has A Bad Light

Here's a typical Scenario: Your neighbors have just installed a dusk-to-dawn 175 mercury vapor light fixture, because they are worried about security. You can see what happened: they went down to the discount supply house and said "Give me the brightest, cheapest outdoor lighting fixture you have." And that's exactly what they got, paying "only" \$29.95 (maybe even less). They brought it home, and hung it up. Now it's splattering light everywhere, including into your lawn and in through your windows. They have their blinds drawn, of course, because they can't stand the glare either.

What did they get? A very bright light, with very little light control and lots of glare. It produces lots of light trespass, light pollution, and energy waste. They probably now have a "feeling of security." Real security is likely not to be any better than before.

Here's some ideas on what to do: First and always, be tactful and understanding. Don't argue. Do your homework first. Be well prepared. Understand the essence of the energy facts given below, and of what makes a good security light. Know the local costs of electricity, in KWH's. Know if there is a local lighting control ordinance, and, if so, the details of what is included, what enforcement is being done, who was involved, etc. Look around for the availability of good security lighting fixtures, and how much they cost. Facts are not enough, however. Emotions and perceptions are there all the time. Personal relations are very important and are in play all the time.

Approach them in a friendly way. They are worried about their security and safety. They tried to do something about it. Maybe they saw an ad from the utility company, or elsewhere, touting these specific lights. Maybe they got a "good deal" from the power company. Maybe they just didn't know what to do, but thought that adding a lot of light would help. Don't tell them, particularly in an unfriendly way, to shut off their light because it bothers you. They won't, and you will likely have hardened their position.

Make positive approaches. Help them solve their problems. Offer alternatives. Be flexible to the local needs. Ask for their advice also, in solving your problem. Most people really like to be helpful, when they can. Let them know how. Be prepared to compromise, but always keep the overall goal in mind. You want and need dark skies, and no light trespass. You also want a secure and safe nighttime environment, just as they do. You want to help the country save energy and money. Show that you care, for all of those things in general, and for your sky, and for them.

Here are two specific issues you can discuss with them, to help win them over:

1. **The Energy Issue, and Cost Savings:** When new, the 175 watt mercury vapor lamp puts out 8000 lumens (a lumen is a measure of the amount of light produced by a lamp), declining in light output with time. The mean lumen output (after some years of use) is about 7000 lumens. That amount of light output compares approximately to a 400 watt incandescent lamp, a 100 watt high pressure sodium lamp, or a 55 watt low pressure sodium lamp. (See IDA Information Sheet No. 4)

These lamps use considerably different amounts of energy to produce the same amount of light. When energy costs were very low, not that many years ago, it made little difference. Now, however, it does make a difference, especially when you consider how many of these lamps are in use in an urban area, or in the United States. There are many other lighting installations wasting light as well, with their use of inefficient lighting fixtures. (See IDA Information Sheet No. 26)

The cost to the country of all this wasted light is over *One Billion Dollars a Year*. (See IDA Information Sheet No. 26) And all this wasted light and energy is doing *nothing* to promote safety, security, or a better life at night. It is merely lighting up the sky, causing glare (glare *never* helps visibility), and offending neighbors. None of the Billion Dollars is being used to light the ground, or to provide safety and security. The glare and confusion and clutter caused by the bad lighting are definite factors in accidents and losses caused by such accidents. This also costs the nation too much money and pain. As individuals, we must do what we can to stop such waste.

2. Real Safety vs. Perceived Safety: The 175 watt dusk-to-dawn may give the illusion of safety, because it's so bright, but it is really counterproductive to good vision. The criminal can hide in the glare or in the harsh shadows from such poor lighting (Look around near one; see the deep shadows? Imagine you are a criminal. Can you hide easily? Can you see easily? Can the owner?) The light used should be of such a nature that *the owner* can see.

So what to do? Here are two suggestions. Other good ideas are possible too, with conscious thought about the issues. Remember that quality lighting is only one facet of good security, and no lighting system, no matter how good, will ensure security. But quality lighting will offer a much better chance than will poor lighting, which may, in fact, help the criminal.

A. Use a low wattage (18, or 35, or 55 watt) low pressure sodium light source, in a good (well shielded) fixture. The fixture should control the light output so that it goes only where needed, not into a neighbor's yard or windows, or up into the sky. There is lots of light (a good 35 watt LPS fixture will put out more useful light than the 175 watt dusk-to-dawn; even an 18 watt one will probably do a better job, at one tenth the energy cost). There is essentially no glare at all. One is not blinded, one can see. There is essentially no light trespass or sky glow produced. There are no dark, deep shadows for criminals to hide in. Visibility is the goal, and these quality LPS fixtures offer excellent visibility. There are also some excellent well shielded HPS fixtures.

B. Use an infrared sensor spotlight fixture. The spotlights only come on when the sensor senses movement. Any intruder will be scared off by the sudden turn-on of the spotlights. You are alerted by the light coming on (you can buy fixtures which will also sound an alarm inside the house, if you want the added security). What could be better? This type of fixture is a great security lighting system: effective, quality lighting. (Be sure that the fixture is mounted under the eave, so that there's no wasted light, and point the light beam where it's needed, not into your neighbor's yard.)

The infrared sensed lights are widely available, in stores or by mail order. The cost ranges from about \$20 to over \$100, depending on the quality and who is selling them. They are easy to install (just mount them, plug them in, and adjust them) and use. The LPS fixtures are harder to find, as few know of their existence. Ask for them at the local lighting suppliers. Insist on them. With such demand, they will start stocking them. If all else fails, buy them by mail from a Tucson lighting supplier.

The quality LPS fixtures will certainly cost more than the 175 watt mercury, especially in an area where few are sold. But even if they cost \$120, they save lots of energy and money. For example, 175 minus 35 watts is 140 watts, times 4100 hours per year, yields 574 KWH saved per year. At 8 cents per KWH, that is \$46 dollars saved per year compared to the mercury. So the payoff period to replace a mercury with an effective lighting fixture is \$120 divided by \$46 or about two and a half years. If one considers the cost of the mercury fixture, say \$30, then it's $\$120 - \$30 = \$90$ extra cost, and \$90 divided by \$46, or a payoff period of only two years. The spotlight solution also has a very fast payoff period, of course. Very few energy savings concepts have shorter payoff periods than replacing ineffective security lights with better ones.

For more information about the issues, contact the International Dark-Sky Association, at the address at the top of the Information Sheet. Other information sheets available from IDA also address the issues of energy savings, the 175 watt mercury dusk-to-dawn fixture, the operating efficiencies of different kinds of light sources, and other quality lighting issues. Join the cause of better lighting, and energy savings. We all can win. IDA is an incorporated non-profit organization.

The Deep Sky Notebook

by Robert Kerwin

The Realm of the Lion

With its distinctive "sickle," the constellation Leo dominates the skies of spring. The constellation covers 947 square degrees, making it the 12th largest. The brightest star is first magnitude Regulus, whose name means "the little king." The zodiac passes through the constellation just to the south of Regulus, so Leo is often home for the planets. Since Leo lies a considerable distance from the Milky Way, galaxies are the main attraction for deep sky observers.

A good place to begin our tour of Leo is NGC 2903, a bright galaxy near the tip of the sickle. At magnitude 9, this galaxy is bright enough to see in all amateur telescopes. In an eight-inch, you should see an elongated haze surrounding a bright, nearly stellar core. Larger instruments may show some subtle hints of spiral structure. About 12 degrees east of NGC 2903 is the bright double γ Leonis. The components are magnitude 2.5 and 3.5 and are separated by about 4.5 arc seconds. This double is a fine sight in any telescope, unless of course the seeing is poor.

Moving ten degrees southeast, we encounter an interesting clump of galaxies. The southwestern galaxy in the group is M95. Approximately seven arc minutes across, this galaxy appears slightly oval with a bright core. Only one degree east is M96. This galaxy is brighter than M95 and has a bright, elongated central region surrounded by a fairly bright haze. M105 lies one degree north of M95 and appears as a bright, round haze approximately four arc minutes across with a stellar nucleus. Look for two other galaxies in the same field as M105, NGC 3384 and NGC 3389. NGC 3384 appears smaller, fainter and more elongated than M105. The surface brightness seems to increase gradually toward the center. In the eight-inch, NGC 3389 appears as a faint, elongated glow with little central brightening visible.

Continuing northeast, our next target is NGC 3412. This galaxy appears as a faint, elongated glow with a fairly bright nucleus. About one degree northwest of NGC 3412 is a nice pair of galaxies. The brighter of the two is NGC 3377. This galaxy has a bright, concentrated central region surrounded by an elongated, very faint glow. The fainter of the two galaxies is NGC 3367. In moderate-size instruments,

this galaxy appears faint and slightly oval, with little brightening toward the center.

About eight degrees east lies a fascinating trio of galaxies. NGC 3628 appears as a bright, spindle-shaped glow with a brightening toward the center. In the eight-inch using moderate power and averted vision, the ends of the spindle appear somewhat diffuse and the brighter central region has a subtle, granular appearance. Directly south of NGC 3628 is M66. This galaxy is slightly elongated with a large, bright central region. The surface brightness increases gradually from the edge toward the center. As with NGC 3628, the eight-inch with averted vision revealed a subtle granular texture. Just northwest of M66 lies our final object, M65. M65 has a bright, round central region that is surrounded by a smooth, faint, elongated haze. Before leaving this group of galaxies, switch to a low-power eyepiece and see if you can get all three galaxies into the same field. You will not soon forget the sight of three distant galaxies floating in the vastness of space.

Leo

Tirion charts: 6, 10

U2000 charts: 103-105, 143-147, 188-192, 235-237, 280-282

Name	Type	Mag	Size	R.A.	Dec.
NGC 2903	g	8.9	12.6	09h 32m	+21.5
γ Leonis	dbl	2.5, 3.5, 4.5"		10h 20m	+19.8
M95	g	9.7	7.4	10h 44m	+11.7
M96	g	9.2	7.1	10h 47m	+11.8
M105	g	9.3	4.5	10h 48m	+12.6
NGC 3384	g	10.0	5.9	10h 48m	+12.6
NGC 3389	g	11.8	2.7	10h 49m	+12.5
NGC 3412	g	10.6	3.6	10h 51m	+13.4
NGC 3377	g	10.2	4.4	10h 48m	+14.0
NGC 3367	g	11.5	2.3	10h 47m	+13.8
NGC 3628	g	9.5	14.8	11h 20m	+13.6
M66	g	9.0	8.7	11h 20m	+13.0
M65	g	9.3	10.0	11h 19m	+13.1

Sentinel Star Party

April 4, 1992

Sunset at 18:55 MST, Moonset at 19:47 MST

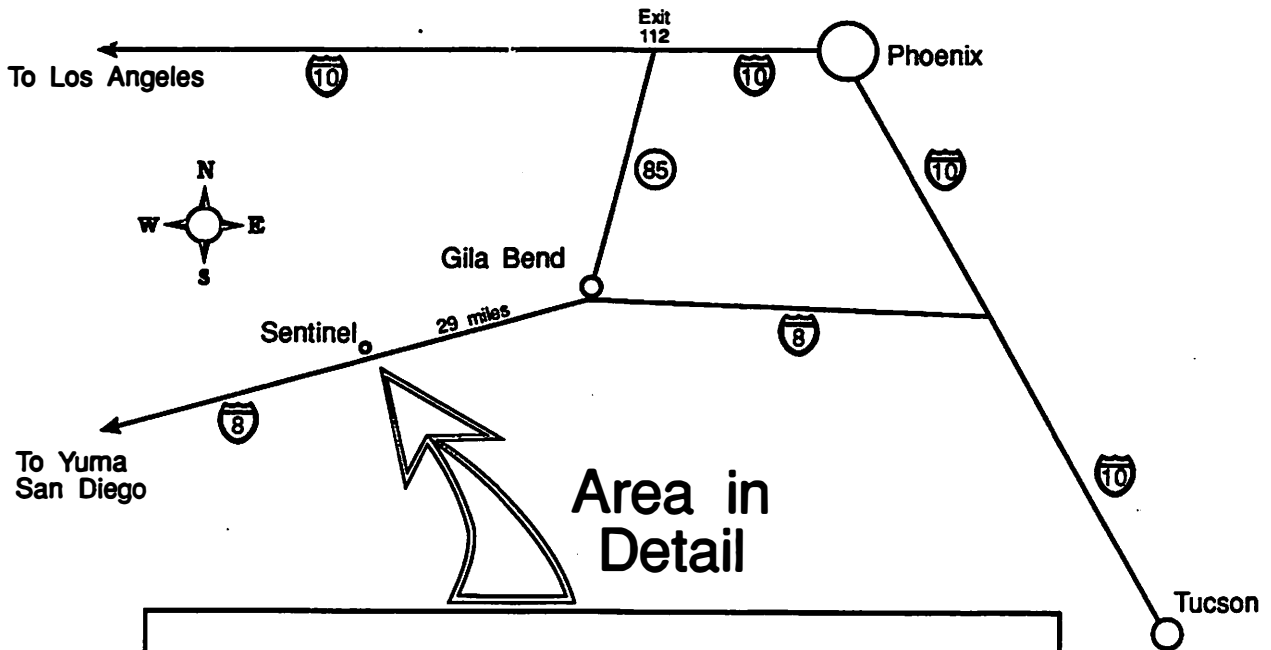
About the Sentinel site:

Very dark skies and a flat southern horizon.
Enough room to set up an army of scopes.
Only 2 hours from Phoenix.
No facilities of any kind.

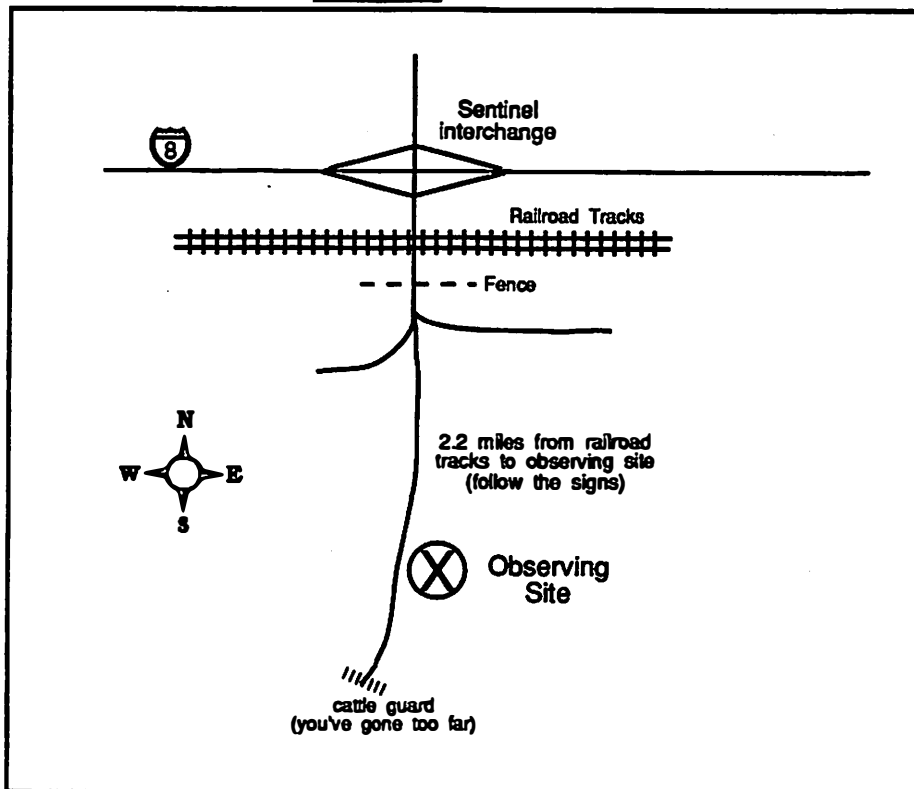
Please bring warm clothing.
Not a public star party -- no small children
or pets, please.

Please observe dark sky rules:

Arrive before sunset.
Park close to exit if you intend to leave early.
Keep headlights off.
Keep interior dome lights off.
Park so you won't have to use your back-up lights.
No white-light flashlights.



Area in Detail



This is a great dark sky site!

Sponsored by the Saguaro Astronomy Club's Deep Sky Group

DARKEST SKIES!

All over America, the search for dark skies is becoming a subject of great interest and concern with amateur astronomers. In many places when amateurs get together to observe the stars, they compare their skies to those they once saw on a remote Texas ranch...

Little wonder! The skies in the Davis Mountains of West Texas are the darkest found anywhere in North America.

Where else, after all, could one find so magnificent a view of Omega Centauri? High in the south and suspended against a sky that is the color of ink, the cluster is so spectacular through your eyepiece you almost think you can reach out and touch it!

Where else does the Sagittarius Milky Way rise over the mountains with so vivid a presence that you might mistake it for an ominous storm cloud?

And what more natural setting could welcome amateurs than a frontier so remote and beckoning that Leslie Peltier himself once referred to it as "paradise"?

It has to be Texas! The perfect place for the perfect star party... a huge gathering of the most serious astrophotographers and observers in the United States and beyond... the culmination of an odyssey that is worthy of all the dedication and stamina it takes to get here and to return - year after year after year!

Send April 25 through May 2 observing in Texas... then compare the view with your favorite skies!

Texas Star Party
APRIL 25 - MAY 2, 1992

Texas Star Party APRIL 25 - MAY 2, 1992

___ YES! PRE-REGISTER me for TSP '92!

Rate PRIOR to March 1, 1992:

\$18.00 / Single
\$7.00 / Each additional family member.

Postmark AFTER March 1, 1992, and before
April 15, 1992:

\$23.00 / Single
\$7.00 / Each additional family member.

Notice: Registrations postmarked after April
15, 1992 and At-the-Door Registrations are
\$75.00 per person.

Enclosed is my check - payable to:
TEXAS STAR PARTY

Registration is MANDATORY for all persons on
the Ranch!

___ Send me complete information including
lodging, events schedule, and "dark-out" rules,
in late February.

NAME: _____

NUMBER OF PERSONS: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP+4: _____

PHONE: (_____) _____

PLEASE RETURN THIS FORM TO:

Bobby R. Braley, Jr.
TSP Registrar
P.O. Box 386
Wylie, TX 75098
(214) 442-6391

*A note to last year's participants...You MUST
return this form to remain on our mailing list!*

A Great Vacation!

The great tradition of dark sky observing continues as the Southwest Region of the Astronomical League presents the 14th Annual TEXAS STAR PARTY at the Prude Ranch near Ft. Davis. This year's astronomical fiesta will include a full week of observing, astrophotography, and fellowship in the magnificent Davis Mountains of West Texas from April 25 through May 2, 1992. Activities will include tours of the famed McDonald Observatory, afternoon talks by amateur and professional astronomers and telescope makers, and evening presentations given by special guests of the TEXAS STAR PARTY.

Guest speakers for 1992 include Carolyn and Eugene Shoemaker, record holding comet discoverers, Dr. Harold Corwin, from the Jet Propulsion Laboratory, and Peter Ceravolo, from Telescope Making.

Participants at the TEXAS STAR PARTY can select from a variety of accommodations on the Prude Ranch, including bunkhouses, private cabins, trailer hookups, and campsites with convenient bath houses. All accommodations include access to a TV lounge, a western-style dining room, and an indoor swimming pool. Horseback riding and tennis can be enjoyed on the ranch, along with other recreational activities in and around the Davis Mountains. A rafting trip down the Rio Grande, a hike through spectacular Big Bend National Park, or an expedition through the world-famous Carlsbad Caverns can add to this exciting frontier vacation.

The Prude Ranch will begin accepting lodging reservations for the TEXAS STAR PARTY starting February 1, 1992, after 9:00 a.m. CST. Reservations can be made by calling the Prude Ranch directly at (915) 426-3201. You must identify yourself as a TEXAS STAR PARTY participant when calling for reservations. TSP-92 participants who are reserving lodging for 5 or more nights will be given reservation priority.

You MUST confirm your reservation by returning the Prude Ranch Reservation form that will be mailed to you in late February!

Any reservations made before February 1, 1992, have been canceled and must be re-made.



EVAC/Bill Smith
1663 S. Sycamore
Mesa, AZ 85202

