

East Valley Astronomy Club

November

Newsletter

1997

EVAC MEETING HIGHLIGHTS

by Aaron McNeely, Secretary

President Sheri Cahn started the meeting at 7:35 pm. Including the main speaker, there were 56 persons present, 52 of these members and 4 newcomers. Sheri discussed the following events:

Local Star Party: October 25 at Florence Junction.

Deep Sky Star Party: November 1 at Vekol Road.

EVAC Meeting: November 12 at SCC.

Old Business

All Arizona Star Party - The All-Arizona Star Party was a great success, there were 75 telescopes present at the Arizona City site in what was probably the largest All-AZ SP ever! The night was clear but of low transparency. Just past midnight, many observers witnessed a bolide (bright meteor) of estimated magnitude -10 to -12.

Florence Junction Site Permission - This situation has been resolved, EVAC has authorization to use the site. Copies of the permit are and will be available at EVAC meetings in case anyone is ever questioned about using the land.

Name Tags - EVAC Treasurer Silvio Jaconelli will order individual name tags for \$7. The new name tags possess a metallic sheen with the smaller EVAC logo.

Observing Guides - Paul Dickson is selling copies of his "110 Best of the NGC" and "Messier Logbook" for \$5 and \$15 respectively.

New Business

New EVAC Officers - Nominations for new officers were taken and the election itself will be held in November. Nominations exist for only two offices:

President:	Sheri Cahn
Vice President:	none
Treasurer:	none
Secretary:	none

Properties:	Enrico Alvarez
Board of Directors (5):	Steve Bell
	Joe Goss
	Tom Polakis
	Dave Richardson
	Bernie Sanden

If you have ever considered serving EVAC as an officer, now is the time to do it! The President runs the meetings and sets up the meeting facility, the Vice President arranges for the guest speakers, the Treasurer keeps up all of the financial records for the Club, the Secretary is responsible for the minutes of the monthly EVAC meetings and the quarterly Board of Directors meetings and serves as Club contact, the Properties manager maintains all of the astronomy books and equipment owned by EVAC, and the Board of Directors advise the EVAC officers on how best to run the Club. It is also okay to nominate more than one person for each task!

EVAC Web Page - The server hosting the EVAC Web Site has recovered from the fatal lightning strike, and the web page itself is back in operation.. Robert Kerwin has agreed to take over as "webmaster."

Astronomy Calendars - EVAC members may purchase the following at discounted prices: "Astronomy & Space Calendar 1998" desk calendar (\$9) and the "Wonders of the Universe" wall calendar (\$12). See Silvio Jaconelli to purchase these items.

UPCOMING CLUB EVENTS

- EVAC Club Meeting, Nov. 12, 7:30 pm
SCC, Physical Science Bldg., Room 172
- Local Star Party, Nov. 22, Sunset -5:22 pm
Florence Junction site
- Deep Sky Star Party, Nov. 29, Sunset -5:20 pm
Vekol Road site

EVAC Observing Programs - Robert Kerwin has assembled two new observing lists for EVAC members, the "EVAC 200" (200 objects) and the "EVAC Deep Sky Challenge" (500 objects). Members who complete these lists will earn a telescope plaque and certificate.

Okie-Tex Star Party - Tom Polakis was a guest speaker at this event and he spoke briefly about it. The site chosen for this event suffered from severe light pollution. Tom also reported that a new comet, 1997 T1, has been announced and is at magnitude 10.

Camelback Desert School Star Party - Bob Kelley (483-3780, 451-6497) requested that EVAC members participate in this event to be held on November 5 from 6:30 pm to 9:30 pm. The school is located on Invergordon Drive between Lincoln and McDonald in Scottsdale.

Gene Shoemaker Memorial - EVAC has decided to send a card to Carolyn Shoemaker expressing our sadness over the sudden death of her husband Eugene Shoemaker, the famous planetary astronomer. We will have the card available at the November EVAC meeting for those wishing to express their condolences.

Member Show & Tell

Astrophotography by Chris Schur - Chris displayed slides of objects primarily from "southern" constellations and a recent photo of Comet Hale-Bopp taken just days before. At the time of the photo Hale-Bopp transited low above the horizon in the constellation of Puppis. Chris' southern exposures included, among many others, the Bug Nebula in Scorpius, Barnard's "S" Nebula, and globulars Omega Centauri and M22. Some northern sky treats included the center of the Veil Nebula, the Ring Nebula (including a faint barred spiral galaxy in the background), and the Dumbbell Nebula.

Occultation of Saturn - Pierre Schwaar and Steve Redman presented videotape of September's occultation of Saturn. Steve had captured the disappearance of Saturn behind the Moon's bright limb at a 800x using a camcorder combined with a reflecting telescope. Many other EVAC members had observed this beautiful event which, unfortunately, took place early Thursday morning on September 18.

Robert Burnham, Jr. - Tony Ortega of the Phoenix New Times spoke at length about the research that culminated in his recent New Times article on the life of Robert Burnham, Jr., author of the famous "Burnham's Celestial Handbook" beloved by all astronomers. Burnham grew up in Prescott, Arizona, and some early comet discoveries led him to be hired, as an amateur, at the Lowell Observatory to undertake a study of the proper motion of stars. After the publication of the

Handbook and dismissal from Lowell Observatory, Burnham's living circumstances plummeted to a life of penury and dereliction. His last days were spent virtually homeless as a seller of cat paintings along the beaches of San Diego. Burnham eventually died in poverty and anonymity, most astronomers did not realize that he had been dead for some years. Tony's article serves as a biography and tribute to this neglected genius, Tony also brought along some Burnham memorabilia such as the Japanese edition of the Handbook and a cassette of Burnham playing an organ.

Featured Presentation

Pierre Schwaar of the East Valley Astronomy Club spoke at length about his experiences with building telescopes and grinding telescope mirrors. Pierre began with a career in aircraft maintenance and has profited from the sale of telescope mirrors and unique designs for reflecting telescopes and equatorial mounts. Pierre displayed many slides showing the evolution of his telescope-building ideas, from a 12-inch reflector in a square tube balanced with bricks, to the same instrument suspended in a ring-like mount to facilitate a proper position for the focuser, to a hexagonal-tubed reflector, to a round-tubed reflector, to his 20 inch reflector that was once the largest instrument at the Texas Star Party. Some of Pierre's innovative designs include a large reflector possessing a cage that the observer rides in (and serves as a counterweight!) and a binocular chair that collects starlight with two 8-inch mirrors. Pierre also designed and sold the Bigfoot Mount, a portable equatorial mount for large reflecting telescopes created in response to the proliferation of large Dobsonian reflectors. Pierre continues to build telescopes for a variety of customers from ages 4 and up. In response to a question, Pierre stated that he has ground approximately 150 telescope mirrors. As a testament to Pierre's ability as a mirror maker, about a dozen EVAC members raised their hands when asked if they possess a mirror designed by Pierre Schwaar?

November's speaker will be Pieter Burggraaf, amateur astronomer and author of "Harqua Hala Letters." Pete will speak about his research into the history of a solar observatory west of Phoenix that operated in the 1920's.

ARIZONA SCIENCE CENTER PRESENTS

LOOKING BACK TO THE BIG BANG
Tod R. Lauer, National Optical Astronomy Observatories
Wednesday, November 5, at 7:00 p.m.
Dorrance Planetarium
\$5.00 ASC members; \$7.00 non-members

As a special offer to East Valley Astronomy Club Members, we will be giving a discount of \$3.00 off each ticket.

Tod R. Lauer, an astronomer at the National Optical Astronomy Observatories, will speak on "Looking Back to the Big Bang." Lauer will summarize the current understanding of the Big Bang and how astronomers are using their powerful telescopes to actually look back in time to when the universe was younger.

Lauer was a member of the Hubble Space Telescope Imaging team and has been using the Hubble since its launch to study nearby galaxies and to search for massive black holes. Lauer also works on trying to understand the present structure of the universe.

To reserve your tickets, call 602/716-2028 and follow the voice mail directions to reserve tickets for "lectures." Be sure to mention you are a member of the East Valley Astronomy Club in order to receive your discount.

Arizona Science Center
600 E. Washington
Phoenix, AZ 85004

THE 1997 NORTH AMERICAN LEONID METEOR WATCH

American Meteor Society, Geneseo, NY
NEWS RELEASE
October 20, 1997

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Since the last Leonid meteor storm in 1966, meteor observers and scientists have been eagerly awaiting the next approach of Comet Temple-Tuttle, the parent body of the Leonid meteor stream, in hopes of witnessing another such event. In March of this year, University of Hawaii astronomers K. J. Meech, O. R. Hainaut and J. Bauer used the Keck II 10 meter reflector atop Mauna Kea to recover Comet Temple-Tuttle, now headed toward the inner solar system on its 33-year orbit, and the meteor science community is gearing up to study the November Leonid maximum.

Though the comet will not reach perihelion until February 28, 1998, the Leonid meteor stream associated with this comet has already given meteor observers enhanced displays in 1994, 1995 and 1996. This year, despite the bright gibbous moon which will

be present, professional and amateur meteor scientists in North America will be watching closely as the Leonids reach maximum, predicted for Monday morning, November 17, 1997, at 1335 UTC. This timing (5:45 am PST) favors visual observers in Western N. America and the Pacific. In addition to the "classical" peak, which is characteristically rich in bright, trained meteors, observations from the past two years have hinted at a newer, fainter concentration of particles occurring a few hours prior to the normal shower peak.

Professional astronomers in North America will observe the Leonids from widely separated geographic locations. From Waterloo, Canada and Edwards AFB, California, meteor scientists James Jones and Peter Brown (University of Western Ontario) will be conducting extensive back scatter radar observations -- including the testing of a mobile meteor radar. Video observations from Edwards and an airborne observatory will be coordinated by Robert Hawkes (Mt. Allison University). Collaborator Ray Russell will be attempting visual and infrared meteor spectroscopy from the airborne platform. Peter Jenniskens (NASA / Ames Research Center) and his associates will be organizing both visual and photographic campaigns at Edwards AFB, in addition to attempting to make telescopic meteor train observations from facilities in Chile. In the Caribbean, John Mathews and David Meisel, along with a team of other scientists from Cornell, Penn State and SUNY-Geneseo will be using the Arecibo Radio Telescope in Puerto Rico to sample the faint component of the Leonid stream using a narrow-beam back-scatter technique. The Arecibo dish is fortunately situated such that the Leonid radiant will pass directly through the radar beam very close to the time of predicted shower maximum. An array of LIDAR and optical instruments will be monitoring the Leonids at Arecibo as well.

On the amateur side, the American Meteor Society will coordinate visual observations from diverse locations as far east as Halifax, Nova Scotia, and as far west as Oahu, Hawaii. Using the combined forces of observers from the Association of Lunar and Planetary Observers (ALPO), Meteor Group Hawaii (MGH), North American Meteor Network (NAMN), New Jersey Astronomical Association (NJAA), and our regular AMS observers, the Society will cover nearly a quarter of the northern hemisphere. The bright waning gibbous moon will be high in the sky at the time of radiant rise near local midnight, but Leonid rates should continuously improve through the night as the moon sets and the radiant rises. Visual observers are encouraged to utilize a building or other nearby object to make observations from the moon's shadow.

In addition to visual observations, the three operational stations of the AMS Radiometer Project (Florida, California, and Maryland) will also be collecting

forward-scatter data continuously throughout the Leonid period. Despite the irritating moonlight, all observers are encouraged to help us to keep a close watch on the Leonids this November 17th.

For future planning here are the predicted times of greatest Leonid meteor activity in 1998 and 1999:

1998: Peak date / time, November 17, 1945 UTC
Most favored area: Asia.
Moon phase: New Moon, 28 days

1999: Peak date / time, November 18, 0150 UTC
Most favored areas: Eastern Atlantic, Europe, Africa, Asia.
Moon phase: Waxing Gibbous Moon, 9 days

SATELLITE TRACKING SOFTWARE by Tom Polakis

While scanning through Robert Reeves home page (<http://www.connecti.com/~rreeves/>), I came across some of his favorite links. On this page are some recommended earth-satellite observing resources. One of these is "SatSpy," which Reeves calls, "The best Windows satellite tracking program I know of." I took his word for it, and downloaded the demo version of the `shareware program` (<http://www.iex.net/acappella/satspy/>). It took less than a week out of the 60-day trial period for me to send in my forty bucks.

There may be other desirable features in satellite tracking software, but I can't think of any. You need only input your location and satellite orbital elements, downloadable from many internet sites. Among the most useful features is the ability to compute viewing opportunities for all satellites that have been read in. Inputting nautical twilight as a good starting time, and a 90 minute viewing window, the program outputs a series of bars that indicate the period of visibility at maximum brightness of each satellite that crosses your sky. Clicking on a bar brings up a multitude of options, including a "groundtrace" of the satellite's path over the planet with your location highlighted, a 3-D view that depicts the orbit over the globe, and most usefully, the "skytrace," which is a star chart with the satellite's track indicated. Clicking on tick marks along the track brings up instantaneous time and magnitude of the satellite. Operation is so intuitive that in my sessions with SatSpy, I have not even touched the help menu.

The night of October 25 presented a nice opportunity to view several satellites from a dark site. The first satellites available for viewing were Cosmos rocket boosters. These circumpolar Soviet spy satellites are quite commonly seen. SatSpy indicated that the

Cosmos 1076 rocket booster would appear at 6:52 near Polaris at magnitude 5.4, pass just east of the zenith at 6:55, and fade in the south by 6:57. Observing buddy Dale Burlingham picked it up first as it passed through Cepheus. The magnitudes, times, and locations were right on. Dale and I had similar success with the Cosmos 405 rocket booster, watching it traverse the sky from Aquarius through Pegasus, before dimming near the Double Cluster.

The highlight of the session was observing Atlas Centaur 2. This was the first Atlas Centaur to enter space, in November 1963, in a development test for the Surveyor program. It is in a highly eccentric orbit and tumbles with a period of 20 seconds. This satellite was moving considerably slower than the other two when we picked it up in Aquila. This is explained by its distance, which was no closer than 1200 km during this pass. The tumbling was apparent as a sinusoidal brightening and dimming with a range of three magnitudes. SatSpy predicted mag. 5. Indeed, Dale and I agreed that the satellite varied between about 4 and 7, as it was still just barely visible at minimum light.

Perusing the internet further has turned up a number of satellite observing resources that will complement this piece of software. Perhaps the best starting point is the Visual Satellite Observers Home Page (<http://www.satellite.eu.org/sat/vsohp/satintro.html>). Published at this site are plenty of observing tips, predictions, and links to related sites. I hope to use these to view more interesting satellites, including Landsat, GOES, and even Vanguard, which is catalogued as satellite number 5.

THANK YOU VOLUNTEERS by Sam Herchak

Special thanks to the handful of members that keep the Adopt-A-Highway program going for EVAC. The cleanup of our mile on Highway 60 took about four hours, even with the small number of participants. Thanks to the "regulars" that I can always count on:

Bernie Sanden
Mike Sargeant

Jon Sargeant
Art Zarkos

And thanks to these first time garbage pickers (but longtime Club members):

Anne Beeby

John Durham

With 150 over members now, we'll hopefully see new volunteers take a turn next spring for this twice-a-year community service.

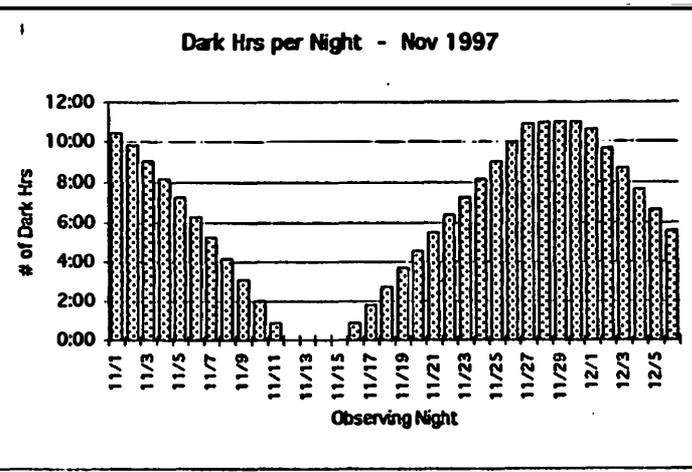
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26 	27	28	29	30	31	1 Deep Sky S Party 12:00a ALL MONTH NOTES#
2 6:00p S Taurid Meteors Peak	3 6:15p Moon/Mars/Venus Conjunction 6:38p Double Shadow Transit# Sunset 5:34 PM	4 <12:22a Algol at Minimum 7:30p Moon Occults M25 Sunrise 6:50 AM	5	6 9:11p Algol at Minimum Venus at Greatest E Elong. 7:00p PAS Mtg#	7 10:31p Occ#	8
9 6:50p Mars/M8 Conjunction	10 9:24p Ganymede Eclipses lo 8:34 Triple Shadow Transit!	11 5:45p Close Saturn/ Moon Conjunction	12 EVAC Meeting 6:55p Jupiter Occults Star#	13	14 Good NE Lunar Libration 7:30p SAC Mtg#	15
16	17 7:00p Venus/Nunki Conjunction 4:00a Leonid Meteors Peak# Sunset 5:25 PM	18 <2:03a Occ Sunrise 7:03 AM	19 <3:27, 5:34a Occ 7:00p Mars/M22 Conjunction	20	21	22 Local S Party
23	24	25	26 10:53p Algol at Minimum	27 <6:22a Occ Pluto in Conjunction with Sun	28 Mercury at Greatest E Elongation	29 Deep Sky S Party 7:42p Algol at Minimum
30	1	2	3	4 7:00p PAS Mtg#	5	6

Date	Start	Title	Description
11/1/97	12:00 AM	ALL MONTH NOTES#	<p>CALENDAR NOTES: Sorry, but a family emergency prevented the October calendar. This arrow (<) preceding an event indicates it occurs during the darkness that begins the night before—not always used however, due to software limitations. The Feb 1997 Newsletter (or your new member packet) contains details on "Occ" events. Check Sky & Telescope (S&T) and Astronomy (ASTRO) magazines for other information.</p> <p>PLANETS: MERCURY makes a difficult appearance late in the month—low on SW horizon at dusk. VENUS the unmistakable "Evening Star" low in the SW at sunset. MARS also low in the SW and close to Venus. JUPITER high in the S after dark and a must-see this month. LOTS of activity to watch with the Galilean Moons, with the most activity occurring on the first 3 Mondays. SATURN the only 0.5 magnitude "star" in the SE at nightfall—well placed for observation most of the night. S face of planet/rings tilted 10 degrees toward us. URANUS and NEPTUNE set early evening just before Jupiter. PLUTO lost to solar glare.</p> <p>OBJECTS OF INTEREST: Comet P/Hartly 2, see Nov ASTRO, pg 71.</p>
11/3/97	6:38 PM	Double Shadow Transit#	Shadows from 2 of Jupiter's satellites visible crossing the planet's disk. Next Monday, 3 shadows at once!
11/4/97	7:30 PM	Moon Occults M25	Moon passes across the open cluster M25 during the early evening—numerous occultations of 9-10th magnitude stars.
11/6/97	7:00 PM	PAS Mtg#	Phoenix Astronomical Society Mtg, Brophy Prep, 4701 N. Central Ave. Turn off Highland into Main entrance, follow signs upstairs to Physics lab.
11/12/97	6:55 PM	Jupiter Occults Star#	Jupiter occults the 6th magnitude star SAO 164156—disappears about 6:55 and reappears about 8:22. See Nov ASTRO, pg 70 and Nov S&T, pg 104.
11/14/97	7:30 PM	SAC Mtg#	Saguaro Astronomy Club meeting, Grand Canyon University, Fleming Bldg, Rm 105. Camelback and 33rd Ave.
11/17/97	4:00 AM	Leonid Meteors Peak#	Moon interferes, but numerous meteors expected—even a possible "storm." See Nov ASTRO pg 71 and S&T pg 102.

Dark of the Moon Table -- Nov 1997

OBSERVING NIGHT	START OF DARK	END OF DARK	TOTAL DARK	OBSERVING NIGHT	START OF DARK	END OF DARK	TOTAL DARK
SAT/SUN	11/1 7:00 PM	EOT 11/2 5:24 AM	SOT 10:24	WED/THURS	11/19 6:50 PM	EOT 11/19 10:30 PM	MR 3:40
SUN/MON	11/2 7:35 PM	MS 11/3 5:25 AM	SOT 9:50	THURS/FRI	11/20 6:50 PM	EOT 11/20 11:25 PM	MR 4:35
MON/TUES	11/3 8:23 PM	MS 11/4 5:25 AM	SOT 9:02	FRI/SAT	11/21 6:49 PM	EOT 11/22 12:18 AM	MR 5:29
TUES/WED	11/4 9:15 PM	MS 11/5 5:26 AM	SOT 8:11	SAT/SUN	11/22 6:49 PM	EOT 11/23 1:11 AM	MR 6:22
WED/THURS	11/5 10:12 PM	MS 11/6 5:27 AM	SOT 7:15	SUN/MON	11/23 6:49 PM	EOT 11/24 2:04 AM	MR 7:15
THURS/FRI	11/6 11:12 PM	MS 11/7 5:28 AM	SOT 6:16	MON/TUES	11/24 6:49 PM	EOT 11/25 2:57 AM	MR 8:08
FRI/SAT	11/8 12:15 AM	MS 11/8 5:29 AM	SOT 5:14	TUES/WED	11/25 6:49 PM	EOT 11/26 3:51 AM	MR 9:02
SAT/SUN	11/9 1:20 AM	MS 11/9 5:29 AM	SOT 4:09	WED/THURS	11/26 6:48 PM	EOT 11/27 4:45 AM	MR 9:57
SUN/MON	11/10 2:25 AM	MS 11/10 5:30 AM	SOT 3:05	THURS/FRI	11/27 6:48 PM	EOT 11/28 5:41 AM	MR 10:53
MON/TUES	11/11 3:32 AM	MS 11/11 5:31 AM	SOT 1:59	FRI/SAT	11/28 6:48 PM	EOT 11/29 5:45 AM	SOT 10:57
TUES/WED	11/12 4:39 AM	MS 11/12 5:32 AM	SOT 0:53	SAT/SUN	11/29 6:48 PM	EOT 11/30 5:46 AM	SOT 10:58
WED/THURS	none	-- none	--	SUN/MON	11/30 6:48 PM	EOT 12/1 5:46 AM	SOT 10:58
THURS/FRI	none	-- none	--	MON/TUES	12/1 7:11 PM	MS 12/2 5:47 AM	SOT 10:36
FRI/SAT	none	-- none	--	TUES/WED	12/2 8:07 PM	MS 12/3 5:48 AM	SOT 9:41
SAT/SUN	none	-- none	--	WED/THURS	12/3 9:07 PM	MS 12/4 5:49 AM	SOT 8:42
SUN/MON	11/16 6:51 PM	EOT 11/16 7:44 PM	MR 0:53	THURS/FRI	12/4 10:09 PM	MS 12/5 5:49 AM	SOT 7:40
MON/TUES	11/17 6:51 PM	EOT 11/17 8:39 PM	MR 1:48	FRI/SAT	12/5 11:13 PM	MS 12/6 5:50 AM	SOT 6:37
TUES/WED	11/18 6:50 PM	EOT 11/18 9:34 PM	MR 2:44	SAT/SUN	12/7 12:17 AM	MS 12/7 5:51 AM	SOT 5:34

EOT = End of Astronomical Twilight MR = Moonrise SOT = Start of Twilight MS = Moonset NOTE: Applies to Phoenix area (Mtn Std Time)



Bernie Sanden

STEPHEN HAWKING'S UNIVERSE

Where did we come from? How did the universe begin? Why is the universe the way it is? Where are we going? All my life I have focused my mind on the scientific answers to those questions. The questions are clear and deceptively simple, but the answers have always seemed well beyond our reach until now.

The speaker is Stephen Hawking, the brilliant, imaginative British mathematician who is Lucasian Professor of Mathematics at Cambridge University, a chair once held by Isaac Newton. A best selling author whose book, *A Brief History of Time*, sold more than seven million copies worldwide, Hawking is today the best-known scientist since Albert Einstein. He brings his revolutionary views of time and the cosmos to public television in **STEPHEN HAWKING'S UNIVERSE**, a revealing display of cosmic fireworks and provocative ideas, airing on PBS Mondays, 9:00 p.m.

The so-called "big questions" How did the world begin? How will it end? What is time? are no longer the exclusive province of philosophers. Nor are the origins of the universe the sole property of astronomers. Working from extraordinarily detailed information about the physical universe provided by more and more powerful instruments, cosmologists have abandoned the observatory and entered a realm of the imagination.

Hawking is, indisputably, at the forefront of a giant leap in cosmological understanding. **STEPHEN HAWKING'S UNIVERSE** introduces viewers to Hawking and to many of his most distinguished colleagues and collaborators men and women who are changing forever the way people look at the universe. Their ideas are illustrated with advanced computer-generated animation.

The publication of "Stephen Hawking's Universe: The Cosmos Explained," written by David Filkin with a preface by Hawking, will coincide with the broadcast of the series. The book is published by Basic Books/Harper Collins.

STEPHEN HAWKING'S UNIVERSE is part of PBS long-standing tradition of presenting informative programs in a manner accessible to Americans of all ages.

CLASSIFIEDS

For Sale: Twenty years of *Sky & Telescope* magazine (1977-1997), all in excellent condition. Asking \$200. Call Mike, (602)926-4765. (1-98)

For Sale: Complete 2 camera Olympus OM-1 outfit For Sale! Perfect for astronomical work! This outfit includes:

Silver Body OM-1, excellent condition, good battery. Black Body OM-1, excellent condition, good battery, recently serviced, slight wear of black paint in few edges. Leather covers for each camera. 1 large webbing carrying strap. 1 Tamrac Cuban hitch type quick release camera strap. Rigid brown carrying case for Complete outfit. (it all fits!). 3 superb Olympus H. Zuiko lenses: 24mm f 2.8 in case, 200mm f 4 in case, 50mm f 1.4 (fits with either camera in its case). New 2" prime focus camera adapter, Olympus mount (by Orion) for astrophotography using 2" focuser. Beattie Intenscreen Plus in Black Body OM-1 for astronomical/low light photography (has a visible scratch on the edge). New Varimagni Finder (1.5x/2.5x viewfinder magnification) in case with instructions. Lens hoods and covers for each lens. 2 Remote Cable shutter releases. 49mm Hoya skylight filter (matches 50mm lens). 49mm Hoya 80a filter. 49mm Hoya Pl filter. 55mm Hoya skylight filter (matches 200mm lens). 55mm Hoya Pl filter. Lens cleaning kit with paper, blower/brush and fluid. OM-1 owners guide. New Kodak Professional Photoguide 5th Edition. The following films (3-5 months old and refrigerated the entire time): 2 rolls of 36 exp Ektachrome P1600 Daylight film. 1 Roll of 24 exp Elite II Daylight 400 film. 1 Roll of 36 exp Fuji Provina 1600 daylight film (near expiration date). Sadly selling to pay off debts. \$1150, no trades, no single item sales. Steve Reed 602-613-4950 sunny@goodnet.com (2-98)

For Sale: AstroSystems Laser Collimator (the best).....\$140

Tele Vue: 2" 35mm Panoptic.....\$290

2" 20mm Nagler, Type 2.....\$300

1.25" 4.8mm Nagler.....\$145

2" 2x Big Barlow with 1.25" adaptor.....\$130

2" Paracorr coma corrector with 1.25" adaptor....\$215

1.25" Vixen Lanthanum 2.5mm\$120

Orion Large eyepiece and accessory Case & accessories (includes dust Brush, large dust blower and microstar eye piece cleaning cloth).....\$40

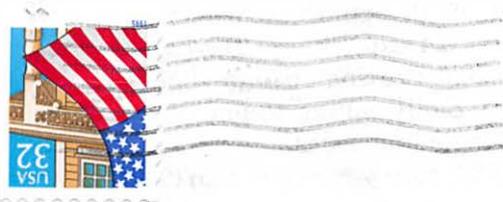
Note: I will sell everything for \$1250

All are in new condition, 5-8 months old with very light usage. No defects. Case foam has been cut to allow 6 large items: 8x50 finder scope, 2" paracorr, 2" barlow, 35mm Panoptic, Laser Collimator and 20mm Nagler. With all this, still has room for 4 1.25" eyepieces. Sadly selling to pay off debts. Might ship, but prefer you pick up in Phoenix area. Steve Reed sunny@goodnet.com 602-613-4950. (2-98)

For Sale: 1-1/4" eyepieces; 6mm, 12mm, 18mm, 25mm Kellners, 16mm and 24mm Konigs. 1-1/4" screw-in filters; Green, Light Yellow, Yellow Green, Orange, Light Red, .9 Neutral Density, .6 Neutral Density, .3 Neutral Density and Light Pollution. 1-1/4" 2x Barlow lens. All for \$120. Contact Randy Beal, 1733 E. Scenic St., Apache Junction, AZ, 85219, phone 983-6798. (2-98)

•STEPHAN HAWKING
 •SATELLITE TRACKING
 •LEONIDS 1997
 •PUSHING GLASS
 IN THIS ISSUE

Valued member since Mar 16, 1997
 Next EVAC Meeting — November 12th



EAST VALLEY ASTRONOMY CLUB
 Robert G. Kearney, Jr., Editor
 2120 W. 8th Ave.
 Mesa, AZ 85202

EAST VALLEY ASTRONOMY CLUB—1997

EVAC Homepage—<http://www.psiaz.com/polakis/EVAC/evac.html>

President:	Vice-President:	Treasurer:	Secretary:	Properties:
Sheri Cahn	Tom Polakis	Silvio Jaconelli	Aaron McNeely	Frank Honer
841-7034	967-1658	926-8529	954-3971	971-9468

MEMBERSHIP&SUBSCRIPTIONS: \$20.00 per year; renewed in Dec. Reduced rates to *Sky&Telescope* and *Astronomy* available. Contact Silvio Jaconelli, 1700 E. Lakeside Dr. #59, Gilbert, AZ 85234 (602) 926-8529.

CLUB MEETINGS: Second Wednesday of every month at the Scottsdale Community College, 7:30 PM. Normally Room PS 170 or 172 in the Physical Sciences Building.

NEWSLETTER: Mailed out the week before the monthly Club meeting. Send your thoughts and stories to: Bob Kearney, 2120 W. 8th Ave, Mesa, AZ 85202, (602) 844-1732. Email to—starjb@ix.netcom.com

CHANGES: Address, Phone Number, or Email: send to Sam Herchak, 145 S. Norfolk Cir, Mesa, AZ 85206, (602) 924-5981. Email to—76627.3322@compuserve.com

EVAC LIBRARY: The library contains a good assortment of books, downloaded imagery, and helpful guides and is usually brought to the Club meetings. Contact Frank Honer for complete details, (602) 971-9468.

BOOK DISCOUNTS: Great savings for members through Kalmbach and Sky Publishing. Contact Aaron McNeely, 4402 N. 36th St. #22, Phoenix, AZ 85018, (602) 954-3971. Email to—amcneely@primenet.com

EVAC PARTY LINE: Let other members know in advance if you plan to attend a scheduled EVAC observing session. Contact Robert Kerwin, (602) 837-3971. Email to—p24493@email.mot.com