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

November *Newsletter* *1992*

EDITOR'S NOTES

A publicstar party at SCC is planned for November 7th beginning at 7pm and end around 9:30pm or until the last person goes home!

The college is doing all the publicity and we are expecting a large turnout. Please plan to attend the night of Nov. 7th. We really need your help and expertise to make this a successful community event. This is the time to repay the college for being so supportive of our club.

Be sure to bring a friend and share with the them the views which we sometimes take for granted.

Next month's meeting will have a room change. We will meet in Room 178 to have the opportunity to view the telescopes owned by SCC.
Also at the November meeting will be the election of officers for next year. Below is the nomination slate:

Pres.	Ted Heckens
VP	Joe Murray
Sec./Treas.	Bob Kelley
Directors (3 to be elected)	
	Dick Simmon
	Michael Janes
	Robert Kerwin
	Bill Heckathorn

Nominations from the floor can be made at the meeting. If you would like to be considered for an office you can have someone nominate you or nominate yourself.

Please plan to attend this very important meeting.

Nov. 11th Room 178.

In addition to elections, November's meeting will provide everyone the opportunity to view the latest in computer software for amateur astronomers. PC software for both IBM and Macintosh computers will be demonstrated. This is also an opportunity for anyone who brings their own disks to make copies of freeware and shareware programs. Better yet, it allows you to experience what the software can do before you lay out the big bucks for commercial (expensive) software!

For those of you who missed October's meeting... well you missed a gem! Dean Ketelson from the U of A Mirror Lab in Tucson was our speaker. He is also the Tucson Amateur Astronomy Association's current president and organizes the public star party at the Grand Canyon each year. Dean's presentation about the Mirror Lab included a sample of the raw glass used to produce the mirrors. The glass is produced in Japan and is "broken" into 5 inch by 5 inch chunks before melting.

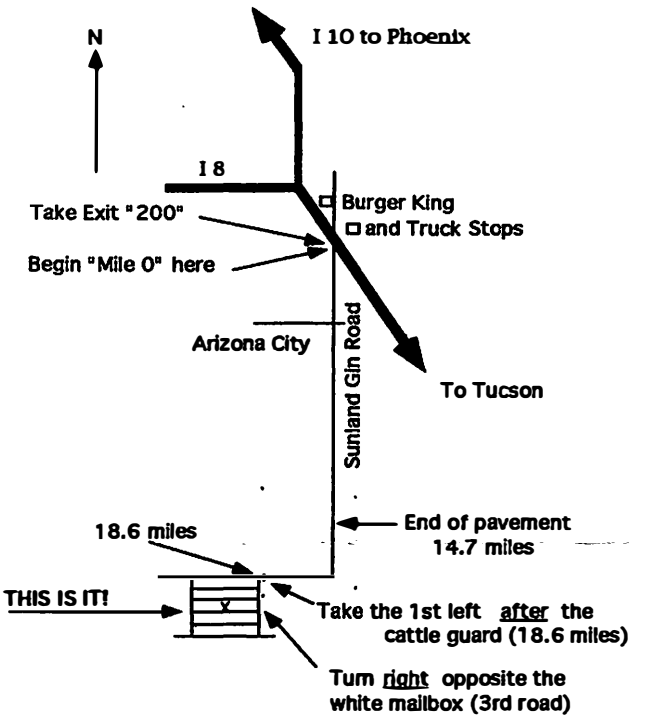
Dean's slides and commentary of the facility were truly fascinating. Some of the world's largest and finest mirrors are made right in our backyard. When Dean returns in the future– plan to attend. You won't be disppointed!

MARK YOUR CALENDAR

EVAC BUSINESS MEETINGS
Nov. 11th - SCC Room PS 178
Dec. 9th

DEEP SKY STAR PARTIES
Nov. 21st
Southern site-see map inside.

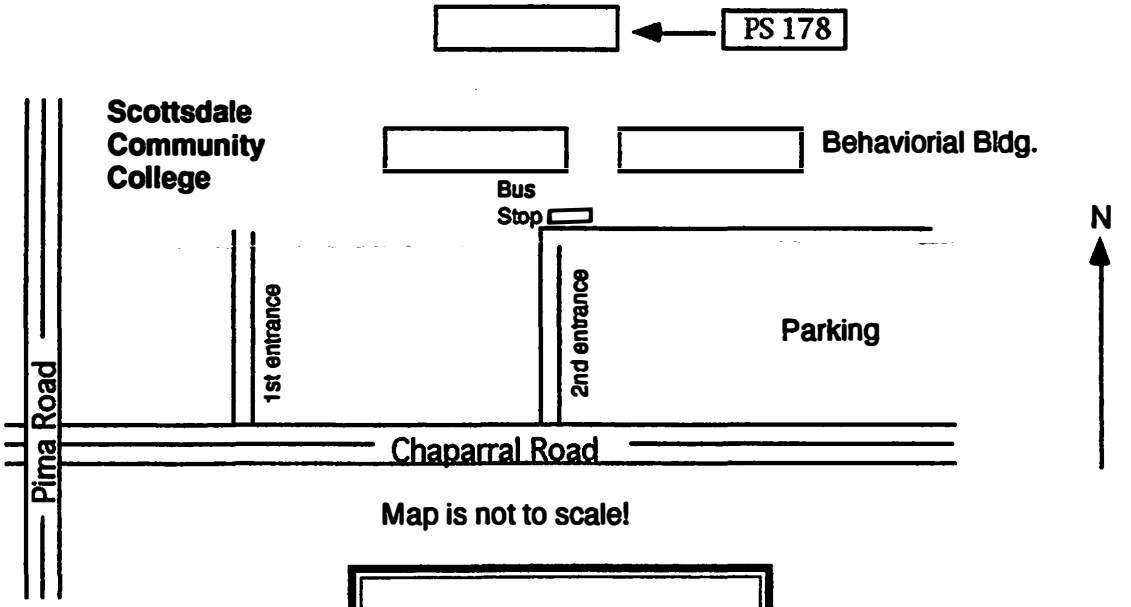
PUBLIC STAR PARTY
Nov. 7th SCC - Bring a Friend!
Call Joe Murray 482-2918 for instructions.



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

- DEEP SKY -

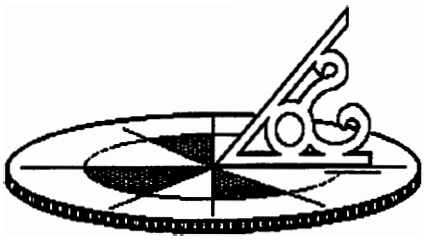
November 14th



Map is not to scale!

Next business meeting 11/11/92
Room PS 178 (Note change)

November Calendar



by
Byron Scott

Date	*Day*	*Event*
02	Mon.	Taurid meteors (Hourly rate 15—unknown duration) First quarter moon Early in November Venus is growing bright at dusk.
03	Tues.	Venus at aphelion Moon at apogee View Saturn in early November well before midnight. This planet will set quickly this month.
10	Tues.	Full Moon—The full Moon during this month is called the Frosty Moon or Beaver Moon.
11	Wed.	Martinmas
14	Sat.	Andromedid or Bielid meteors
17	Tue.	Leonid meteors (Hourly rate 15—unknown duration) Moon last quarter
19	Thur.	Moon at perigee
21	Sat.	Spring equinox on Mars (northern hemisphere). Autumn begins in the southern hemisphere. Mars is in Gemini this month and it doubles in brightness. This will be a good time for viewing Mars. If you are fortunate and have a great telescope, you may see some dark markings or dust storms.
24	Tue.	New Moon

November Flashback

On November 3, 1957, the USSR launched Sputnik II. This was the first satellite to collect biological data from orbit. On board this small space craft was the unsuspecting space travelling dog, Laika. Somehow, I don't think James Herriot would have approved.

STELLAR IMAGES

By Michael Janes

Among the most noted astronomers of the twentieth century is Harlow Shapley. In 1914 he took a position at Mount Wilson Observatory and his early work dealt with cepheid variables in globular star clusters. The results of detailed calculations involving these clusters showed the Milky Way galaxy was much larger than previously perceived, with a radius of about 300,000 light years. Later Shapley debated the nature of spiral nebulae outside our galaxy with Edwin Hubble who had joined the staff of Mount Wilson.

In 1967 Harlow Shapley wrote an essay, published by Charles Scribner's Sons, entitled "Thirty Deductions from a Glimmer of Star Light." This insightful work shows how through detailed reasoning many properties of a star can be obtained by a single visual observation or photograph. Although this essay is no longer published, the information contained with in is still valid today.

I have taken a liberal extraction of the information contained in the essay, with full acknowledgment of the publisher, so that others may enjoy these thoughts.

The following list contains thirty deductions based on appropriate study of a single star. The first eighteen facts can be obtained from any star.

1. The position in the sky with reference to other stars.
2. The apparent magnitude based on artificial or stellar standards.
3. Color index. Spectral differences in brightness related to specific colors which define the stars overall color.
4. Variations in brightness. Can be 0 magnitudes.
5. Spectral class in two dimensions. Example: B-V.
6. Variability in spectrum class. Example: Spectroscopic binary system.
7. The chemical composition based on the stars placement on the H-R diagram.
8. Approximate age of the star.
9. Single, or binary system.
10. Existence and strength of its magnetic field. Could be based on a stellar companion.
11. Involvement with interstellar nebulosity.
12. Speed of rotation. May not be possible with most amateur instruments.
13. The tilt of the rotational axis.
14. Line of sight speed and any variations. Determined from doppler effect.
15. Motion across the sky. The star must be nearby or have a high velocity. Example: Barnyard's Star.
16. Surface temperature. Determined from Color Index.
17. Total luminosity in candle power.
18. Diameter.

The following eight facts may be determined if the star is part of a binary system or a double star which involves a period of eclipse.

19. Mean density of the components.
20. Orbital period of the system.
21. Eclipsing geometry. May be total or partial.
22. Degree of darkening along the limb.
23. Ratio of the sizes of the system members.
24. Relative orbit eccentricity.
25. The inclination of the orbital plane.
26. Approximate distance to the system.

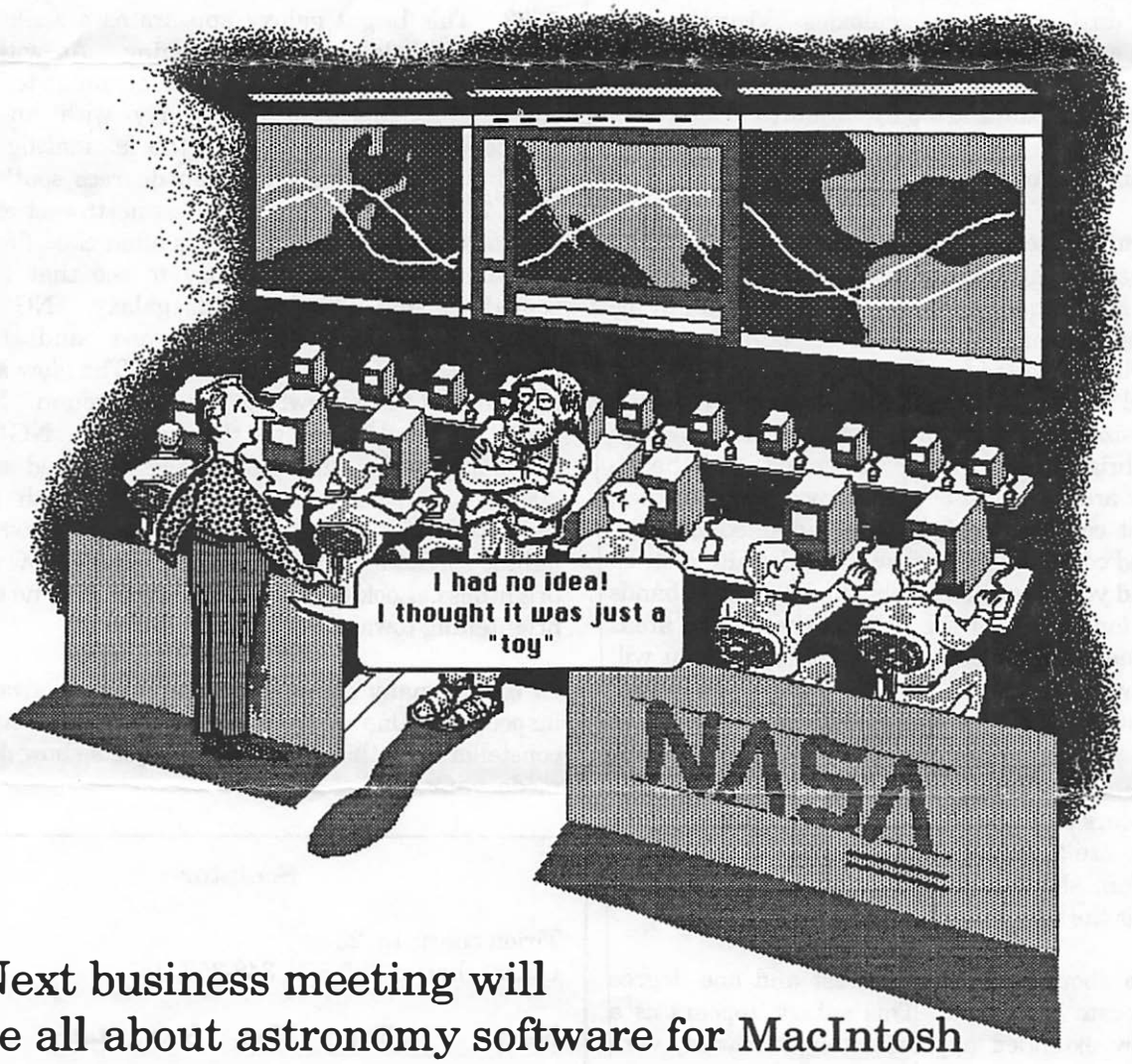
Four additional facts may be learned if the star is a pulsating cepheid variable.

27. Light curves shape which determines the characteristics of the variable.
28. The period of pulsation.
29. Population membership.
30. Approximate diameter of the variable.

After reading over the list you may quickly assume that much of these facts are unavailable to the amateur astronomer. Some of the first eighteen are certainly in the realm of the professional. However most of those facts which are applied to binary systems can be observed and calculated. The same holds for all of the characteristics of cepheid variable stars. As the winter constellations begin their trek into the evening sky our telescopes will be focused on Messier or NGC open star clusters, binary stars, and maybe

cont'd page 5

a few variable stars, like Chi Persei, or Delta Cephei. Perhaps while observing these objects, think about some of the listed facts which can be applied to your observation. You may find that you know more about these stars than you previously thought possible.



Next business meeting will be all about astronomy software for MacIntosh and IBM personal computers. Bring disks for your own copy of shareware programs.

See you Wed. November 11th! Room 178.

The Deep Sky Notebook

by Robert Kerwin

Sculptor

The constellation Sculptor lies south of Cetus and Aquarius and contains the south galactic pole. When we look toward Sculptor our line of sight is perpendicular to the disk of our galaxy. Since we are looking through a much thinner section of the galactic disk, we would naturally expect to see fewer stars, less gas and dust and more galaxies. Visually, our suspicions are confirmed: Sculptor appears a a rather star-poor area low in the south on autumn evenings. Its two brightest stars are only of fourth magnitude. However, Sculptor offers some fascinating objects for those willing to probe the apparent void.

An excellent place to start our exploration is **NGC 253**, a seventh magnitude galaxy. Were it not for its southerly declination, this galaxy would certainly be better known among northern hemisphere observers. NGC 253 lies about seven degrees south of Beta Ceti and should be easily visible in almost any finder. In a moderate-size telescope, the galaxy appears as a high surface brightness glow, elongated northeast-southwest and slightly brighter toward the center, although it contains no bright, well-defined nucleus. Under good conditions, the glow has a definite mottled texture and you may even be able to detect dark bands along the long edges of the galaxy (the darker areas between the spiral arms). This is an object you will certainly want to come back to again and again. Leaving NGC 253 and moving southeast by 1.5°, we encounter Sculptor's lone globular cluster, **NGC 288**. About one magnitude fainter than NGC 253, this object appears as a round, weakly concentrated glow. A medium-size telescope should provide a fair degree of resolution, showing at least a sprinkling of faint stars across the image.

Now move about four degrees west and one degree south to locate **NGC 150**. This galaxy appears as a bright glow extended approximately east-west, with some brightening toward the center, but no bright nucleus. About six degrees south of NGC 150 is **NGC 134**, which lies close to fifth-magnitude Eta Sculptoris. This galaxy appears as an elongated glow aligned northeast-southwest with a brighter central region. With my 8-inch, I have glimpsed some mottling under good seeing conditions. Try using different magnifications to see which one brings out the maximum amount of detail. For faint, low-contrast details, you must actually use higher magnification than if the object were brighter. The eye is better able to see a faint object (or subtle details in an object) if that object occupies a larger area on the retina.

Now move almost seven degrees west to locate **NGC 7793**. This bright galaxy appears as a slightly oval glow with little central brightening. As with NGC 134, I have glimpsed a mottled or granular texture in the brighter parts of the galaxy with an 8-inch telescope. Our next object is the fascinating galaxy **NGC 55**. Located about seven degrees southeast of NGC 7793, or about three degrees northwest of Alpha Phoenicis (Ankaa), this galaxy is often classified as an irregular. Visually, it is easy to see that there is something unusual about this galaxy. NGC 55 is elongated approximately east-west and appears distinctly brighter on the west end. The glow appears smooth and fades slowly to the background. Finally, about eight degrees to the east lies **NGC 300**. Compared to the other galaxies we've looked at, NGC 300 is somewhat more challenging. With a total magnitude of 8.7, this galaxy is not faint. However, its light is spread over a large area, so it has a low surface brightness. Look for a faint, oval glow with no definite brightening toward the center.

Of course many other objects in Sculptor await your inspection. One of the fascinating things about this constellation is that many of the objects show detail in modest amateur telescopes.

Sculptor

Tirion chart: 18, 23
U2000 charts: 305-308, 348-353, 385

Name	Type	Mag	Size	R.A.	Dec.
NGC 253	g	7.1	25'	00h 45m	-25.6
NGC 288	gc	8.1	14	00h 50m	-26.9
NGC 150	g	11.1	4.2	00h 32m	-28.1
NGC 134	g	10.1	8.1	00h 28m	-33.5
NGC 7793	g	9.1	9.1	23h 55m	-32.9
NGC 55	g	7.9	32	00h 12m	-39.5
NGC 300	g	8.7	20	00h 53m	-38.0

EVAC Membership as of October 19, 1992 (Sorted by name)

Name
Dennis & Carolee Bailey
Madhuri Bapat
David Brown
Don Carlson
Paul & Linda Cooper
Ron & Cindy Cox
Paul Dickson
John & Nellie Durham
Raul Espinoza
Don Farley
Edward Gruner
Roy & Carol Halverson
Tom Harvey
Bill Heckathorn
Ted & Brenda Heckens
Sam Herchak
Joan & Nolan Hodges
Frank Honer
David & Mary Hoye
Jane Jackson
Michael Janes
Brandon & Debra Johnson
Mark Johnston
Mike Jones
Bob Kelley
PAS/Bob Kemmeries
Bob Kerwin
Leon & Fannie Knott
Reuben Koenig
George Kohl
Carl Lorson
Gene Lucas
Gordon MacKay
Pete Manly
Chris McFarland
Joe Murray
Everett & Judith Murvine
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George & Peggy Palfy
Eric Peterson
David S. Robbins
Lika Romney
Rick Salmon
Charlie & Paul Santori
Bob & Peter Schoenthal
Byron Scott
Bill Smith
Steve Smith

EVAC Membership as of October 19, 1992 (Sorted by name)

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